OMEGA
HYDROCARBONS LTD

1300 SUN LIFE PLAZA III
112 4th AVENUE S.W.
CALGARY ALBERTA CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

December 10, 1990

MANITOBA ENERGY & MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

Re: Omega Waskada Com 2-26-1-26 WPM
Commingled Well Production Test

Please find attached the results of the production test performed on the subject well.

These values will be used to allocate production between the Lower Alida and Lower Amaranth zones. The Lower Alida production will be determined by the difference of the total production and these Lower Amaranth test values. These new allocation rates will be effective for production after December 6, 1990.

Should you require additional information, please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D. Boyko, P. Eng.
Petroleum Engineer

DMB:jlb

DEPARTMENT OF ENERGY AND MINES
DEC 17 1990
PETROLEUM BRANCH

c.c.: R. Brekke
K. Thomas
E. Fong
Waskada Special Projects - Commingled Production

WASKADA COMMINGLED WELLS
PRODUCTION ALLOCATION

Following are the results for the annual production tests for the specified zones.

Well	Zone	Test Date	Hrs.	Oil (m^3)	Water (m^3)	Gas ($10^3 m^3$)
2-26-1-26	L. Amaranth	90/10/27	24	0.71	0.31	0.02
		90/10/28	24	1.31	1.60	0.03
		90/10/29	24	2.57	1.10	0.03
		90/10/30	24	2.60	1.31	0.03
		90/11/03	24	1.16	0.66	0.02
		Average		1.68	1.20	0.03

Average Water/Oil Ratio = 0.714 m^3/m^3
Average Gas/Oil Ratio = 17.857 m^3/m^3

July 23, 1990

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

Attention: Mr. R.A. Brekke, P. Eng.
Engineering Supervisor, Manitoba

Dear Sir:

RE: Commingled Production Approval
Omega Waskada 2-14-2-25 (WPM)

Attached is your approved application to recomplete the subject well and commingle production in the wellbore.

As with the previous approvals, the following conditions apply:

1. Oil and Gas Production Tax is to be calculated on the basis of total production from the well not separately from each zone. In this case where both the Lower Amaranth and Mission Canyon are non-unitized, the total production from the well is equal to the sum of production from both zones.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

ORIGINAL SIGNED BY
JOHN N. FOX

L.R. Dubreuil
Director

Att'd.

cc: Waskada Office

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

June 26, 1990

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

Re: Omega Waskada 2-14-2-25 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - i. Geological and Reservoir Characteristics
   ii. Methods and Frequency of Measuring Production
   iii. Production Allocation

The justification for proposing commingled production at these well remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after July 16, 1990. To expedite the approval process, notification of this application has been sent directly to the offset mineral owner, Enron Oil Canada Ltd. Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB:jb

c.c.: Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

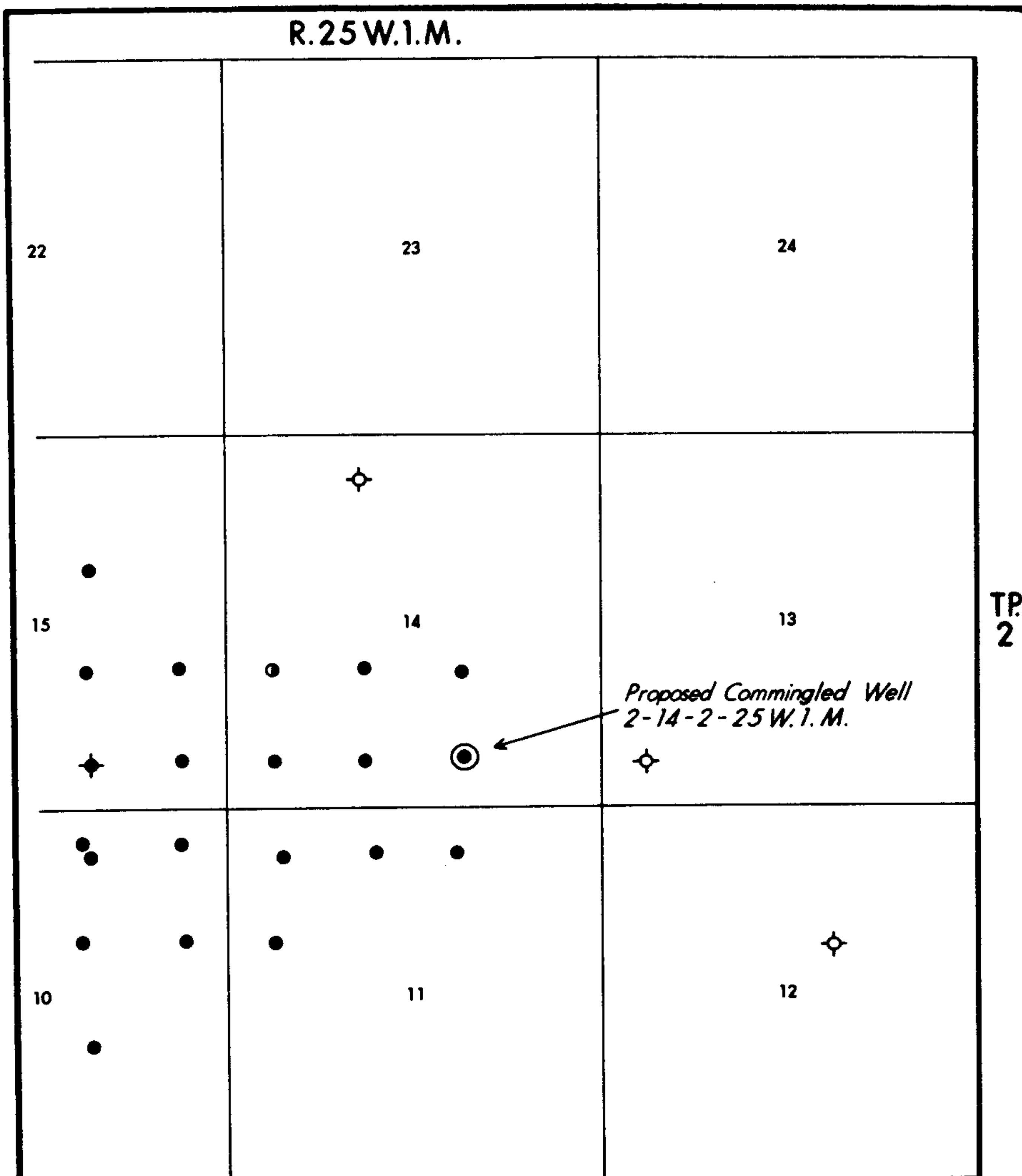
Description of Well

Well Name	Licence Number	Location
Omega Waskada 2-14-2-25 WPM	4168	Legal subdivision two (2) of Section fourteen (14), Township two (2), Range twenty-five (25), West of the Principal Meridian.

SCHEDULE 'B'

Locations of all Wells within One Kilometer of the Proposed Commingled Well

See Attachment 1



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD

WASKADA, MN.
WELL LOCATION MAP

Scale: 1:25,000	Date: JUNE 1990
Geology: DAC	Contour Interval:
Revised:	File: / Drafting: PAB

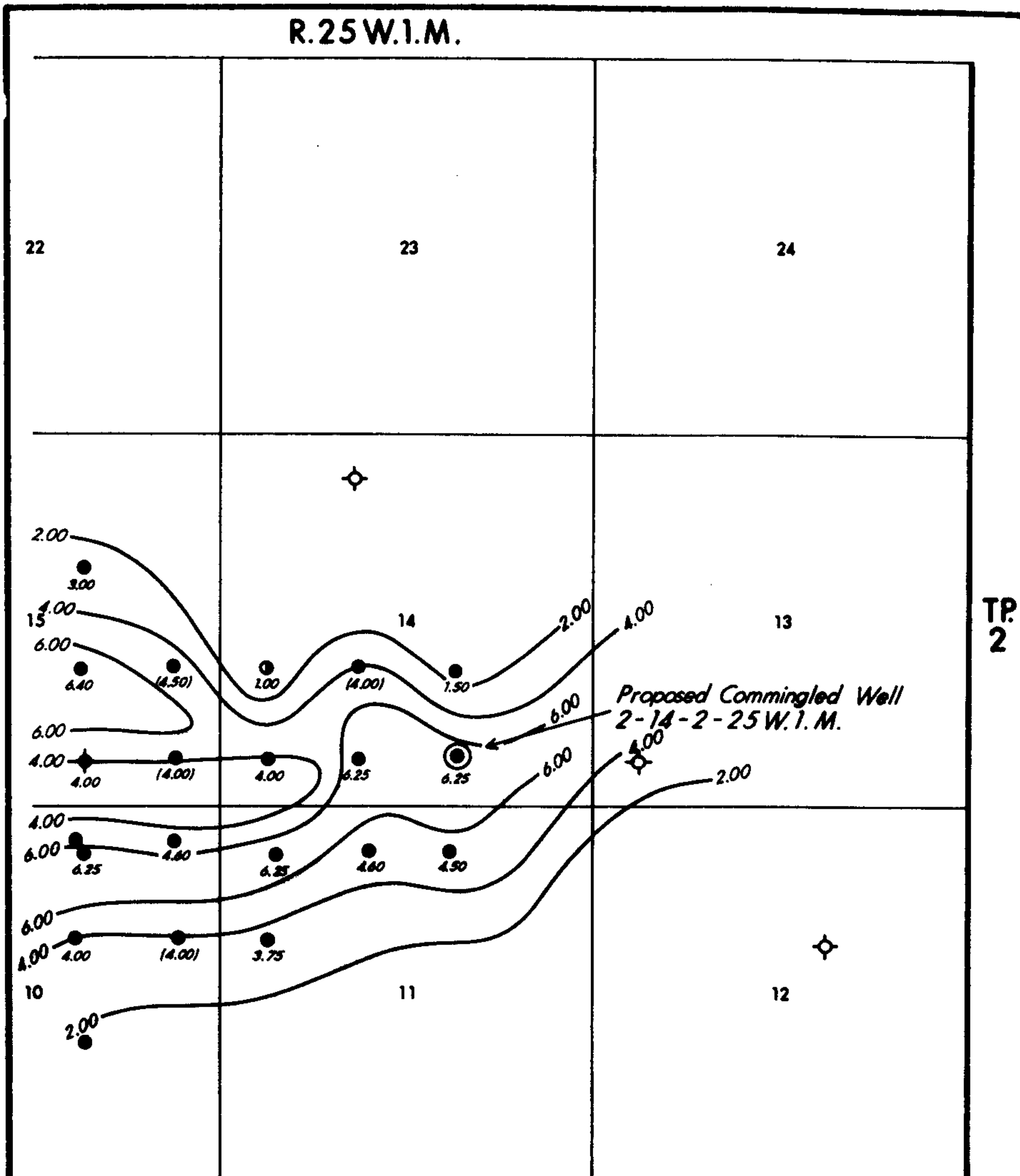
SCHEDULE 'C'

**Interpreted Structure, Effective Reservoir Thickness
Extent and Fluid Interfaces of the Pools**

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 2-14-2-25 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - MC1 Porosity Map
Attachment 1c - Tilston (MC1) Øh Map



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

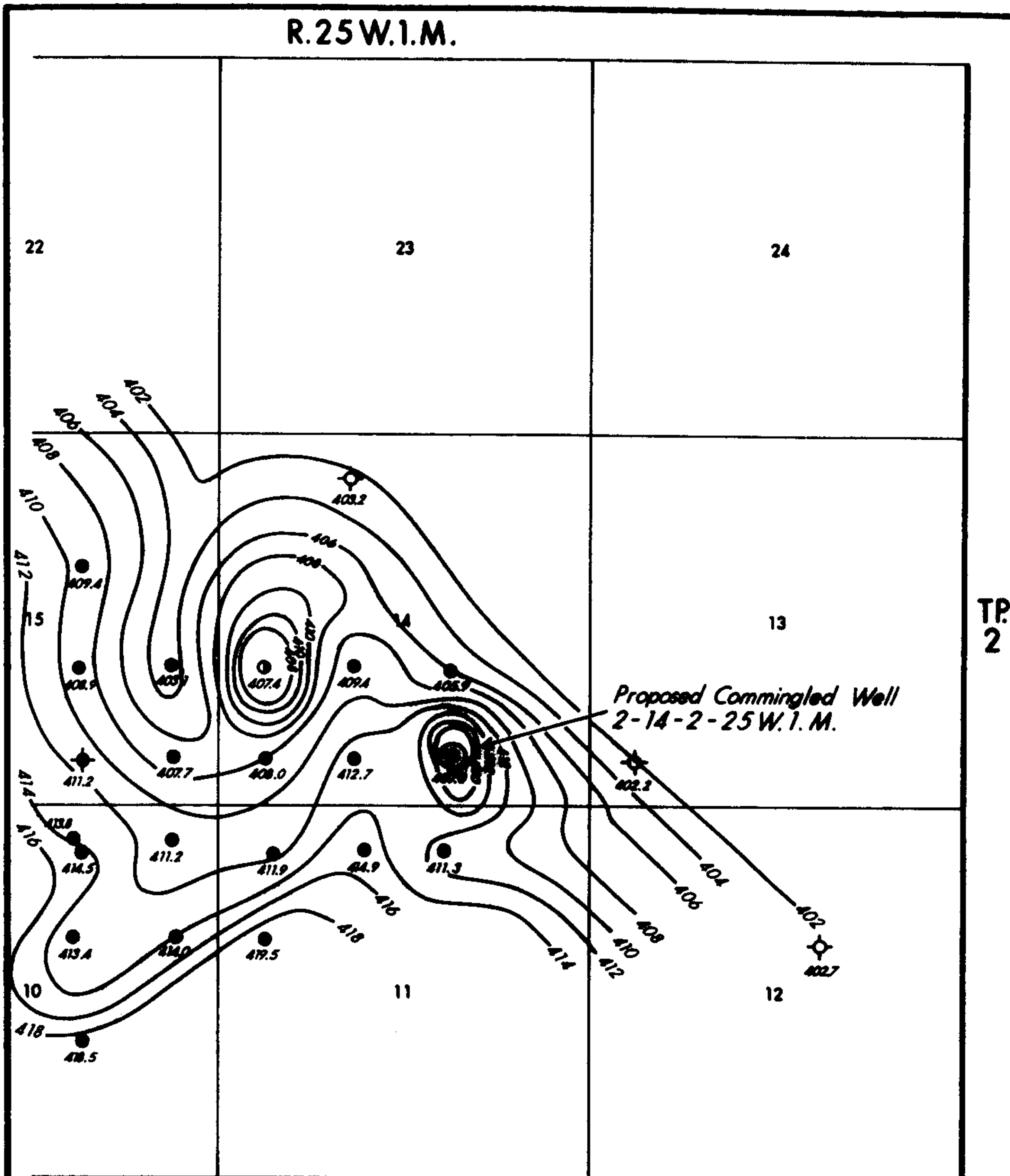
Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Amaranth Net Pay Map

Scale: 1:25,000	Date: JUNE 1990
Geology: DAC	Contour Interval: 2.0 m
Revised:	File: / Drafting: PAB



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

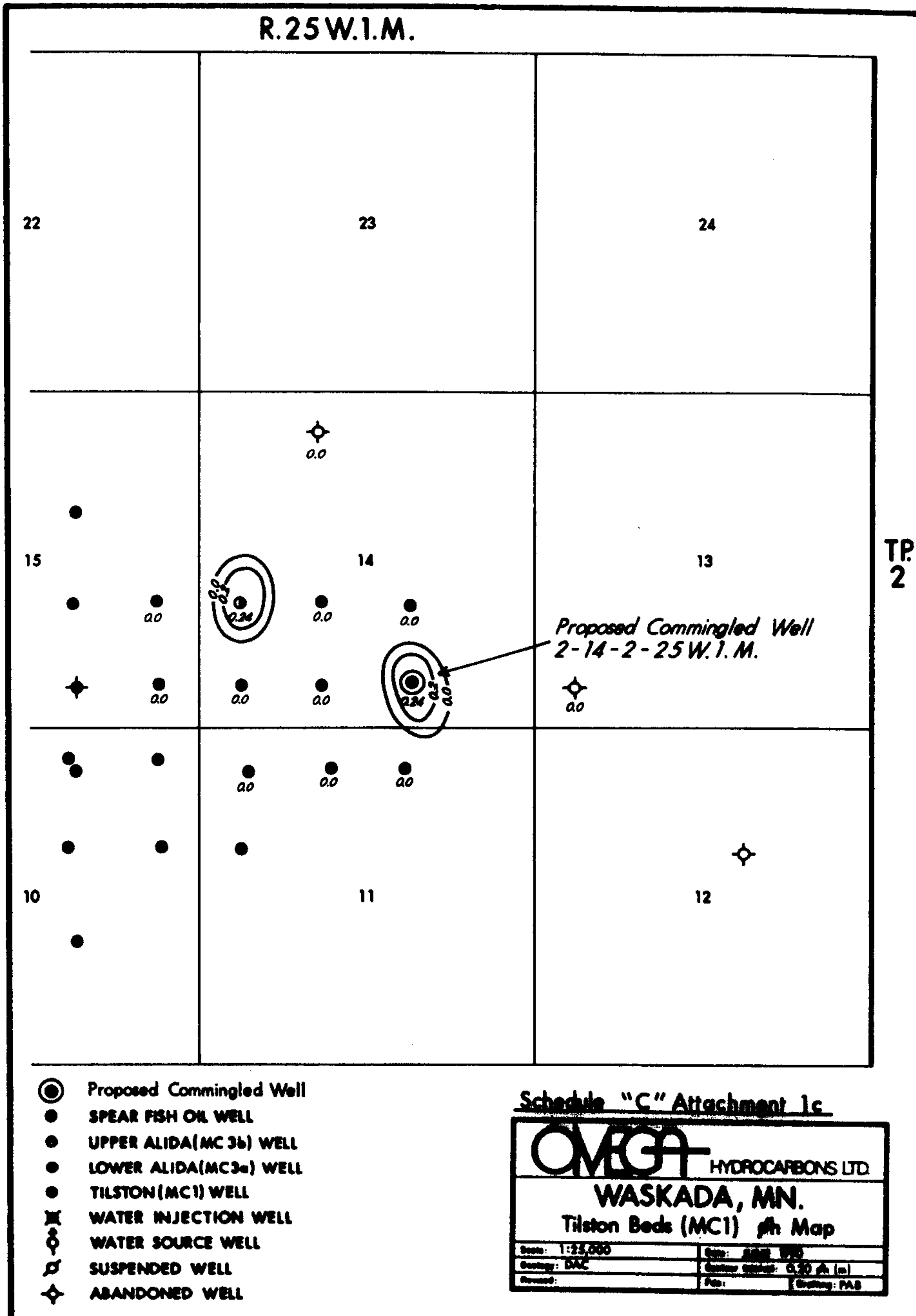
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure - Top of Tilston Porosity

Scale: 1:25,000	Date: JUNE 1990
Geology: DAC	Contour Interval: 2.0 m
Revised:	File: / Drafting: PAB



R.25W.1.M.
22
23
24
15
14
13
10
11
12
TP. 2
0.0
0.24
Proposed Commingled Well
2-14-2-25 W.1.M.
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "C" Attachment 1c
OMEGA HYDROCARBONS LTD.
WASKADA, MN.
Tilston Beds (MC1) øh Map
1:25,000
DAC
PAB

SCHEDULE 'D'

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 2-14-2-25 WPM

Attachment No. 1 sets out the workover program.
Attachment No. 2 sets out the current completion.
Attachment No. 3 sets out the commingled production completion.

Schedule 'D' - Attachment No. 1
OMEGA WASKADA 2-14-2-25 WPM

Commingled Production - Well Completion Program

A. Lower Amaranth Completion

1. Move in service rig and rig up.
2. Hot oil and pull BHP and rods. Circulate to PBTD and pull tubing.
3. Rig up wireline. Run and set retrievable bridge plug at 878.0 mKB.
4. Perforate Lower Amaranth from 865.0-875.0 mKB with a 86mm HSC gun at 13 spm. Rig out wireline.
5. Run in tubing and rig up to frac well.
6. Perform a 5T gelled water fracture stimulation at 0.8 m^3/min. Leave well shut in overnight.
7. Circulate hole clean to PBTD. Land tubing at 855.0 mKB.
8. Run BHP and rods.
9. Release rig.

B. Lower Amaranth Evaluation

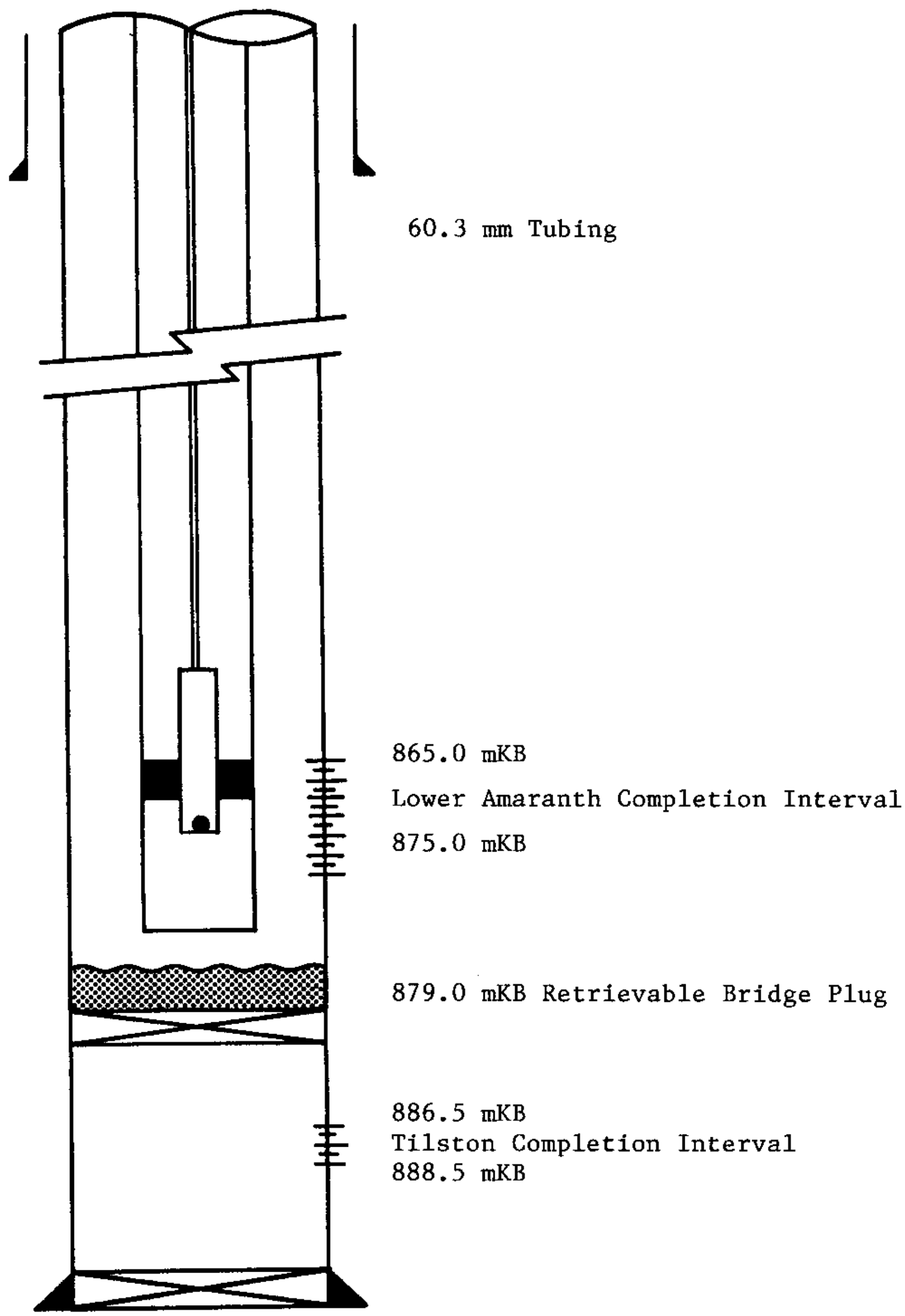
1. Put well on production to lease tank.
2. Conduct 24 hour production tests on Lower Amaranth for 3 months.

C. Recomplete for Commingled Production

1. Move in service rig and rig up.
2. Pull rods and pump.
3. Circulate hole clean to PBTD and pull tubing.
4. Rig up wireline unit. Run in with retrieving tool and latch onto retrievable bridge plug. Unseat bridge plug and pull.
5. Rig up perforated pup with a retrievable packer and tubing check valve on bottom of tubing.
6. Run and land at 885.0 mKB.
7. Run in BHP and rods.
8. Place well on commingled production.

D. Annual Testing Program

1. Move in service rig and rig up.
2. Pull BHP and rods. Unseat packer and pull tubing.
3. Remove tubing check valve from bottom of packer.
4. Install a bull plug on bottom of packer.
5. Run tubing and packer. Land and set packer at 885.0 mKB.
6. Run BHP and rods.
7. Release rig.
8. Production test the Lower Amaranth for one week.
9. Move in service rig and rig up.
10. Pull BHP and rods. Unseat packer and pull tubing.
11. Remove bull plug from bottom of tubing. Make up tubing check valve.
12. Run tubing and packer. Land and set at 885.0 mKB.
13. Run BHP and rods.
14. Release rig.
15. Place well on commingled production.



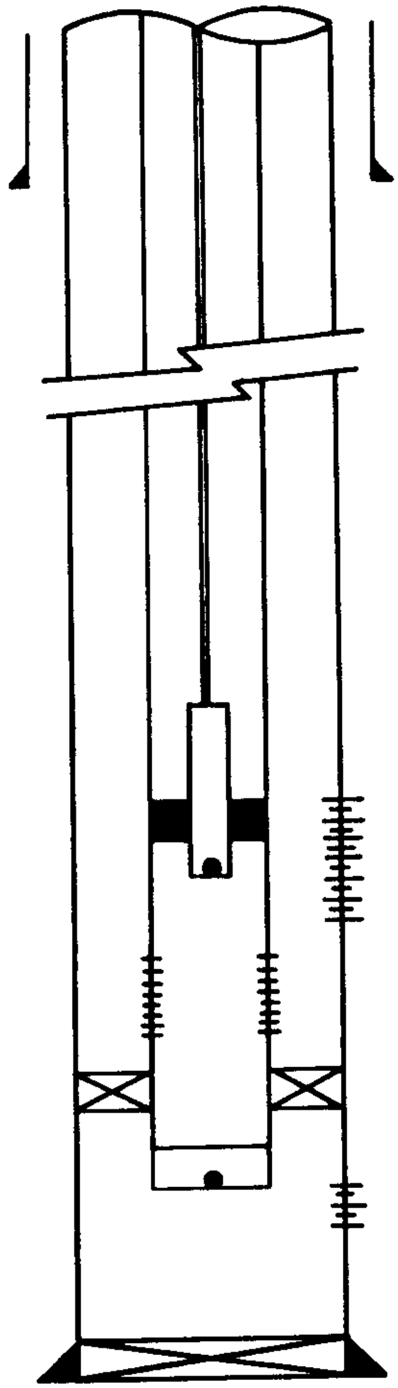
SCHEDULE "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

OMEGA WASKADA 2-14-2-25 WPM

Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:



60.3 mm Tubing

865.0 mKB

Lower Amaranth Completion Interval

875.0 mKB

Perforated Tubing Pup

Retrievable Packer

Tubing Check Valve
886.5 mKB
Tilston Completion Interval
888.5 mKB

SCHEDULE "D"   Attachment No. 3

OMEGA HYDROCARBONS LTD.

OMEGA WASKADA 2-14-2-25 WPM

Commingled Production Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:

SCHEDULE 'E'

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summarizes the specific geological and reservoir characteristics for the subject well to be commingled under this application.

		MISSION CANYON				LOWER AMARANTH			
Location	**Zone**	**øh (m)**	**OOIP (m^3)**	**Prod. Rate (m^3/d)**	**Pool Pressure (kPa)**	**øh (m)**	**OOIP (m^3)**	**Prod. Rate (m^3/d)**	**Pool Pressure (kPa)**
2-14-2-25	Tilston	0.24	12522	2.2/0.2	N/A	0.178	11096	2.7/0.5	N/A

Original oil in place calculations were determined by using the h and/or øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Tilston formation it was assumed that A=12 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometer of the well to be commingled. The production rates are based on the wells' present production. The production rate from the Tilston for 2-14-2-25 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for this well has not been measured to date. It is expected that this pressure will be obtained when waterflooding is implemented in this area. The pool pressure for the Tilston zone has not yet been scheduled.

SCHEDULE 'E'

(i)

Attachment 1

Current Production Rates to March and May 1989
Offsetting Well 2-14-2-25 WPM

Well	**Producing Zone**	**Oil** (m^3/d)	**Water** (m^3/d)
13-11-2-25 WPM	Lower Amaranth	3.00	0.60
14-11-2-25 WPM	Lower Amaranth	8.40	0.50
15-11-2-25 WPM	Lower Amaranth	3.10	0.50
3-14-2-25 WPM	Lower Amaranth	13.65	0.29
4-14-2-25 WPM	Lower Amaranth	1.19	0.29
7-14-2-25 WPM	Lower Amaranth	10.01	0.10

Attachment No. 2

TILSTON PRODUCTION
SCHEDULE "E"(i)

*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL ID: (00)02-14-002-25W1M(0)

Omega
90-06-25
09:07:27

Field 1
Pool 1
Block 99
Acctg 0

Area Man.
Working Interest 100.0000%
On Prdn 1990-02-24
On Injn Not on Yet

Misc#1 0
Misc#2 0
Misc#3 0

Month	Hours	Oil m3/M	Water m3/M	Gas km3/M	Oil m3/D	Water m3/D	Gas km3/D	Cum Oil m3	Cum Wtr m3	Cum Gas km3	Water Cut %	GOR m3/m3	I.Water m3/M	I.Gas km3/M	Cum I.W m3	Cum I.G km3	Events
1990-02	66	7.6	25.0	1.2	0.3	0.9	0.0	7.6	25.0	1.2	76.7	158	0.0	0.0	0.0	0.0	Perf MC
1990-03	144	9.8	2.1	0.0	0.3	0.1	0.0	17.4	27.1	1.2	17.6	0	0.0	0.0	0.0	0.0	Acidize
1990-04																	Recomplete

Page No. 1 *** STORE *** Omega

Attachment No. 3

LOWER AMARANTH PRODUCTION
SCHEDULE "E" (i)

Page No. 1

*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL ID: (00)02-14-002-25W1M(2)

Omega
90-06-25
09:07:30

Field 1
Pool 1
Block 99
Acctg 0

Area Man.
Working Interest 100.0000%
On Prdn 1990-03-06
On Injn Not on Yet

Misc#1 0
Misc#2 0
Misc#3 0

Month	Hours	Oil m3/M	Water m3/M	Gas km3/M	Oil m3/D	Water m3/D	Gas km3/D	Cum Oil m3	Cum Wtr m3	Cum Gas km3	Water Cut %	GOR m3/m3	I.Water m3/M	I.Gas km3/M	Cum I.W m3	Cum I.G km3	Events
1990-03	520	113.1	11.8	0.0	3.6	0.4	0.0	113.1	11.8	0.0	9.4	0	0.0	0.0	0.0	0.0	Perf LAM
1990-04	696	104.1	6.0	15.3	3.5	0.2	0.5	217.2	17.8	15.3	5.4	147	0.0	0.0	0.0	0.0	
1990-05	663	56.5	21.5	8.5	1.8	0.7	0.3	273.7	39.3	23.8	27.6	150	0.0	0.0	0.0	0.0	

SCHEDULE 'E'

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add significantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule 'D' of this application. The program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the well for commingled production (Section C).

2. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

3. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amaranth production rate.

4. Recomplete the well for commingled production (Section C).

5. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 3 and allocate to the Mission Canyon by difference.

6. Repeat steps 3 to 5.

SCHEDULE 'E'

(iii)

Production Allocation

Following is the production performance established for the Lower Amaranth zone during the two month period after temporary suspension of the Mission Canyon interval.

Well	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (km^3)	Oil (m^3/d)	Water (m^3/d)
2-14-2-25 WPM	89/05/31	663	56.5	21.5	-	2.05	0.79
	89/06/24	494	38.1	33.1	-	1.85	1.61
	AVERAGE					1.95	1.20

Average Water/Oil Ratio = 0.615 m^3/m^3
Average Gas/Oil Ratio = N/A

WELL 2-14-2-25 WPM PRODUCTION TEST DATA*

Tilston Zone

DATE	OIL (m^3)	WATER (m^3)
90/02/27	1.7	1.0
90/02/28	1.8	1.2
90/03/02	2.4	1.4
90/03/03	1.8	0.4
90/03/04	2.5	0.1
90/03/05	2.2	0.1

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

DEPARTMENT OF ENERGY AND MINES
JUN 28 1990
PETROLEUM BRANCH

June 25, 1990

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

Attention: Mr. L.E. Fenwick

Dear Sir:

**Re: Application to Commingle Production
Waskada Field**

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 2-14-2-25 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. If no valid objections or interventions towards this application are received by the Manitoba Department of Energy and Mines by July 10, 1990, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB:jb

c.c.: ~~Mr. John Fox~~
Waskada Special Projects - Commingling File

COMMINGLING APPLICATION 2-14-2-25

- only MC1 produces in area 2-14-2-25 Emich and 2-14-2-25

- Omega interprets MC1 to consist of small isolated 1 well pools on localized structural highs

- Lower Amaranth production (3 months) - exhibiting typical LAm decline 3.5 m3OPD in Apr. to 1.8 m3OPD in May LAm A Pool
- MC1 production (9 days only) 17.4 m3 oil MC1 I Pool 27.1 m3 wtr.

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

October 16, 1989

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

Attention: Mr. R. A. Brekke, P. Eng.
Engineering Supervisor, Manitoba

Re: Commingled Production Approval
Omega Waskada 10-30-1-25 (WPM)

Dear Sir:

Attached is your approved application to recomplete the subject well and commingle production in the wellbore.

As with the previous approvals, the following conditions apply:

1. Oil and Gas Production Tax is to be calculated on the basis of total production from the well not separately from each zone. In this case where both the Lower Amaranth and Mission Canyon are non-unitized, the total production from the well is equal to the sum of production from both zones.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

L. R. Dubreuil
Director

LRD/sml

Attachment

cc: Waskada Office

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

October 10, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

RE: Omega Waskada 10-30-1-25 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formation. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at this well remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after October 25, 1989. Notification to offset mineral owners is not necessary as Omega owns the offset mineral rights. Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data from the tested zone. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

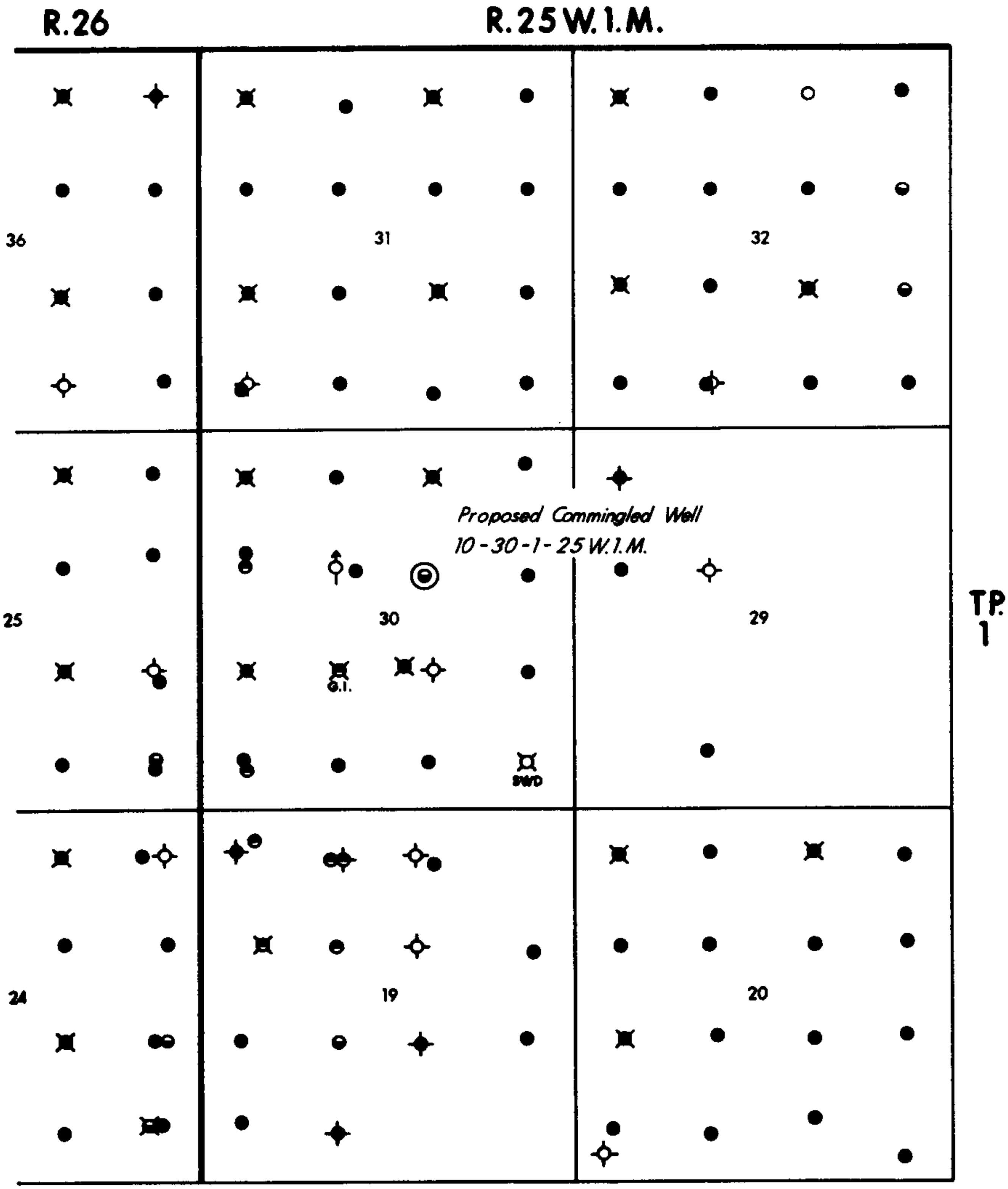
Description of Well

Name	Licence Number	Location
Omega Waskada 10-30-1-25 WPM	3072	Legal subdivision ten (10) of Section thirty (30), Township one (1), Range twenty five (25), West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of the Proposed Commingled Well

See Attachment 1



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
WELL LOCATION MAP

Scale: 1:25,000	Date: OCT. 1989		
Geology: DAC	Contour Interval:		
Revised:	File:	Drafting: PAB	

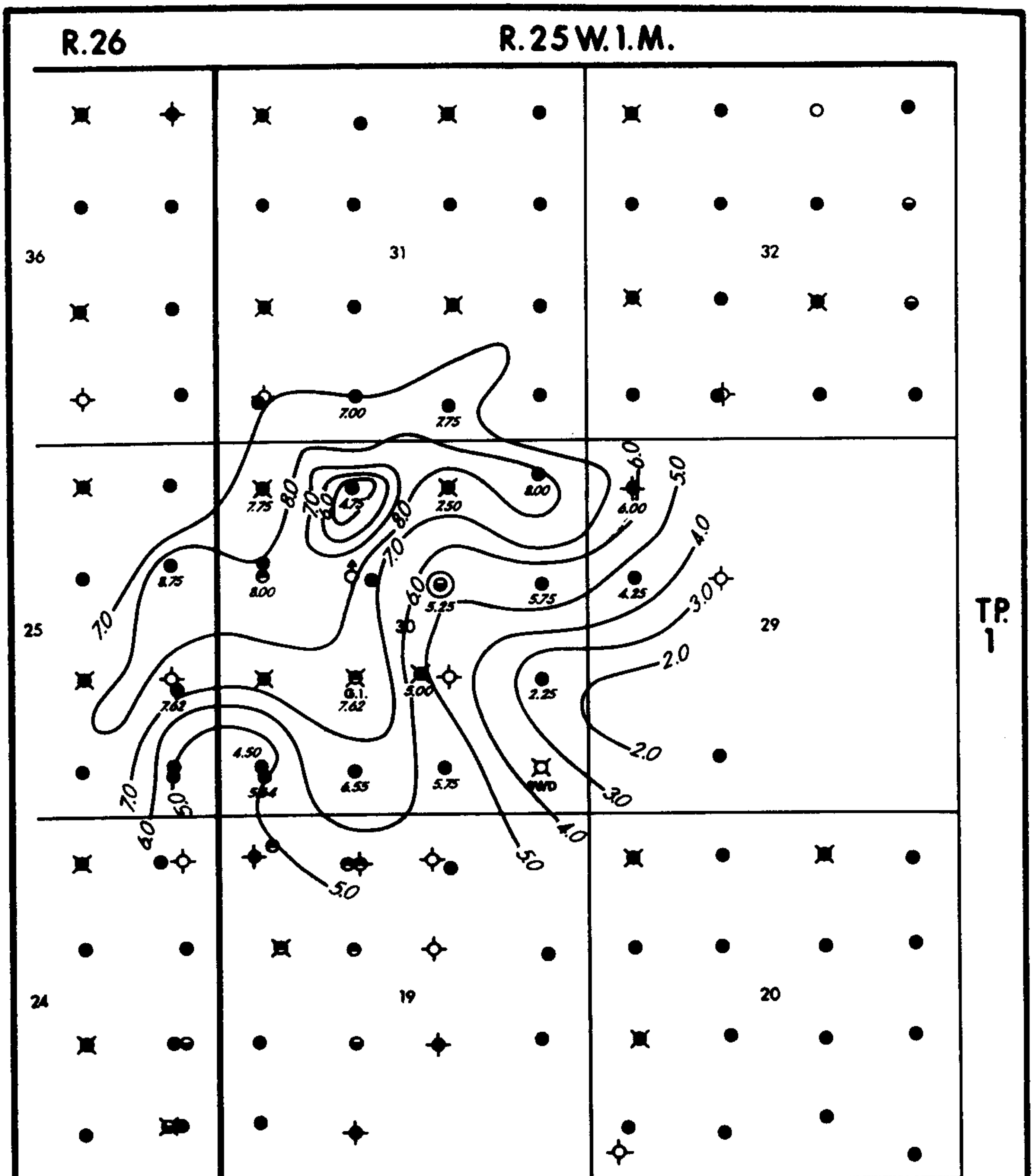
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 10-30-1-25 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map



◉ Proposed Commingled Well
● SPEAR FISH OIL WELL
● UPPER ALIDA(MC 3b) WELL
● LOWER ALIDA(MC 3a) WELL
● TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

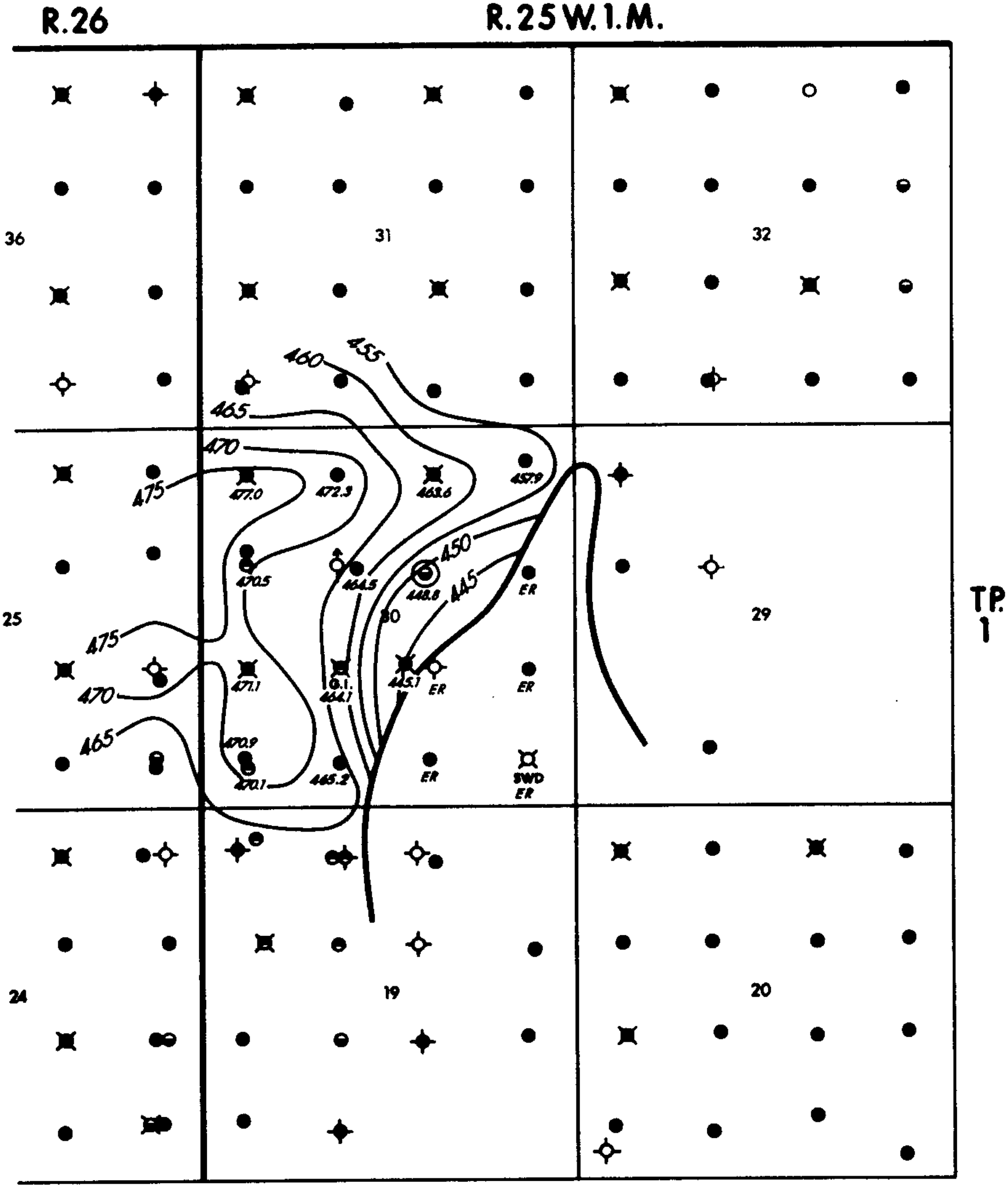
Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Amaranth Net Pay Map

Scale: 1:25,000	Date: OCT. 1989
Geology: DAC	Contour Interval: 1.0 m
Revised:	File: / Drafting: PAS



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

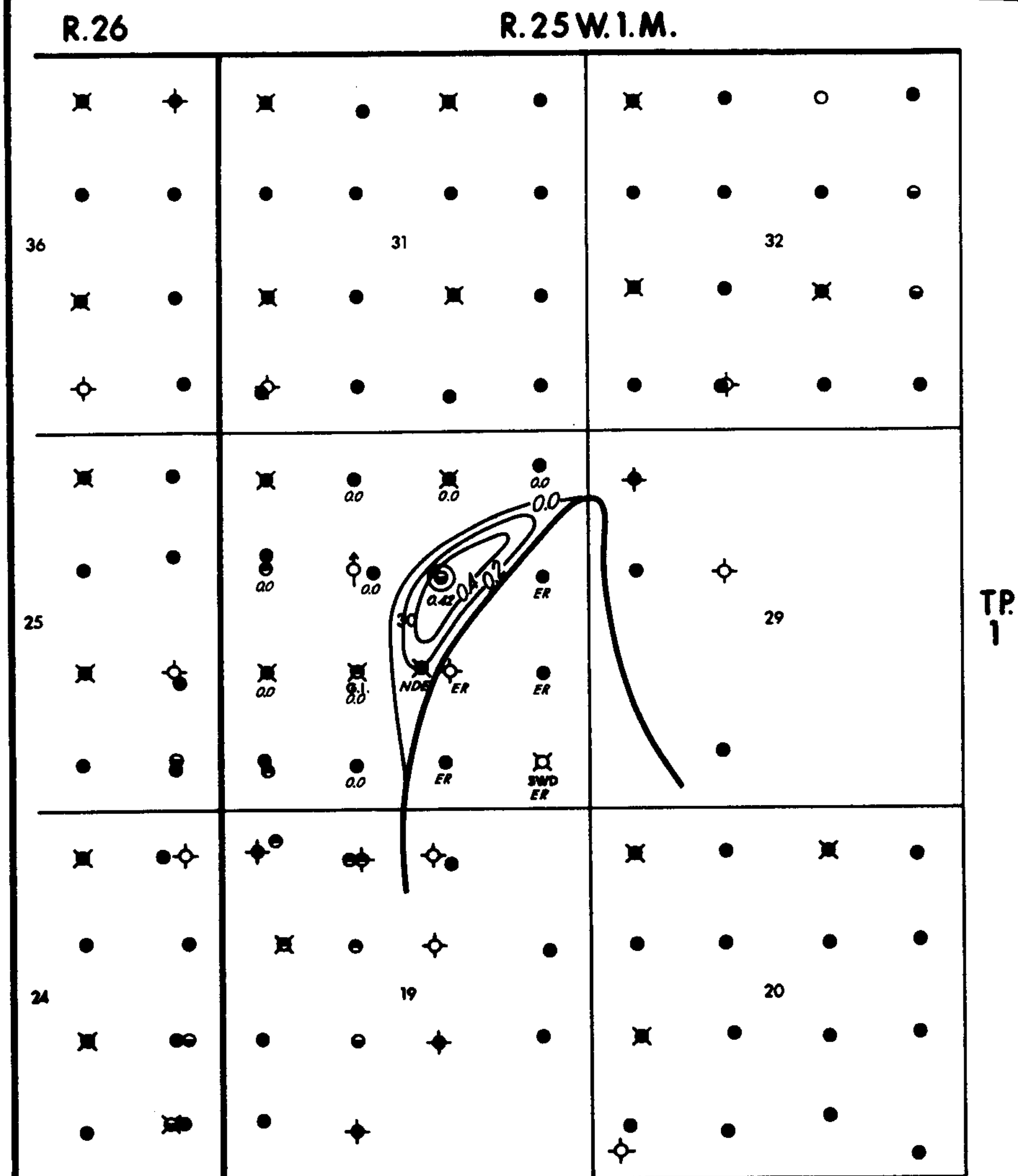
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD

WASKADA, MN.

Structure-Top of MC3a Porosity

Scale: 1:25,000	Date: OCT. 1989	
Geology: DAC	Contour Interval: 5.0 m	
Revised:	File:	Drafting: PAB



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Alida(MC3a) Øh Map

Scale: 1:25,000	Date: OCT. 1989
Geology: DAC	Contour Interval: 0.2 Øh
Revised:	File: / Drafting: PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 10-30-1-25 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 10-30-1-25 WPM

Commingled Production - Well Completion Program

A. Lower Amaranth Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Rig up retrievable bridge plug on wireline. Run, land and set at 919.0 mKB.
4) Perforate the Lower Amaranth zone from 904.0-914.0 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
5) Run tubing and land at 894.0 mKB. Frac well with a 5T gelled water frac. (20/40 sand at 0.8 m^3/minute).
6) After shut in period, circulate hole clean.
7) Land tubing at 894.0 mKB.
8) Run rods and BHP.
9) Release rig.

B. Lower Amaranth Evaluation

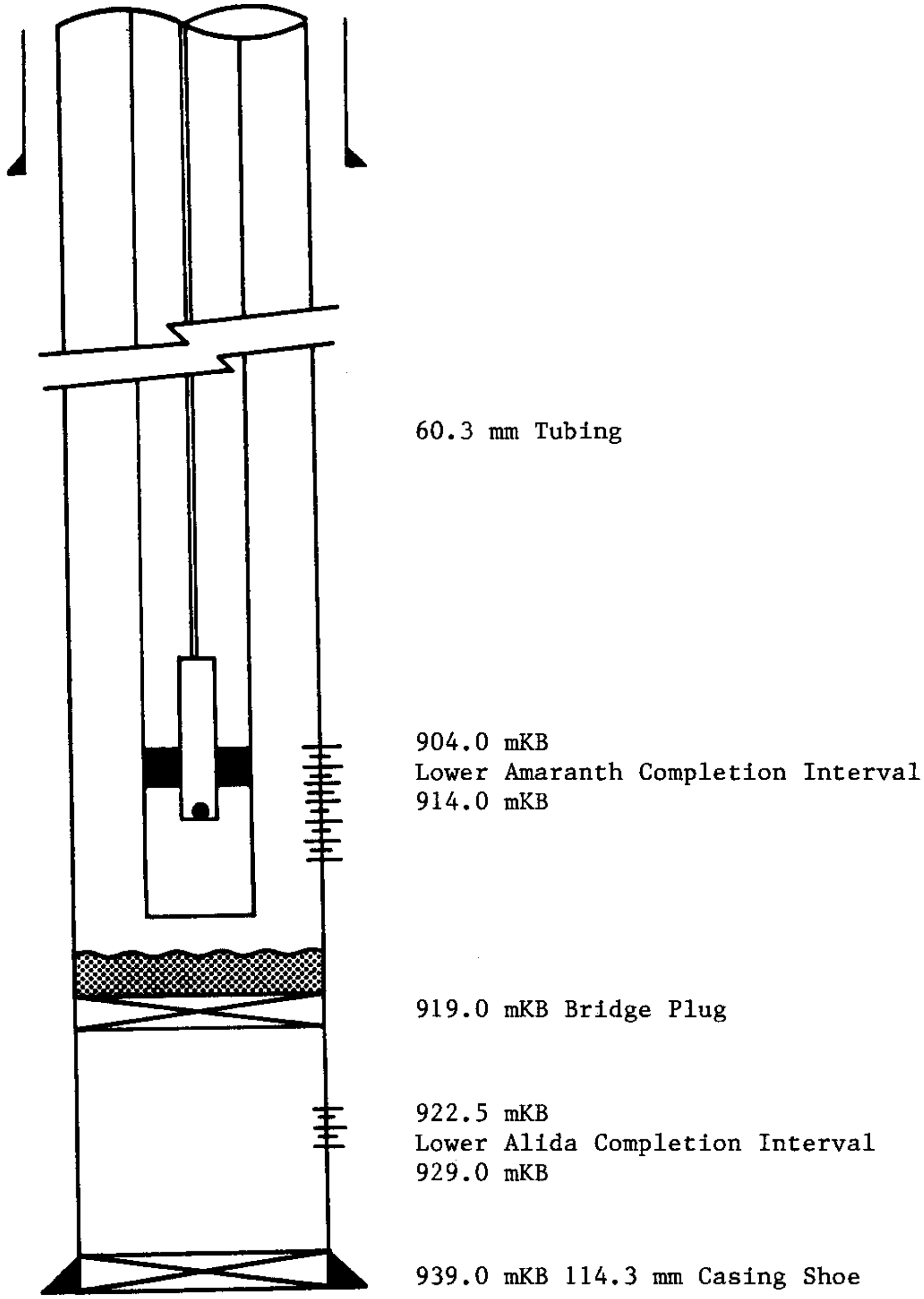
1) Put well on production to lease tank.
2) Conduct 24 hour test on the Lower Amaranth on a daily basis for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump. Circulate hole clean to 919.0 mKB.
3) Pull tubing. Make up retrievable tool and pull bridge plug.
4) Pull tubing and rig out retrievabing tool.
5) Run in tubing at circulate hole clean to PBTD. Land tubing at 932.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 919.0 mKB.
6) Run BHP and rods.
7) Release rig.
6) Production test the Lower Amaranth for one week.
7) Move in service rig and rig up.
8) Pull BHP and rods.
9) Release packer and land at 932.0 mKB.
10) Run BHP and rods.
11) Release rig.
12) Put well on production.

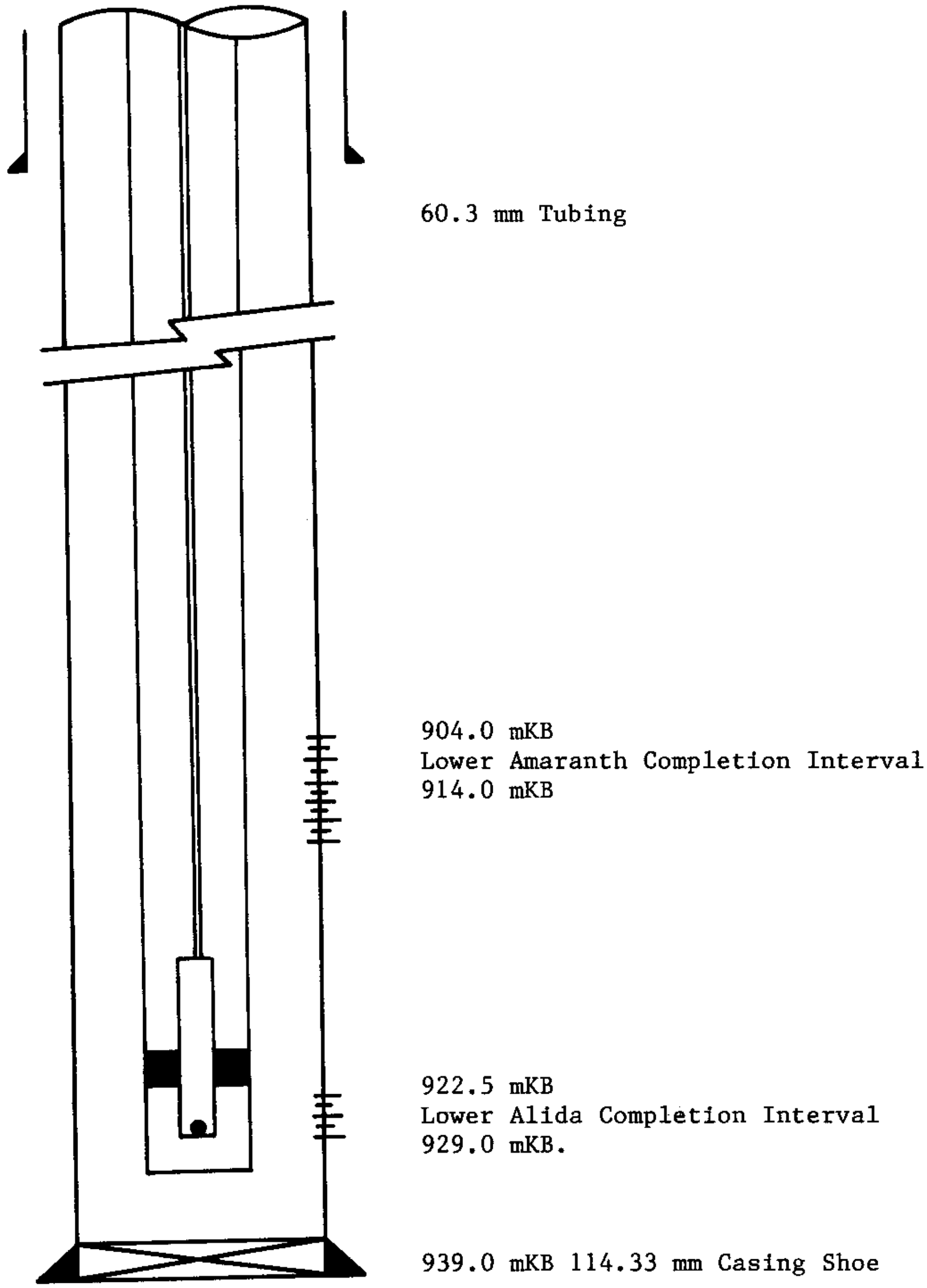


Schedule "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 10-30-1-25 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



Schedule "E" Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Waskada 10-30-1-25 WPM
Commingled Production Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject well to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
10-30-1-25 WPM	LAlida	0.42	29217	2.2/5.8	N/A	0.828	51616	0.5/4.4	9725

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the well to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Alida for 10-30-1-25 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for this well is estimated from the fall off test performed at well 7A-30-1-25 WPM performed in December 1988.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to August 1989
Offsetting Well 10-30-1-25 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
8-30-1-25 WPM	L. Amaranth	0.85	2.01
9-30-1-25 WPM	L. Amaranth	NOT PRODUCING	
11-30-1-25 WPM	L. Amaranth	0.57	6.17
14-30-1-25 WPM	L. Amaranth	0.43	1.90
16-30-1-25 WPM	L. Amaranth	0.74	0.80

SCHEDULE "E" (i)

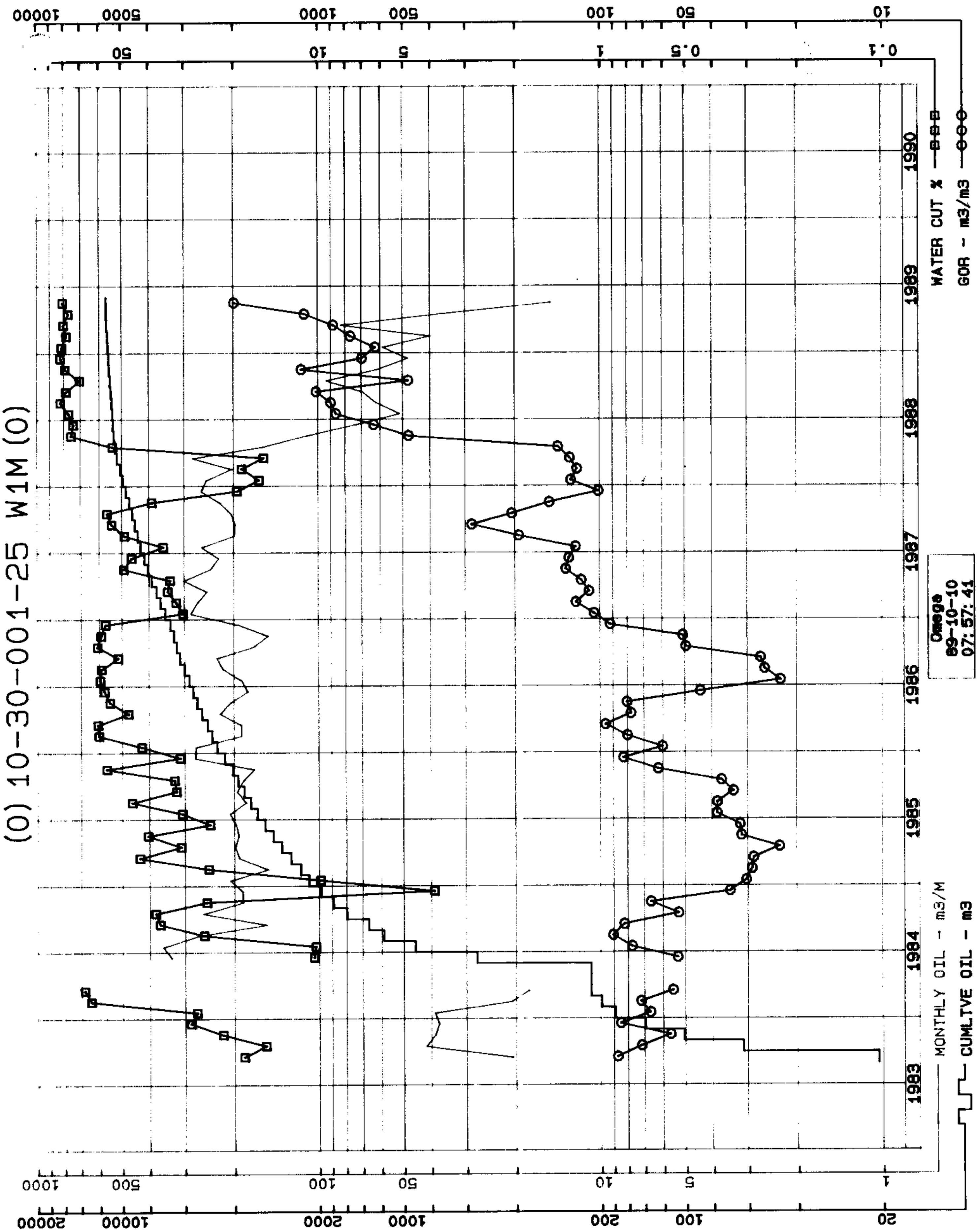
Attachment 2

Cumulative Water and Gas Injection to August 1989
Offsetting Well 10-30-1-25 WPM

Injection Well	Cumulative Water Inj. (m^3)
5-30-1-25 WPM	66748.9
6-30-1-25 WPM	124323.0
7A-30-1-25 WPM	13329.8
13-30-1-25 WPM	36871.3
15-30-1-25 WPM	518101.2

Injection Well	Cumulative Gas Inj. (10^3m^3)
6-30-1-25 WPM	11782.9

Lower Alida Production Attachment No. 3
Schedule "E" (i)



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Alida performance prior to recompleting the Lower Amaranth.

2. Isolate the Lower Alida, recomplete the well in the Lower Amaranth and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Alida at the rate established in Step 1. Allocate production to the Lower Amaranth based on the difference between total production and the allocated Lower Alida production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amaranth production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Alida zone during the six month period prior to the recompletion of the Lower Amaranth interval.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	(10^3m^3)
10-30-1-25 WPM	89/05/11	24	0.96	2.89	1.24
	89/04/21	24	1.18	3.54	1.40
	89/04/18	24	1.32	3.39	0.50
	89/03/13	24	3.49	10.46	1.61
	89/02/26	24	2.54	7.26	1.42
	89/01/19	24	3.99	7.11	1.63
	88/12/13	24	2.03	6.12	0.15
	AVERAGE		2.22	5.82	1.14

Average Water/Oil Ratio = 2.629 m^3/m^3
Average Gas/Oil Ratio = 512.513 m^3/m^3

WELL 10-30-1-25 WPM PRODUCTION TEST DATA*

Lower Amaranth Zone

DATE	OIL (m^3)	WATER (m^3)
89/06/07	0.00	0.04
89/06/08	0.00	0.62
89/06/16	0.00	1.21
89/06/21	0.00	1.97
89/06/23	0.00	0.49
89/07/08	0.10	1.93
89/07/20	0.15 (Load Oil)	2.80
89/09/05	0.81	4.59
89/09/06	0.57	5.12
89/09/14	0.52	4.70
89/09/30	0.54	4.39

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

October 12, 1989

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. John Fox
Chief Petroleum Engineer

Dear Sir:

Re: Waskada Production Commingling
Progress Report July/August 1989

Enclosed is a summary of events and data for the months of July and August, 1989. This includes production data, fluid levels and workover operations.

During these months two additional wells have been commingled. They are wells 4-25-1-26 and 2-26-1-26 WPM. Well 10-30-1-25 WPM was still production testing.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
R. A. Brekke
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

10-Oct-89

MONTH REPORT: 1989-07

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3	
L.AL	(0)05-06-001-25 W1M(0)	3	99	606	2.8	89.6	0.3	0.11	32.00	97.0	107.1	– MC/LAM
LAM	(0)05-06-001-25 W1M(2)	1	99	606	97.0	70.2	8.7	3.84	0.72	42.0	89.7	
L.AL	(0)10-06-001-25 W1M(0)	3	99	744	59.1	19.5	5.3	1.91	0.33	24.8	89.7	– MC/LAM
LAM	(0)10-06-001-25 W1M(2)	1	99	744	0.0	99.4	0.0	0.00	99.99	100.0	0.0	
L.AL	(0)10-30-001-25 W1M(0)	3	99	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0	– MC/LAM
LAM	(0)10-30-001-25 W1M(2)	1	99	648	0.0	94.7	17.4	0.00	99.99	100.0	99999.0	
L.AL	(0)08-32-001-25 W1M(0)	3	99	744	7.8	5.9	0.9	0.25	0.76	43.1	115.4	– MC/LAM
LAM	(0)08-32-001-25 W1M(2)	1	14	744	56.1	68.4	1.5	1.81	1.22	54.9	26.7	
LAM	(0)09-32-001-25 W1M(0)	1	99	740	33.0	12.2	3.0	1.07	0.37	27.0	90.9	– MC/LAM
L.AL	(0)09-32-001-25 W1M(2)	3	99	740	0.0	131.1	0.0	0.00	99.99	100.0	0.0	
TIL	(0)09-33-001-25 W1M(0)	4	99	744	1.1	5.8	0.1	0.04	5.27	84.1	90.9	– MC/LAM
LAM	(0)09-33-001-25 W1M(2)	1	99	744	68.2	68.2	6.1	2.20	1.00	50.0	89.4	
TIL	(0)08-08-002-25 W1M(0)	4	99	744	50.0	210.6	1.5	1.61	4.21	80.8	30.0	– MC/LAM
LAM	(0)08-08-002-25 W1M(2)	1	8	744	34.0	2.4	0.9	1.10	0.07	6.6	26.5	
LAM	(0)01-23-001-26 W1M(0)	1	4	434	0.0	4.9	0.0	0.00	99.99	100.0	0.0	– LAM/MC
L.AL	(0)01-23-001-26 W1M(2)	3	12	434	7.3	2.7	2.2	0.40	0.37	27.0	301.4	
L.AL	(0)09-24-001-26 W1M(0)	3	12	737	0.0	0.0	0.0	0.00	0.00	0.0	0.0	– LAM/MC
LAM	(0)09-24-001-26 W1M(2)	1	1	737	61.9	20.6	3.2	2.02	0.33	25.0	51.7	
L.AL	(0)12-24-001-26 W1M(0)	3	12	744	87.6	98.7	0.0	2.83	1.13	53.0	0.0	– LAM/MC
LAM	(0)12-24-001-26 W1M(2)	1	1	744	226.5	50.5	16.3	7.31	0.22	18.2	72.0	
L.AL	(0)04-25-001-26 W1M(0)	3	12	744	118.0	61.0	0.0	3.81	0.52	34.1	0.0	– LAM/MC
LAM	(0)04-25-001-26 W1M(2)	1	1	192	41.6	13.6	0.0	5.20	0.33	24.6	0.0	
LAM	(0)01-26-001-26 W1M(0)	1	1	744	162.2	12.4	14.3	5.23	0.08	7.1	88.2	– LAM/MC
L.AL	(0)01-26-001-26 W1M(2)	3	12	744	0.0	94.4	3.8	0.00	99.99	100.0	99999.0	
LAM	(0)02-26-001-26 W1M(0)	1	1	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0	– LAM/MC
L.AL	(0)02-26-001-26 W1M(2)	3	12	744	26.8	174.8	0.0	0.87	6.52	86.7	0.0	
U.AL	(0)11-34-001-26 W1M(0)	2	99	676	57.1	3.0	1.4	2.03	0.05	5.0	24.5	– MC/LAM
LAM	(0)11-34-001-26 W1M(2)	1	99	676	0.0	8.7	0.0	0.00	99.99	100.0	0.0	
LAM	(0)14-34-001-26 W1M(0)	1	5	616	4.5	26.9	0.3	0.18	5.98	85.7	66.7	– LAM/MC
U.AL	(0)14-34-001-26 W1M(2)	2	99	616	6.6	10.4	0.3	0.26	1.58	61.2	45.5	
L.AL	(0)07-35-001-26 W1M(0)	3	99	744	50.7	0.9	2.0	1.64	0.02	1.7	39.4	→ to 89-01MC/LAM
LAM	(0)07-35-001-26 W1M(2)	1	99	744	32.1	10.1	4.8	1.04	0.32	23.9	149.5	
LAM	(0)08-35-001-26 W1M(0)	1	99	744	33.3	1.5	2.9	1.07	0.05	4.3	87.1	– LAM/MC
L.AL	(0)08-35-001-26 W1M(2)	3	99	744	111.1	44.5	4.3	3.58	0.40	28.6	38.7	
L.AL	(0)09-35-001-26 W1M(0)	3	99	744	91.5	5.0	2.0	2.95	0.06	5.2	21.9	– MC/LAM

MONTH REPORT: 1989-07

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3	
LAM	(0)09-35-001-26 W1M(2)	1	99	744	0.0	0.0	2.9	0.00	0.00	0.0	99999.0	MC / LAD
L.AL	(0)10-35-001-26 W1M(0)	3	99	744	0.0	0.0	2.9	0.00	0.00	0.0	99999.0	MC / LAM
LAM	(0)10-35-001-26 W1M(2)	1	99	744	80.0	1.5	3.4	2.58	0.02	1.8	42.5	
L.AL	(0)11-35-001-26 W1M(0)	3	99	744	68.9	13.8	1.5	2.22	0.20	16.7	21.8	MC / LAM
LAM	(0)11-35-001-26 W1M(2)	1	99	744	0.0	32.6	2.0	0.00	99.99	100.0	99999.0	
L.AL	(0)12-36-001-26 W1M(0)	3	99	744	68.9	24.7	0.5	2.22	0.36	26.4	7.3	MC/LAM
LAM	(0)12-36-001-26 W1M(2)	1	99	744	0.0	19.2	2.5	0.00	99.99	100.0	99999.0	
U.AL	(0)05-03-002-26 W1M(0)	2	99	744	100.3	4.6	2.9	3.24	0.05	4.4	28.9	MC / LAM
LAM	(0)05-03-002-26 W1M(2)	1	99	744	0.0	0.0	0.0	0.00	0.00	0.0	0.0	
U.AL	(0)06-03-002-26 W1M(0)	2	99	545	0.0	0.0	0.6	0.00	0.00	0.0	99999.0	MC/LAM
LAM	(0)06-03-002-26 W1M(2)	1	99	545	32.5	18.8	1.1	1.43	0.58	36.6	33.8	
U.AL	(0)08-04-002-26 W1M(0)	2	99	726	12.6	69.9	0.5	0.42	5.55	84.7	39.7	MC/LAM
LAM	(0)08-04-002-26 W1M(2)	1	99	726	0.0	68.1	0.9	0.00	99.99	100.0	99999.0	

commingled zone

WASKADA COMMINGLED PRODUCTION

11-Oct-89

MONTH REPORT: 1989-08

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L.AL	(0)05-06-001-25 W1M(0)	3	99	564	0.0	65.6	0.0	0.00	99.99	100.0	0.0
LAM	(0)05-06-001-25 W1M(2)	1	99	564	83.2	60.2	8.4	3.54	0.72	42.0	101.0
L.AL	(0)10-06-001-25 W1M(0)	3	99	669	74.7	24.7	7.6	2.68	0.33	24.8	101.7
LAM	(0)10-06-001-25 W1M(2)	1	99	669	6.6	54.5	0.7	0.24	8.26	89.2	106.1
L.AL	(0)10-30-001-25 W1M(0)	3	99	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0
LAM	(0)10-30-001-25 W1M(2)	1	99	504	1.8	180.6	0.0	0.09	100.33	99.0	0.0
L.AL	(0)08-32-001-25 W1M(0)	3	99	744	4.9	0.0	0.0	0.16	0.00	0.0	0.0
LAM	(0)08-32-001-25 W1M(2)	1	14	744	59.4	59.1	1.6	1.92	1.00	49.9	26.9
LAM	(0)09-32-001-25 W1M(0)	1	99	744	35.9	13.3	3.6	1.16	0.37	27.0	100.3
L.AL	(0)09-32-001-25 W1M(2)	3	99	744	0.0	104.0	0.0	0.00	99.99	100.0	0.0
TIL	(0)09-33-001-25 W1M(0)	4	99	604	0.0	43.3	0.0	0.00	99.99	100.0	0.0
LAM	(0)09-33-001-25 W1M(2)	1	99	604	27.5	27.6	2.8	1.09	1.00	50.1	101.8
TIL	(0)08-08-002-25 W1M(0)	4	99	744	36.3	188.7	0.9	1.17	5.20	83.9	24.8
LAM	(0)08-08-002-25 W1M(2)	1	8	744	36.0	2.2	0.9	1.16	0.06	5.8	25.0
LAM	(0)01-23-001-26 W1M(0)	1	4	416	42.7	9.8	5.8	2.46	0.23	18.7	135.8
L.AL	(0)01-23-001-26 W1M(2)	3	12	272	0.0	15.8	2.2	0.00	99.99	100.0	99999.0
L.AL	(0)09-24-001-26 W1M(0)	3	12	744	6.1	11.4	0.0	0.20	1.87	65.1	0.0
LAM	(0)09-24-001-26 W1M(2)	1	1	744	89.6	27.5	4.9	2.89	0.31	23.5	54.7
L.AL	(0)12-24-001-26 W1M(0)	3	12	744	0.0	52.8	8.3	0.00	99.99	100.0	99999.0
LAM	(0)12-24-001-26 W1M(2)	1	1	744	155.0	29.9	13.2	5.00	0.19	16.2	85.2
L.AL	(0)04-25-001-26 W1M(0)	3	12	744	0.0	43.0	0.5	0.00	99.99	100.0	99999.0
LAM	(0)04-25-001-26 W1M(2)	1	1	744	122.0	34.6	3.0	3.94	0.28	22.1	24.6
LAM	(0)01-26-001-26 W1M(0)	1	1	663	169.1	11.3	14.3	6.12	0.07	6.3	84.6
L.AL	(0)01-26-001-26 W1M(2)	3	12	663	0.0	104.9	3.0	0.00	99.99	100.0	99999.0
LAM	(0)02-26-001-26 W1M(0)	1	1	730	126.3	117.1	4.9	4.15	0.93	48.1	38.8
L.AL	(0)02-26-001-26 W1M(2)	3	12	263	19.8	0.0	0.3	1.81	0.00	0.0	15.2
U.AL	(0)11-34-001-26 W1M(0)	2	99	744	102.0	4.2	2.0	3.29	0.04	4.0	19.6
LAM	(0)11-34-001-26 W1M(2)	1	99	744	0.0	17.7	1.6	0.00	99.99	100.0	99999.0
LAM	(0)14-34-001-26 W1M(0)	1	5	744	5.7	29.5	0.5	0.18	5.18	83.8	87.7
U.AL	(0)14-34-001-26 W1M(2)	2	99	744	35.2	0.0	0.5	1.14	0.00	0.0	14.2
U.AL	(0)07-35-001-26 W1M(0)	3	99	744	53.6	0.8	2.0	1.73	0.02	1.5	37.3
LAM	(0)07-35-001-26 W1M(2)	1	99	744	44.6	7.2	4.9	1.44	0.16	13.9	109.9
LAM	(0)08-35-001-26 W1M(0)	1	99	744	35.2	1.4	3.0	1.14	0.04	3.8	85.2
L.AL	(0)08-35-001-26 W1M(2)	3	99	744	128.9	49.8	5.3	4.16	0.39	27.9	41.1
L.AL	(0)09-35-001-26 W1M(0)	3	99	648	84.6	4.4	1.7	3.13	0.05	4.9	20.1

MONTH REPORT: 1989-08

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
LAM	(0)09-35-001-26 W1M(2)	1	99	648	0.0	6.9	3.0	0.00	99.99	100.0	99999.0
L.AL	(0)10-35-001-26 W1M(0)	3	99	744	0.0	0.0	3.0	0.00	0.00	0.0	99999.0
LAM	(0)10-35-001-26 W1M(2)	1	99	744	94.1	2.6	3.5	3.04	0.03	2.7	37.2
L.AL	(0)11-35-001-26 W1M(0)	3	99	720	75.3	13.1	1.4	2.51	0.17	14.8	18.6
LAM	(0)11-35-001-26 W1M(2)	1	99	720	0.0	31.4	2.4	0.00	99.99	100.0	99999.0
L.AL	(0)12-36-001-26 W1M(0)	3	99	744	99.7	31.2	0.9	3.22	0.31	23.8	9.0
LAM	(0)12-36-001-26 W1M(2)	1	99	744	0.0	30.8	0.9	0.00	99.99	100.0	99999.0
U.AL	(0)05-03-002-26 W1M(0)	2	99	649	82.4	5.6	3.3	3.05	0.07	6.4	40.0
LAM	(0)05-03-002-26 W1M(2)	1	99	649	0.0	18.4	0.8	0.00	99.99	100.0	99999.0
U.AL	(0)06-03-002-26 W1M(0)	2	99	639	0.0	0.0	1.3	0.00	0.00	0.0	99999.0
LAM	(0)06-03-002-26 W1M(2)	1	99	639	27.9	11.2	0.8	1.05	0.40	28.6	28.7
U.AL	(0)08-04-002-26 W1M(0)	2	99	475	38.6	59.3	0.9	1.95	1.54	60.6	23.3
LAM	(0)08-04-002-26 W1M(2)	1	99	475	122.4	0.0	0.0	6.18	0.00	0.0	0.0

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM	89-08-04	Tubing Repair
10-6-1-25 WPM		No Operations
10-30-1-25 WPM	89-08-02 89-08-10	Refrac LAm Flushed Sand
8-32-1-25 WPM		No Operations
9-32-1-25 WPM		No Operations
9-33-1-25 WPM	89-08-28	Recomplete for Annual Production Test (LAm)
8-8-2-25 WPM		No Operations
1-23-1-26 WPM	89-08-25	Recomplete to test (LAm)
9-24-1-26 WPM		No Operations
12-24-1-26 WPM		No Operations
4-25-1-26 WPM	89-07-24	Commingle LAm and LAlida
1-26-1-26 WPM	89-08-14	Rod Repair
2-26-1-26 WPM	89-08-18	Commingle LAm and LAlida
11-34-1-26 WPM		No Operations
14-34-1-26 WPM	89-07-13	Replace BHP.
7-35-1-26 WPM		No Operations
8-35-1-26 WPM		No Operations
9-35-1-26 WPM	89-08-27	Recomplete for Annual Production Test (LAm)
10-35-1-26 WPM		No Operations
11-35-1-26 WPM	89-08-31	Recomplete for Annual Production Test (Lam)
12-36-1-26 WPM		No Operations
5-3-2-26 WPM	89-08-09	Hot Oiled
6-3-2-26 WPM		No Operations
8-4-2-26 WPM	89-08-10	Replace BHP

WASKADA PRODUCTION COMMINGLING
FLUID LEVELS

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	89-07-25	93
	89-08-28	94
10-6-1-25 WPM	89-07-25	96
	89-08-28	96
8-32-1-25 WPM	89-07-25	96
	89-08-31	95
9-32-1-25 WPM	89-07-25	94
	89-08-15	95
9-33-1-25 WPM	89-07-19	91
	89-08-24	57 (Not Pumping)
8-8-2-25 WPM	89-07-25	93
	89-08-15	94
1-23-1-26 WPM	89-07-06	96
	89-08-25	96
9-24-1-26 WPM	89-08-31	95
12-24-1-26 WPM	89-07-19	96
	89-08-31	95
4-25-1-26 WPM	89-08-30	93
1-26-1-26 WPM	89-07-19	95
	89-08-17	94
2-26-1-26 WPM	89-08-28	69
11-34-1-26 WPM	89-07-19	95
	89-08-14	95
14-34-1-26 WPM	89-07-19	94
	89-08-20	96
7-35-1-26 WPM	89-07-18	96
	89-08-14	96
8-35-1-26 WPM	89-07-18	96
	89-08-21	95
9-35-1-26 WPM	89-07-18	96
	89-08-24	93

10-35-1-26 WPM	89-07-18	96
	89-08-24	94
11-35-1-26 WPM	89-07-18	95
	89-08-28	96
12-36-1-26 WPM	89-07-12	94
	89-08-14	94
5-3-2-26 WPM	89-07-19	93
	89-08-14	95
6-3-2-26 WPM	89-07-19	97
	89-08-25	96
8-4-2-26 WPM	89-07-27	62
	89-08-25	64
	89-08-31	96

John / Brad

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

August 30, 1989

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

Attention: R. A. Brekke, P. Eng.
Engineering Supervisor, Manitoba

Re: <u>Commingled Wells</u>

Further to discussions between Brad Thiessen of this office and Karen Hall in your production accounting group, please be advised of the following methodology for the calculation of royalties and taxes for commingled wells.

1. Commingled well producing from two non-unitized zones.

   - The production from both zones is summed. This total is used for royalty/tax purposes.

2. Commingled well producing from both a unitized zone and a non-unitized zone.

   - The actual production from the non-unitized zone is added to the allocated production from the unitized zone. This total is used for royalty/tax purposes.

3. Commingled well producing from two unitized zones.

   - The allocated production to each zone is used for royalty/tax purposes and is paid separately.

Yours sincerely,

Original Signed By
L. R. DUBREUIL

L. R. Dubreuil
Director of Petroleum

LRD/jtb

cc: Karen Hall
(Omega Hydrocarbons)

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

August 21, 1989

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

Attention: Mr. R. A. Brekke, P. Eng
Engineering Supervisor, Manitoba

Re: Commingled Production Approval
Omega Waskada 2-26-1-26 (WPM)

Dear Sir:

Attached is your approved application to recomplete the subject well and commingle production in the wellbore.

As with the previous approvals, the following conditions apply:

1. Oil and Gas Production Tax is to be calculated on the basis of total volume from the well not separately from each zone. In this case where both the Lower Amaranth and Mission Canyon are unitized, the total production from the well is equal to the production allocated to the well from both unitized zones.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

Original Signed
L. R. DUBREUIL

L. R. Dubreuil
Director of Petroleum

LRD/jtb

cc: Waskada Office

HYDROCARBONS LTD.

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

August 10, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

**RE: Omega Waskada 2-26-1-26 WPM
Application to Commingle Production**

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at these wells remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after August 22, 1989. Notification to offset mineral owners is not necessary as Omega owns the offset mineral rights. Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data from the tested zone. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

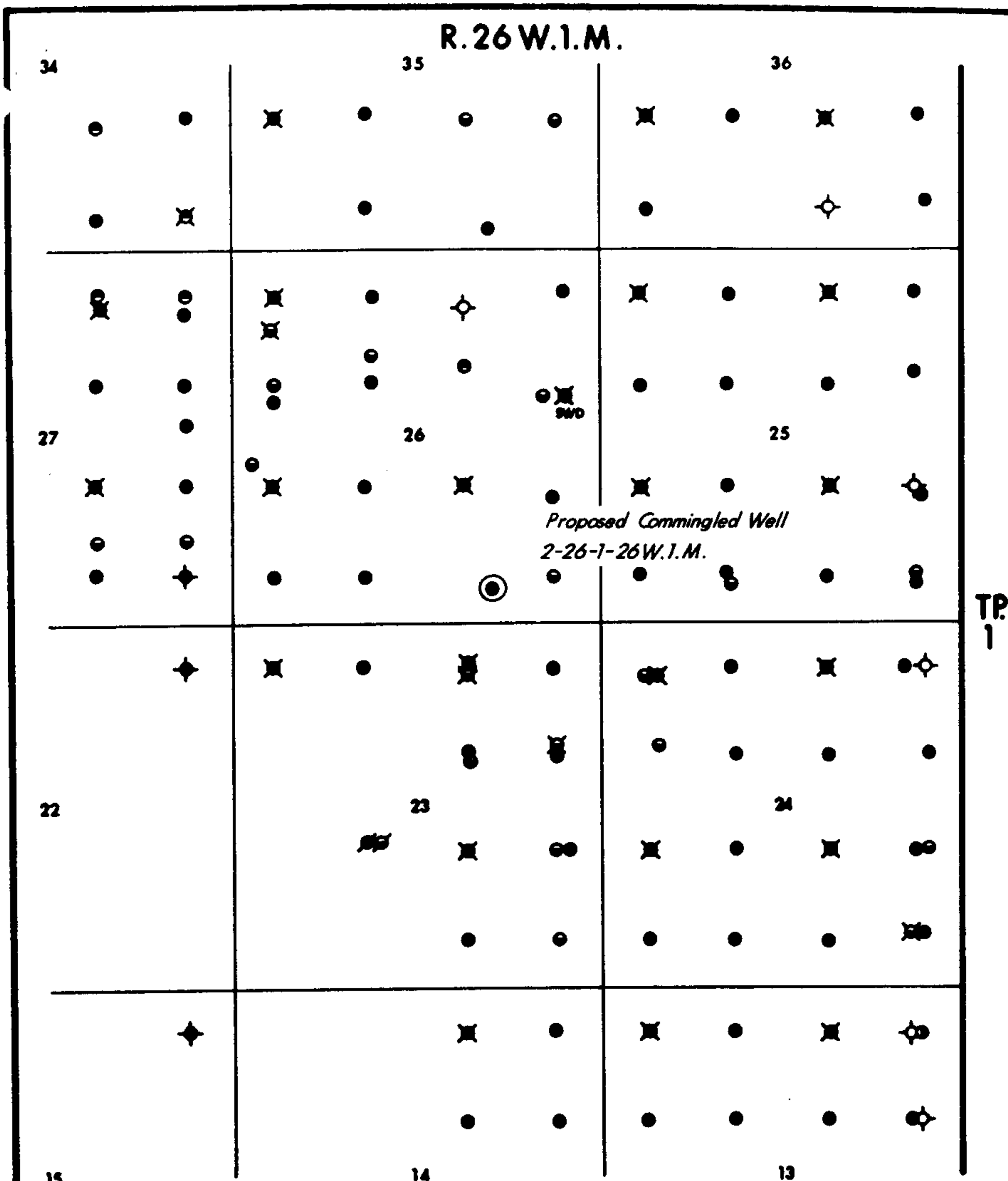
Description of Well

Name	Licence Number	Location
Omega Waskada 2-26-1-26 WPM	2722	Legal subdivision two (2) of Section twenty six (26), Township one (1), Range twenty six (26), West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD

WASKADA, MN.

WELL LOCATION MAP

1 : 25,000	AUG.
DAC	
	PAB

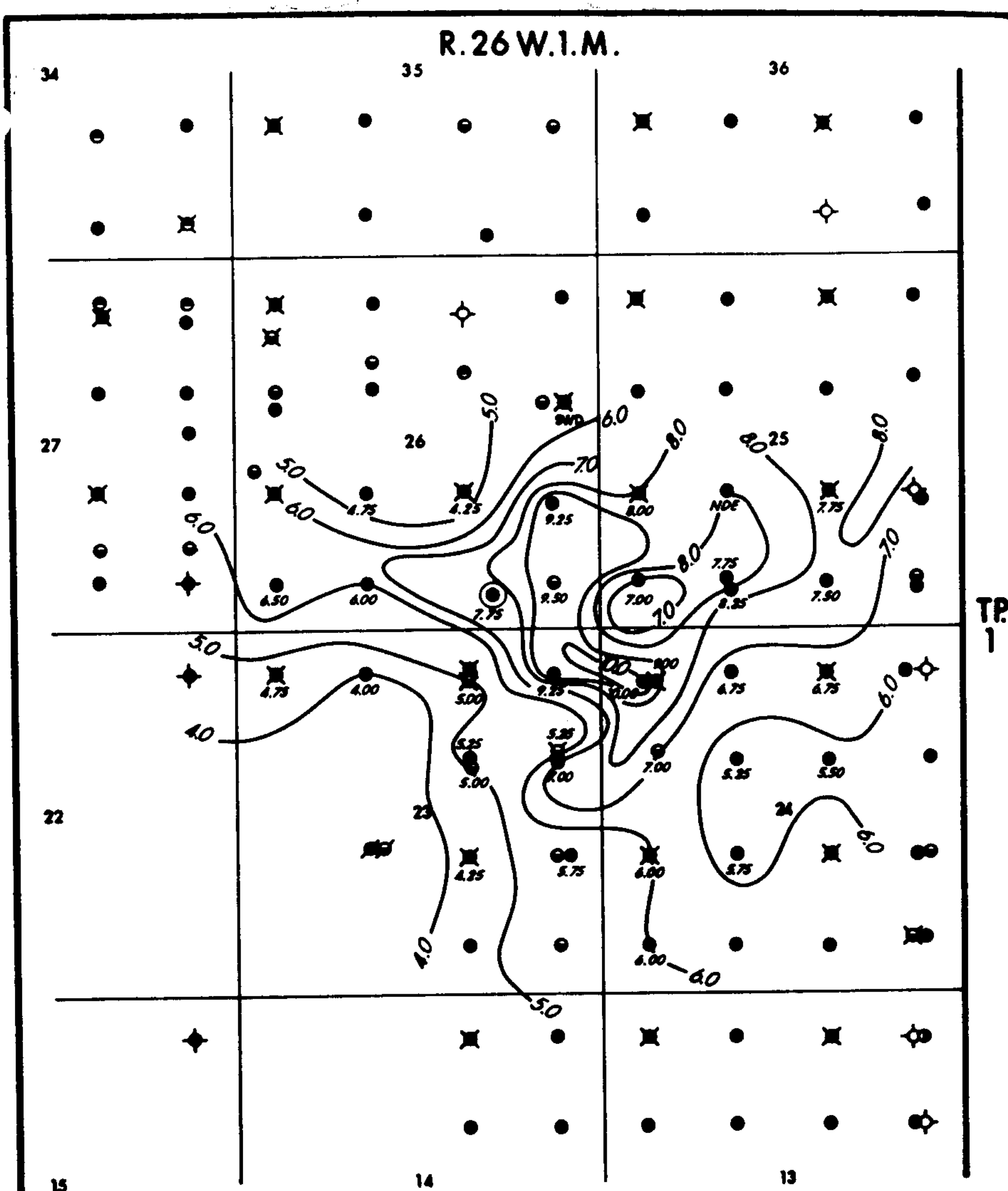
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness
Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 2-26-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map



◉ Proposed Commingled Well
● SPEAR FISH OIL WELL
● UPPER ALIDA(MC 3b) WELL
● LOWER ALIDA(MC3a) WELL
● TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

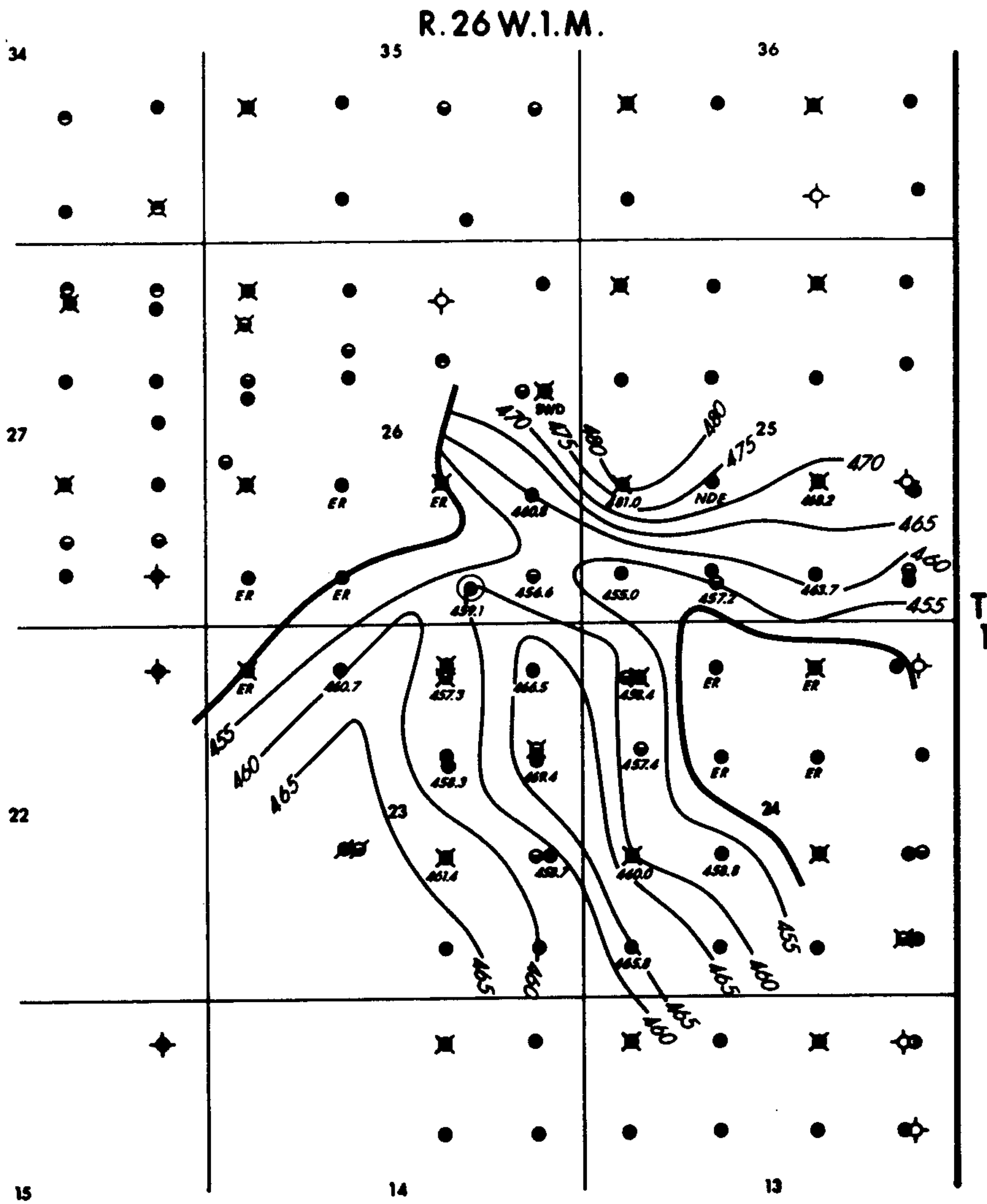
Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Amaranth Net Pay Map

1:25,000
AUG.
DAC
1.0 m
PAB



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

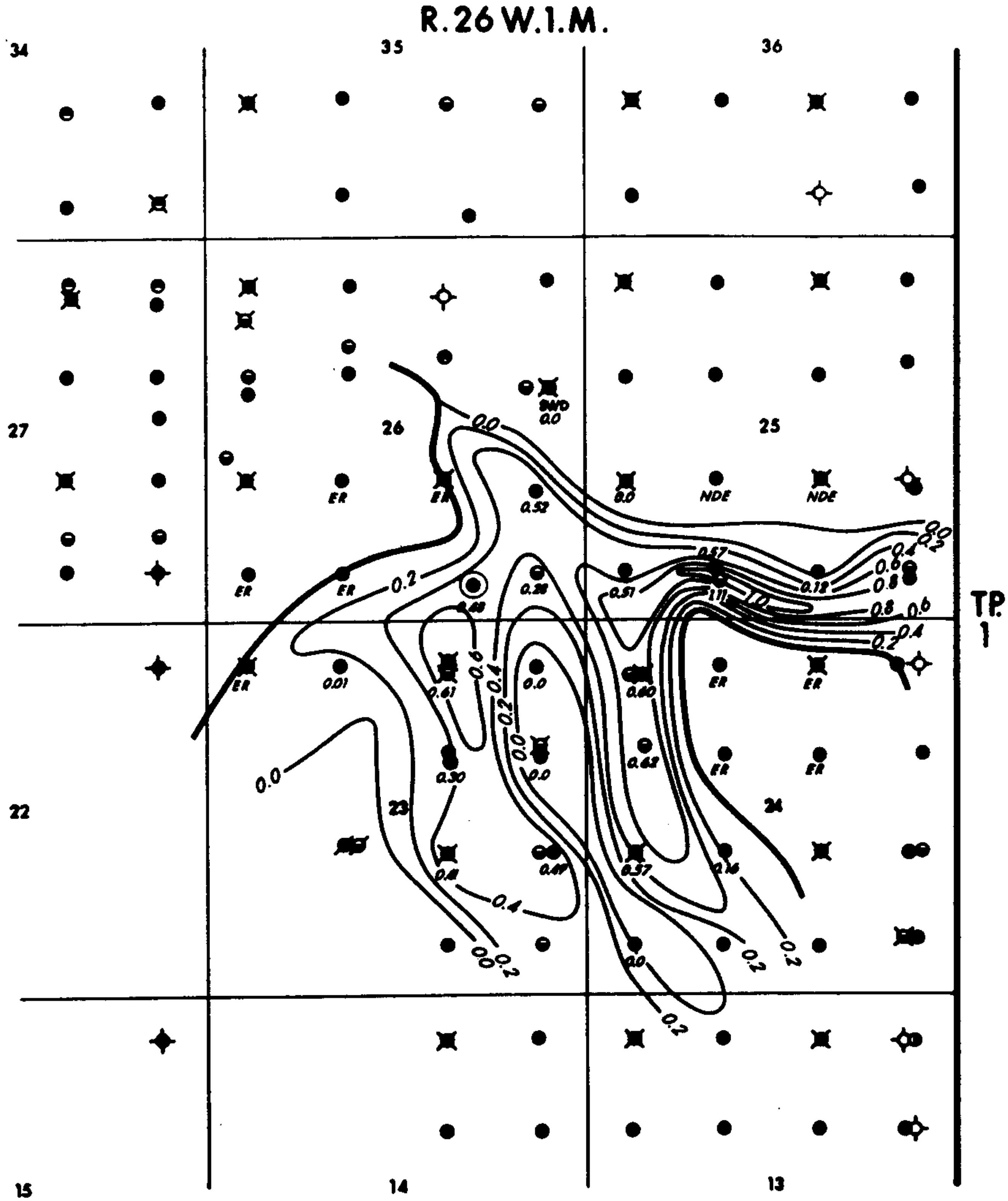
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3a Porosity

Scale: 1:25,000	Date: AUG. 1989
Geology: DAC	Contour Interval: 5.0 m
Revised:	File: / Drafting: PAB



◉ Proposed Commingled Well
● SPEAR FISH OIL WELL
● UPPER ALIDA(MC 3b) WELL
● LOWER ALIDA(MC3a) WELL
● TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Alida (MC3a) øh Map

Scale: 1:25,000	Date: AUG. 1989
Geology: DAC	Contour Interval: 0.2 øh
Revised:	File: Drafting: PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 2-26-1-26 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 2-26-1-26 WPM

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Make up bit on tubing. Drill out cement and retainer to 940.0 mKB. Circulate hole clean and pull tubing.
4) Rig up perforating unit.
5) Perforate the Lower Alida from 928.0-929.5 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
6) Run tubing w/retrievable packer. Set at 926.0 mKB.
7) Acid squeeze the Lower Alida using 5.0 m^3 15% HCL.
8) Run BHP and rods.
9) Release rig.

B. Lower Alida Evaluation

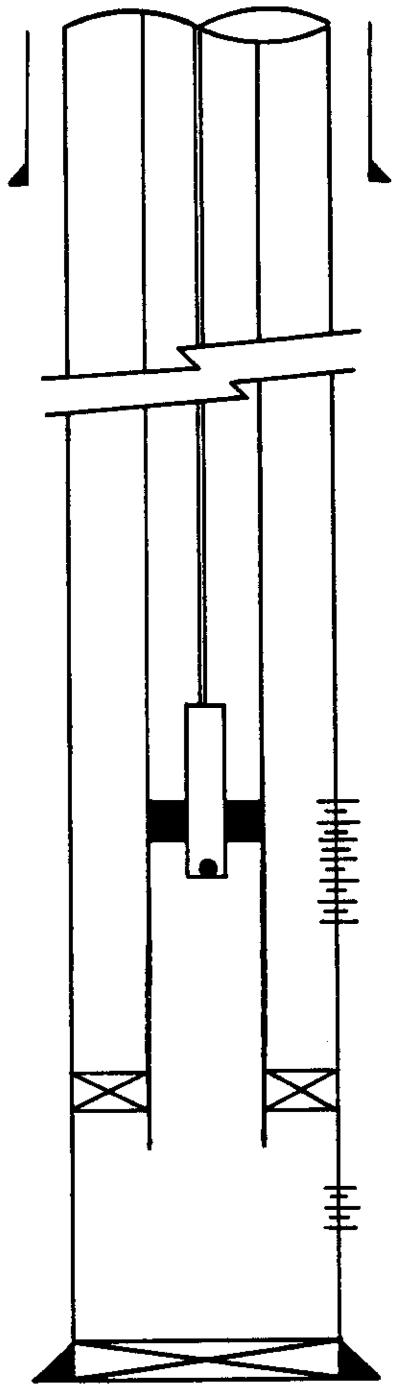
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida to a lease tank for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig up a perforated pup with a bull plugged retrievable packer on bottom of tubing.
5) Run and land at 931.5 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Land and set packer at 926.0 mKB.
4) Run BHP and rods.
5) Release rig.
6) Production test the Lower Amaranth for one week.
7) Move in service rig and rig up.
8) Pull BHP and rods.
9) Release packer and land at 931.5 mKB.
10) Run BHP and rods.
11) Release rig.
12) Put well on production.



60.3 mm Tubing

908.0 mKB
911.0 mKB
Lower Amaranth Completion Interval
912.0 mKB
920.0 mKB

926.0 mKB Retrievable Packer

928.0 mKB
Lower Alida Completion
929.5 mKB

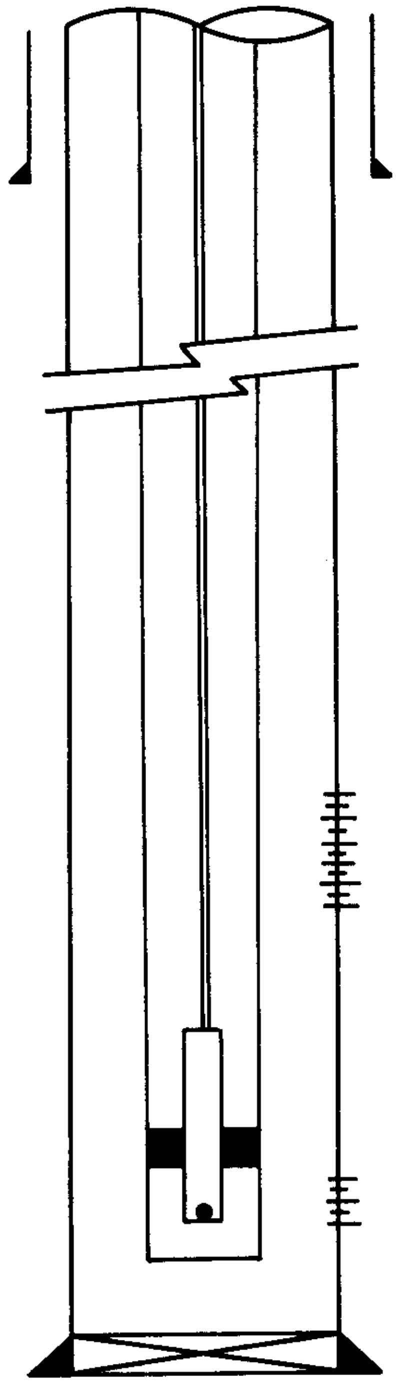
950.0 mKB

Schedule "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 2-26-1-26 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



60.3 mm Tubing

908.0 mKB
911.0 mKB
Lower Amaranth Completion Interval
912.0 mKB
920.0 mKB

928.0 mKB
Lower Alida Completion Interval
929.5 MKB

950.0 mKB 114.3 mm Casing Shoe

Schedule "E" Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Waskada 2-26-1-26 WPM
Commingled Production Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject well to be commingled under this application.

Location	Zone	Mission Canyon Øh (m)	Mission Canyon OOIP (m^3)	Mission Canyon Prod. Rate (m^3/d)	Mission Canyon Pool Pressure (kPa)	Lower Amaranth Øh (m)	Lower Amaranth OOIP (m^3)	Lower Amaranth Prod. Rate (m^3/d)	Lower Amaranth Pool Pressure (kPa)
2-26-1-26 WPM	LAlida	0.48	33391	2.5/2.2	2100	1.164	72561	5.6/3.0	9430

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the well to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Amaranth for 2-26-1-26 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for this well is estimated from the static gradient test performed at well 15-23-1-26 WPM performed in December 1988. The pool pressure for the Lower Alida zone is from the fall off test performed on well 9A-23-1-26 WPM in May 1987. A new test is scheduled for this well this year and the results will be forwarded as soon as the analysis is completed.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to June 1989
Offsetting Well 2-26-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
14-23-1-26 WPM	L. Amaranth	3.14	1.85
16-23-1-26 WPM	L. Amaranth	7.40	5.26
1-26-1-26 WPM	L. Alida/L. Amaranth	5.99	4.68
3-26-1-26 WPM	L. Amaranth	1.05	0.76
6-26-1-26 WPM	L. Amaranth	1.82	0.08
8-26-1-26 WPM	L. Amaranth	5.93	5.61

SCHEDULE "E" (i)

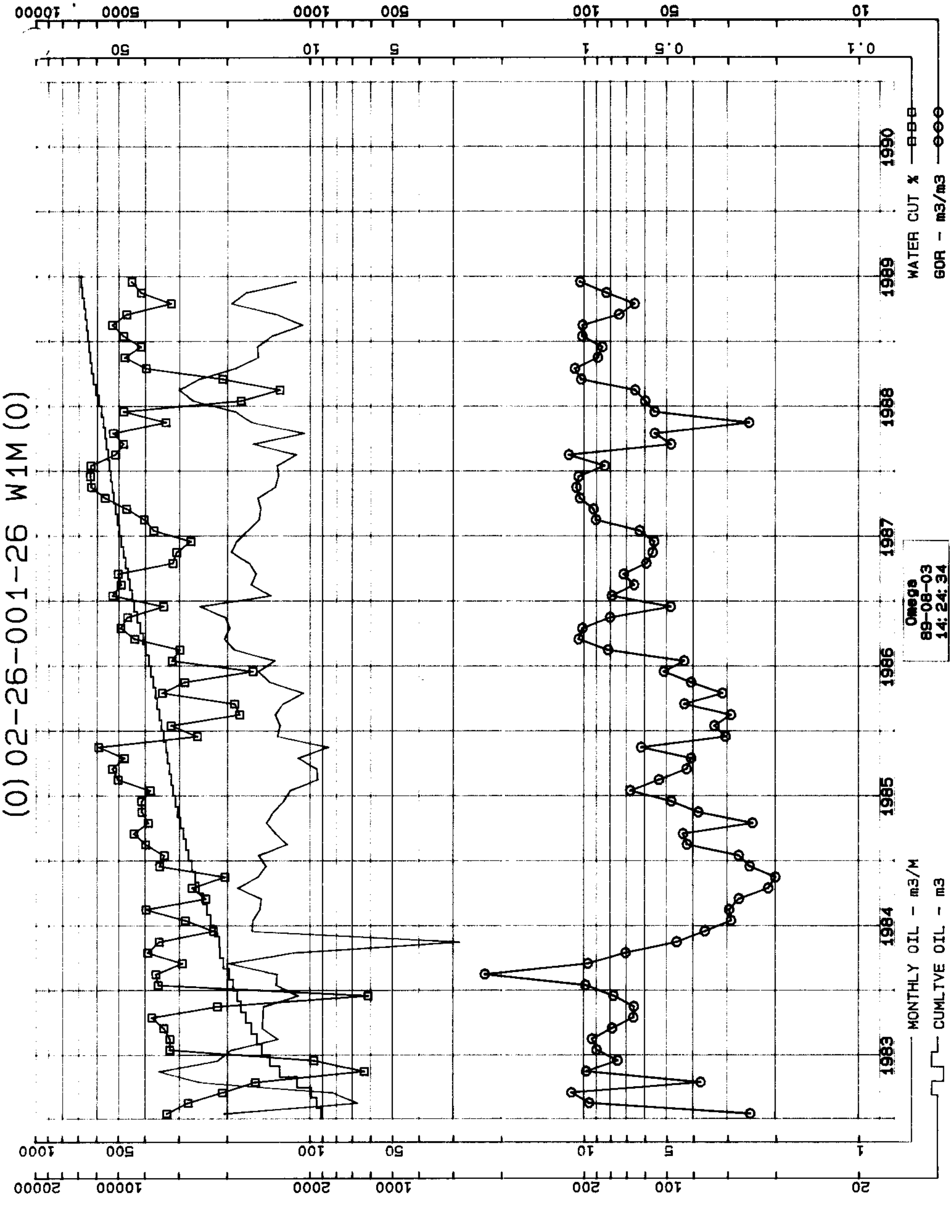
Attachment 2

Cumulative Water Injection to June 1989
Offsetting Well 2-26-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
9A-23-1-26 WPM	8310.0
15-23-1-26 WPM	76629.0
15A-23-1-26 WPM	21000.0
13A-24-1-26 WPM	86220.3
5-28-1-26 WPM	108117.0
7-26-1-26 WPM	63331.6

Lower Amaranth Production
Schedule "E" (i)

Attachment No. 3



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Alida Completion
B. Lower Alida Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the Mission Canyon.

2. Isolate the Lower Amaranth, recomplete the well in the Mission Canyon and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amaranth production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zone during the six month period prior to the recompletion of the Mission Canyon interval.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	(10^3m^3)
2-26-1-26 WPM	89/06/15	24	5.48	3.35	0.42
	89/06/03	24	5.49	2.95	0.36
	89/05/20	24	5.67	3.06	0.34
	89/05/02	24	5.83	2.74	0.26
	89/04/12	24	6.38	2.73	0.27
	89/04/02	24	7.08	1.88	0.28
	88/03/14	24	5.33	3.55	0.22
	89/03/02	24	3.66	1.97	0.14
	89/02/09	24	5.08	4.15	0.26
	89/02/07	24	5.69	3.20	0.25
	89/01/03	24	5.61	3.15	0.24
	AVERAGE		5.57	2.98	0.28

Average Water/Oil Ratio = 0.534 m^3/m^3
Average Gas/Oil Ratio = 50.245 m^3/m^3

WELL 2-26-1-26 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/07/22	0.6	1.3
89/07/23	2.7	6.2
89/07/24	1.6	3.7
89/07/25	3.2	1.1
89/07/26	3.1	3.1
89/07/27	2.2	2.3
89/07/28	2.4	2.5
89/07/29	2.3	2.1
89/07/30	2.0	1.9
89/07/31	3.1	2.5
89/08/01	2.1	1.7
89/08/02	2.1	1.9
89/08/03	1.8	1.6
89/08/04	3.1	2.8
89/08/05	2.0	2.5
89/08/06	2.0	2.4
89/08/07	2.5	2.2

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

July 14, 1989

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

Attention: Mr. R. A. Brekke, P. Eng
Engineering Supervisor, Manitoba

Re: Commingled Production Approval
Omega Waskada 4-25-1-26 (WPM)

Dear Sir:

Attached is your approved application to recomplete the subject well and commingle production in the wellbore.

As with the previous approvals, the following conditions apply:

1. Oil and Gas Production Tax is to be calculated on the basis of total volume from the well not separately from each zone. In this case where both the Lower Amaranth and Mission Canyon are unitized, the total production from the well is equal to the production allocated to the well from both unitized zones.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

ORIGINAL SIGNED BY
JOHN N. FOX

for L. R. Dubreuil
Director of Petroleum

LRD/jtb

cc: Waskada Office

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

July 10, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

RE: Omega Waskada 4-25-1-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at these wells remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after July 18, 1989. Notification to offset mineral owners is not necessary as Omega owns the offset mineral rights. Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data from the tested zone. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

For

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

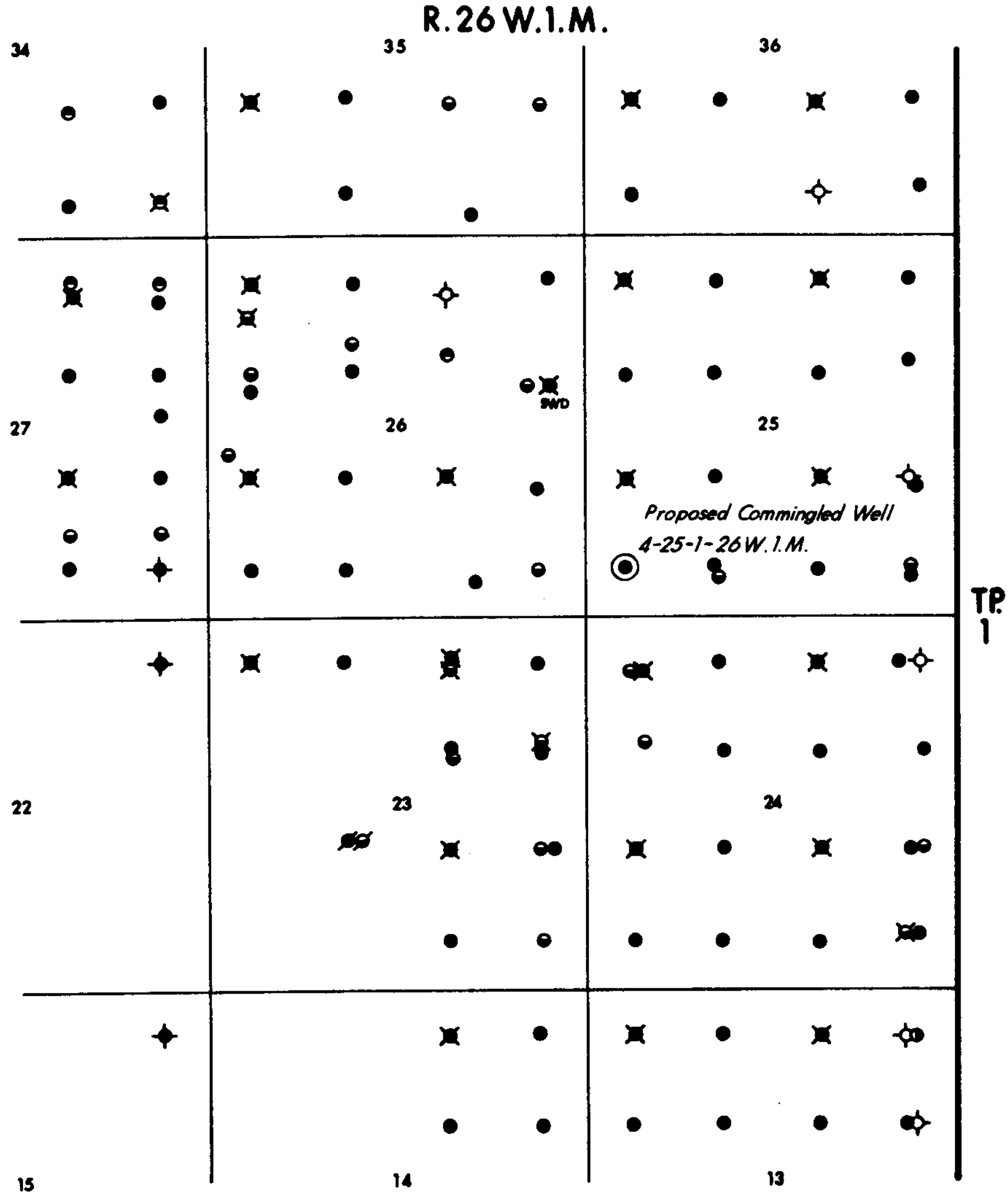
Description of Well

Name	Licence Number	Location
Omega Waskada 4-25-1-26 WPM	2686	Legal subdivision four (4) of Section twenty five (25), Township one (1), Range twenty six (26), West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
WELL LOCATION MAP

Scale: 1 : 25,000	Date: JULY 1989
Geology: DAC	Contour Interval:
Revised:	File: / Drafting: PAB

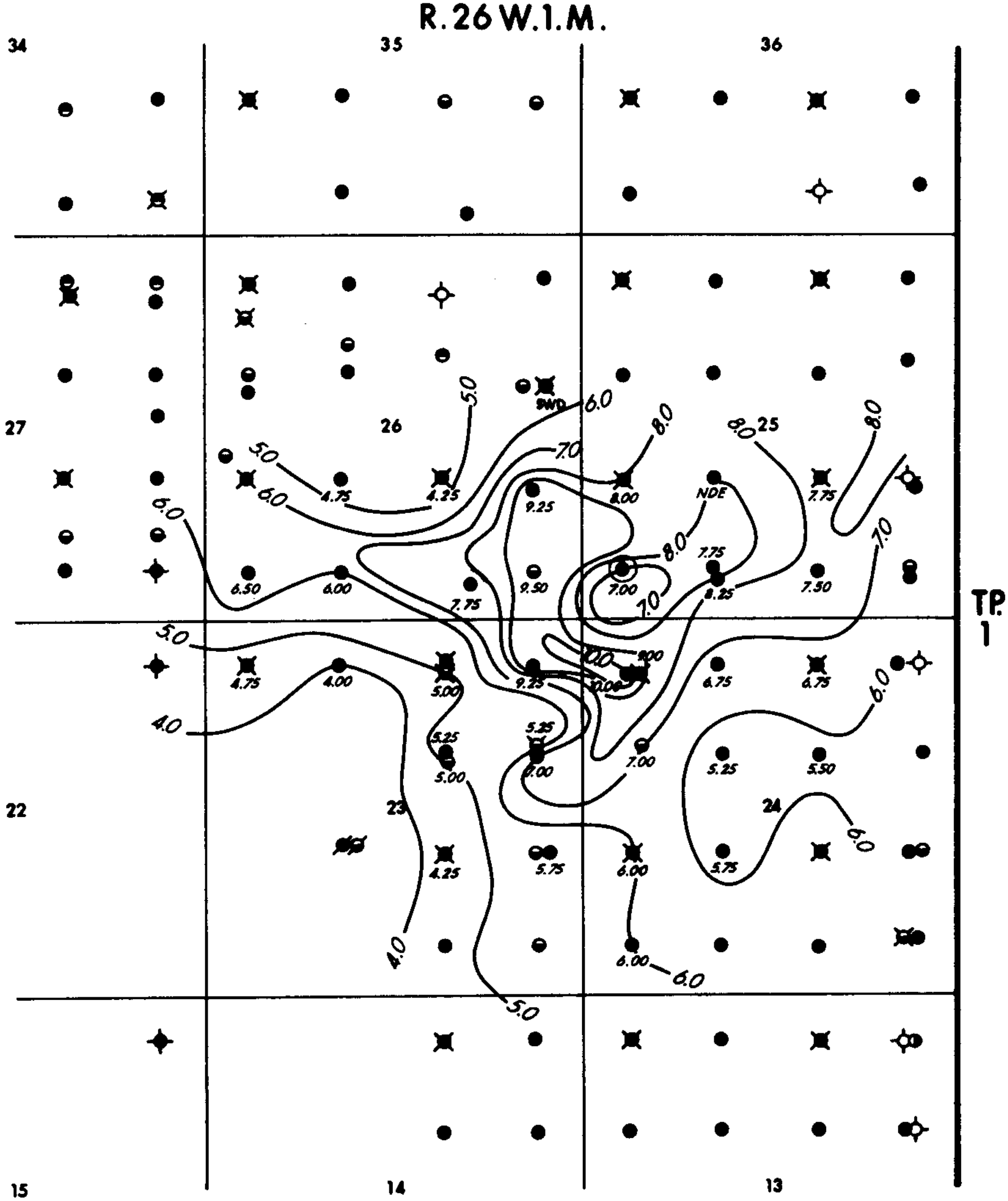
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 4-25-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map



- ◉ Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

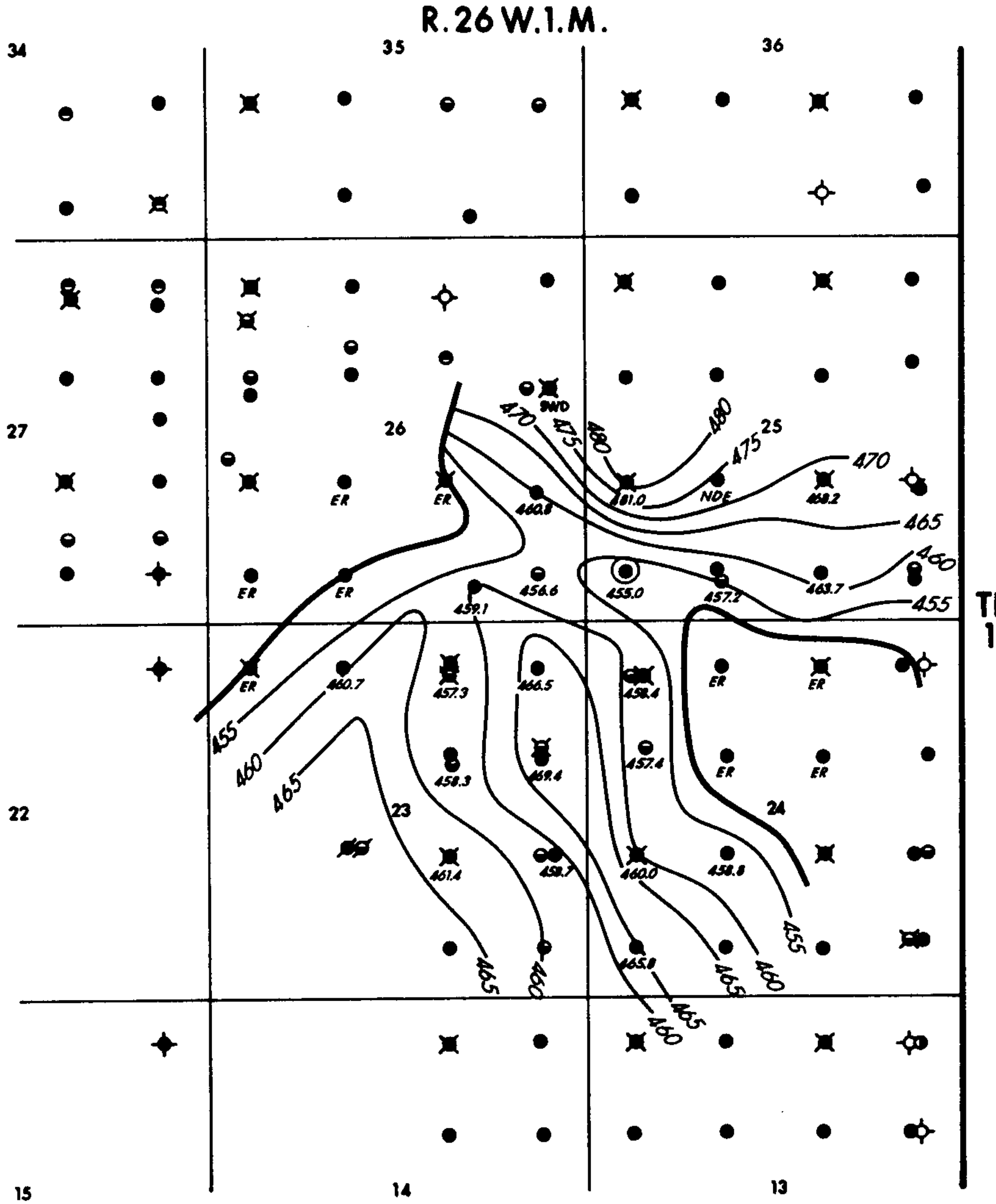
Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD

WASKADA, MN.

Lower Amaranth Net Pay Map

[illegible]: 1:25,000	[illegible]: JULY [illegible]
[illegible]: DAC	[illegible]: 1.0 m
[illegible]:	[illegible]: / [illegible]: PAB



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

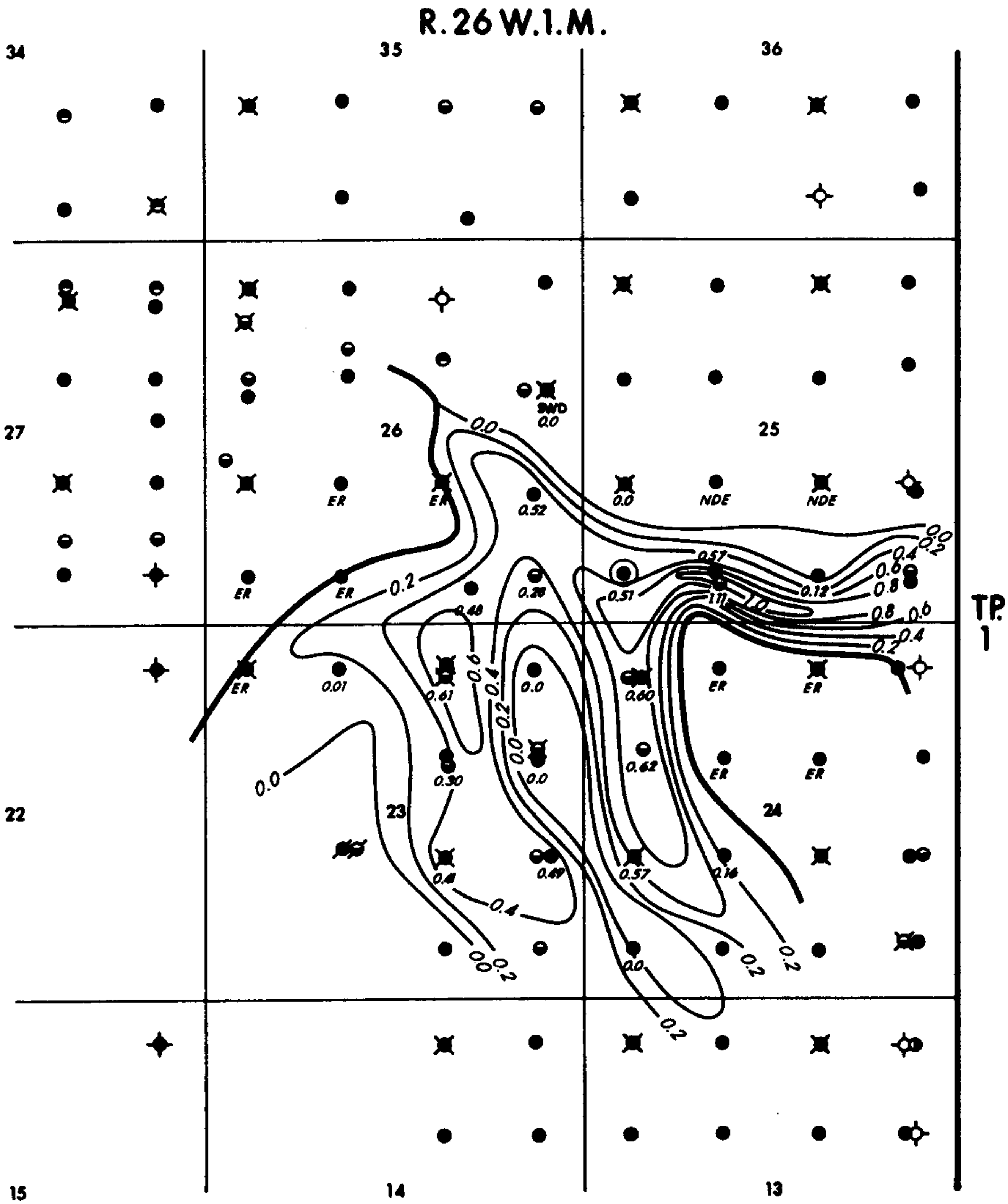
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3a Porosity

Scale: 1:25,000	Date: JULY 1989
Geology: DAC	Contour Interval: 5.0 m
Revised:	File: / Drafting: PAB



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD

WASKADA, MN.

Lower Alida (MC3a) ø h Map

Scale: 1:25,000	Date: JULY 1989
Geology: DAC	Contour Interval: 0.2 øh
Revised:	File: / Drafting: PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 4-25-1-26 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 4-25-1-26 WPM

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Make up bit on tubing. Drill out cement and retainer to 940.0 mKB. Circulate hole clean and pull tubing.
4) Rig up perforating unit.
5) Perforate the Lower Alida from 925.5-929.0 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
6) Run tubing w/retrievable packer. Set at 924.0 mKB.
7) Acid squeeze the Lower Alida using 5.0 m^3 15% HCL.
8) Run BHP and rods.
9) Release rig.

B. Lower Alida Evaluation

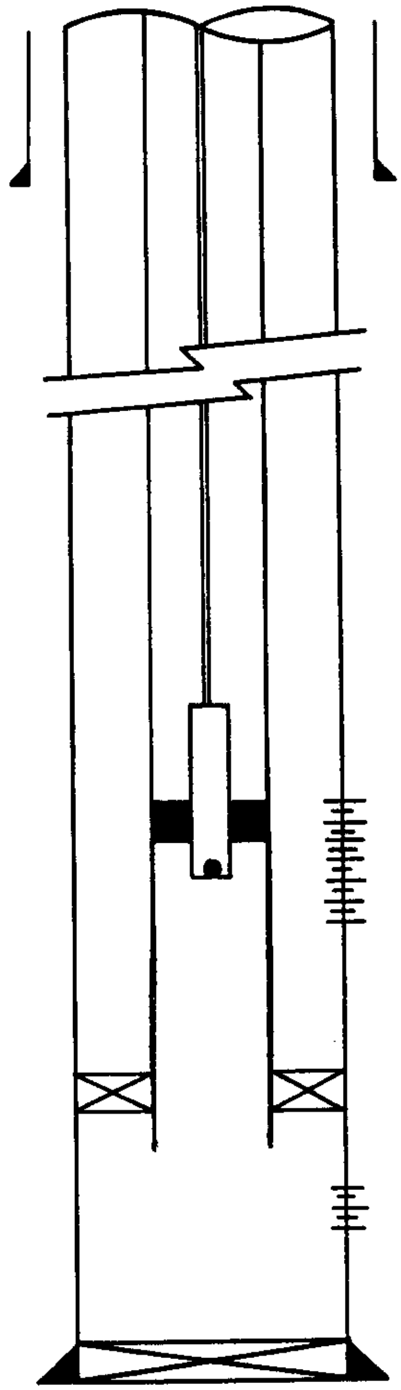
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida to a lease tank for 1 week.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig out packer and run in tubing.
5) Circulate hole clean to PBTD. Land tubing at 933.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Land and set packer at 924.0 mKB.
4) Run BHP and rods.
5) Release rig.
6) Production test the Lower Amaranth for one week.
7) Move in service rig and rig up.
8) Pull BHP and rods.
9) Release packer and land at 933.0 mKB.
10) Run BHP and rods.
11) Release rig.
12) Put well on production.



60.3 mm Tubing

901.0 mKB
919.0 mKB
Lower Amaranth Completion Interval
921.0 mKB
922.0 mKB

924.0 mKB Retrievable Packer

925.5 mKB
Lower Alida Completion
929.0 mKB

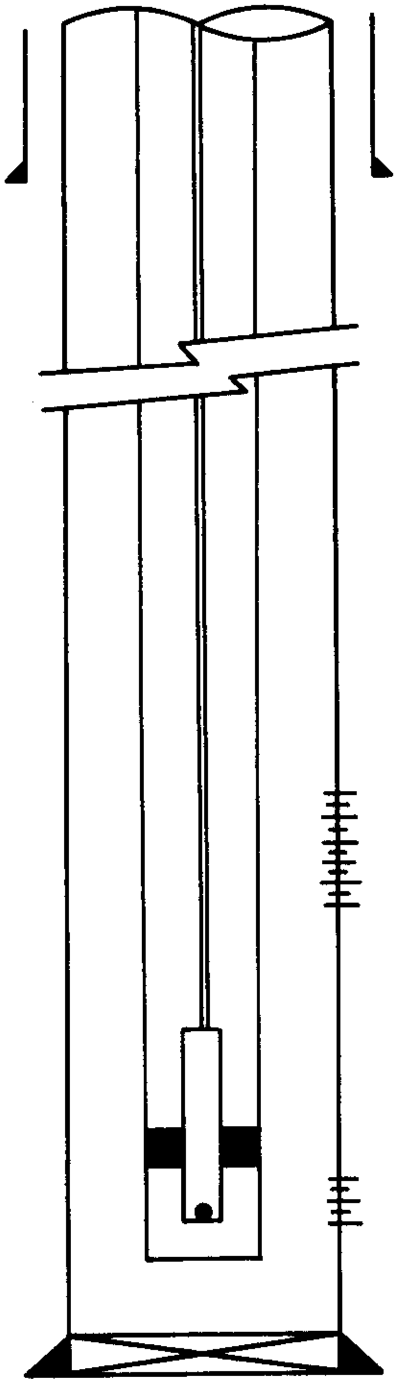
959.1 mKB 114.3 mm Casing Shoe

Schedule "D" Attachment no. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 4-25-1-26 WPM
Current Completion

Scale:	Date:
Geology:	Contour interval:
Revised:	File: / Drafting:



60.3 mm Tubing

901.0 mKB
919.0 mKB
Lower Amaranth Completion Interval
921.0 mKB
922.0 mKB

925.5 mKB
Lower Alida Completion Interval
929.0 mKB

959.1 mKB 114.3 mm Casing Shoe

Schedule "E" Attachment No. 3

OMEGA HYDROCARBONS LTD

Omega Waskada 4-25-1-26 WPM
Commingled Production Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject well to be commingled under this application.

Location	Mission Canyon Zone	Mission Canyon Øh (m)	Mission Canyon OOIP (m^3)	Mission Canyon Prod. Rate (m^3/d)	Mission Canyon Pool Pressure (kPa)	Lower Amaranth Øh (m)	Lower Amaranth OOIP (m^3)	Lower Amaranth Prod. Rate (m^3/d)	Lower Amaranth Pool Pressure (kPa)
4-25-1-26 WPM	LAlida	0.51	35478	4.3/1.9	2100	1.164	72561	4.5/1.2	5300

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the well to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Amaranth for 4-25-1-26 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for this well is estimated from the static gradient test performed at well 5-25-1-26 WPM performed in May 1989. The pool pressure for the Lower Alida zone is from the fall off test performed on well 9A-23-1-26 WPM in May 1987. A new test is scheduled for this well this year and the results will be forwarded as soon as the analysis is completed.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to May 1989
Offsetting Well 4-25-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
16-23-1-26 WPM	L. Amaranth	11.10	1.7
13-24-1-26 WPM	L. Alida	0.00	2.7
14-24-1-26 WPM	L. Amaranth	4.84	1.4
3-25-1-26 WPM	L. Amaranth	5.90	0.3
3A-25-1-26 WPM	L. Alida	1.30	2.4
6-23-1-26 WPM	L. Amaranth	7.00	12.0
1-26-1-26 WPM	L. Alida	9.20	5.3
8-26-1-26 WPM	L. Amaranth	6.40	10.5

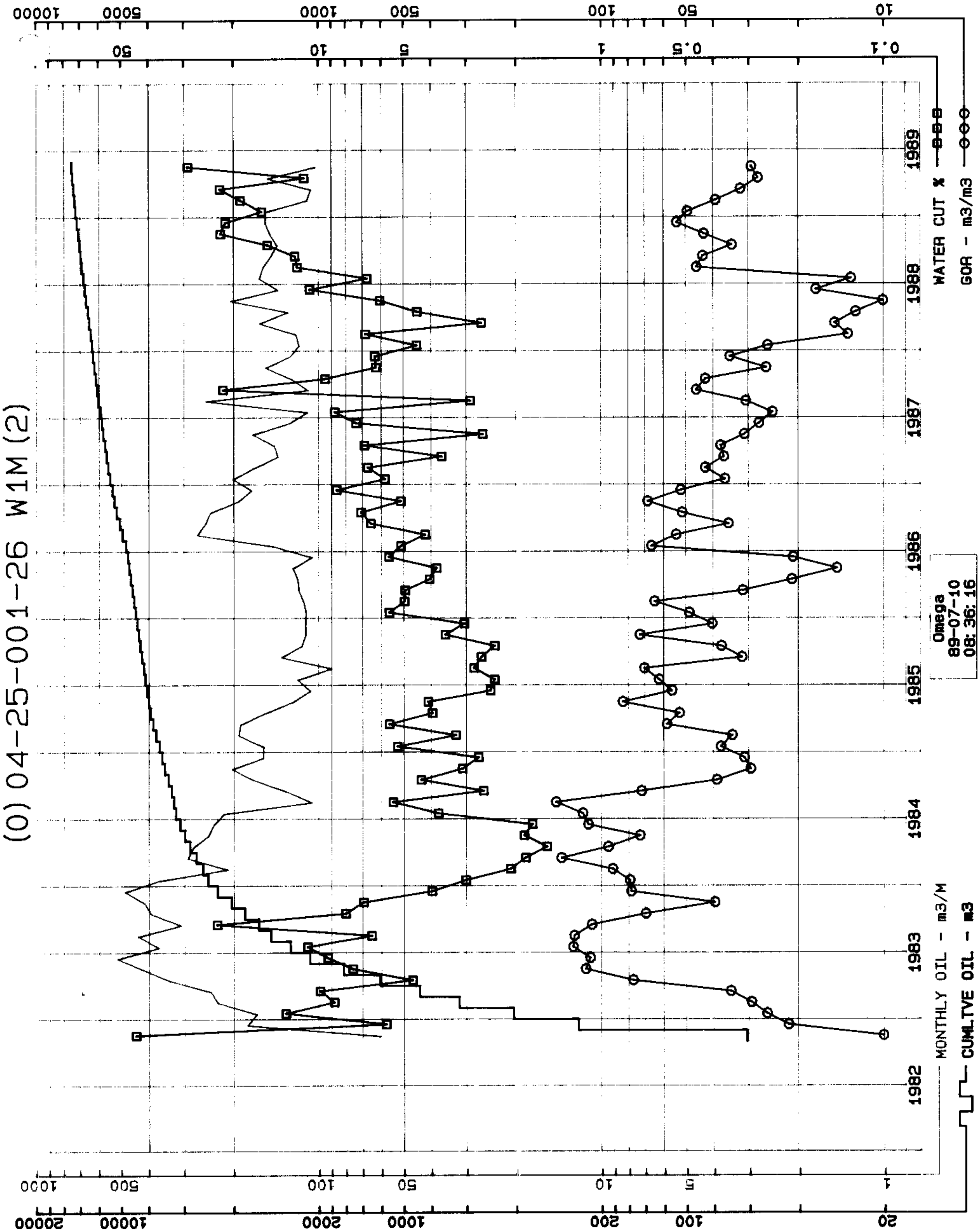
SCHEDULE "E" (i)

Attachment 2

Cumulative Water Injection to May 1989
Offsetting Well 4-25-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
9A-23-1-26 WPM	8310.0
15-23-1-26 WPM	76533.7
15A-23-1-26 WPM	21000.0
13A-24-1-26 WPM	86069.1
15-24-1-26 WPM	84097.9
5-25-1-26 WPM	108117.0
7-25-1-26 WPM	90148.5
7-26-1-26 WPM	63331.6

Lower Amaranth Production
Schedule "E" (i)



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Alida Completion
B. Lower Alida Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the Mission Canyon.

2. Isolate the Lower Amaranth, recomplete the well in the Mission Canyon and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amaranth production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zone during the six month period prior to the recompletion of the Mission Canyon interval.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	(10^3m^3)
4-25-1-26 WPM	89/05/25	24	4.77	0.84	0.09
	89/05/02	24	4.24	3.76	0.08
	89/04/04	24	3.95	0.64	0.06
	89/03/27	24	4.16	0.91	0.07
	89/03/03	24	4.29	0.70	0.06
	89/02/12	24	4.58	0.81	0.08
	89/01/12	24	5.18	0.45	0.10
	88/12/17	24	4.90	1.08	0.11
			4.51	1.15	0.08

Average Water/Oil Ratio = 0.255 m^3/m^3
Average Gas/Oil Ratio = 17.738 m^3/m^3

WELL 9-24-1-26 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/06/23	0.0	11.5
89/06/24	0.0	2.1
89/06/25	0.0	10.4
89/06/26	0.0	6.7
89/06/27	2.3	5.3
89/06/28	4.7	2.1
89/06/29	5.1	2.3
89/06/30	4.8	2.1
89/07/01	4.6	2.1
89/07/02	4.5	2.0
89/07/03	4.3	2.0
89/07/04	3.9	1.8
89/07/05	4.8	2.1
89/07/06	3.9	1.8
89/07/07	3.9	1.7
89/07/08	4.3	1.9

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

June 28, 1989

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

Attention: Mr. R. A. Brekke, P. Eng
Engineering Supervisor, Manitoba

Re: Commingled Production Approval
Omega Waskada 9-24-1-26 (WPM)

Dear Sir:

Attached is your approved application to recomplete the subject well and commingle production in the wellbore.

As with the previous approvals, the following conditions apply:

1. Oil and Gas Production Tax is to be calculated on the basis of total volume from the well not separately from each zone. In this case where both the Lower Amaranth and Mission Canyon are unitized, the total production from the well is equal to the production allocated to the well from each of the units.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

L R Dubreuil

L. R. Dubreuil
Director of Petroleum

LRD/jtb

cc: Waskada Office

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
JUN 22 1989
PETROLEUM BRANCH

June 19, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

RE: Omega Chevron Waskada 9-24-1-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at these wells remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after June 27, 1989. To expedite the approval process, we have directly sent notification of this application to the offset mineral owners, Sabre Petroleums Ltd.

Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data from the tested zone. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

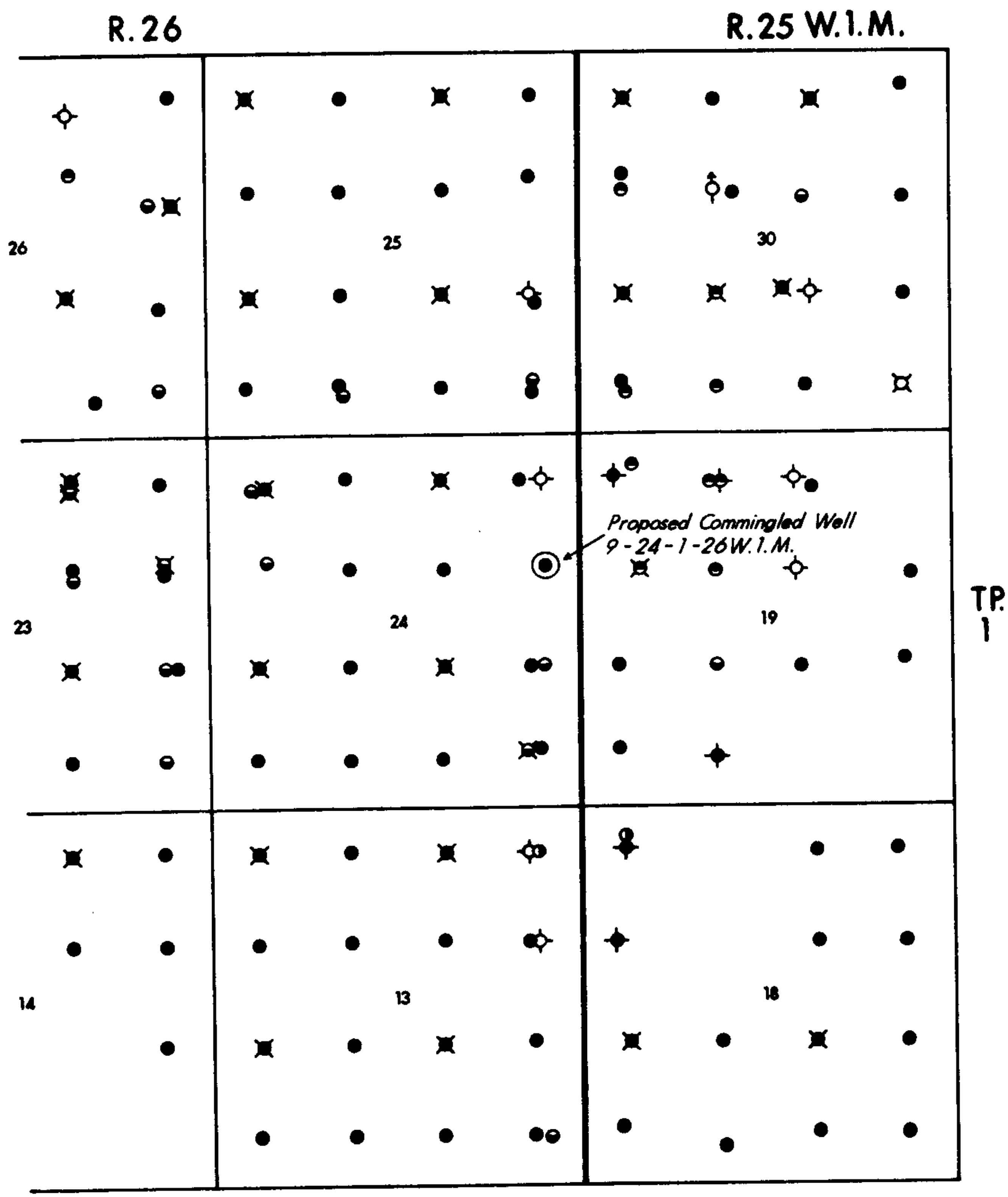
Description of Well

Name	Licence Number	Location
Omega Waskada 9-24-1-26 WPM	2726	Legal subdivision nine (9) of Section twenty four (24), Township one (1), Range twenty six (26), West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD

WASKADA, MN.
WELL LOCATION MAP

Scale: 1 : 25,000	Date: JUNE 1989
Geology: DAC	Contour Interval:
Revised:	File: / Drafting: PAB

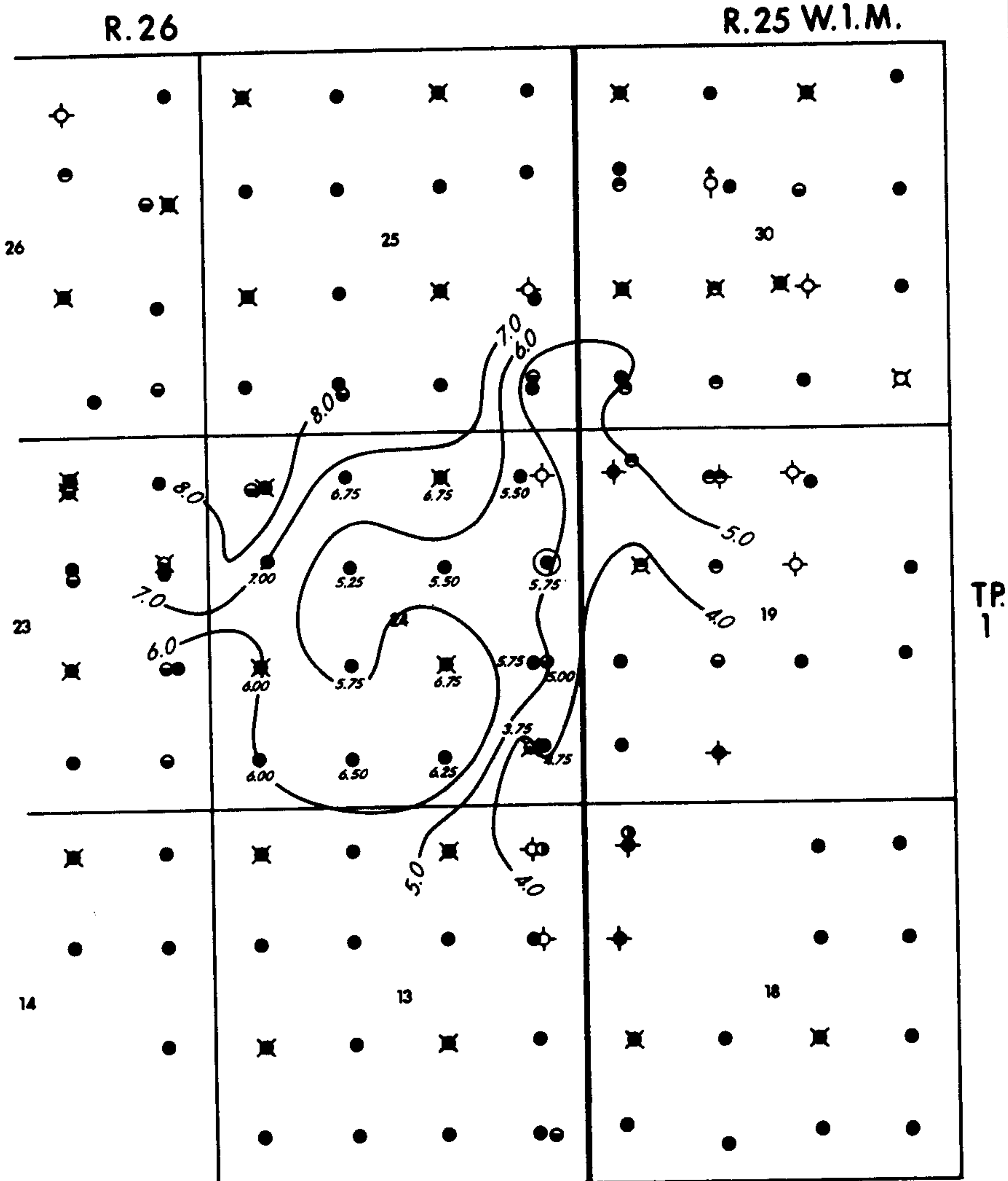
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness
Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Chevron Waskada 9-24-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

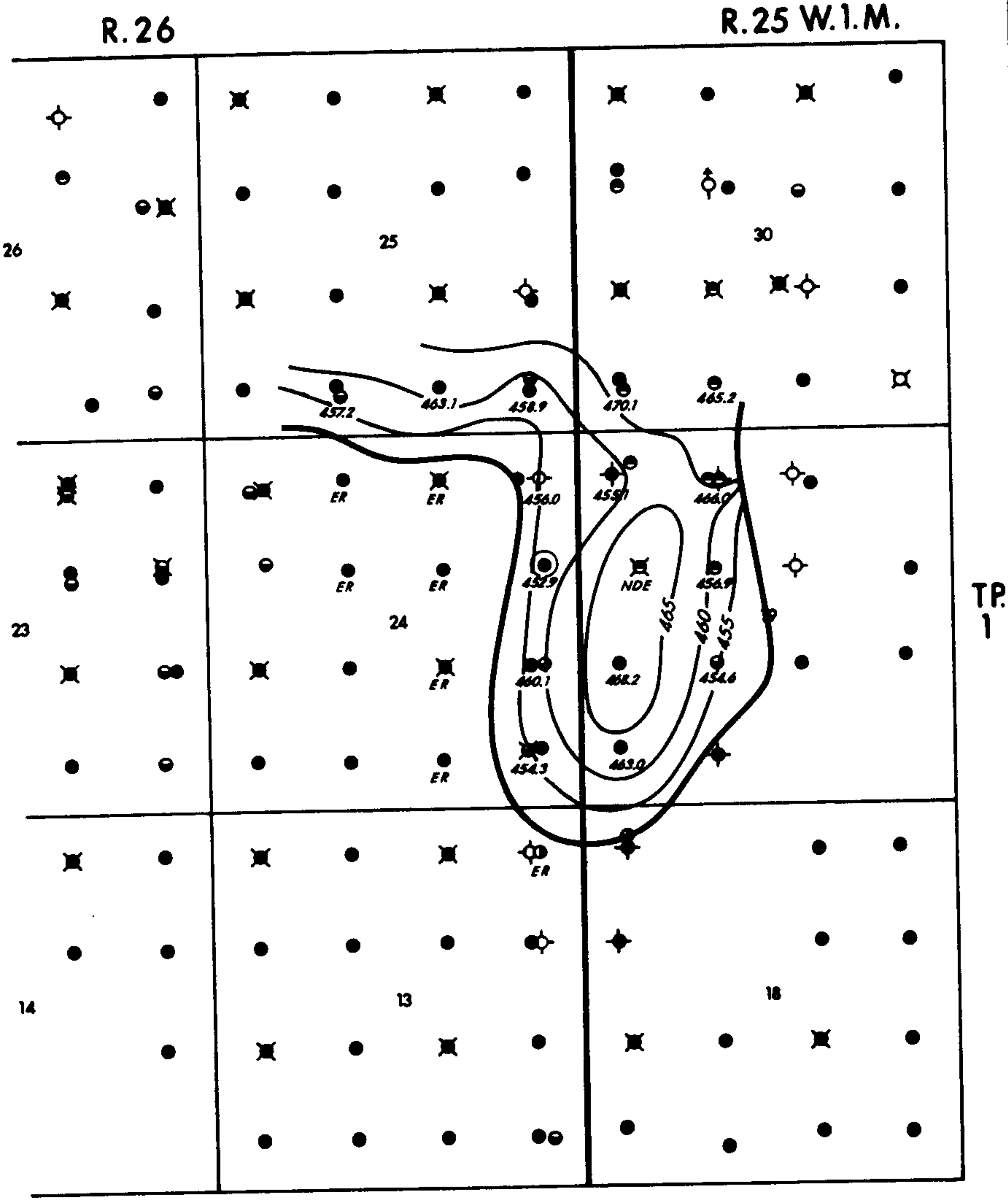
Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD

WASKADA, MN.

Lower Amaranth Net Pay Map

Scale: 1: 25,000	Date: JUNE '89
Geology: DAC	Contour Interval: 1.0 m
Revised:	File: / Drafting: PAB



◉ Proposed Commingled Well
● SPEAR FISH OIL WELL
● UPPER ALIDA(MC 3b) WELL
● LOWER ALIDA(MC3a) WELL
● TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

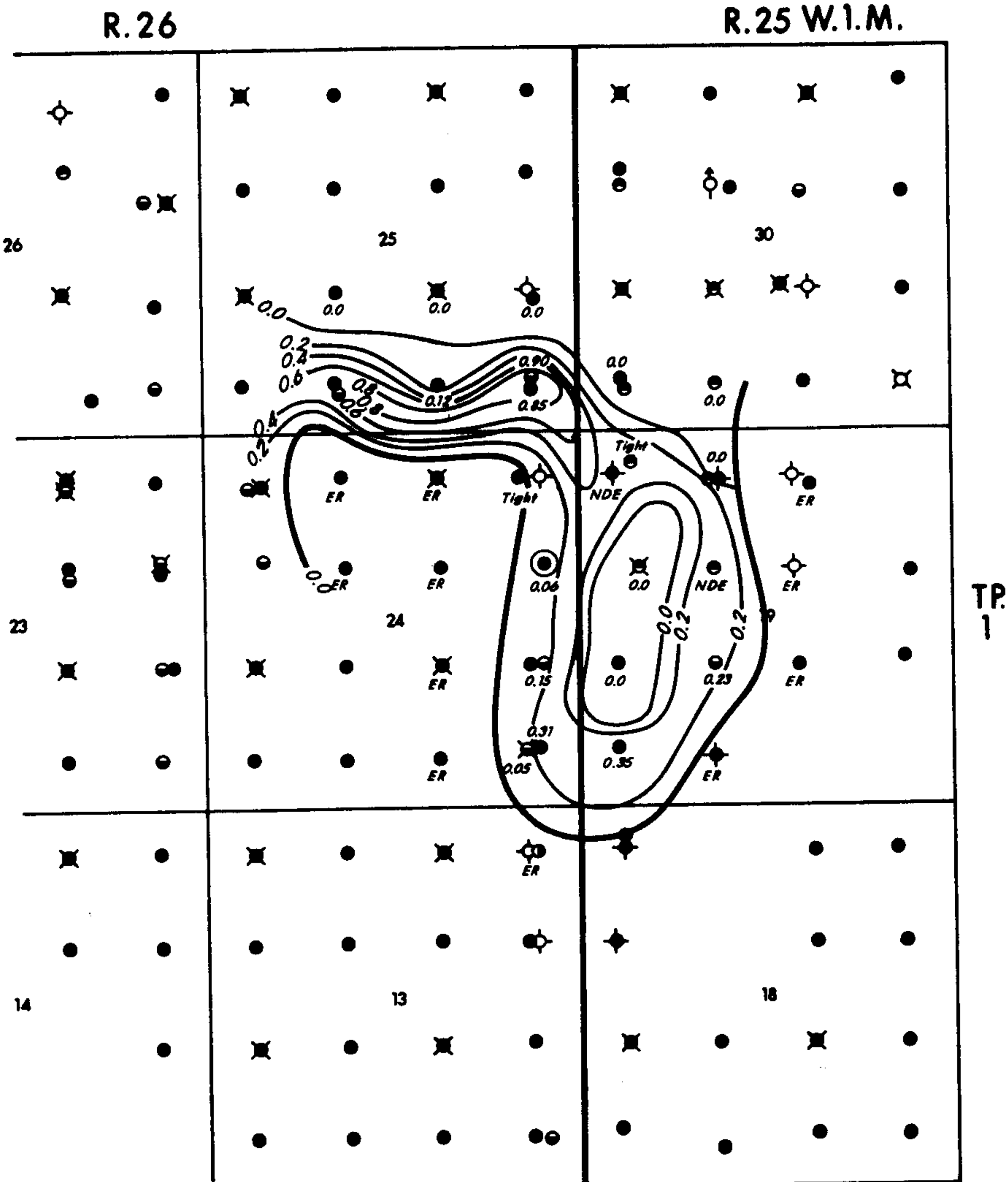
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3a Porosity

Scale: 1:25,000	Date: JUNE '89
Geology: DAC	Contour Interval: 5.0 m
Revised:	File: / Drafting: FAB



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Alida(MC3a) φh Map

Scale: 1:25,000	Date: JUNE '89
Geology: DAC	Contour Interval: 0.2 φh
Revised:	File: / Drafting: PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Chevron Waskada 9-24-1-26 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 9-24-1-26 WPM

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Make up bit on tubing. Drill out cement and retainer to 940.0 mKB. Circulate hole clean and pull tubing.
4) Rig up perforating unit.
5) Perforate the Lower Alida from 930.0-932.5 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
6) Run tubing w/retrievable packer. Set at 929.0 mKB.
7) Acid squeeze the Lower Alida using 5.0 m^3 15% HCL.
8) Run BHP and rods.
9) Release rig.

B. Lower Alida Evaluation

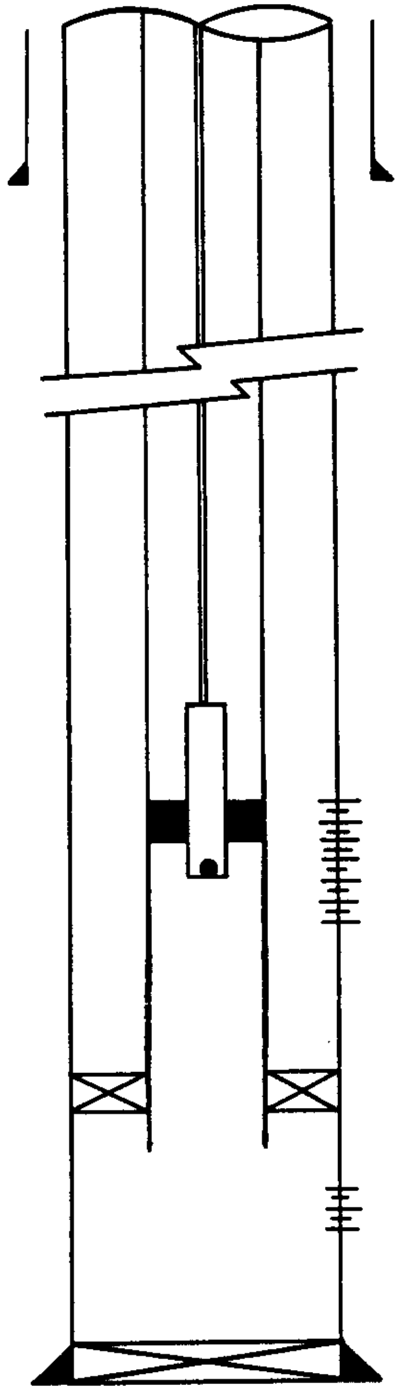
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida to a lease tank for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer.
4) Circulate hole clean and pull tubing.
5) Make up perforated pup above a bull plugged retrievable packer on tubing. Run and land tubing at 936.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Land and set packer at 929.0 mKB.
4) Run BHP and rods.
5) Release rig.
6) Production test the Lower Amaranth for one week.
7) Move in service rig and rig up.
8) Pull BHP and rods.
9) Release packer and land at 936.0 mKB.
10) Run BHP and rods.
11) Release rig.
12) Put well on production.

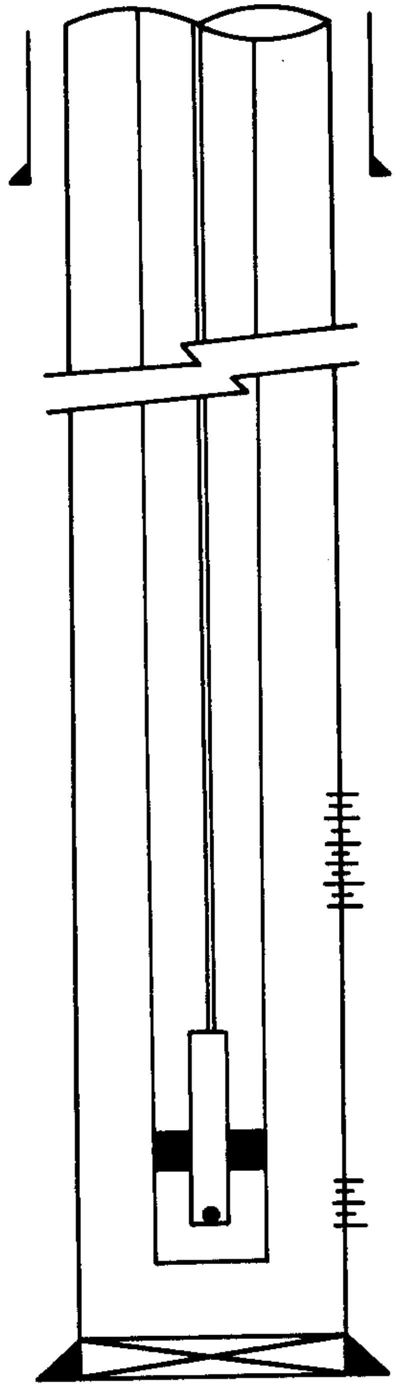


Schedule "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-24-1-26 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:



Schedule "D" Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-24-1-26 WPM
Commingled Production Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject wells to be commingled under this application.

Location	Zone	Mission Canyon Øh (m)	Mission Canyon OOIP (m^3)	Mission Canyon Prod. Rate (m^3/d)	Mission Canyon Pool Pressure (kPa)	Lower Amaranth Øh (m)	Lower Amaranth OOIP (m^3)	Lower Amaranth Prod. Rate (m^3/d)	Lower Amaranth Pool Pressure (kPa)
9-24-1-26 WPM	LAlida	0.063	4383	2.9/0.7	5142	1.164	72561	2.4/0.6	9400

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the well to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Amaranth for 9-24-1-26 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for this well is estimated from the fall off tests performed at wells 7-24 and 15-24-1-26 WPM performed in June and April 1987. The pool pressure for the Lower Alida zone is from the fall off test performed on well 1-24-1-26 WPM. New tests are scheduled for the Lower Amaranth wells this year and the results will be forwarded as soon as the analyses are completed.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to April 1989
Offsetting Well 9-24-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
5-19-1-25 WPM	L. Amaranth	NOT PRODUCING	
13-19-1-25 WPM	U. Alida	2.3	8.0
13A-19-1-25 WPM	L. Amaranth	NOT PRODUCING	
8-24-1-26 WPM	L. Alida	3.4	4.6
8A-24-1-26 WPM	L. Amaranth	2.8	0.5
10-24-1-26 WPM	L. Amaranth	1.2	0.5
16-24-1-26 WPM	L. Amaranth	4.1	4.0

SCHEDULE "E" (i)

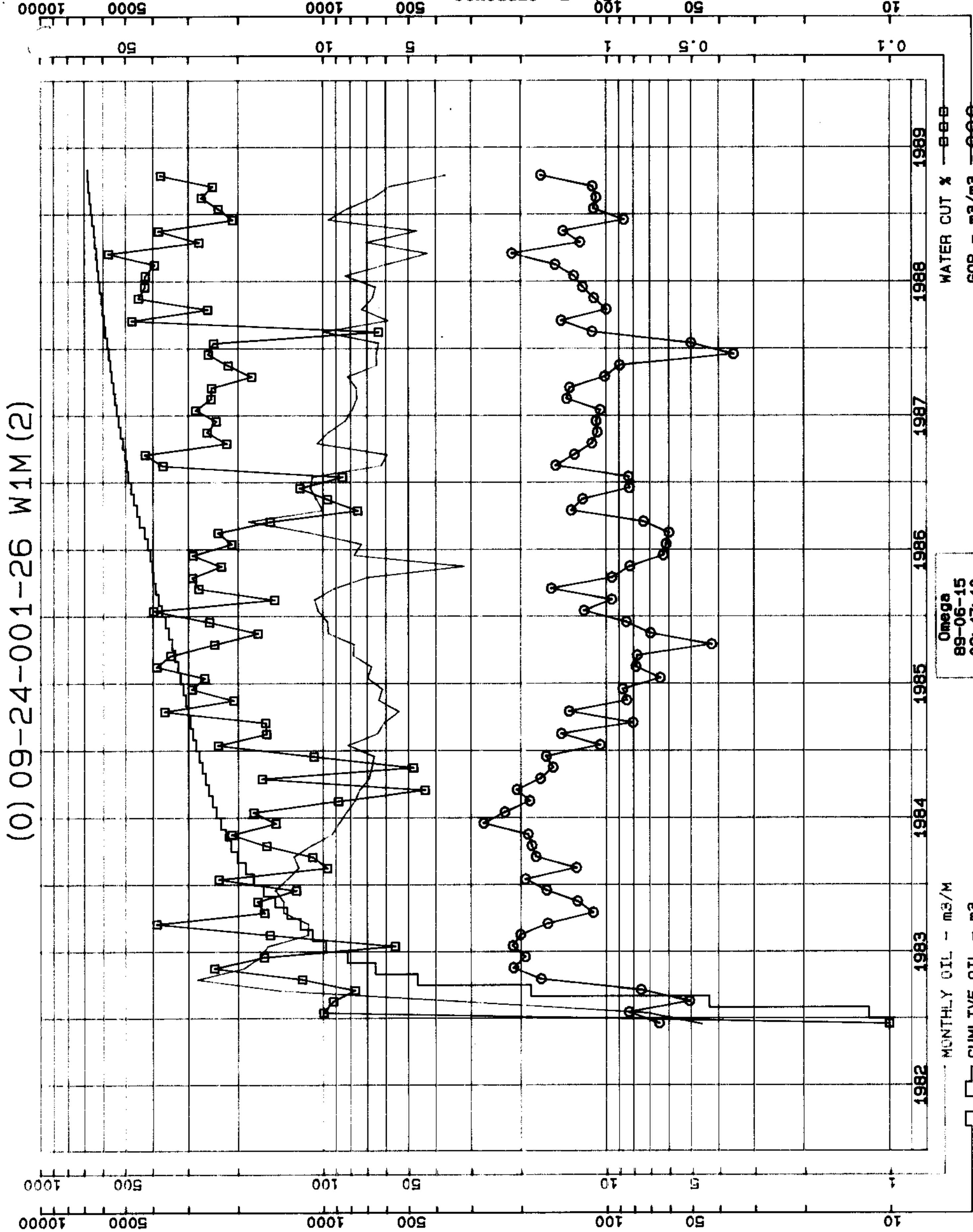
Attachment 2

Cumulative Water Injection to April 1989
Offsetting Well 9-24-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
12-19-1-25 WPM	79241.6
7-24-1-26 WPM	53732.6
15-24-1-26 WPM	84097.9

Attachment 3

Lower Amaranth Production
Schedule "E" (i)



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Alida Completion
B. Lower Alida Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the Mission Canyon.

2. Isolate the Lower Amaranth, recomplete the well in the Mission Canyon and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amaranth production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zone during the six month period prior to the recompletion of the Mission Canyon interval.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	($10^3 m^3$)
9-24-1-26 WPM	89/04/08	24	0.87	0.72	0.15
	89/03/21	24	2.45	0.47	0.14
	89/03/05	24	1.83	0.52	0.13
	89/02/25	24	2.39	0.53	0.14
	89/02/07	24	2.80	0.70	0.14
	89/01/10	24	3.12	0.69	0.15
	89/12/06	24	3.40	0.30	0.13
	89/11/23	24	3.44	1.85	0.06
	88/11/20	24	1.01	0.03	0.22
			2.37	0.65	0.14

Average Water/Oil Ratio = 0.275 m^3/m^3
Average Gas/Oil Ratio = 59.127 m^3/m^3

WELL 9-24-1-26 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/06/03	10.0	4.2
89/06/04	10.4	3.5
89/06/05	6.4	1.1
89/06/06	8.2	1.8
89/06/07	6.3	0.5
89/06/08	4.9	1.8
89/06/09	7.7	0.4
89/06/10	6.0	0.3
89/06/11	4.5	0.2
89/06/12	2.0	2.0
89/06/13	3.8	3.8
89/06/14	2.7	2.7
89/06/15	4.1	1.3
89/06/16	4.6	1.4
89/06/17	2.9	0.7

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

June 6, 1989

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P OH3

Attention: Mr. R. A. Brekke, P. Eng
Engineering Supervisor, Manitoba

Re: Commingled Production Approval
<u>Omega Chevron Waskada 14-34-1-26 (WPM)</u>

Dear Sir:

Attached is your approved application to recomplete the subject well and commingle production in the wellbore.

As with the previous approvals, the following conditions apply:

1. Oil and Gas Production Tax is to be calculated on the basis of total volume from the well not separately from each zone. In this case where the Lower Amaranth is unitized and the Mission Canyon is not, the total production from the well is equal to the unit production allocated to the well plus the calculated Mission Canyon production.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

L. R. Dubreuil
Director of Petroleum

LRD/jtb

cc: Waskada Office

OMEGA
HYDROCARBONS LTD
SUN LIFE PLAZA III
AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743

May 31, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

RE: Omega Chevron Waskada 14-34-1-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
(ii) Methods and Frequency of Measuring Production
(iii) Production Allocation

The justification for proposing commingled production at these wells remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after June 9, 1989. Notification to offset mineral owners is not necessary in this case as offset mineral owners, Chevron Canada Resources Ltd. are working interest partners in the subject well.

Also attached to this application is the MG 416 forms to recomplete the subject wells and the most recent daily production test data from the tested zones. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

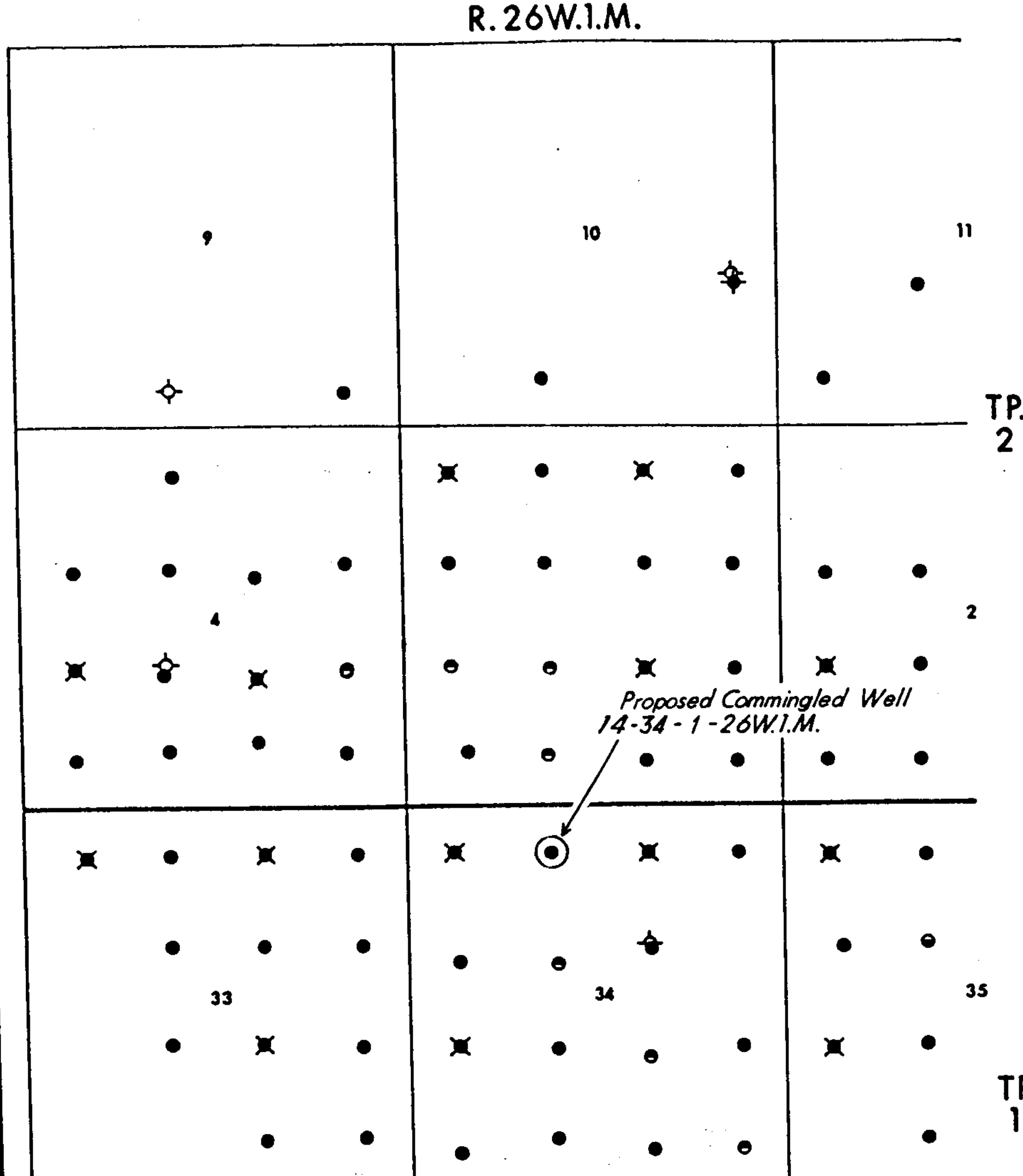
Description of Well

Name	Licence Number	Location
Omega Chevron Waskada 14-34-1-26	2990	Legal subdivision fourteen (14) of Section thirty four (34), Township one (1), Range twenty six (26), West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1



- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WELL LOCATION MAP

Scale: 1:25,000	Date: FEB. 8/89
Location:	Contour Interval:
Revised: MAY 5/89	File: / Drafting:

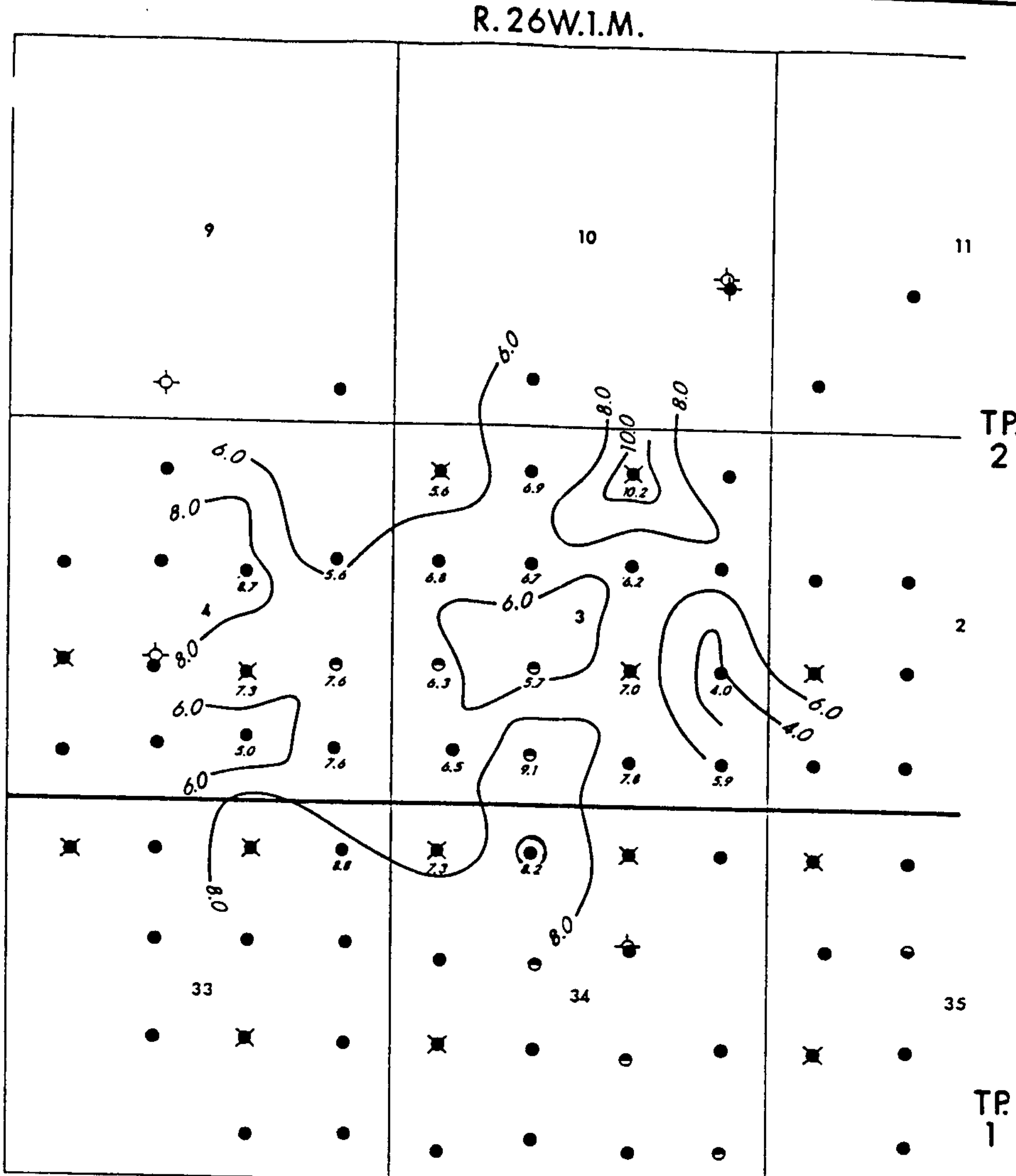
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Chevron Waskada 14-34-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - Mc3b Porosity Map
Attachment 1c - Upper Alida (Mc3b) Øh Map



◉ Proposed Commingled Well
● SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

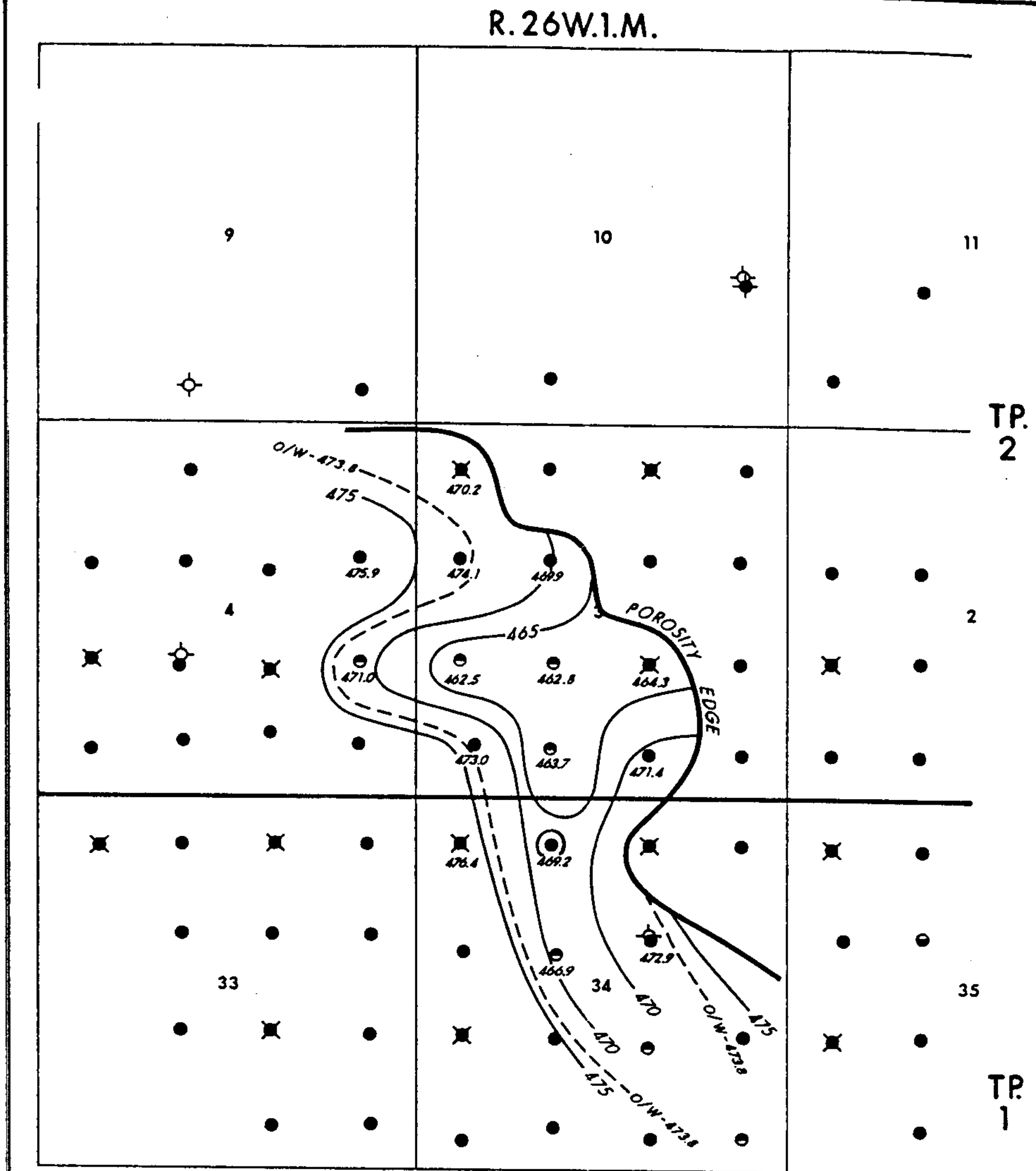
Schedule "C" Attachment 1 a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Amaranth Net Pay Map

Scale: 1:25,000	Date: FEB. 8 / 89
Geology: D. Cridland	Contour Interval: 2.0 m
Revised: MAY 5/89	File:
	Drafting: PAB.



⊙	Proposed Commingled Well
●	SPEAR FISH OIL WELL
⊖	UPPER ALIDA (MC 3b) WELL
⊖	LOWER ALIDA (MC3a) WELL
◑	TILSTON (MC1) WELL
✖	WATER INJECTION WELL
⚲	WATER SOURCE WELL
⌀	SUSPENDED WELL
⌖	ABANDONED WELL

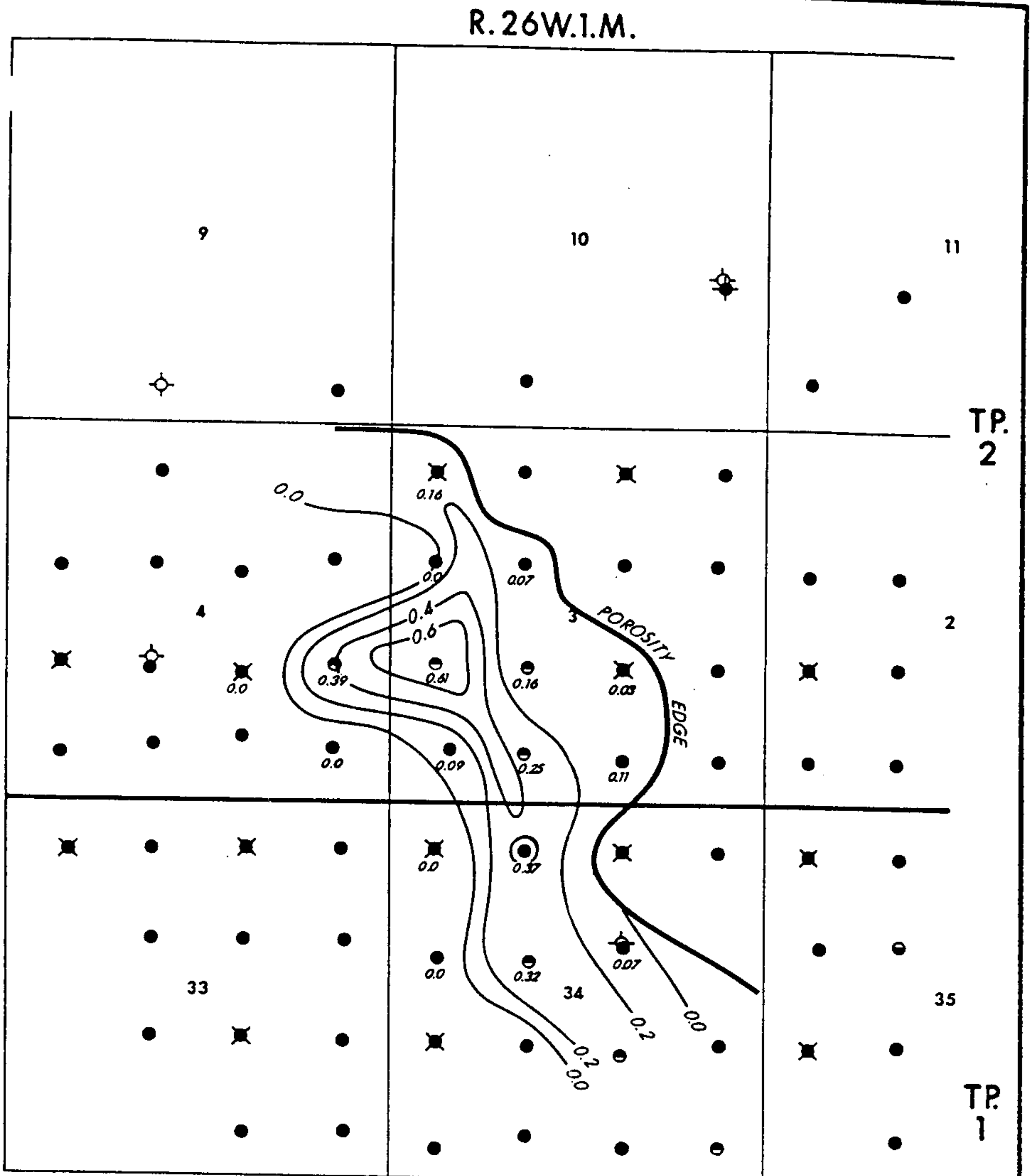
Schedule "C" Attachment 1 b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3b Porosity

Scale	1 : 25,000	Date	FEB. 8 /89
Geology	D. Cridland	Contour Interval	5.0 m
Revised	MAY 25 / 89	File	Drafting PAB.



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Upper Alida(MC3b) øh Map

Scale 1 : 25,000	Date FEB. 8 /89
Geology D. Cridland	Contour Interval 0.2 øh
Revised MAY 5 /89	File / Drafting PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Chevron Waskada 14-34-1-26 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA CHEVRON WASKADA 14-34-1-26

Commingled Production - Well Completion Program

A. Upper Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Make up bit on tubing. Drill out cement and retainer to 938.0 mKB. Circulate hole clean and pull tubing.
4) Rig up perforating unit.
5) Perforate the Upper Alida from 934 0-936.5 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
6) Run tubing w/retrievable packer. Set at 933 mKB.
7) Acid squeeze the Upper Alida using 2.0 m^3 15% HCL.
8) Run BHP and rods.
9) Release rig.

B. Upper Alida Evaluation

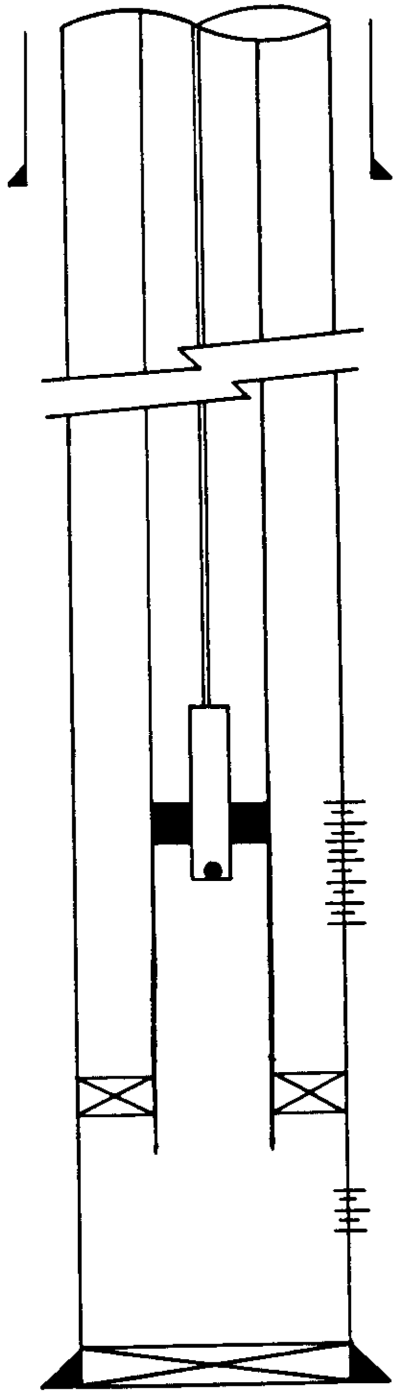
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Upper Alida to a lease tank for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer.
4) Circulate hole clean and pull tubing.
5) Make up perforated pup above a bull plugged retrievable packer on tubing. Run and land tubing at 938.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Land and set packer at 933.0 mKB.
4) Run BHP and rods.
5) Release rig.
6) Production test the Lower Amaranth for one week.
7) Move in service rig and rig up.
8) Pull BHP and rods.
9) Release packer and land at 938.0 mKB.
10) Run BHP and rods.
11) Release rig.
12) Put well on production.

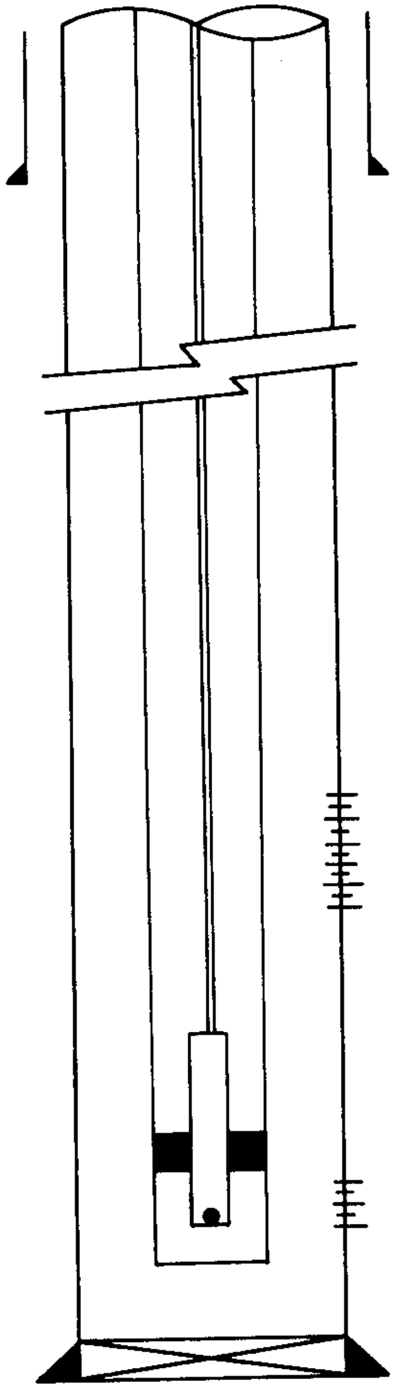


Schedule "D" Attachemnt No. 2

OMEGA HYDROCARBONS LTD.

Omega Chevron Waskada 14-34-1-26 WP
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:



60.3 mm Tubing

908.0 mKB
Lower Amaranth Completion Interval
918.0 mKB

934.0 mKB
Upper Alida Completion Interval
936.5 mKB

957.0 mKB 114.3 mm Casing Shoe

Schedule "D" Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Chevron Waskada 14-34-1-26
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject wells to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
14-34-1-26 WPM	UAlida	0.37	25739	0.7/0.4	N/A	0.888	55356	0.2/0.7	8400

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Upper Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the well to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Amaranth for 14-34-1-26 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for this well is from the fall off tests performed at wells 13-34 and 15-34-1-26 WPM performed in November and December 1988. The pool pressure for the Upper Alida zone will be obtained when the next planned bottom hole pressure test is performed. The results will be forwarded at that time.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to April 1989
Offsetting Well 14-34-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
10-34-1-26 WPM	L. Amaranth	0.0	29.2
11-34-1-26 WPM	U. Alida/L. Amaranth	3.3	0.3
12-34-1-26 WPM	L. Amaranth	0.1	2.1
2-3-2-26 WPM	L. Amaranth	2.5	1.0
3-3-2-26 WPM	U. Alida	0.1	16.2
4-3-2-26 WPM	L. Amaranth	NOT PRODUCING	

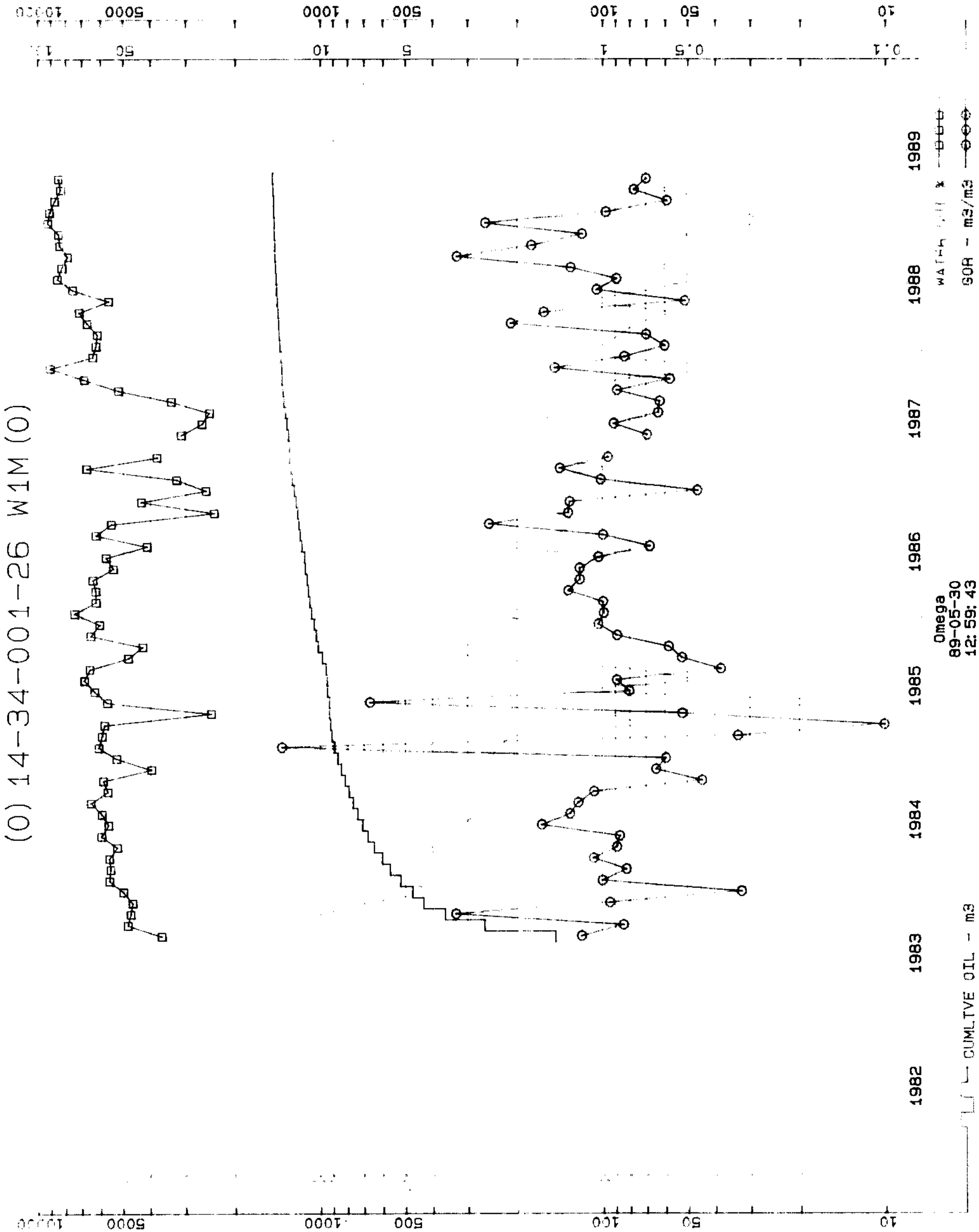
SCHEDULE "E" (i)

Attachment 2

Cumulative Water Injection to April 1989
Offsetting Well 14-34-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
13-34-1-26 WPM	22843.9
15-34-1-26 WPM	20156.7

Lower Amaranth Production
Schedule "E" (i)



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Upper Alida Completion
B. Upper Alida Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the Mission Canyon.

2. Isolate the Lower Amaranth, recomplete the well in the Mission Canyon and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amaranth production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zones during the six month period prior to the recompletion of the Mission Canyon interval.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	(10^3m^3)
14-34-1-26 WPM	89/04/18	24	0.14	0.53	0.00
	89/04/09	24	0.14	0.57	0.00
	89/03/15	24	0.18	1.03	0.01
	89/03/12	24	0.18	0.71	0.01
	89/02/22	24	0.31	0.57	0.01
	89/02/11	24	0.04	0.67	0.00
	89/01/23	24	0.14	0.75	0.00
	89/01/11	24	0.12	0.70	0.00
	88/12/12	24	0.09	0.75	0.01
	88/12/01	24	0.11	0.78	0.01
	88/11/30	24	0.18	0.75	0.01
			0.15	0.71	0.01

Average Water/Oil Ratio = 4.733 m^3/m^3
Average Gas/Oil Ratio = 66.667 m^3/m^3

WELL 14-34-1-26 WPM PRODUCTION TEST DATA*

Upper Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/05/17	1.0	5.7
89/05/18	2.6	4.9
89/05/19	1.6	2.9
89/05/20	2.1	3.9
89/05/21	2.4	1.8
89/05/22	5.1	2.2
89/05/23	4.5	2.0
89/05/24	0.8	0.4
89/05/25	3.5	1.5
89/05/26	3.4	2.3
89/05/27	3.1	2.1
89/05/28	2.6	1.7
89/05/29	0.7	0.4
89/05/30	0.7	0.4

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

June 2, 1989

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

Attention: Mr. R. A. Brekke, P. Eng
Engineering Supervisor, Manitoba

Re: Commingled Production Approval
Omega et al Waskada 8-32-1-25 (WPM)
Omega Waskada 1-23-1-26 (WPM)
Omega Waskada 12-24-1-26 (WPM)
Omega Waskada 1-26-1-26 (WPM)

Dear Sir:

Attached are your approved applications to recomplete the subject wells and commingle production in the wellbore.

As with the previous approvals, the following conditions apply:

1. Oil and Gas Production Tax is to be calculated on the basis of total volume from the well not separately from each zone. In the case where the Lower Amaranth is unitized and the Mission Canyon is not, the total production from the well is equal to the unit production allocated to the well plus the calculated Mission Canyon production. In the case where both zones are unitized the total production is equal to the production allocated to the well from both unitized zones.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The wells are to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

L. R. Dubreuil
Director of Petroleum

LRD/jtb

cc: Waskada Office

OMEGA
HYDROCARBONS LTD
SUN LIFE PLAZA III
4th AVENUE S.W.
CALGARY ALBERTA CANADA T2P 0H3
TELEPHONE (403) 261-0743

May 29, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

RE: Omega Waskada 1-26-1-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
(ii) Methods and Frequency of Measuring Production
(iii) Production Allocation

The justification for proposing commingled production at these wells remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after June 7, 1989. Notification to offset mineral owners is not necessary in this case as Omega owns the offset mineral rights.

Also attached to this application is the MG 416 forms to recomplete the subject wells and the most recent daily production test data from the tested zones. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

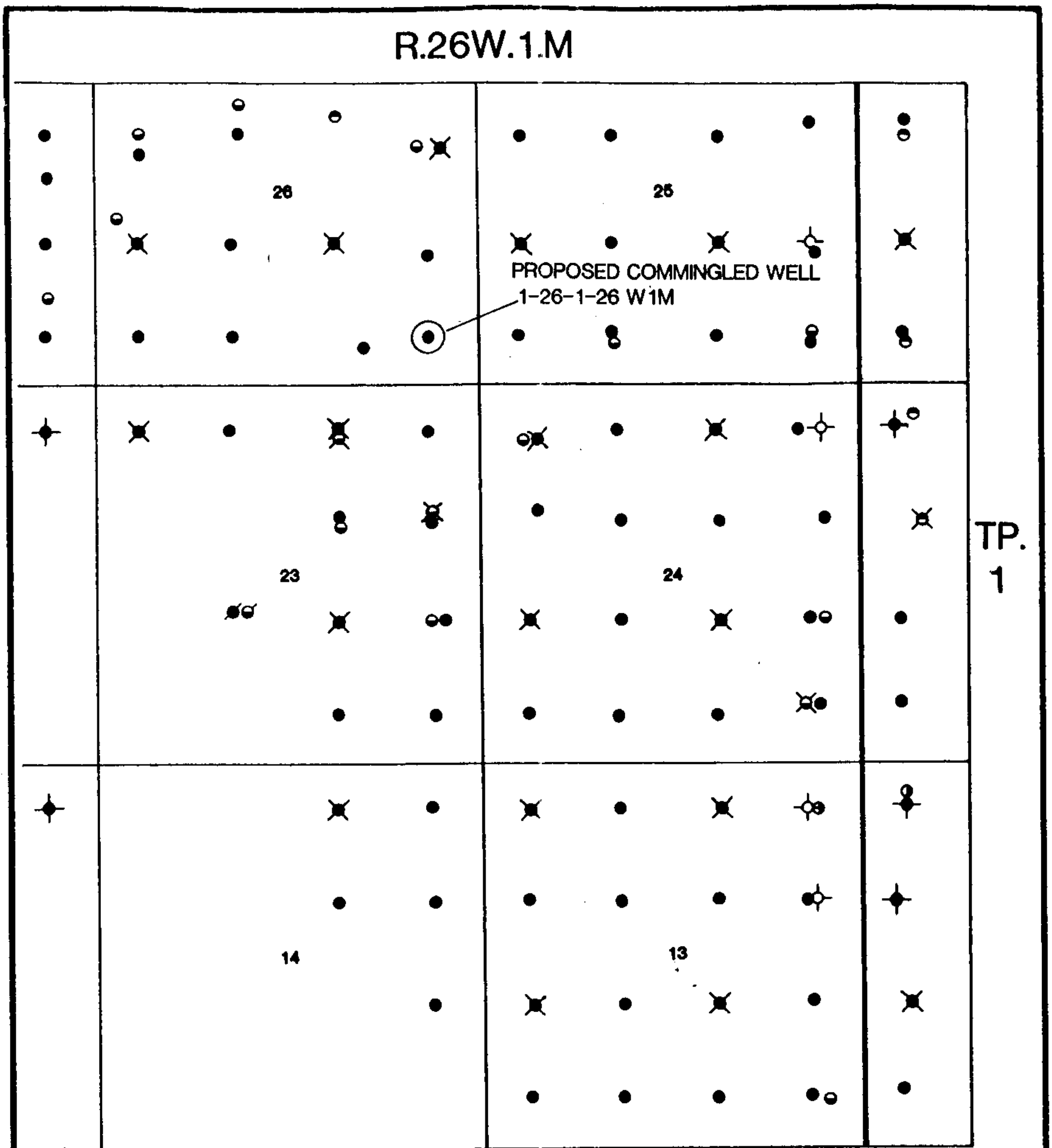
Description of Well

Name	Licence Number	Location
Omega Waskada 1-26-1-26	2691	Legal subdivision one (1) of Section twenty six (26), Township one (1), Range twenty six (26), West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Wells

See Attachments 1



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Well Location Map

Scale: 1: 25,000	Date: MAY 25, 1989	
Geology: D. CRIDLAND	Contour Interval:	
Revised:	File:	Drafting: DAC

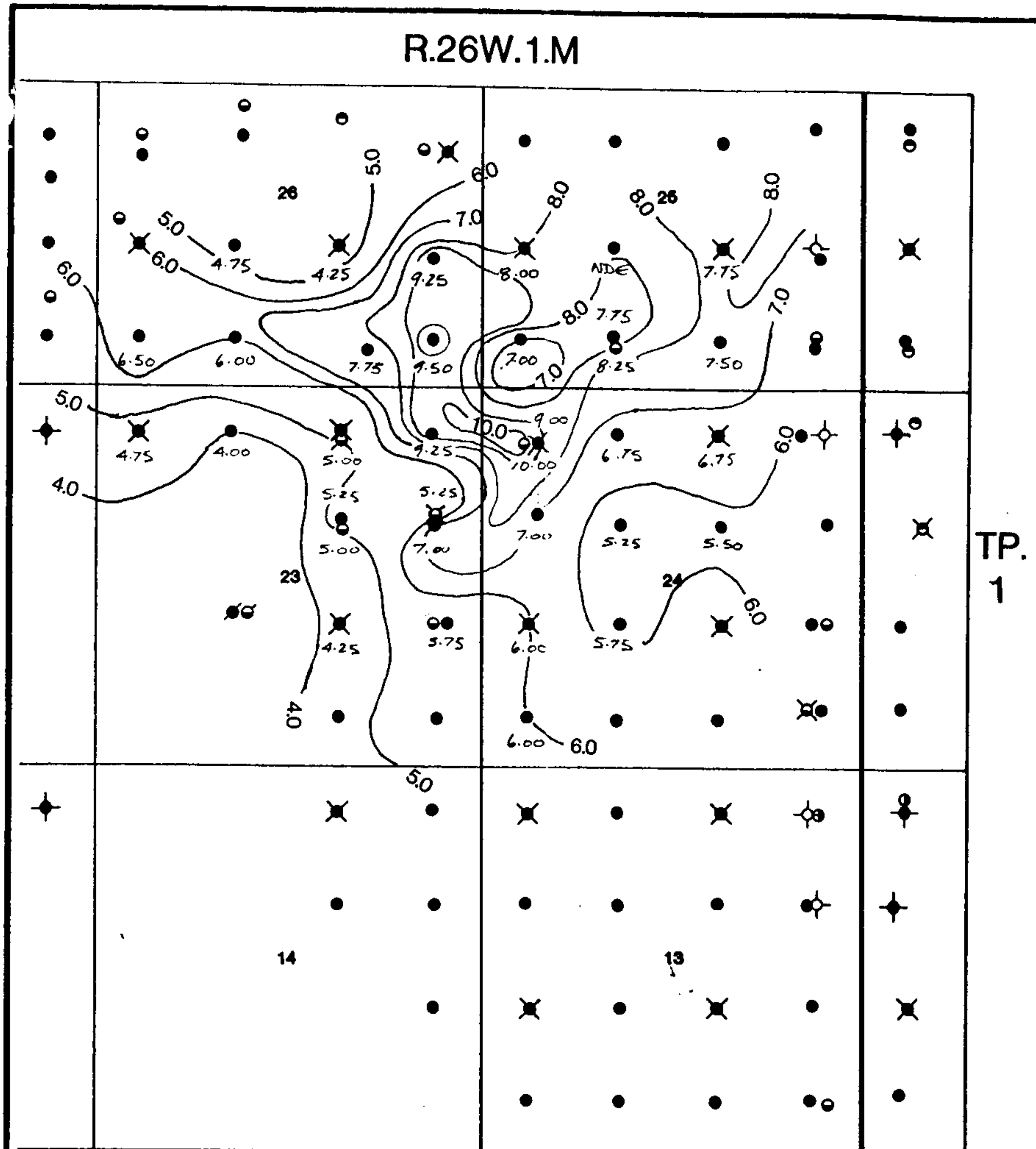
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 1-26-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

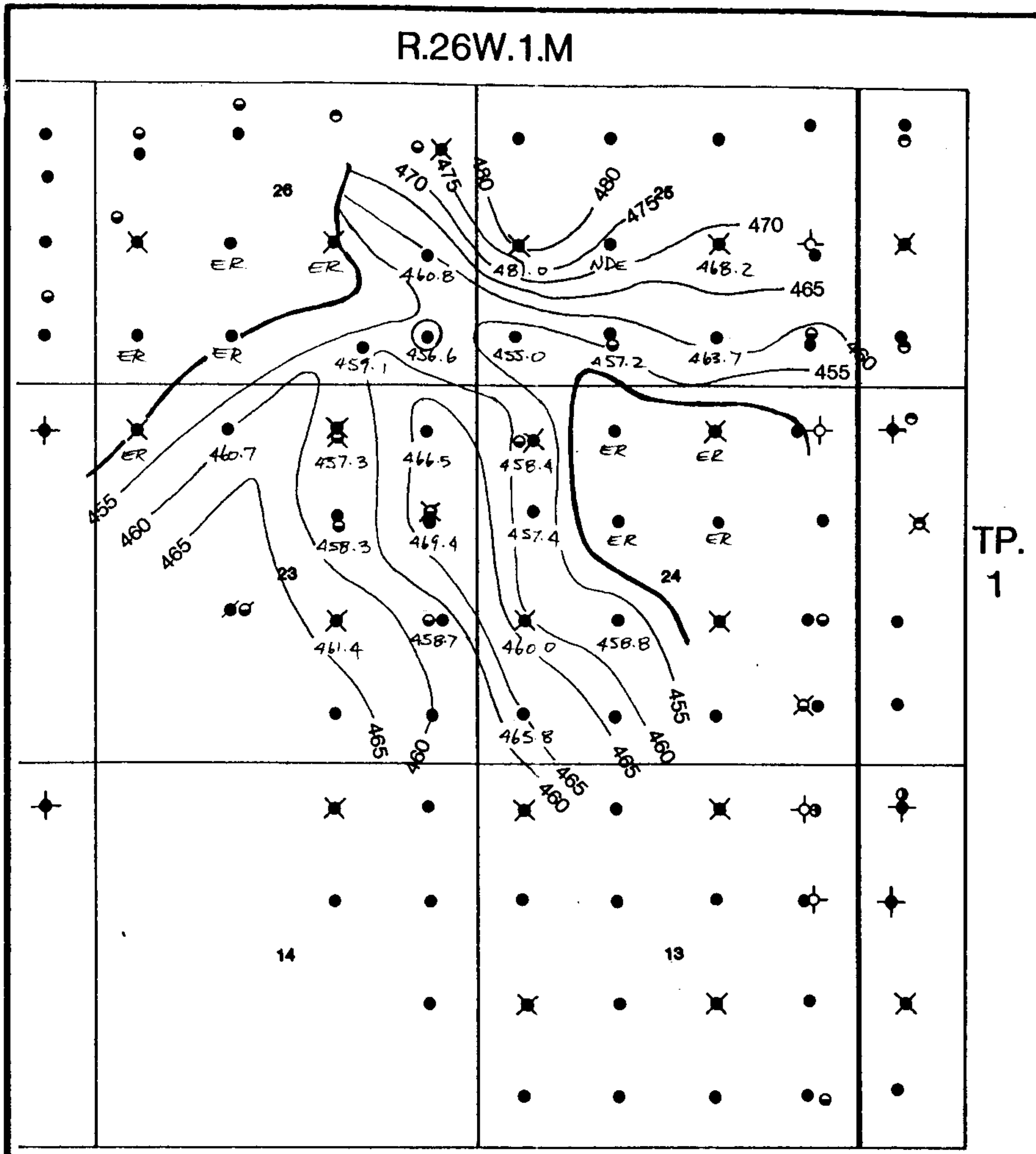
Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Amaranth Net Pay

Scale: 1:25,000	Date: MAY 25, 1989
Geology: D. CRIDLAND	Contour Interval: 1.0 m
Revised:	File: / Drafting: DAC



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

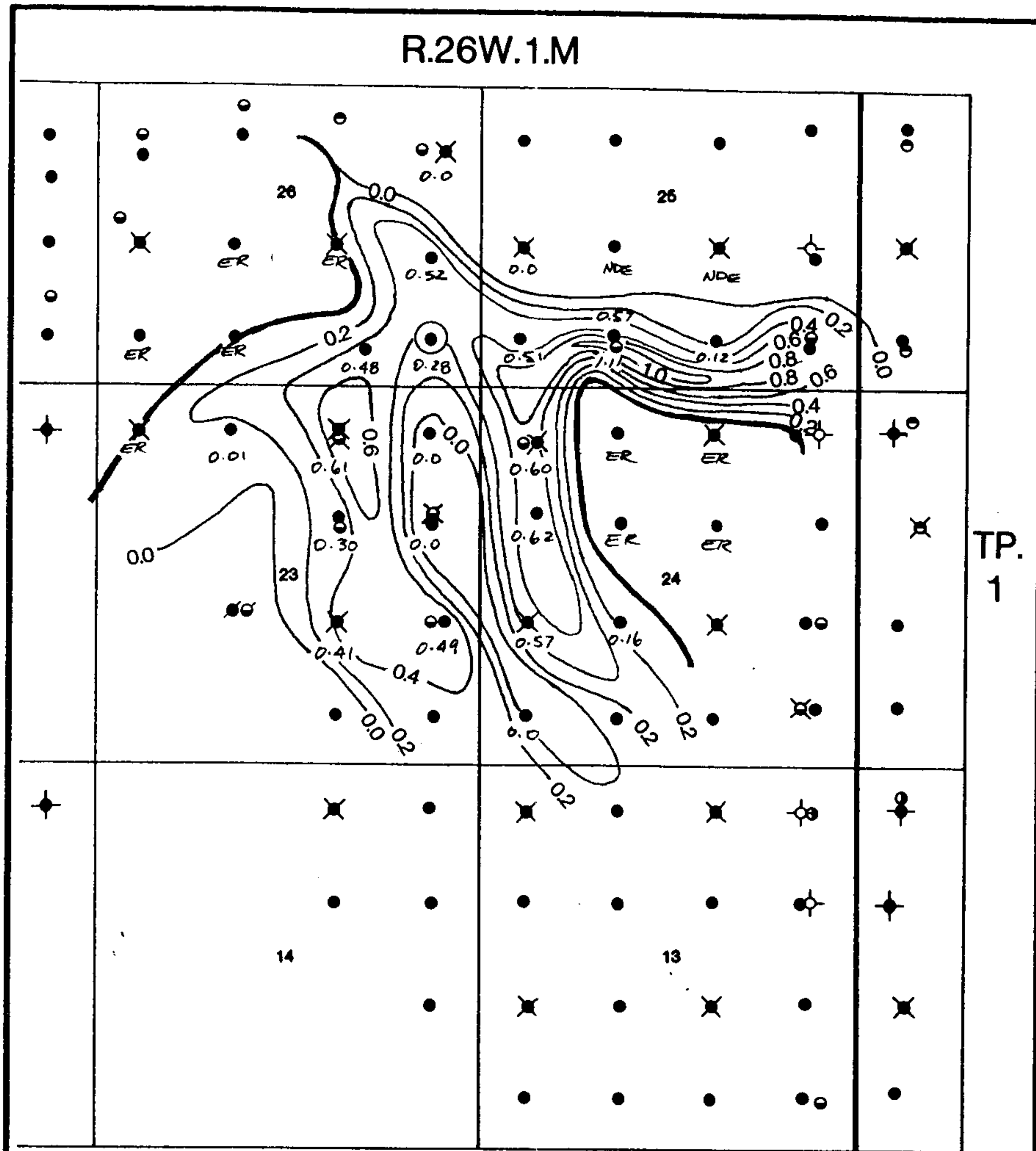
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure – Top of MC3a Porosity

Scale: 1:25,000	Date: MAY 25, 1989
Geology: D. CRIDLAND	Contour Interval: 5.0 m
Revised:	File: / Drafting: DAC



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Alida (MC3a) ϕh Map

Scale: 1:25,000		Date: MAY 25, 1989	
Geology: D. CRIDLAND		Contour Interval: 0.2 ϕh	
Revised:		File:	Drafting: DAC

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 1-26-1-26 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 1-26-1-26

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Make up bit on tubing. Drill out cement and retainer to 938.0 mKB. Circulate hole clean and pull tubing.
4) Rig up perforating unit.
5) Perforate the Lower Alida from 926.5-929.0 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
6) Run tubing w/retrievable packer. Set at 925.5 mKB.
7) Acid squeeze the Lower Alida using 2.0 m^3 15% HCL.
8) Run BHP and rods.
9) Release rig.

B. Lower Alida Evaluation

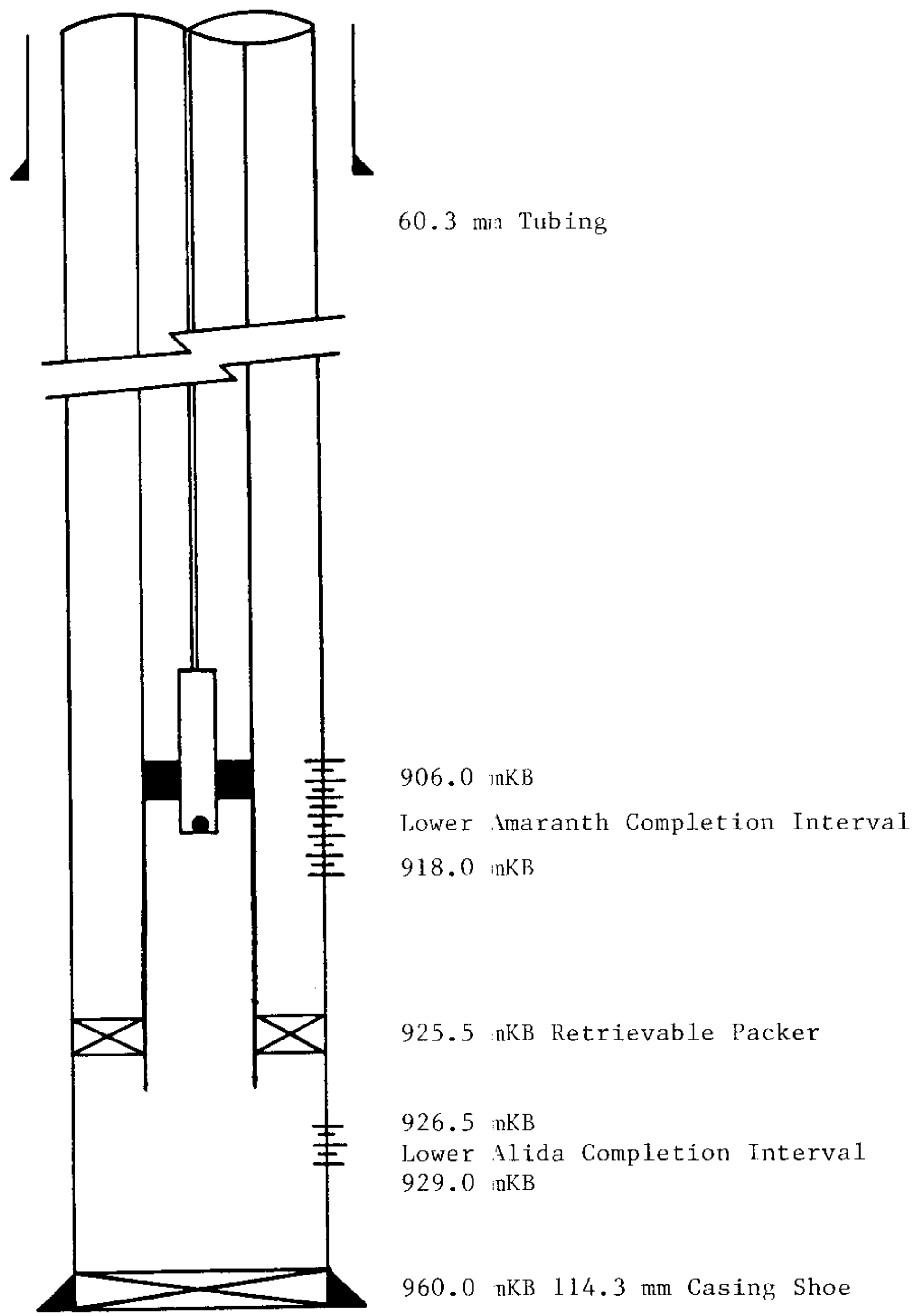
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida to a lease tank for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig out packer and run in tubing.
5) Circulate hole clean to PBTD. Land tubing at 931.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 925.5 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 931.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

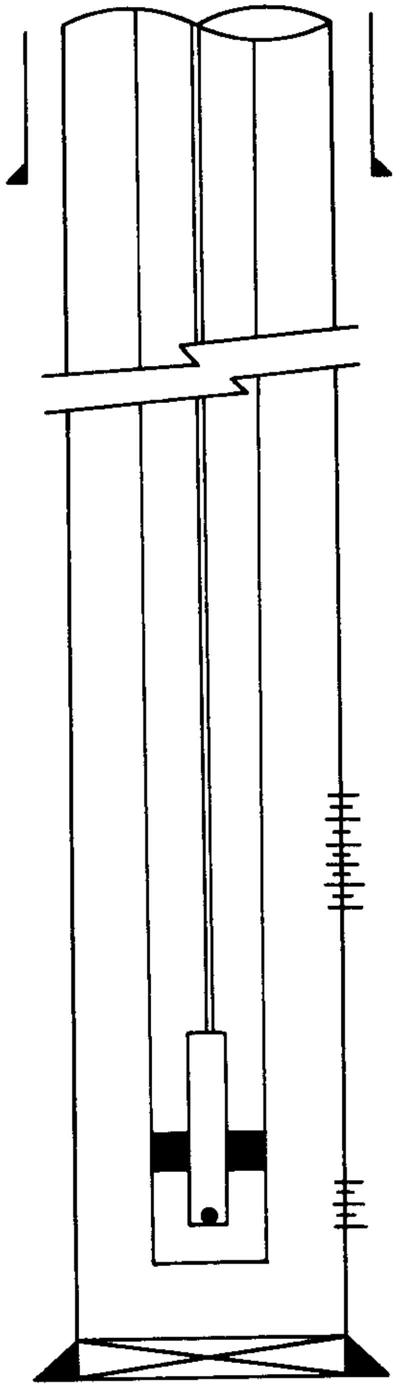


Schedule "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 1-26-1-26 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



60.3 mm Tubing

906.0 mKB

Lower Amaranth Completion Interval

918.0 mKB

926.5 mKB
Lower Alida Completion Interval
929.0 mKB

960.0 mKB 114.3 mm Casing Shoe

Schedule "D" Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Waskada 1-26-1-26 WPM
Commingled Production Comletion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject wells to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
1-26-1-26 WPM	LAlida	0.28	19478	10.6/2.2	2100	1.164	72561	5.3/3.2	9400

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the wells to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Amaranth for 1-26-1-26 WPM is based on the production before they were recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for this well is from the fall off test performed at well 15-23-1-26 WPM performed in November 1988. The pool pressure for the Lower Alida zone is estimated from the fall off test performed on 9A-23-1-26 WPM in May, 1987. A new test is scheduled for this well and the result will be forwarded as soon as the analysis is completed.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to April 1989
Offsetting Well 1-26-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
15A-23-1-26 WPM	L. Alida	0.0	1.1
16-23-1-26 WPM	L. Amaranth	14.4	1.5
13-24-1-26 WPM	L. Alida	0.0	2.0
4-25-1-26 WPM	L. Amaranth	5.9	0.7
2-26-1-26 WPM	L. Amaranth	6.5	3.1
8-26-1-26 WPM	L. Amaranth	6.1	8.5

SCHEDULE "E" (i)

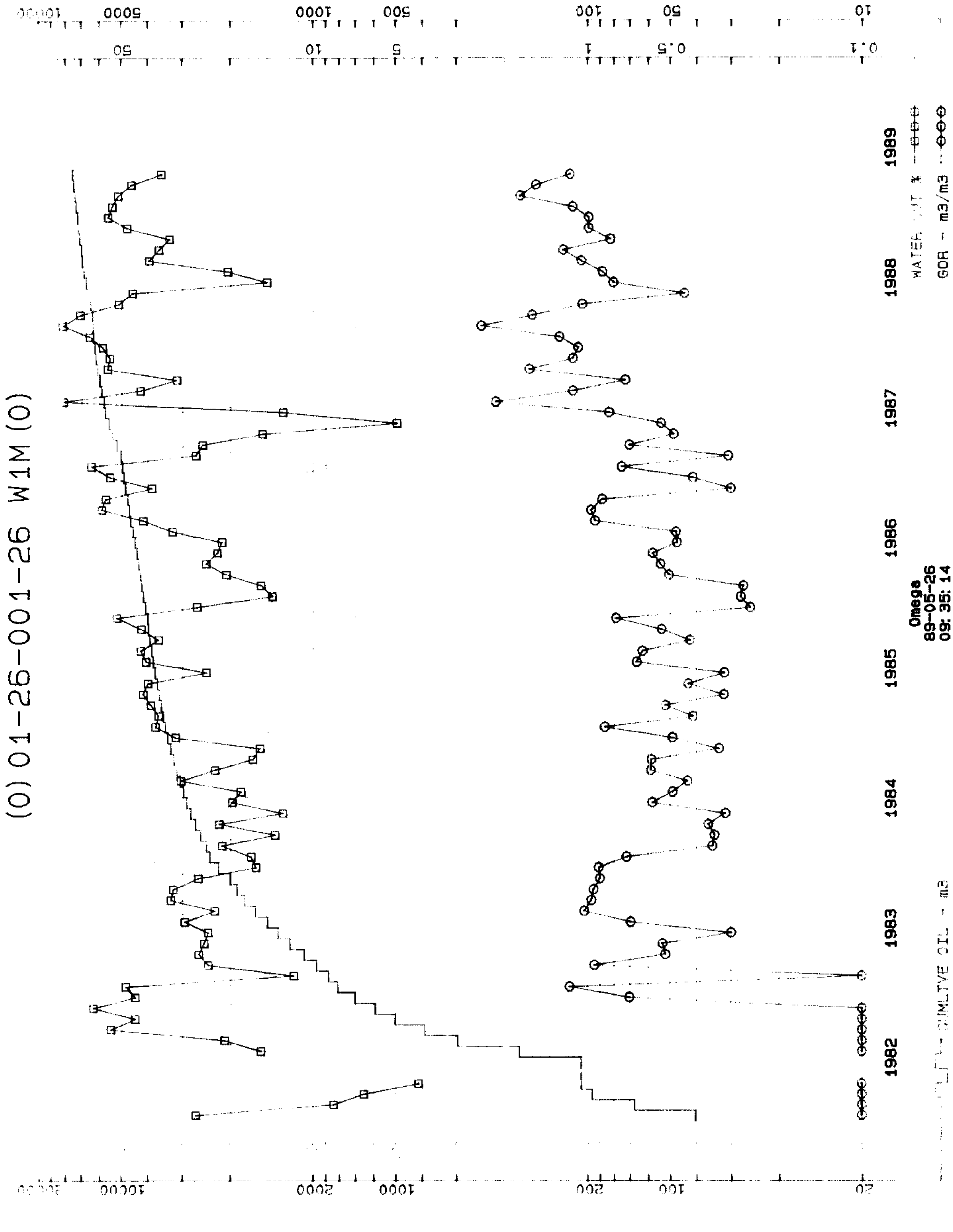
Attachment 2

Cumulative Water Injection to April 1989
Offsetting Well 1-26-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
9A-23-1-26 WPM	3310.0
15-23-1-26 WPM	76533.7
15A-23-1-26 WPM	21000.0
13-24-1-26 WPM	86069.1
5-25-1-26 WPM	108117.0
7-26-1-26 WPM	63331.6

Lower Amaranth Production Schedule "E"(i)

Attachment 3



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Alida Completion
B. Lower Alida Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the Mission Canyon.

2. Isolate the Lower Amaranth, recomplete the well in the Mission Canyon and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amaranth production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zones during the six month period prior to the recompletion of the Mission Canyon intervals.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	($10^3 m^3$)
1-26-1-26 WPM	89/04/27	24	4.69	3.13	0.35
	89/04/11	24	5.07	2.49	0.41
	89/03/21	24	5.45	1.63	0.47
	89/03/01	24	6.10	4.07	0.49
	89/02/19	24	5.37	3.57	0.49
	89/01/24	24	6.18	4.30	0.48
	89/01/02	24	7.86	5.25	0.31
	89/12/15	24	3.34	2.74	0.19
	89/12/02	24	3.79	1.90	0.18
	89/11/20	24	5.20	3.05	0.21
	89/11/01	24	4.77	2.69	0.24
			5.26	3.17	0.35

Average Water/Oil Ratio = 0.603 m^3/m^3
Average Gas/Oil Ratio = 66.540 m^3/m^3

WELL 1-26-1-26 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/05/14	12.8	1.4
89/05/15	12.7	2.3
89/05/16	12.6	1.9
89/05/17	9.9	6.6
89/05/18	9.4	4.0
89/05/19	8.3	4.4
89/05/20	10.4	2.6
89/05/21	12.2	2.1
89/05/22	8.9	3.8
89/05/23	12.0	2.6
89/05/24	8.4	5.2
89/05/25	7.5	4.0
89/05/26	9.0	3.5
89/05/27	6.8	5.5
89/05/28	10.6	2.2

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

OMEGA
HYDROCARBONS LTD.
... LIFE PLAZA III
... AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261 0743

ENERGY AND MINES
MAY 29
PETROLEUM BRANCH

May 25, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

RE: Omega et al Waskada 8-32-1-25 WPM
Omega Waskada 1-23-1-26 WPM
Omega Waskada 12-24-1-26 WPM

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbores.

The proposed zones of interest for commingling in these wells are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at these wells remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after June 1, 1989. Notification of this application regarding these wells has directly been sent to offset mineral owners, Enron Oil Canada Ltd., Sabre Petroleums Ltd., and Hudson's Bay Oil and Gas Ltd. (now Amoco).

Also attached to this application is the MG 416 forms to recomplete the subject wells and the most recent daily production test data from the tested zones. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

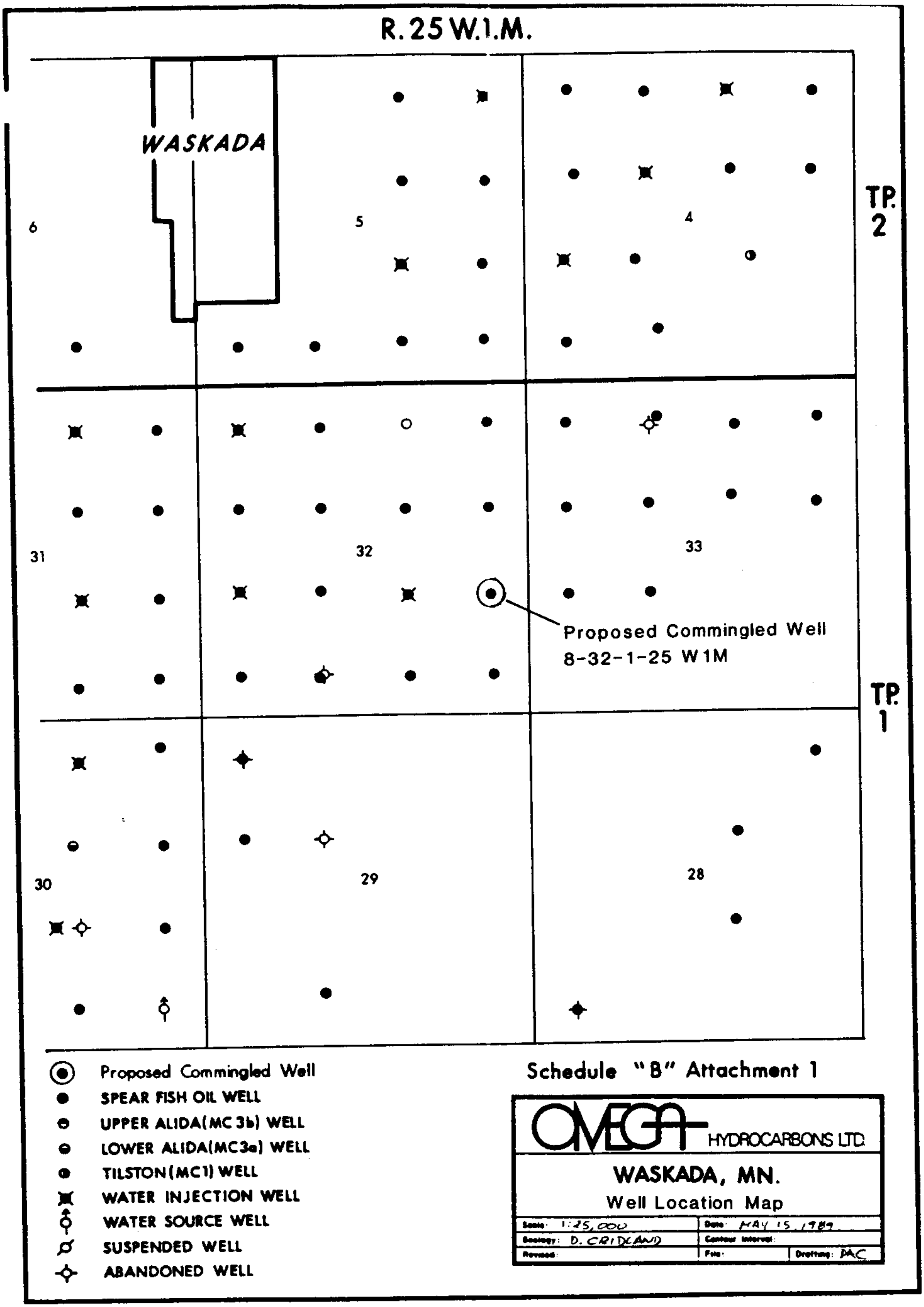
Description of Well

Name	Licence Number	Location
Omega et al Waskada 8-32-1-25	3311	Legal subdivision eight (8) of Section thirty two (32), Township one (1), Range twenty five (25), West of the Principal Meridian.
Omega Waskada 1-23-1-26	2795	Legal subdivision one (1) of Section twenty three (23), Township one (1), Range twenty six (26), West of the Principal Meridian.
Omega Waskada 12-24-1-26	2718	Legal subdivision twelve (12) of Section twenty four (24), Township one (1), Range twenty six (26), West of the Principal Meridian.

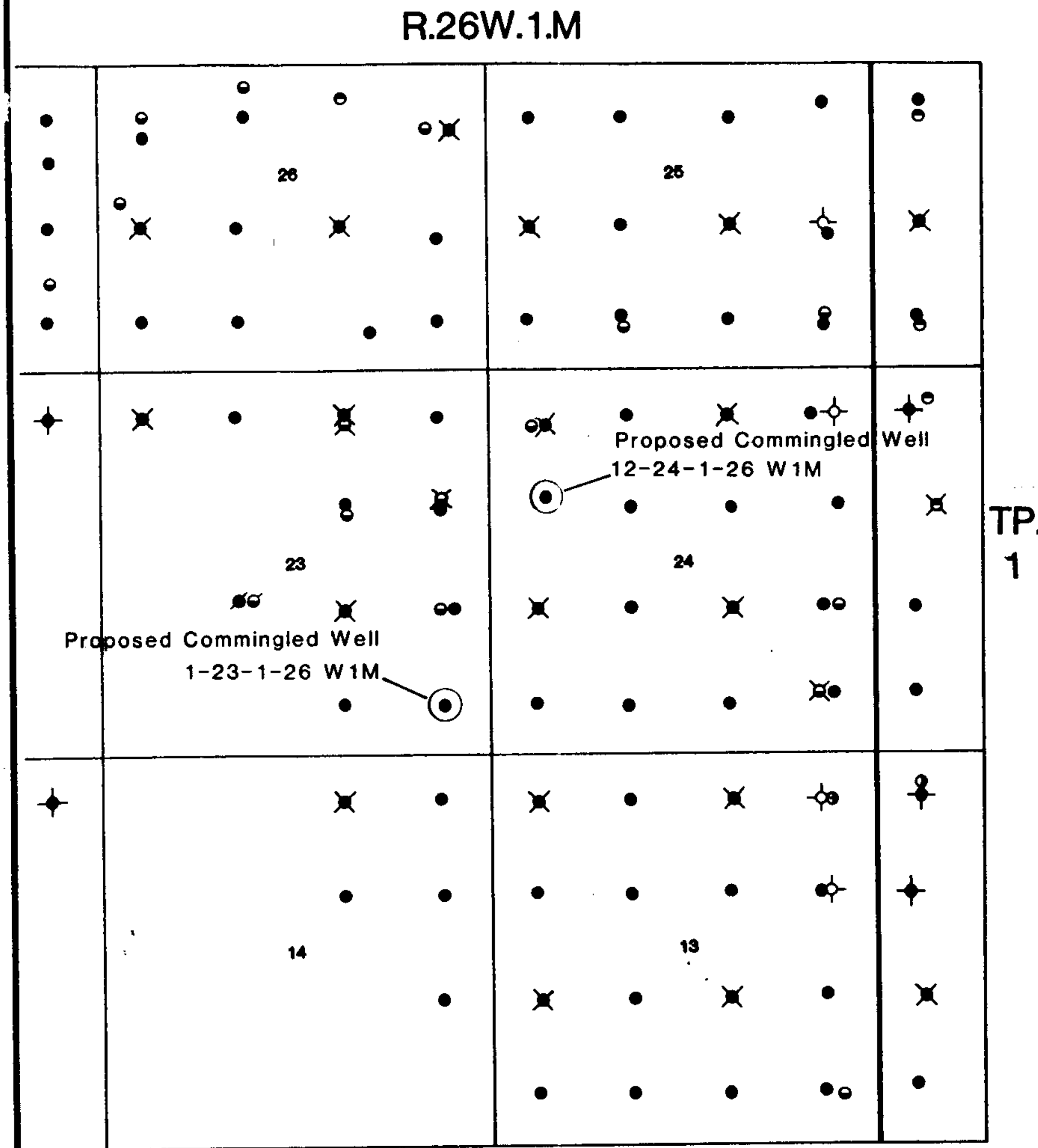
SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Wells

See Attachments 1 and 2



R. 25 W.1.M.
WASKADA
6
5
4
TP. 2
31
32
33
Proposed Commingled Well
8-32-1-25 W1M
TP. 1
30
29
28
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "B" Attachment 1
OMEGA HYDROCARBONS LTD.
WASKADA, MN.
Well Location Map
Scale: 1:25,000
Date: MAY 15, 1989
Geology: D. CRIDLAND
Contour Interval:
Revised:
File:
Drafting: PAC



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 2

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Well Location Map

Scale: 1:25,000	Date: MAY 15, 1989
Geology: D. CRIDLAND	Contour Interval:
Revised:	File: / Drafting: DAC

SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega et al Waskada 8-32-1-25 WPM

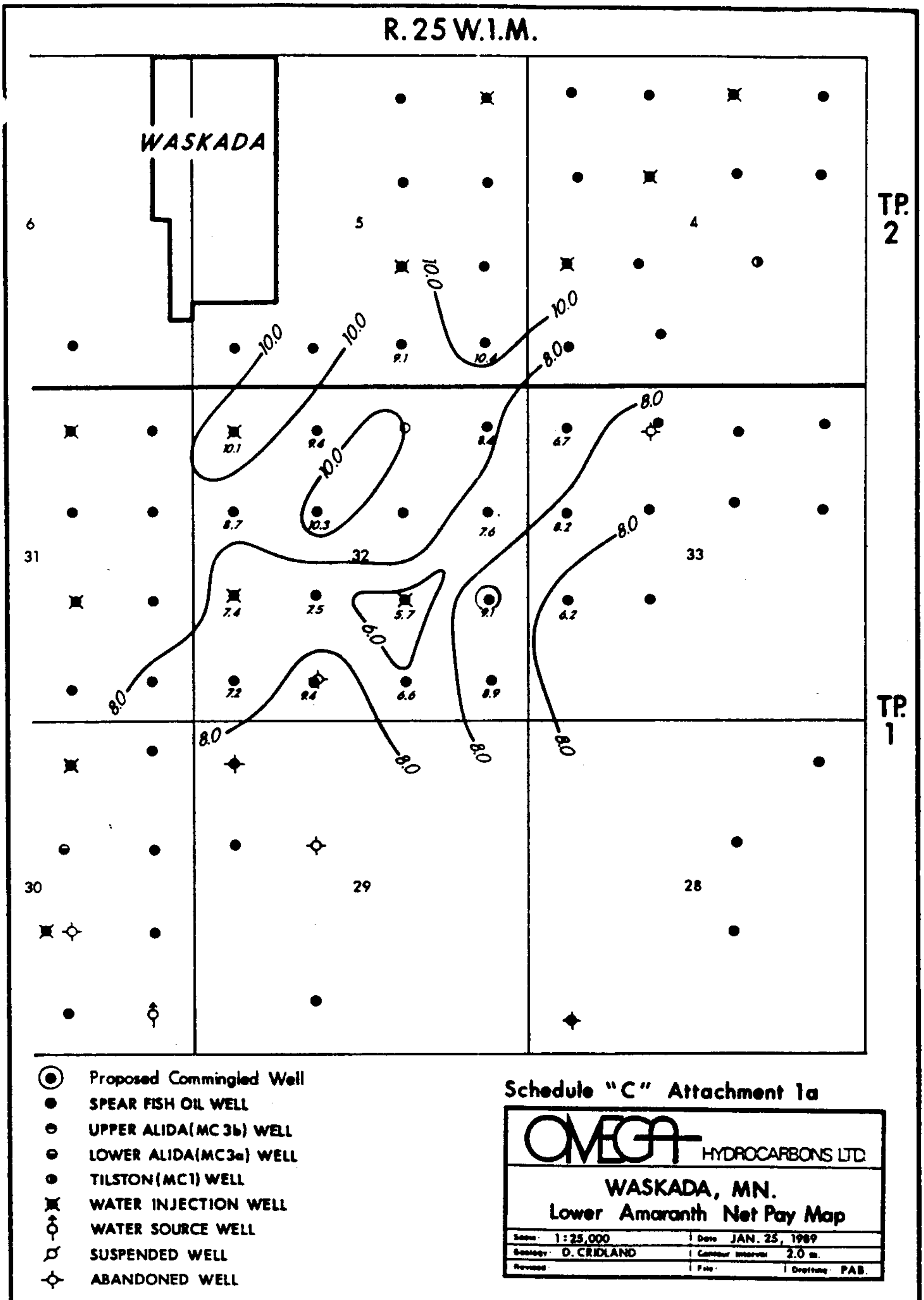
Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top of - Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map

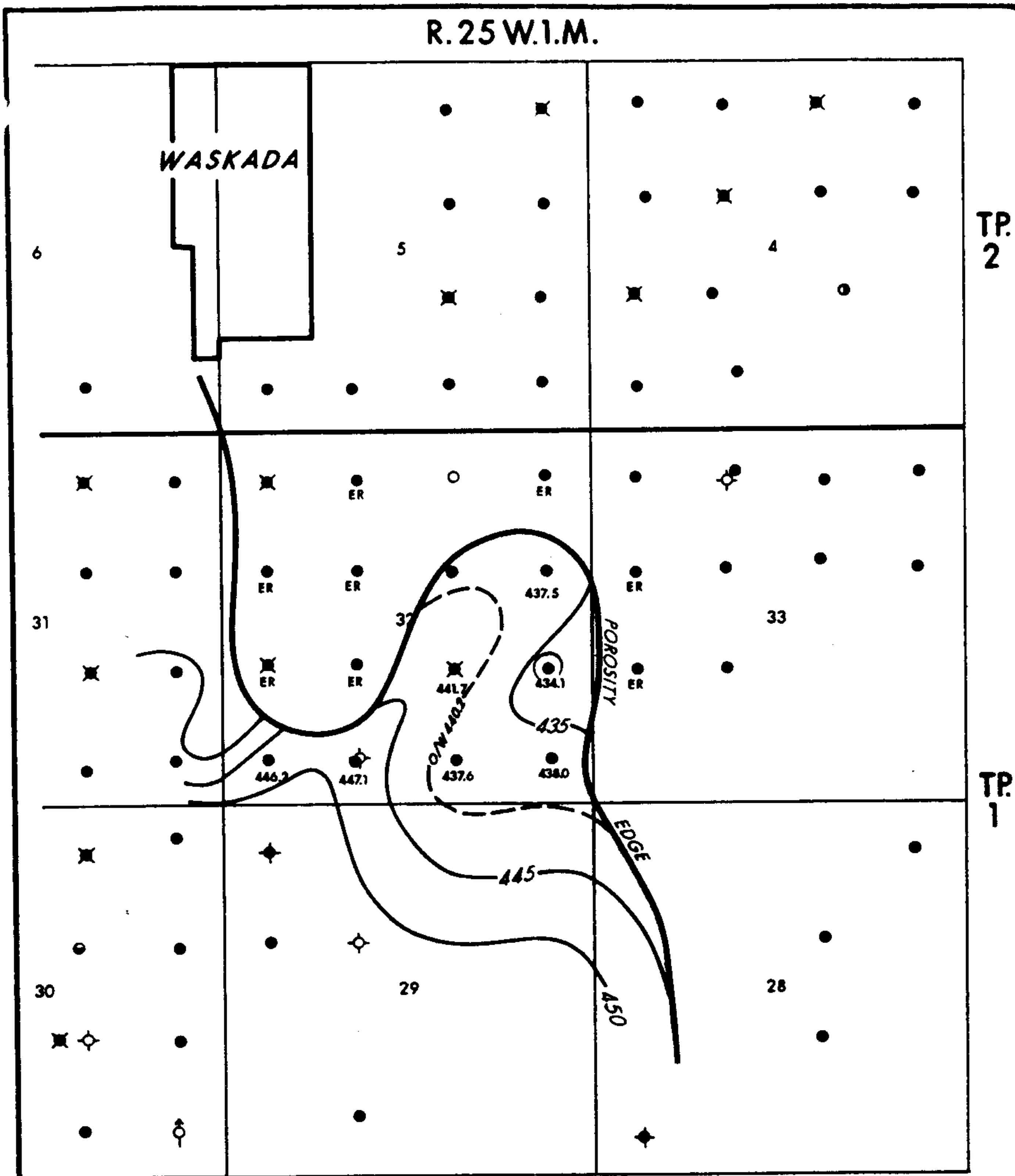
Omega Waskada 1-23-1-26 WPM

Attachment 2a - Lower Amaranth Net Pay Map
Attachment 2b - Structure Top - of Mc3a Porosity Map
Attachment 2c - Lower Alida (Mc3a) Øh Map

Omega Waskada 12-24-1-26 WPM

Attachment 2a - Lower Amaranth Net Pay Map
Attachment 2b - Structure Top - of Mc3a Porosity Map
Attachment 2c - Lower Alida (Mc3a) Øh Map


R. 25 W.1.M.
WASKADA
TP. 2
TP. 1
6
5
4
31
32
33
30
29
28
10.0
8.0
6.0
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "C" Attachment 1a
OMEGA HYDROCARBONS LTD.
WASKADA, MN.
Lower Amaranth Net Pay Map
1:25,000
JAN. 25, 1989
D. CRIDLAND
2.0 m.
PAB.



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

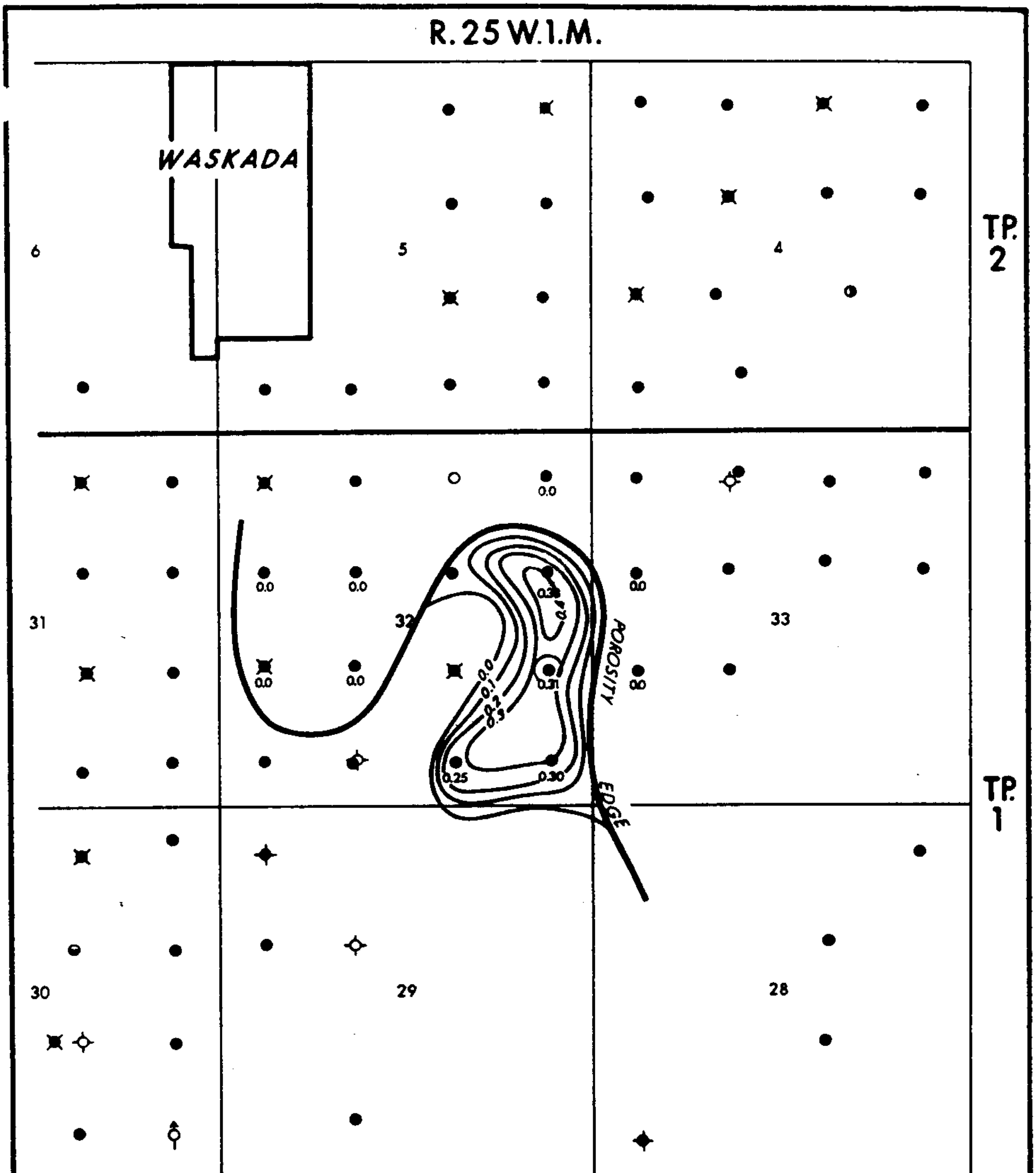
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3a Porosity

Scale: 1:25,000	Date: JAN. 25, 1989	
Geology: D. CRIDLAND	Contour Interval: 5.0 m	
Revised	File:	Drafting: PAB



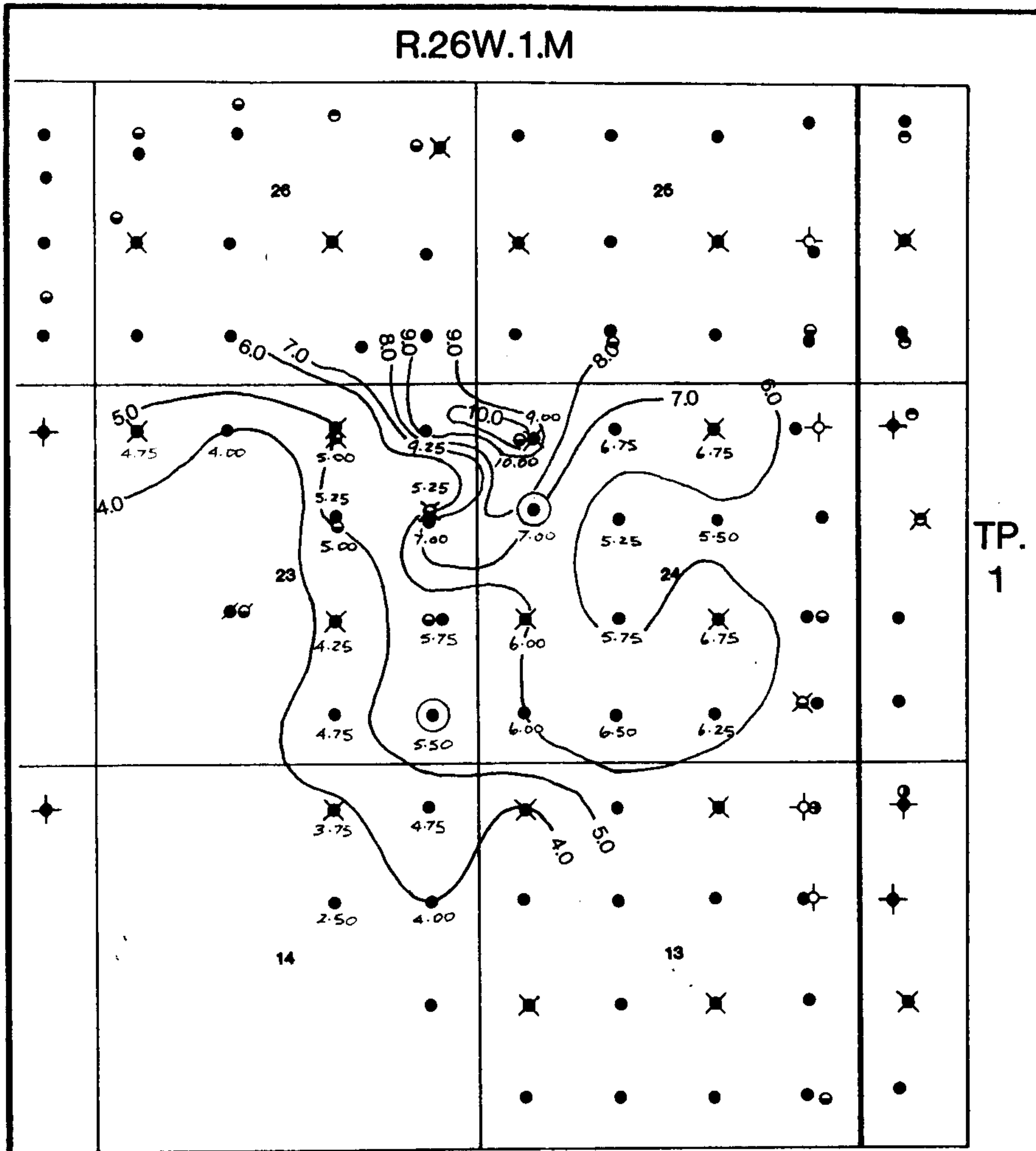
- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Alida(MC3a) ϕh Map

Scale: 1:25,000	Date: JAN. 25, 1989
Geology: D. CRIDLAND	Contour interval: 0.1 ϕh
Revised:	File: / Drafting: PAB



Schedule "C" Attachment 2 a

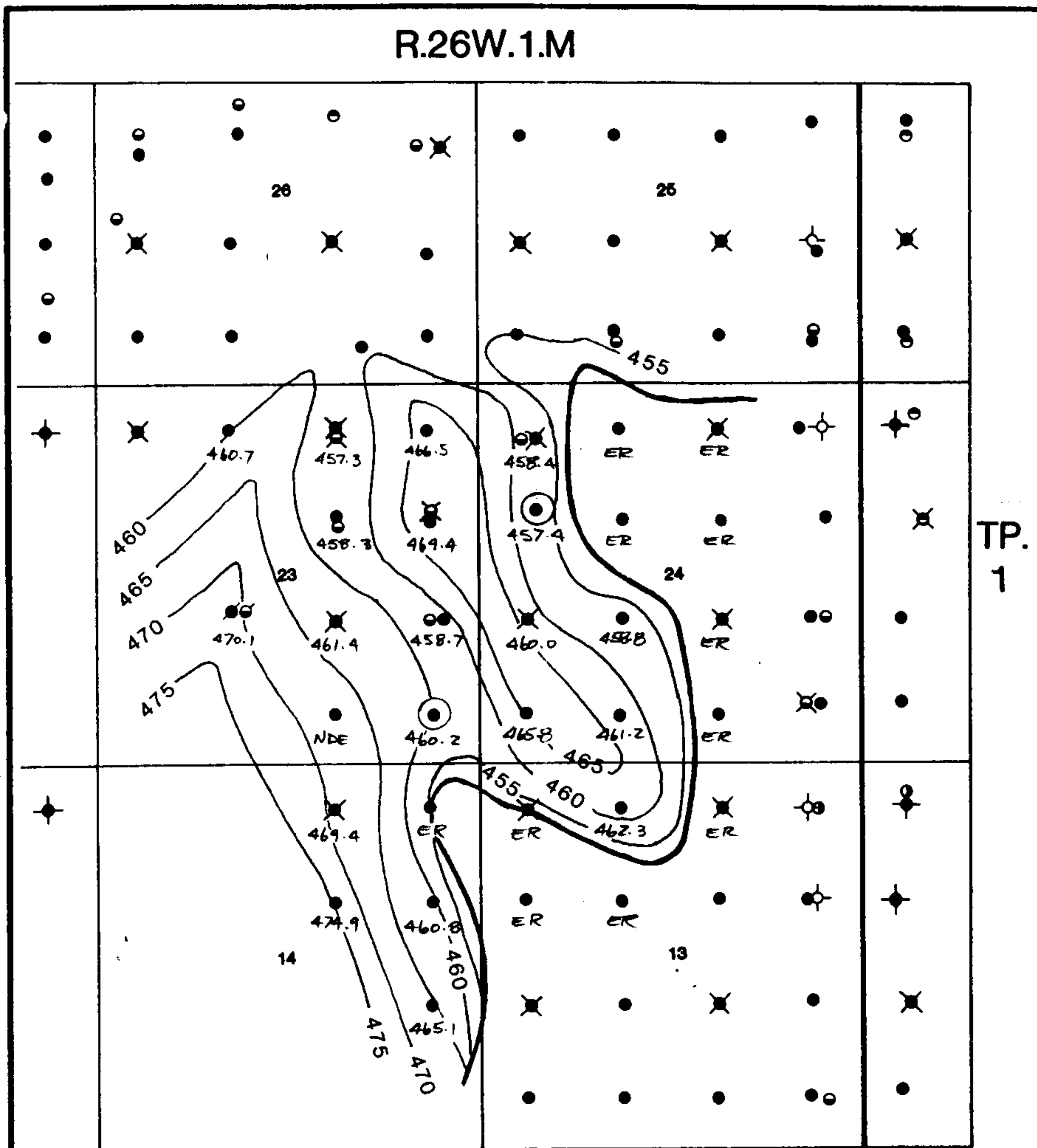
- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Amaranth Net Pay

Scale: 1:25,000		Date: MAY 15, 1989	
Geology: D. CRIDLAND		Contour Interval: 1.0 m	
Revised:		File:	Drafting: DAC



Schedule "C" Attachment 2b

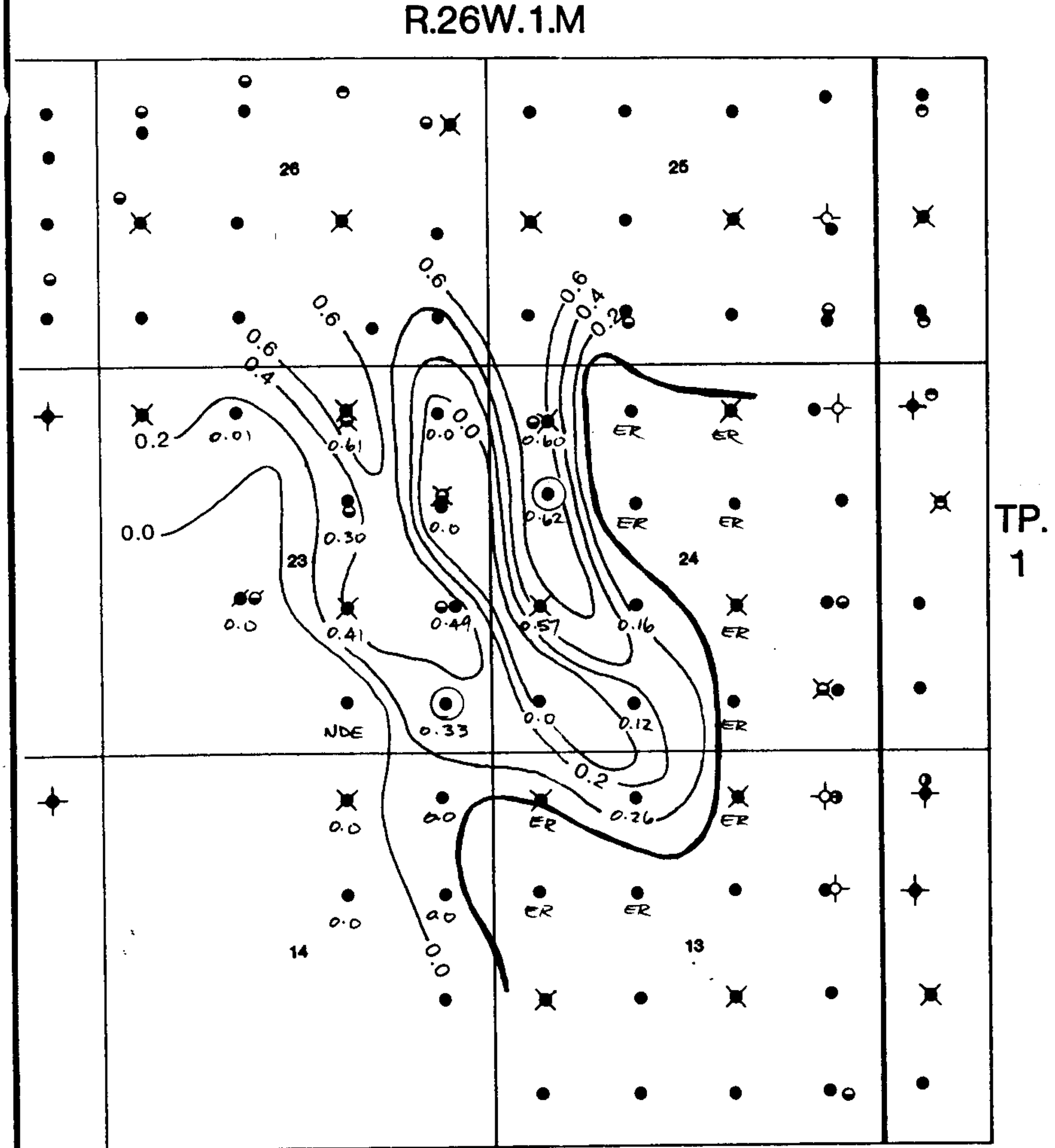
- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure – Top of MC3a Porosity

Scale: 1:25,000	Date: MAY 15, 1989
Geology: D. CRIDLAND	Contour Interval: 5.0 m
Revised:	File: / Drafting: DAC



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 2c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Alida (MC3a) ϕh Map

Scale: 1:25,000	Date: MAY 15 1989
Geology: R. GRIDLAND	Contour Interval: 0.2 ϕh
Revised:	File: / Drafting: DAC

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega et al Waskada 8-32-1-25 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Omega Waskada 1-23-1-26 WPM

Attachment No. 4 sets out the workover program.

Attachment No. 5 sets out the current completion.

Attachment No. 6 sets out the commingled production completion.

Omega Waskada 12-24-1-26 WPM

Attachment No. 7 sets out the workover program.

Attachment No. 8 sets out the current completion.

Attachment No. 9 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA ET AL WASKADA 8-32-1-25

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Rig up bit on tubing and drill out cement and retainer to 916.0 mKB. Circulate hole clean and pull tubing.
4) Rig up perforating unit.
5) Perforate the Lower Alida from 910 0-912.0 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
6) Run tubing w/retrievable packer. Set at 909.0 mKB.
7) Acid squeeze the Lower Alida using 2.0 m^3 15% HCL.
8) Run BHP and rods.
9) Release rig.

B. Lower Alida Evaluation

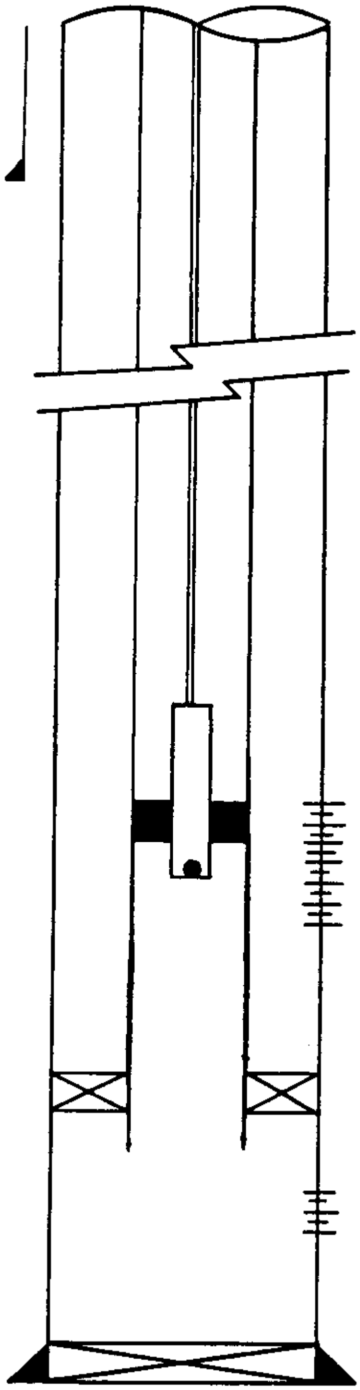
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida to a lease tank for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig out packer and run in tubing.
5) Circulate hole clean to PBTD. Land tubing at 916.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 909.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 916.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

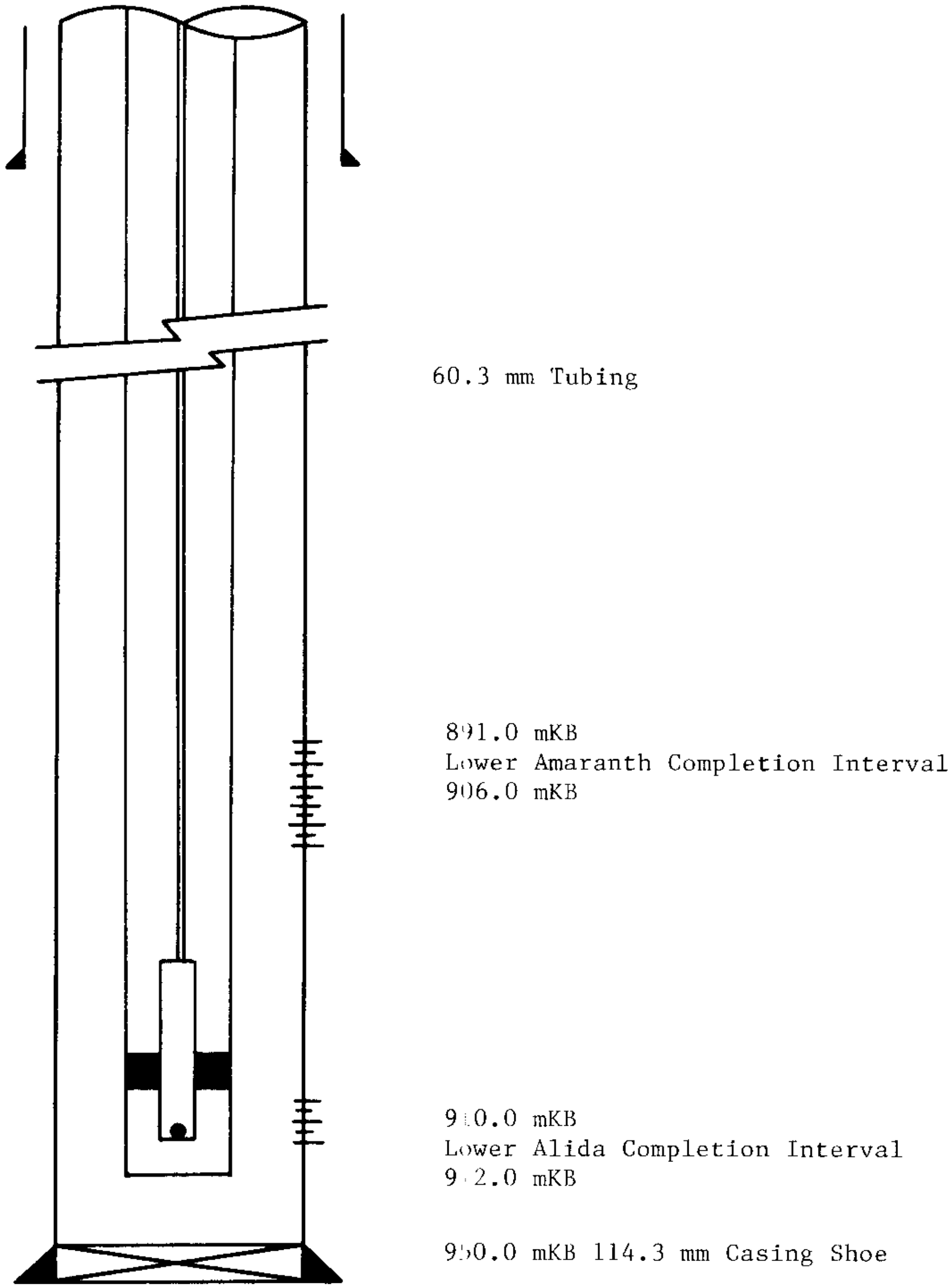


Schedule "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega et al Waskada 8-32-1-25 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:



Schedule "D" Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega et al Waskada 8-32-1-25 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

February 16, 1989

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P OH3

Attention: Mr. R. A. Brekke, P. Eng.
Manitoba District Engineer

Re: Omega Chevron Waskada 8-4-2-26 (WPM)
Commingled Production

Dear Richard:

Further to your letter of February 13, 1989, enclosed is your approved application to commingle production in the subject wellbore. Please notify our Waskada Office before proceeding with the recompletion.

As with previous approvals, the following conditions apply:

1. Crown royalties are to be calculated on the basis of total volume from the well and not separately from each zone.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The wells are to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

L. R. Dubreuil
Director of Petroleum

LRD/jtb

cc: Waskada Office

OMEGA HYDROCARBONS LTD
SUN LIFE PLAZA III
... 4th AVENUE S.W.
CALGARY ALBERTA CANADA T2P 0H3
TELEPHONE (403) 261-9743

DEPARTMENT OF ENERGY AND MINES
FEB 14 1989
PETROLEUM BRANCH

February 13, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. L.R. Dubreuil
Executive Director

Dear Sir:

RE: Omega Chevron Waskada 8-4-2-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
(ii) Methods and Frequency of Measuring Production
(iii) Production Allocation

The justification for proposing commingled production at this well remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after February 24,1989. Notification of this application to offset mineral owners is not necessary since the only pertinent parties, Baxter Lake Holdings Company Limited and Chevron Canada Resources Ltd., are also working interest owners in the subject well.

Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data from the tested zones. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Engineering Supervisor - Manitoba

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

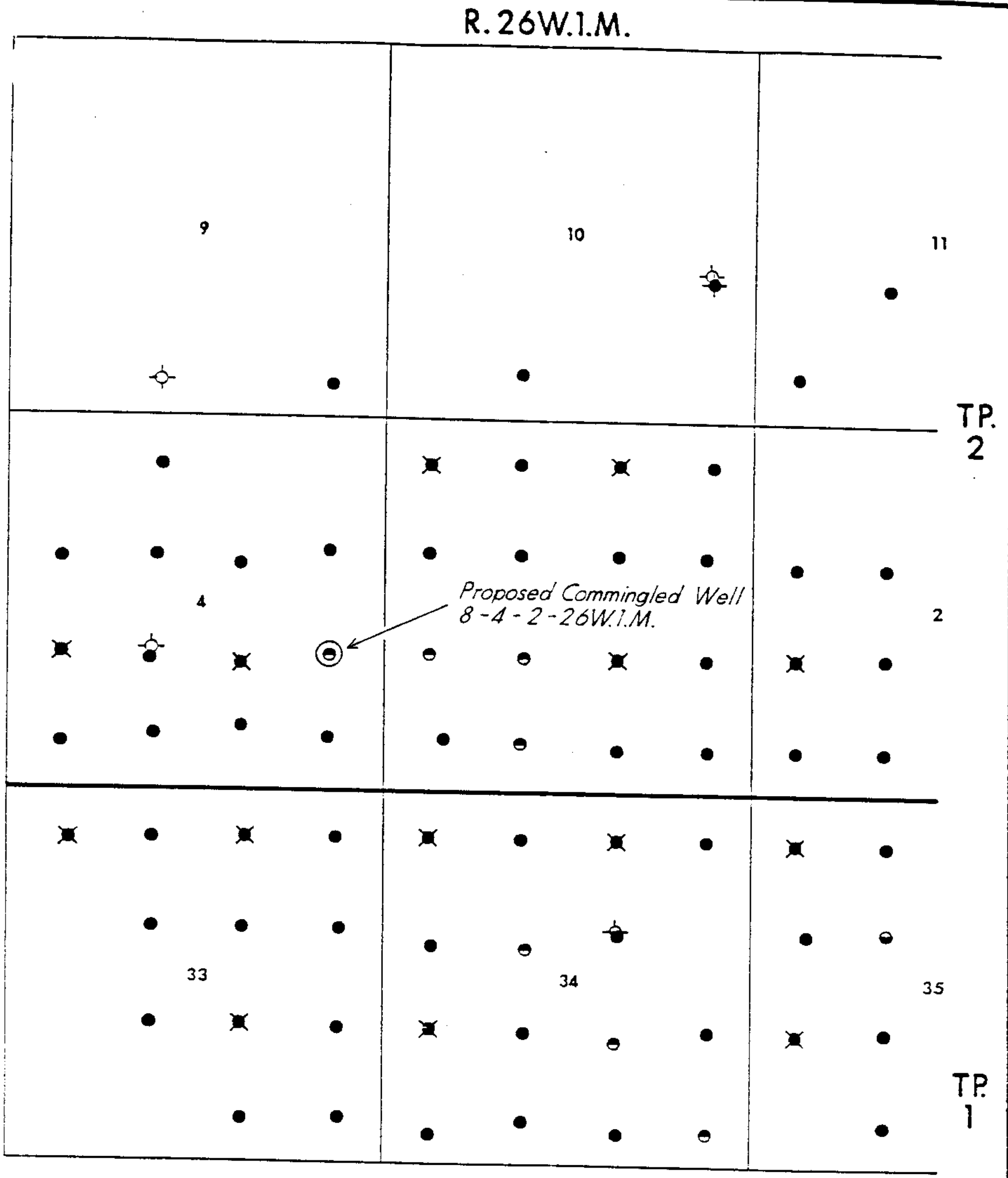
Description of Well

Name	Licence Number	Location
Omega Chevron Waskada 8-4-2-26	3221	Legal subdivision eight (8) of Section four (4), Township two (2) Range twenty-six (26) West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1



- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WELL LOCATION MAP

Scale 1: 25,000	Date FEB. 8/89
Geology	Contour Interval
Revised	File / Drafting

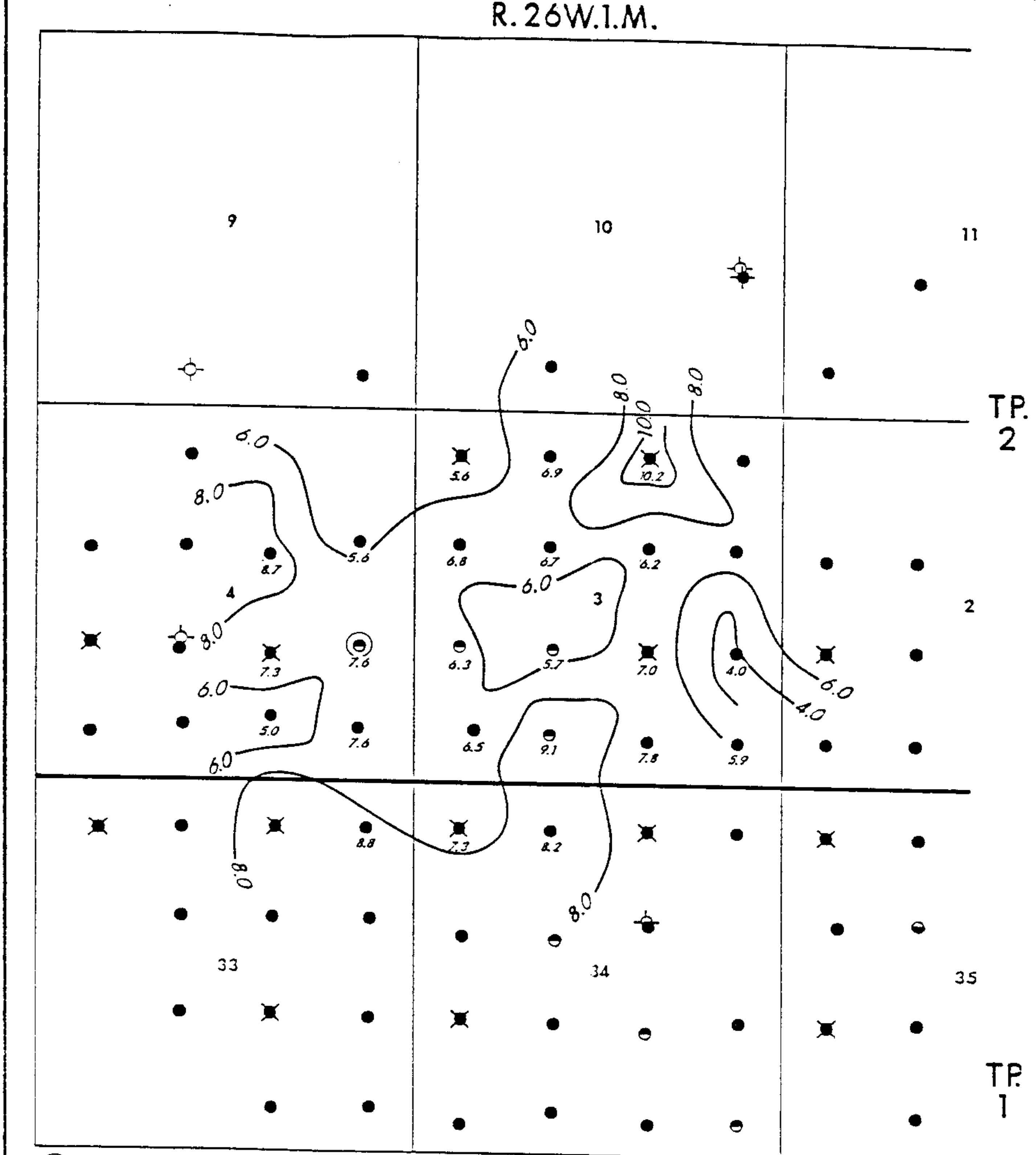
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness
Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Chevron Waskada 8-4-2-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top - of Mc3b Porosity Map
Attachment 1c - Upper Alida (Mc3b) Øh Map



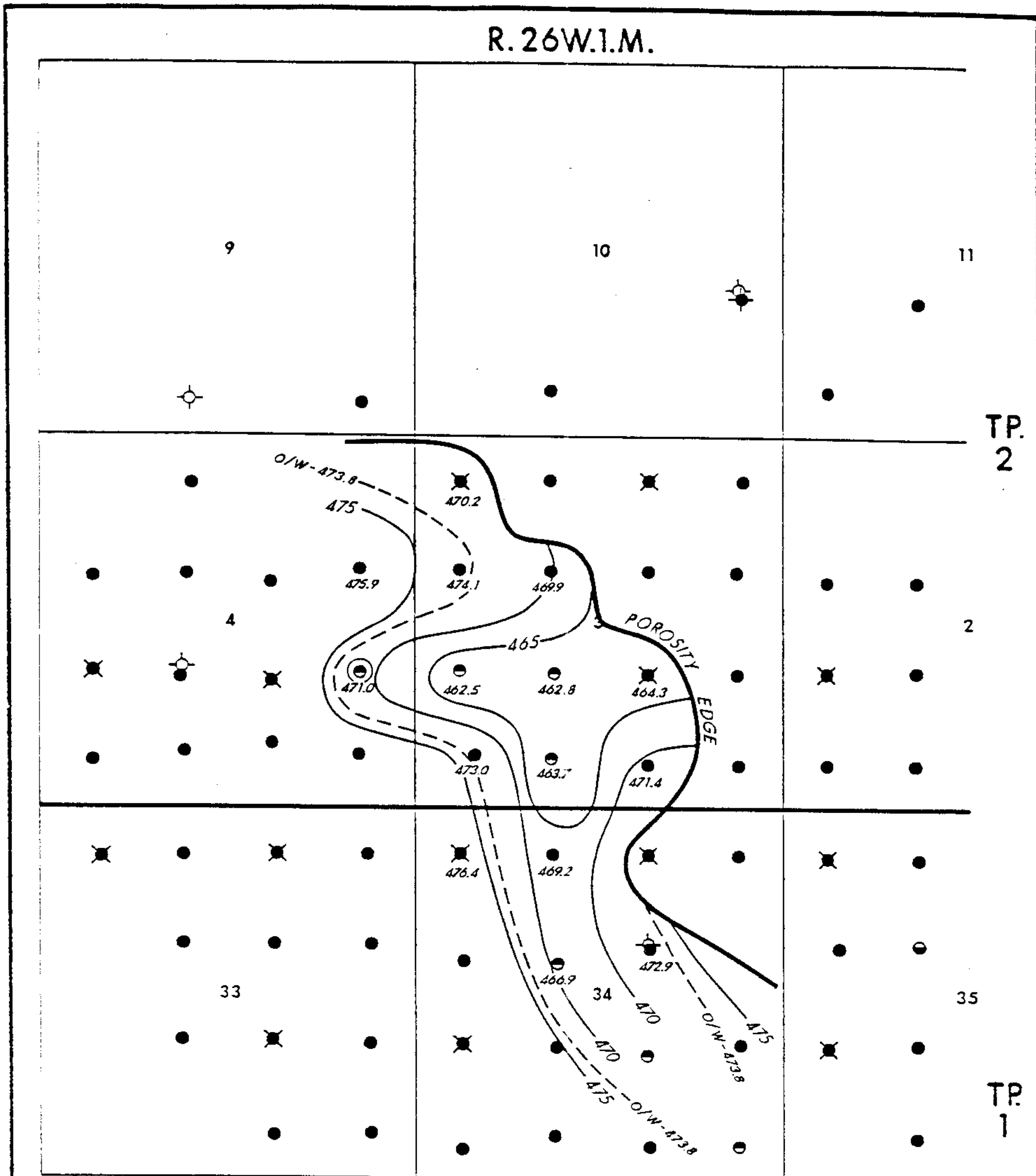
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1 a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Amaranth Net Pay Map

Scale 1:25,000	Date FEB. 8 / 89
Geologist D. Cnalana	Contour interval 2.0 m
Revised	File	Drafting P.A.B.



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

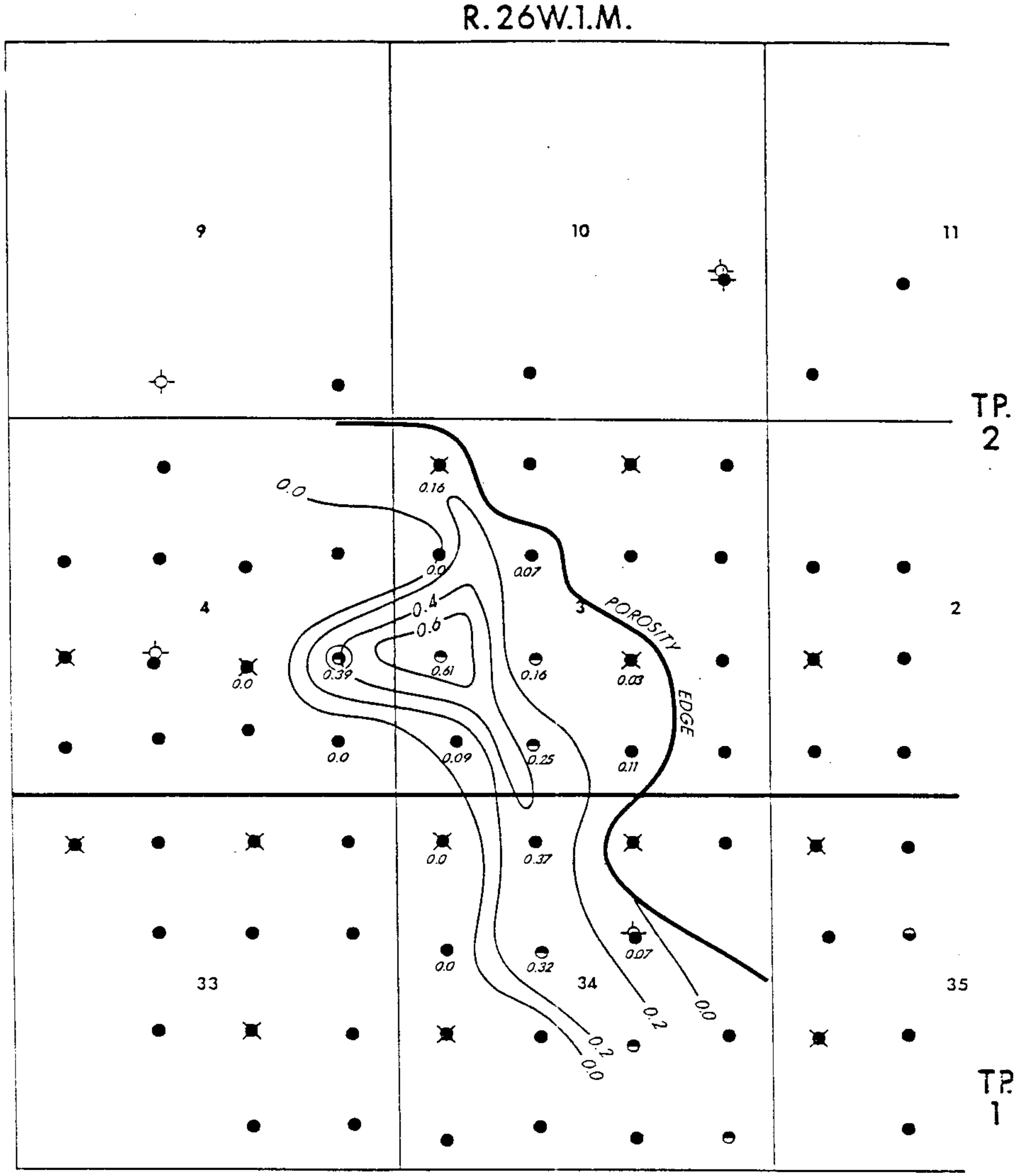
Schedule "C" Attachment 1 b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3b Porosity

Scale 1 : 25,000	Date FEB. 8 /89
Geology D. Cridland	Contour interval: 5.0 m
Revised	File / Drafting PAB.



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Upper Alida (MC3b) øh Map

Scale	1 : 25,000	Date	FEB. 8 / 89
Geology	D. Cridland	Contour interval	0.2 øh
Revised		File	Drafting PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Chevron Waskada 8-4-2-26 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA CHEVRON WASKADA 8-4-2-26

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Rig up and run a retrievable bridge plug on wireline. Land and set at 925.0 mKB.
5) Perforate the Lower Amaranth from 906.0 - 918.0 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
6) Frac the Lower Amaranth using 10 tonne gelled water (20/40 sand @ 0.8 m^3/minute).
7) Run in tubing and circulate out sand to 925.0 mKB.
8) Land tubing at 889.0 mKB.
9) Run BHP and rods.
10) Release rig.

B. Lower Alida Evaluation

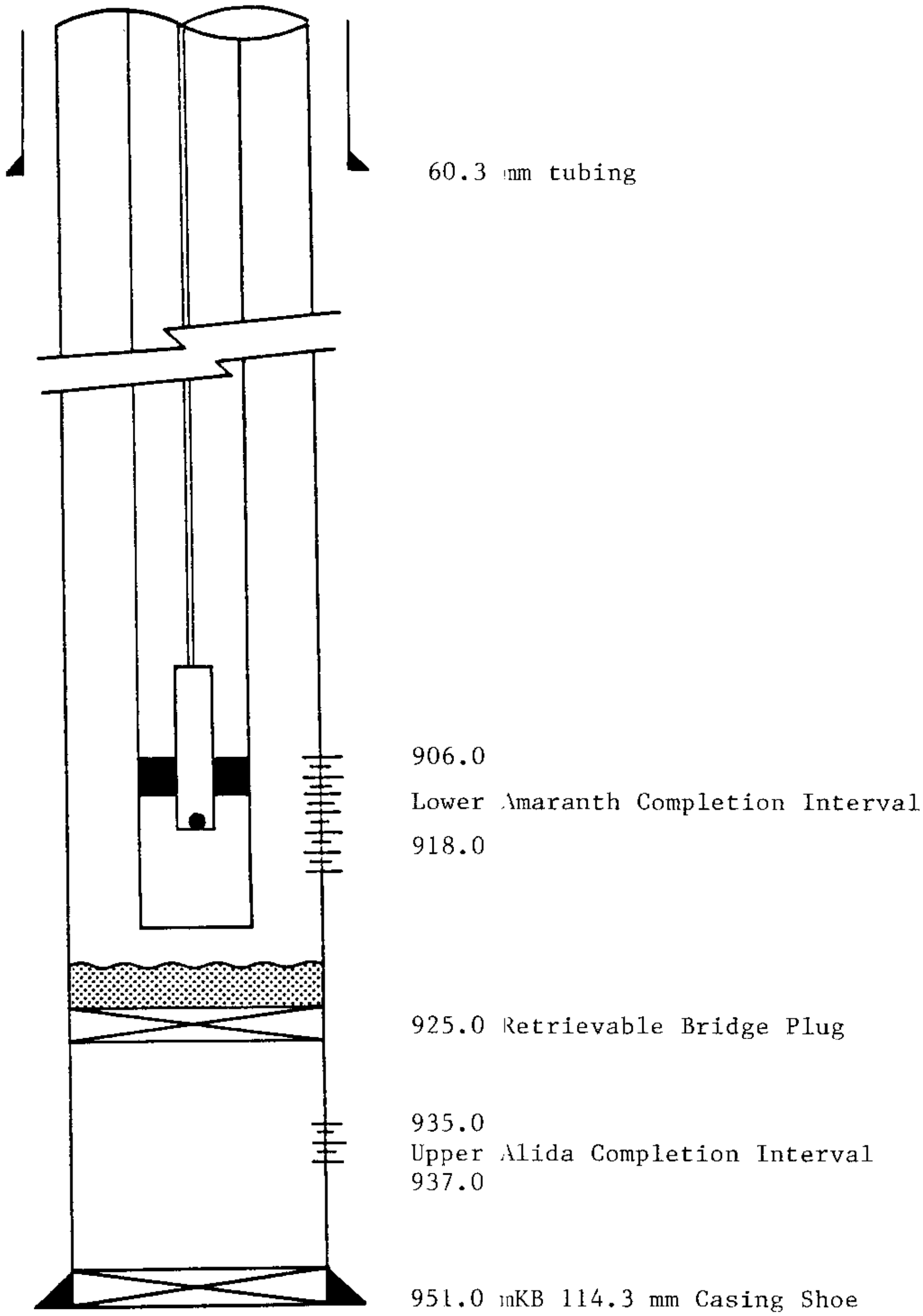
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida on a daily basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump. Circulate hole clean to 925.0 mKB.
3) Pull tubing. Make up retrieving tool and pull bridge plug.
4) Pull tubing and rig out retrieving tool.
5) Run in tubing and circulate hole clean to PBTD. Land tubing at 937.4 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 925.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 937.4 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

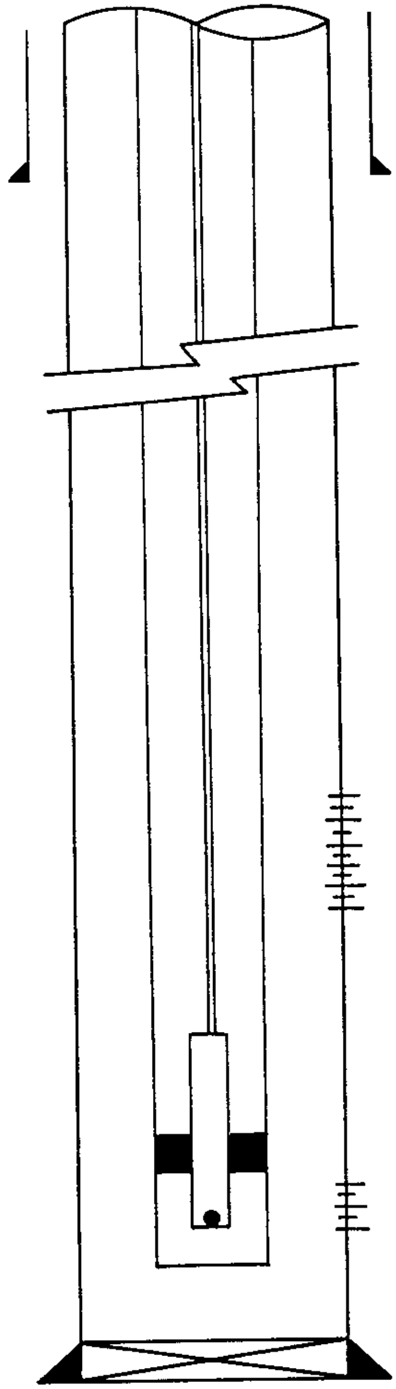


Schedule "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Chevron Waskada 8-4-2-26 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:



60.3 mm Tubing

906.0
Lower Amaranth Completion Interval
918.0

935.0
Upper Alida Completion Interval
937.0

951.0 mKB 114.3 mm Casing Shoe

Schedule "D" Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Chevron Waskada 8-4-2-26 WP
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject well to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (m^3/d)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
8-4-2-26 WPM	UAlida	0.39	27130	1.6/7.0	7074	1.08	67325	6.2/1.3	2060

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Upper Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the well to be commingled. The production rates are based on the well's present production. The production rate from the Upper Alida for 8-4-2-26 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for 8-4-2-26 WPM is based on the fall off tests at wells 7-3, 13-3 and 7-4-2-26 WPM performed in March 1986 and February 1987. The pool pressure for the Upper Alida zone was based on the build up test on 6-3-2-26 WPM performed in December 1987. New tests have been performed and the results will be forwarded when the analyses are completed.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to December 1988
Offsetting Well 8-4-2-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
4-3-2-26 WPM	L. Amaranth	0.1	0.3
5-3-2-26 WPM	U. Alida/L. Amaranth	6.4	3.6
12-3-2-26 WPM	L. Amaranth	1.4	0.1
1-4-2-26 WPM	L. Amaranth	0.4	1.6
2-4-2-26 WPM	L. Amaranth	0.2	0.2
9-4-2-26 WPM	L. Amaranth	0.7	0.2

SCHEDULE "E" (i)

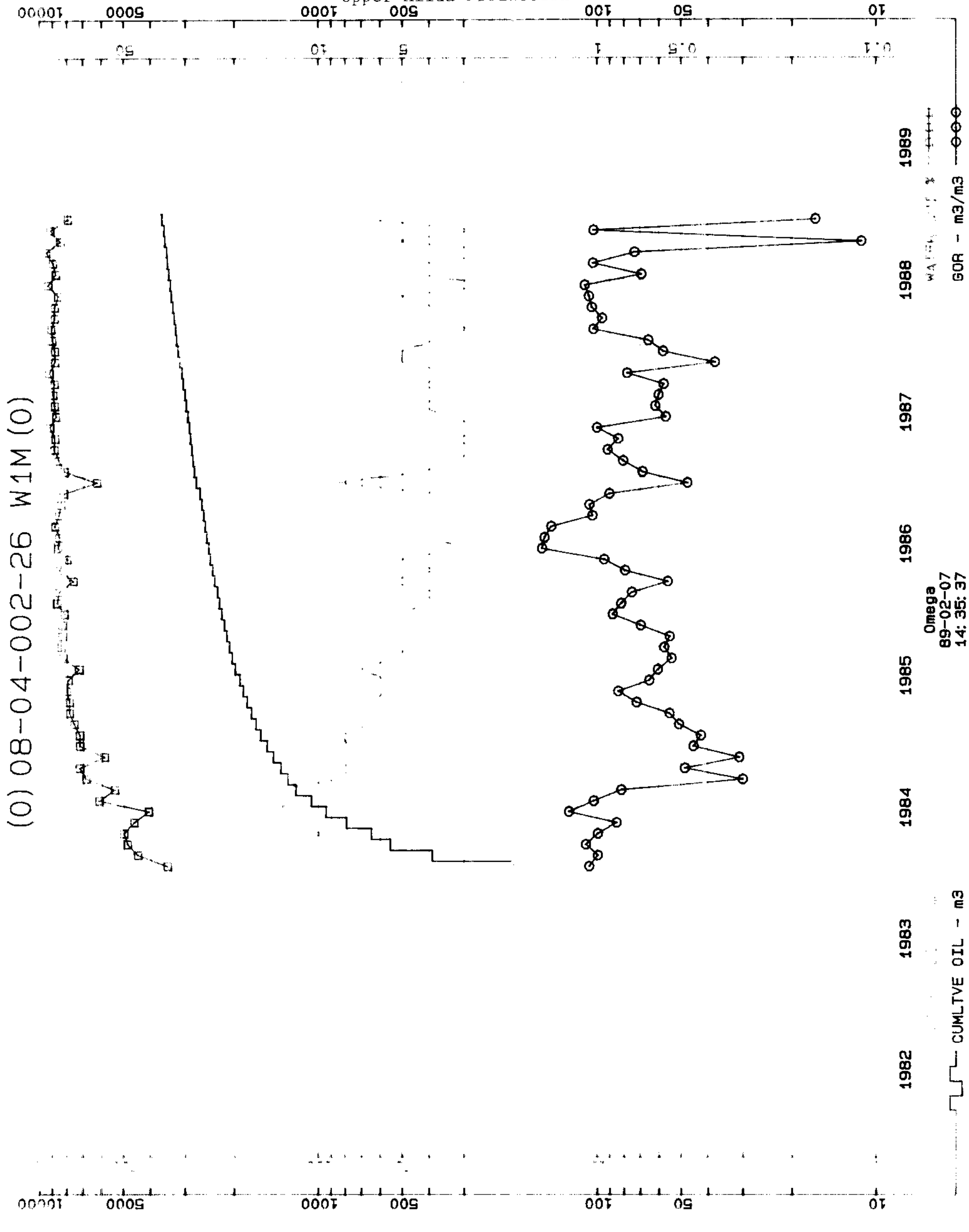
Attachment 2

Cumulative Water Injection to December 1988
Offsetting Well 8-4-2-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
15-33-1-26 WPM	16698.1
13-34-1-26 WPM	21653.7
13-3-2-26 WPM	15442.8
7-4-2-26 WPM	20920.0

Attachment 3

Schedule "E" (i)
Upper Alida Production



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Mission Canyon performance prior to recompleting the Lower Amaranth.

2. Isolate the Mission Canyon, recomplete the well in the Lower Amaranth and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Mission Canyon at the rate established in Step 1. Allocate production to the Lower Amaranth based on the difference between total production and the allocated Mission Canyon production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Mission Canyon production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Mission Canyon at the rate established in Step 5 and allocate production to the Lower Amaranth by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Upper Alida zone during the six month period prior to the recompletion of the Lower Amaranth interval.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	($10^3 m^3$)
8-4-2-26	88/12/07	24	2.42	5.66	0.01
	88/12/03	24	2.94	5.46	0.05
	88/11/05	24	0.83	7.43	0.05
	88/11/02	24	1.69	6.72	0.03
	88/10/12	24	2.18	6.54	0.01
	88/09/05	24	0.60	7.98	0.02
	88/09/02	24	0.86	7.71	0.02
	88/08/17	24	1.20	6.75	0.03
	88/08/09	24	1.82	7.27	0.16
	88/07/14	24	1.35	7.65	0.05
	88/07/05	24	1.75	7.48	0.05
	AVERAGE		1.60	6.97	0.04

Average Water/Oil Ratio = 4.356 m^3/m^3
Average Gas/Oil Ratio = 27.272 m^3/m^3

WELL 8-4-2-26 WPM PRODUCTION TEST DATA*

Lower Amaranth Zone

DATE	OIL (m^3)	WATER (m^3)
89/01/30	8.2	5.6
89/01/31	12.5	5.3
89/02/01	14.7	0.9
89/02/02	11.2	3.8
89/02/03	13.0	4.3
89/02/04	4.6	2.0
89/02/05	7.8	2.5
89/02/06	9.3	3.1
89/02/07	7.2	2.0
89/02/08	6.6	1.6
89/02/09	6.8	2.0
89/02/10	5.8	1.7
89/02/11	6.5	1.3
89/02/12	6.2	1.3

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

Schedule "D" - Attachment No.4
OMEGA WASKADA 1-23-1-26

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Perforate the Lower Alida from 930.5-932.0 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
5) Run tubing w/retrievable packer. Set at 929.5 mKB.
6) Acid squeeze the Lower Alida using 2.0 m^3 15% HCL.
7) Run BHP and rods.
8) Release rig.

B. Lower Alida Evaluation

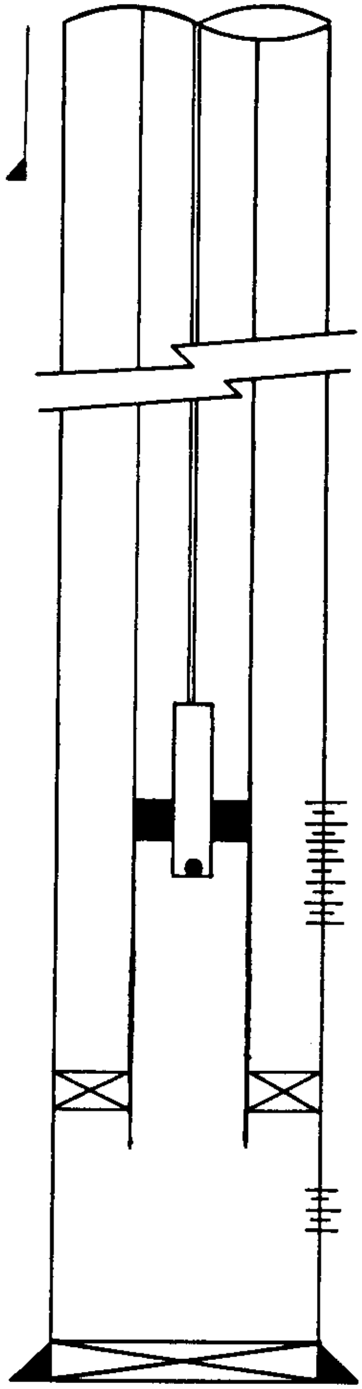
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida to a lease tank for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig out packer and run in tubing.
5) Circulate hole clean to PBTD. Land tubing at 936.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 929.5 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 936.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

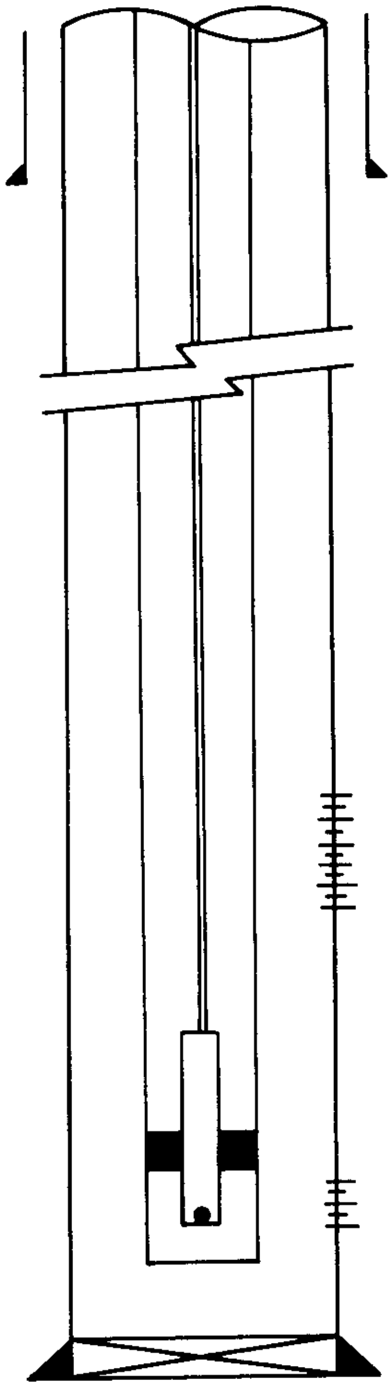


Schedule "D" Attachment No. 5

OMEGA HYDROCARBONS LTD.

Omega Waskada 1-23-1-26 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:



60.3 mm Tubing

914.0 mKB
Lower Amaranth Completion Interval
924.5 mKB

930.5 mKB
Lower Alida Completion Interval
932.0 mKB

953.0 mKB 114.3 mm Casing Shoe

Schedule "D" Attachment No. 6

OMEGA HYDROCARBONS LTD.

Omega Waskada 1-23-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

Schedule "D" - Attachment No.7
OMEGA WASKADA 12-24-1-26

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD and pull tubing.
3) Rig up bit on tubing and drill out cement and retainer to 940.0 mKB. Circulate hole clean and pull tubing.
4) Rig up perforating unit.
5) Perforate the Lower Alida from 925.0-928.5 mKB with 79 mm HSC gun at 13 spm. Rig out wireline.
6) Run tubing w/retrievable packer. Set at 924.0 mKB.
7) Acid squeeze the Lower Alida using 2.0 m^3 15% HCL.
8) Run BHP and rods.
9) Release rig.

B. Lower Alida Evaluation

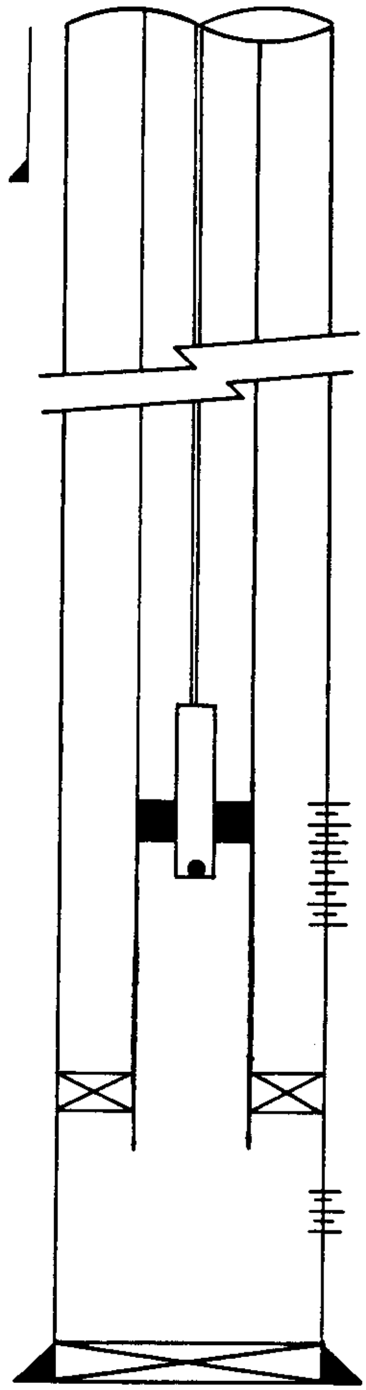
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida to a lease tank for 2 weeks.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig out packer and run in tubing.
5) Circulate hole clean to PBTD. Land tubing at 931.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 924.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 931.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.



60.3 mm Tubing

904.3 mKB
Lower Amaranth Completion Interval
907.5 mKB

924.0 mKB Retrievable Packer

925.0 mKB
Lower Alida Completion Internal
928.5 mKB

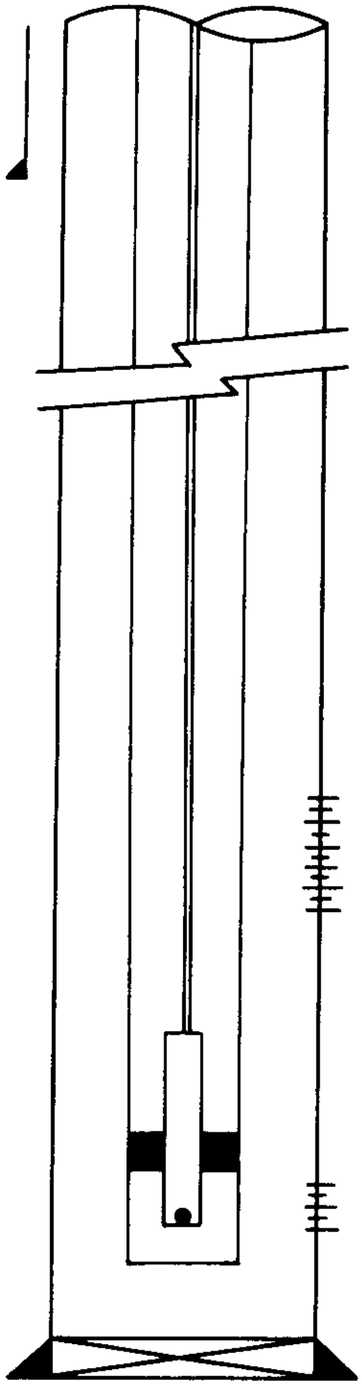
952.0 mKB 114.3 mm Cashing Shoe

Schedule "D" Attachment No. 8

OMEGA HYDROCARBONS LTD.

Omega Waskada 12-24-1-26 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



60.3 mm Tubing

904.3 mKB

Lower Amaranth Completion Interval

917.5 mKB

925.0 mKB

Lower Alida Completion Interval

928.5 mKB

952.0 mKB 114.3 mm Casing Shoe

Schedule "D" Attachment No. 9

OMEGA HYDROCARBONS LTD.

Omega Waskada 12-24-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the subject wells to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure kPa	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
8-32-1-25 WPM	LAlida	0.31	21565	1.6/2.3	N/A	0.912	56852	1.6/1.5	5373
1-23-1-26 WPM	LAlida	0.33	22957	8.2/1.4	N/A	0.888	55356	2.4/0.7	8200
12-24-1-26 WPM	LAlida	0.62	43130	6.0/1.1	N/A	1.164	72561	6.3/1.1	8900

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the wells to be commingled. The production rates are based on the well's present production. The production rate from the Lower Amaranth for these wells are based on the production before they were recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 to 5.

The pool pressure for the Lower Amaranth zone for 8-32-1-25 WPM is estimated from the fall off test on well 5-32-1-25 WPM performed in January 1989. The pool pressure for the Lower Amaranth zones for 1-23 and 12-24-1-26 WPM are based on fall off tests at wells 13-13, 15-14, 7-23 and 13-24-1-26 WPM performed in 1987. New tests have been scheduled for most of these wells for this year and the results will be forwarded when the analyses are completed.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to March 1989
Offsetting Well 8-32-1-25 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
1-32-1-25 WPM	L. Amaranth	NOT PRODUCING	
2-32-1-25 WPM	L. Amaranth	0.2	4.0
3-32-1-25 WPM	L. Amaranth	1.3	1.3
6-32-1-25 WPM	L. Amaranth	1.8	3.6
9-32-1-25 WPM	L. Amaranth/L. Alida	4.0	2.3
5-33-1-25 WPM	L. Amaranth	0.3	6.0
6-33-1-25 WPM	L. Amaranth	1.2	0.2
12-33-1-25 WPM	L. Amaranth	3.7	1.7

Current Production Rates to March 1989
Offsetting Well 1-23-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
12-13-1-26 WPM	L. Amaranth	0.6	0.1
14-13-1-26 WPM	L. Amaranth	5.2	1.4
9-14-1-26 WPM	L. Amaranth	0.3	6.8
10-14-1-26 WPM	L. Amaranth	NOT PRODUCING	
16-14-1-26 WPM	L. Amaranth	1.5	0.2
2-23-1-26 WPM	L. Amaranth	0.1	13.8
8-23-1-26 WPM	L. Alida	0.5	8.2
8A-23-1-26 WPM	L. Amaranth	1.2	2.4
9-23-1-26 WPM	L. Amaranth	NOT PRODUCING	
10-23-1-26 WPM	L. Alida	NOT PRODUCING	
10A-23-1-26 WPM	L. Amaranth	2.8	2.2
3-24-1-26 WPM	L. Amaranth	0.8	10.8
4-24-1-26 WPM	L. Amaranth	1.4	13.7
6-24-1-26 WPM	L. Amaranth	1.2	0.1
12-24-1-26 WPM	L. Amaranth	6.1	0.6

SCHEDULE "E" (i)

Atachment 1

Current Production Rates to March 1989
Offsetting Well 12-24-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
1-23-1-26 WPM	L. Amaranth	5.4	1.6
8-23-1-26 WPM	L. Alida	0.5	8.2
8A-23-1-26 WPM	L. Amaranth	1.2	2.4
9-23-1-26 WPM	L. Amaranth	NOT PRODUCING	
10-23-1-26 WPM	L. Alida	NOT PRODUCING	
10A-23-1-26 WPM	L. Amaranth	2.8	2.2
16-23-1-26 WPM	L. Amaranth	11.5	1.6
3-24-1-26 WPM	L. Amaranth	0.8	10.0
4-24-1-26 WPM	L. Amaranth	1.4	13.7
6-24-1-26 WPM	L. Amaranth	1.2	0.1
10-24-1-26 WPM	L. Amaranth	0.7	0.1
11-24-1-26 WPM	L. Amaranth	0.3	0.1
13-24-1-26 WPM	L. Alida	0.0	2.6
14-24-1-26 WPM	L. Amaranth	4.9	5.7
3A-25-1-26 WPM	L. Alida	1.2	3.5
4-25-1-26 WPM	L. Amaranth	3.7	1.1
1-26-1-26 WPM	L. Amaranth	5.2	4.5

SCHEDULE "E" (i)

Attachment 2

Cumulative Water Injection to March 1989
Offsetting Well 8-32-1-25 WPM

Injection Well	Cumulative Water Inj. (m^3)
5-32-1-25 WPM	16217.9
7-32-1-25 WPM	11550.8

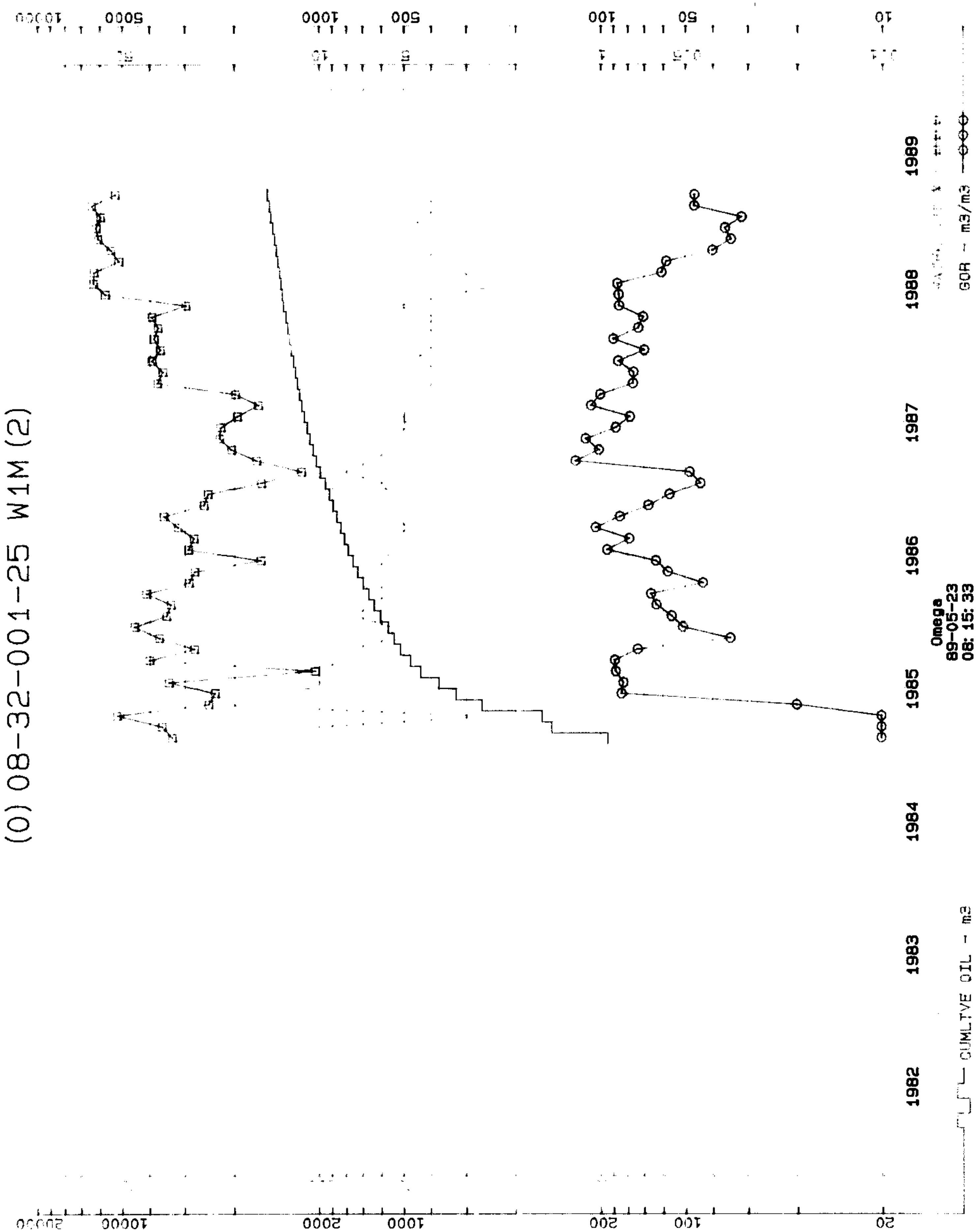
Cumulative Water Injection to March 1989
Offsetting Well 1-23-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
13-13-1-26 WPM	32531.3
15-14-1-26 WPM	16138.2
7-23-1-26 WPM	62910.6
5-24-1-26 WPM	65855.7

Cumulative Water Injection to March 1989
Offsetting Well 12-24-1-26 WPM

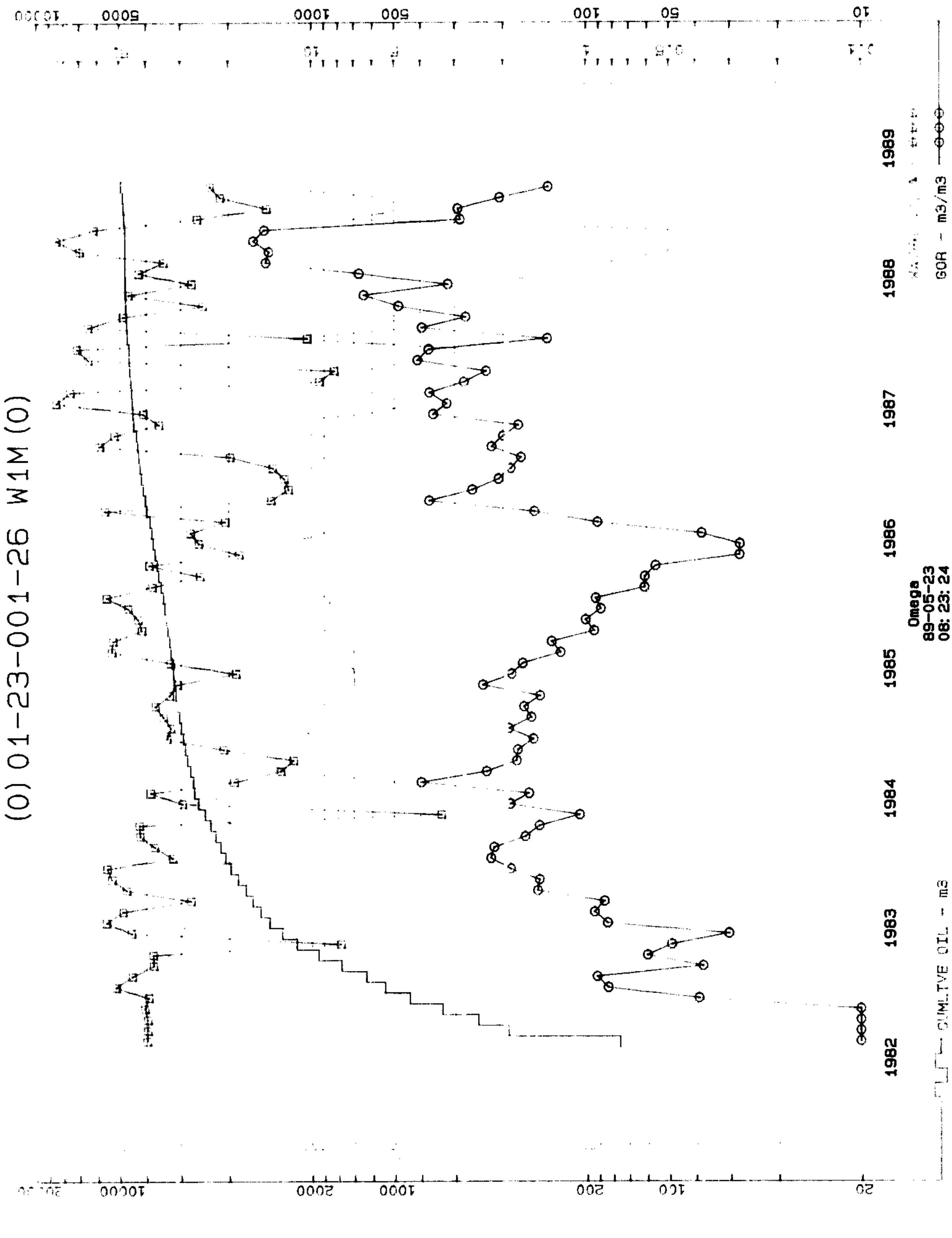
Injection Well	Cumulative Water Inj. (m^3)
9-23-1-26 WPM	8310.0
5-24-1-26 WPM	65855.7
13-24-1-26 WPM	85939.5

Attachment No. 3
Schedule "E" (i)
Lower Amaranth Production

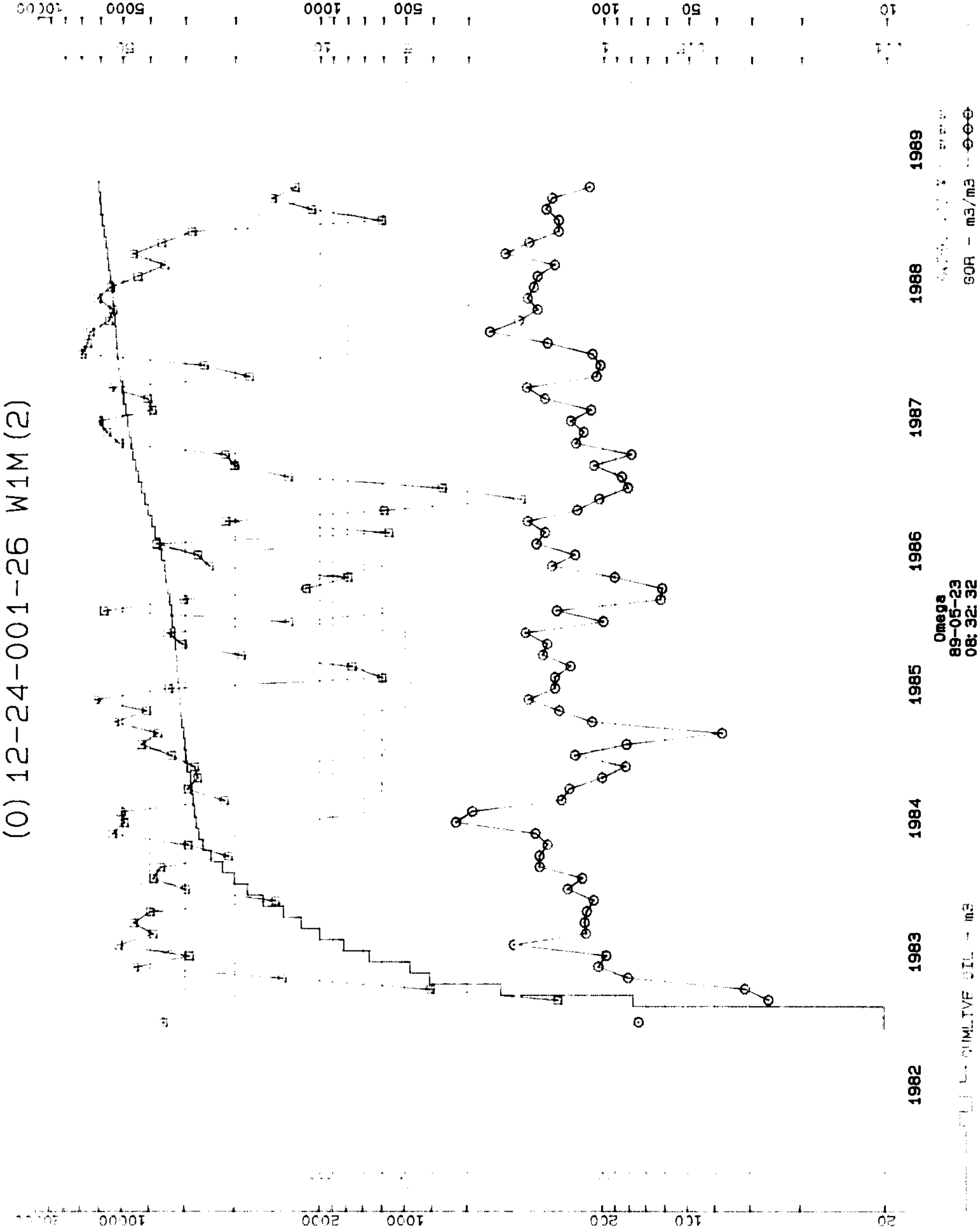


Schedule "E" (i)
Lower Amaranth Production

Attachment 4



Schedule "E" (i)
Lower Amaranth Production



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Alida Completion
B. Lower Alida Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the Mission Canyon.

2. Isolate the Lower Amaranth, recomplete the well in the Mission Canyon and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Lower Amarnth production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zones during the six month period prior to the recompletion of the Mission Canyon intervals.

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	(10^3m^3)
8-32-1-25	89/03/20	24	2.15	1.38	0.03
	89/03/06	24	1.60	1.30	0.06
	89/02/20	24	1.30	1.95	0.03
	89/02/07	24	1.42	1.73	0.03
	89/01/21	24	1.80	1.46	0.03
	89/01/13	24	1.63	1.50	0.03
	88/12/11	24	1.61	1.48	0.02
	88/12/04	24	1.57	1.93	0.03
	88/11/16	24	1.43	1.74	0.02
	88/11/07	24	1.35	1.10	0.02
	88/10/18	24	1.63	1.19	0.03
	88/10/08	24	1.34	1.15	0.03
	AVERAGE		1.57	1.49	0.03

Average Water/Oil Ratio = 0.949 m^3/m^3
Average Gas/Oil Ratio = 19.108 m^3/m^3

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	(10^3m^3)
1-23-1-26	89/04/13	24	3.02	2.28	0.29
	89/04/01	24	2.34	0.18	0.15
	89/03/30	24	1.51	0.25	0.08
	89/03/22	24	2.30	0.47	0.17
	89/02/24	24	7.07	1.75	0.51
	89/01/03	24	1.80	0.16	0.22
	88/12/23	24	2.10	0.37	0.25
	88/12/16	24	0.91	0.13	0.19
	88/12/06	24	3.06	0.77	0.35
	88/11/04	24	0.27	0.26	0.18
	AVERAGE		2.44	0.66	0.24

Average Water/Oil Ratio = 0.272 m^3/m^3
Average Gas/Oil Ratio = 98.031 m^3/m^3

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Well	Test Date	Hours	Oil	Water	Gas
			(m^3)	(m^3)	(10^3m^3)
12-24-1-26	89/03/12	24	5.67	0.49	0.33
	89/02/19	24	7.38	0.82	0.47
	89/01/13	24	4.88	0.54	0.35
	88/12/09	24	6.33	0.13	0.37
	88/11/21	24	7.41	0.64	0.42
	88/11/17	24	8.43	0.94	0.52
	88/10/14	24	4.57	1.96	0.44
	88/04/18	24	6.09	3.28	0.50
	AVERAGE		6.34	1.10	0.42

Average Water/Oil Ratio = 0.173 m^3/m^3
Average Gas/Oil Ratio = 66.246 m^3/m^3

WELL 8-32-1-25 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/05/10	11.2	2.3
89/05/11	8.0	1.4
89/05/12	5.7	2.2
89/05/13	6.7	5.2
89/05/14	5.4	4.2
89/05/15	5.4	4.2
89/05/16	4.2	6.7
89/05/17	4.8	2.8
89/05/18	4.1	3.3
89/05/19	3.8	3.2
89/05/20	5.4	1.0
89/05/21	6.3	1.1
89/05/22	2.8	3.1
89/05/23	1.0	1.1
89/05/24	1.6	2.3

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

WELL 1-23-1-26 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/05/12	9.6	0.5
89/05/13	8.2	1.5
89/05/14	9.3	1.5
89/05/15	6.8	2.9
89/05/16	6.9	3.0
89/05/17	7.1	3.0
89/05/18	3.5	1.5
89/05/19	12.2	3.1
89/05/20	6.9	3.0
89/05/21	8.6	1.0
89/05/22	8.8	1.5
89/05/23	9.6	1.7
89/05/24	8.2	1.4

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

WELL 12-24-1-26 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/05/06	5.5	6.6
89/05/07	3.4	5.2
89/05/08	7.1	4.8
89/05/09	0.5	10.0
89/05/10	1.8	3.3
89/05/11	2.8	5.1
89/05/12	4.2	4.2
89/05/13	3.4	5.0
89/05/14	4.7	3.9
89/05/15	3.9	4.5
89/05/16	4.2	4.7
89/05/17	4.2	4.8
89/05/18	4.0	4.5
89/05/19	4.8	4.5
89/05/20	6.2	2.7
89/05/21	8.4	2.8
89/05/22	6.8	2.7
89/05/23	6.6	2.9
89/05/24	6.0	2.3

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

JOHN

OMEGA HYDROCARBONS LTD

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

DEPARTMENT OF ENERGY AND MINES
PETROLEUM BRANCH
MAY 24

May 17, 1989

Amoco Canada Petroleum Company Ltd.
22nd Floor, 333 - 7th Avenue S.W.
Calgary, Alberta

Attention: G. Kinney

Dear Sir:

RE: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. has made application for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega et al Waskada 8-32-1-25 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by May 31, 1989 the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke
Engineering Supervisor - Manitoba

DMB/jb

c.c. B. Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD
SUN LIFE PLAZA III
4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P
TELEPHONE (403) 26_-0743

ENERGY AND MINES
MAY 23
PETROLEUM BRANCH

May 16, 1988

Sabre Petroleums Ltd.
8th Floor, 1122 - 4th Street S.W.
Calgary, Alberta
T2R 1M1

Attention: Mr. K.J. MacIntyre

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following wells in the Waskada field:

Omega Waskada 9-24-1-26 WPM
Omega Waskada 12-24-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the wells which are the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by May 30, 1989, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke
Manitoba District Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

May 16, 1989

Enron Oil Canada Ltd.
1300, 700 - 9th Avenue S.W.
Calgary, Alberta
T2P 3V4

Attention: Mr. L.E. Fenwick

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following wells in the Waskada field:

Omega Waskada 9-24-1-26 WPM
Omega Waskada 12-24-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the wells which are the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by May 30, 1989, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke
Manitoba District Engineer

DB/jb
c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

FILE - Commingled Production

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

March 1, 1989

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

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

Re: Royalty/Tax Calculations - Commingled Wells

Dear Gordon:

Thank you for your letter of February 20, 1989 regarding calculation of royalties and taxes on commingled wells.

Previous to development of commingled production in the Waskada Field, Department policy was that commingled production would only be approved where neither zone could be produced economically on its own. With approval of the current program, it was recognized that, primarily due to low oil prices, it is not economic to develop both Lower Amaranth and Mission Canyon reservoirs using separate wellbores.

The Petroleum Crown Royalty and the Oil and Gas Production Tax Regulation do not provide for calculating royalties or taxes on the basis of individual zone production in a multi-zone or commingled well. There is, of course, provision for a reduction in or exemption from royalty or tax liabilities which can be granted by the Lieutenant-Governor- in-Council. This provision is designed to be considered in situations where the normal royalty/tax regime is seen to hinder maximum resource recovery.

The results of the commingling project to date have been quite favourable. Based on average producing rates reported for December 1988 and operating costs (including well test requirements) it is estimated that net income on a per well basis should exceed $10,000/month at current oil prices (see Attachment No. 1). On this basis, the wells are clearly not marginal and in our opinion do not warrant special royalty or tax treatment.

With respect to well testing we suggest that yearly operating costs could be significantly reduced by co-ordinating testing with other required down hole maintenance work. In this regard, a well test within a six month period (three months before and three months after the scheduled test date) would be acceptable.

In summary, based on the results of the commingled project to date, we think that special royalty/tax treatment is not warranted and cannot be justified for commingled wells in the Waskada Field. Consequently, royalties and taxes will continue to be based on total production for each well.

Yours sincerely,

L. R. Dubreuil
Director

LRD:jtb

cc: H. C. Moster

bc: B. Thiessen

Attachment No. 1

Commingled Well Income Estimate
December 1988

Well	Zone	Production (m^3)	Total Production (m^3)
10-6-1-25	29	25.8	108.9
	43	83.1	-
9-32-1-25	29	2.8	38.9
	43	36.1	-
9-33-1-25	29	68.2	89.4
	44	21.2	-
8-8-2-25	29	26.7	111.9
	44	85.2	-
11-34-1-26	29	122.7	284.9
	42	50.5	-
7-35-1-26	29	168.1	173.7
	43	5.6	-
8-35-1-26	29	154.7	173.3
	43	18.6	-
9-35-1-26	29	196.8	273.6
	43	76.8	-
10-35-1-26	29	43.4	99.6
	43	56.2	-
11-35-1-26	29	26.5	103.5
	43	77.0	-
12-36-1-26	29	116.3	199.8
	43	83.5	-
5-3-2-26	29	92.6	103.4
	42	10.	
6-3-2-26	29	66.9	111.8
	42	44.9	-
		TOTAL	1 872.7 m^3
		Average	144.0 m^3/well

Zone Codes

29 - Lower Amaranth
42 - MC3b
43 - MC3a
44 - MC1

Revenue: 144.0 m^3/well/month X \$100/m^3 (1) = \$14,400/month

Expenses: Freehold Oil Tax = $(19.59 - \frac{820}{144}) \times \frac{14,400}{100}$

= \$2000.96 - (A)

Operating Cost = \$2000.00 - (B)
Production Testing = \$5000.00/12 months
= \$ 417.00 - (C)

Total Expenses = (A) + (B) + (C)

= \$4417.96

Net Revenue = \$ 14,400 - 4417.96 = \$ 9982.04

(1) December 1988 Manitoba Average Oil Price.

~~Claire~~

Bob — I support your proposal.
Claire

- Any comments on this or on my proposed response.

- Have checked with Sask. E+M and was told that:
  - commingled prod. treated as single well for royalties/taxes (i.e. same as us)
  - Dual completion treated ~~completed~~ as 2 wells for royalty/tax ~~purposes~~ (where prod. is segregated).

Bob

OMEGA
HYDROCARBONS LTD.

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

February 20, 1989

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

Attention: Mr. L. R. Dubreuil
Director of Petroleum

Dear Sir:

Re: Waskada Commingled Production
Mineral Tax/Royalty Calculations

At present Omega Hydrocarbons Ltd. operates fifteen commingled wells in the Waskada field. The major reason for commingling production is because of the marginal nature of the candidate wells, and is an attempt to recover additional reserves. As you are aware the approval to commingle production from these wells is subject to the following conditions, 1) an annual production test is required to determine production from each zone 2) a pumping fluid level is required monthly to ensure no crossflow 3) all well activities are to be submitted in a bi-monthly commingled well report and 4) Crown mineral taxes/royalties are to be calculated on the basis of total oil volume produced from each well.

It is the fourth condition of our approval that we are asking the government to review. Separate zone production data is being collected at a significant cost, and we believe that the mineral tax calculated on individual zone production is justifiable. The costs associated with the annual production testing of the commingled wells will increase operating costs by approximately $5000 per well. The mineral taxes/royalties calculated using the total production volume versus the actual production zone is illustrated on Attachment 1 and shows a yearly additional cost of $9000/well.

Because our production history is short we concur with the necessity for production testing to monitor response and reservoir depletion at the commingled well locations. However, given the cost and effort to determine production by zone we are of the opinion that Provincial mineral taxes and royalties should be calculated based on production from each zone separately. With the intent of achieving an equitable sharing of both the additional revenues and costs associated with commingled production Omega requests that the Manitoba Government review the current method used to calculate mineral taxes/royalties.

Your attention to this matter is appreciated.

Yours sincerely,

OMEGA HYDROCARBONS LTD.

G.A. Cormack
Manager, Production Operations

Waskada Commingled Production
Sample Mineral Tax Calculations For December 1988

Well	Zone	Oil Production (m^3)	Oil Price ($\$/m^3$)	Mineral Tax Calculation Using: Total Production ($)	Mineral Tax Calculation Using: Each Zone ($)
8-8-2-25 WPM	LAmaranth	36.4	97.39	N/A	9.29
	Tilston*	85.2	97.39	N/A	826.91
	Total	121.6	97.39	1521.78	N/A
				1521.78	836.20
9-35-1-26 WPM	LAmaranth*	196.7	97.39	N/A	2954.18
	LAlida	76.7	97.39	N/A	664.74
	Total	273.4	97.39	4417.52	N/A
				4417.52	3618.92
10-35-1-26 WPM	LAmaranth*	43.9	97.39	N/A	84.95
	LAlida	56.2	97.39	N/A	263.59
	Total	100.1	97.39	1111.36	N/A
				1111.36	348.54

Using the total production from a commingled well to calculate monthly mineral tax results in higher taxes for each of the example wells as follows:

Well 8-8-2-25 WPM = $1521.78 - $ 836.20 = $685.58
Well 9-35-1-26 WPM = $4417.52 - $3618.92 = $798.60
Well 10-35-1-26 WPM = $1111.36 - $ 348.54 = $762.82

Average yearly cost $8,950.00

* denotes the commingled production zone

Comminglimg File

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

February 7, 1989

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P OH3

Attention: Mr. R. A. Brekke, P. Eng.
Manitoba District Engineer

Re: Omega Waskada Prov. 9-32-1-25 (WPM)
Commingled Production

Dear Richard:

Further to your letter of January 26, 1989, enclosed is your approved application to commingle production in the subject wellbore. Please notify our Waskada Office before proceeding with the recompletion.

As with previous approvals, the following conditions apply:

1. Crown royalties are to be calculated on the basis of total volume from the well and not separately from each zone.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The wells are to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

Original Signed By
L. R. DUBREUIL

L. R. Dubreuil
Director of Petroleum

LRD/sml

cc: Waskada Office

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
PETROLEUM BRANCH

January 24, 1989

Chauvco Resources Ltd.
2900, 255 - 5th Avenue S.W.
Calgary, Alberta
T2P 3G6

Attention: Mr. D.L. Robertson

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 9-32-1-25 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by February 6, 1989, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke
Manitoba District Engineer

DB/jb
c.c.: **Bob Dubreuil**
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
JAN 27 1989
PETROLEUM BRANCH

January 26, 1989

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. L.R. Dubreuil
Executive Director

Dear Sir:

RE: Omega Waskada 9-32-1-25 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at this well remains with economics. Due to low oil prices the economics for drilling a new well is not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after February 7,1989. To expedite the approval process, we have directly sent notification of this application to the offset mineral owners, Hudson's Bay Oil and Gas Limited and Chauvco Resources Ltd.

Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data from the tested zones. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Manitoba District Engineer

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

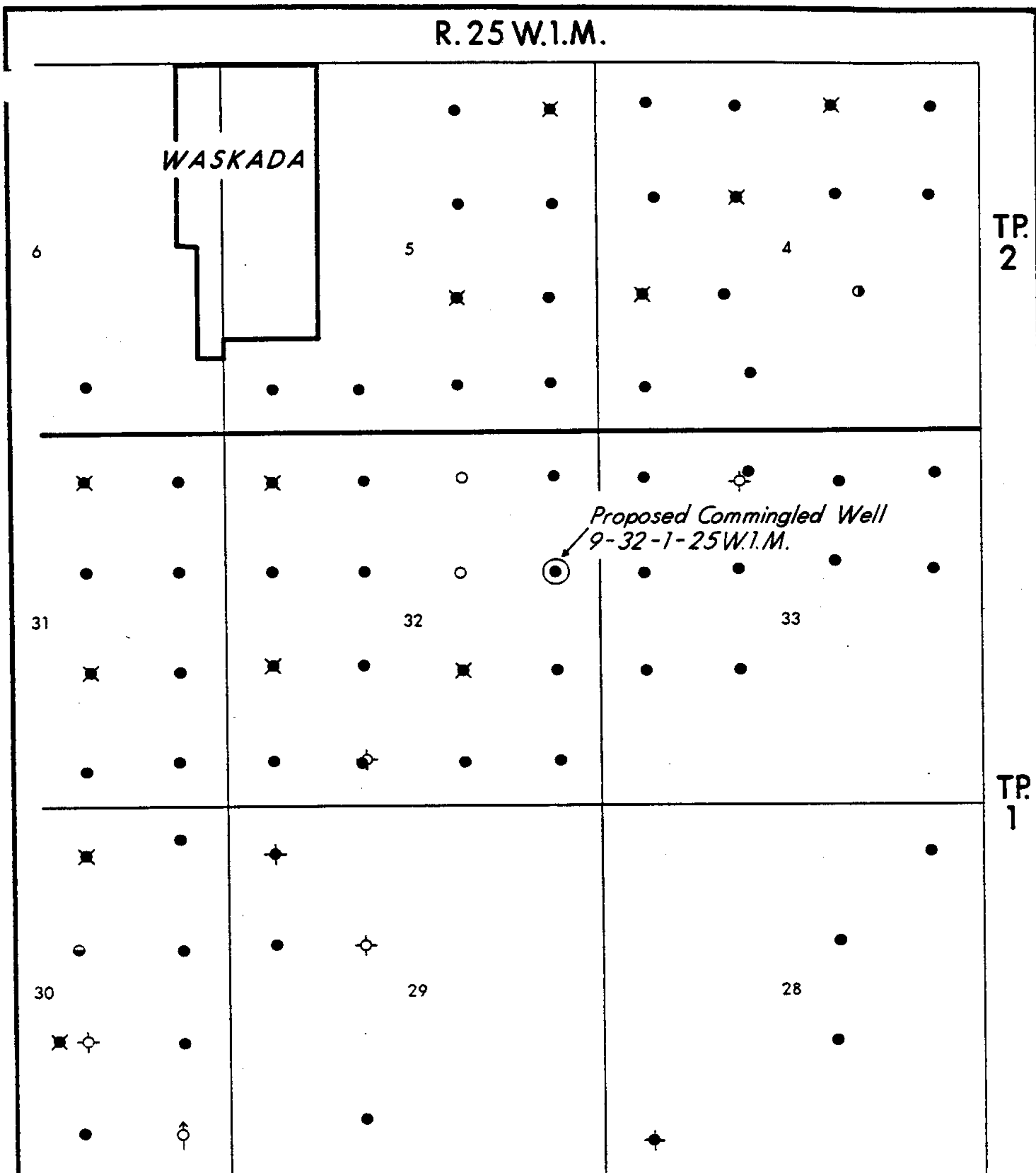
Description of Well

Name	Licence Number	Location
Omega Waskada 9-32-1-25	3841	Legal subdivision nine (9) of Section thirty-two (32), Township one (1) Range twenty-five (25) West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1



Legend:

- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
WELL LOCATION MAP

Scale: 1: 25,000	Date: JAN. 25, 1989
Geology: D. CRIDLAND	Contour Interval:
Revised:	File: / Drafting: PAB

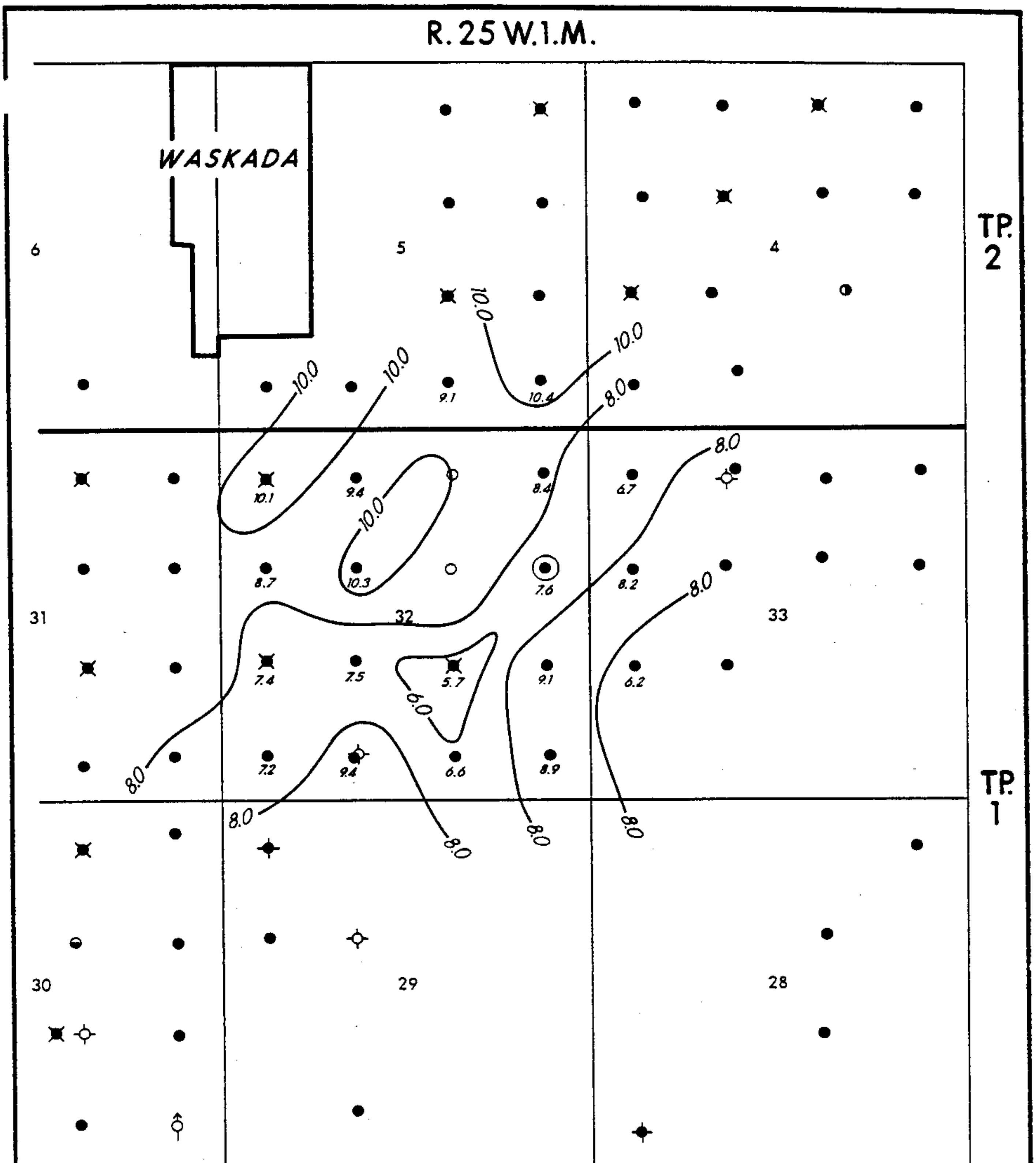
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness
Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 9-32-1-25 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top - of Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map



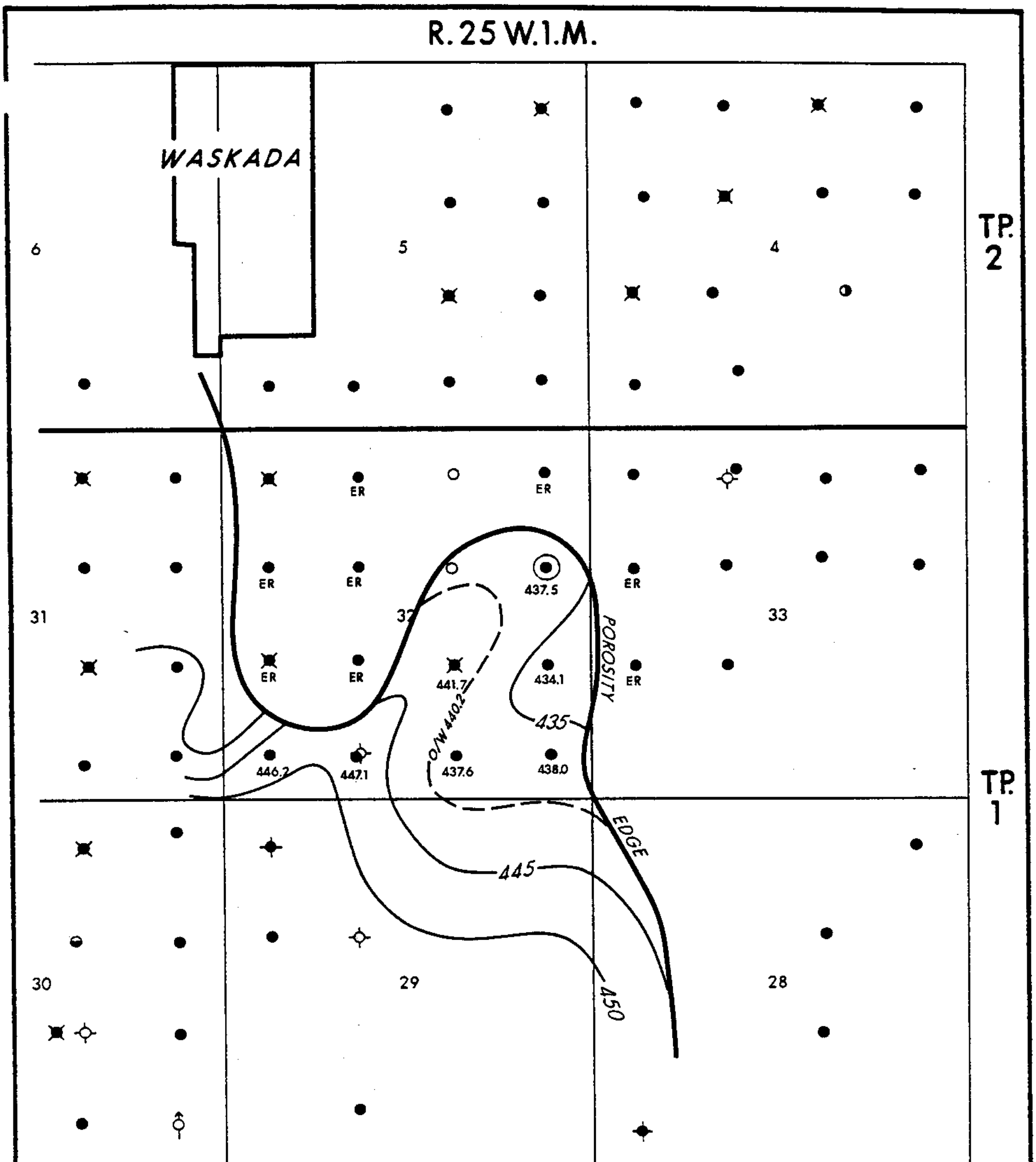
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Amaranth Net Pay Map

Scale: 1:25,000	Date: JAN. 25, 1989		
Geology: D. CRIDLAND	Contour Interval: 2.0 m.		
Revised:	File:	Drafting: PAB.	



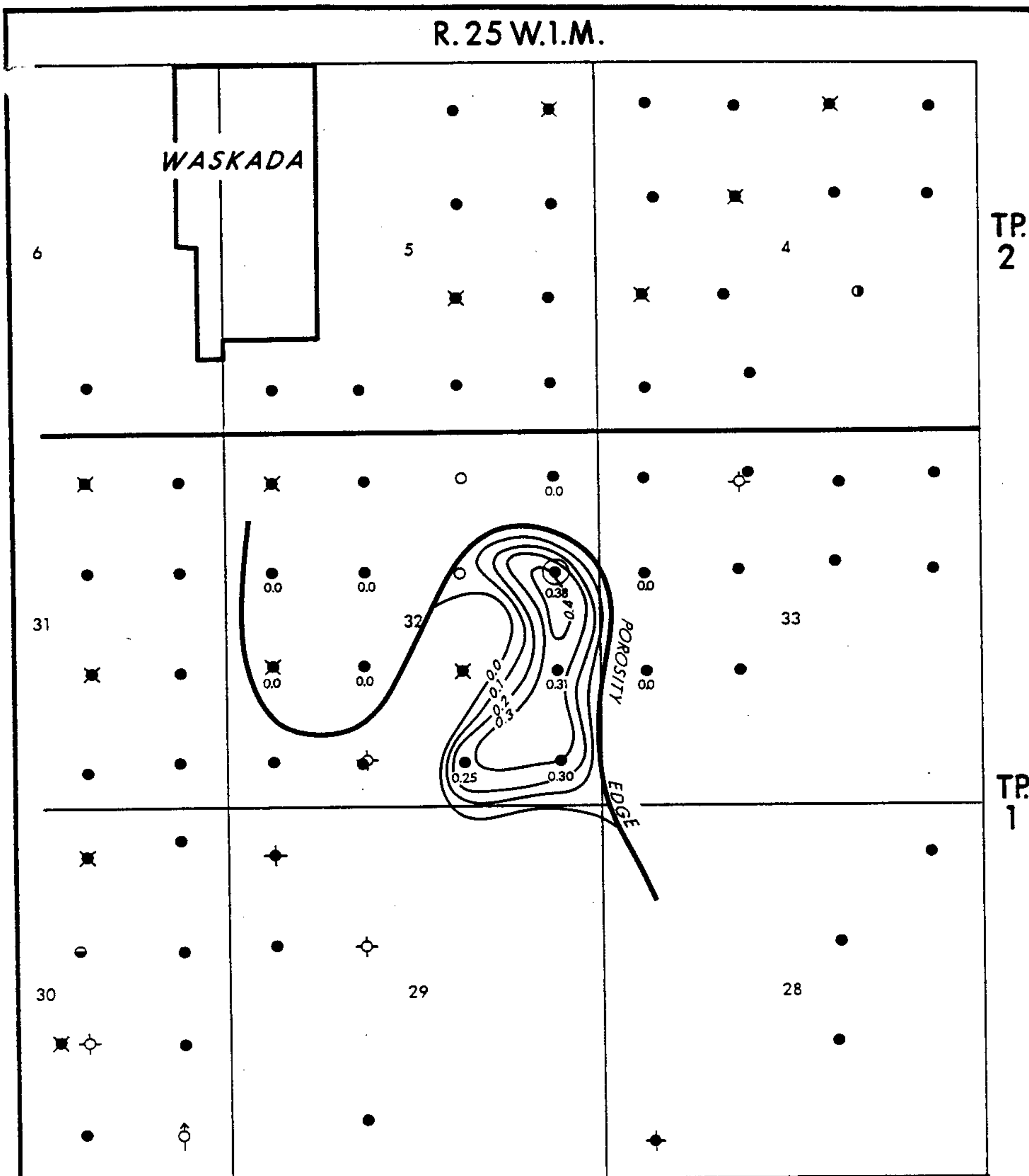
- ⊙ Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Structure-Top of MC3a Porosity

Scale: 1 : 25,000	Date: JAN. 25, 1989		
Geology: D. CRIDLAND	Contour Interval: 5.0 m		
Revised	File:	Drafting: PAB	



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Alida (MC3a) ϕh Map

Scale: 1:25,000	Date: JAN. 25, 1989		
Geology: D. CRIDLAND	Contour interval: 0.1 ϕh		
Revised:	File:	Drafting: PAB	

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 9-32-1-25 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 9-32-1-25

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Perforate the Lower Alida from 913.0 - 914.5 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
5) Run tubing w/retrievable packer. Set at 908.0 mKB.
6) Acid squeeze the Lower Alida using 1.0 m^3 15% HCL.
7) Run BHP and rods.
8) Release rig.

B. Lower Alida Evaluation

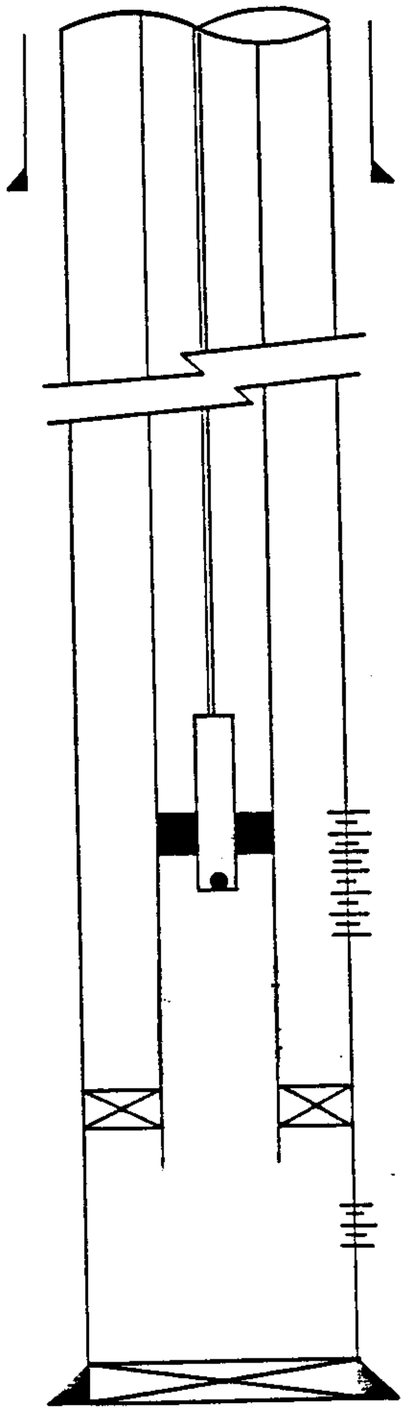
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida on a dialy basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig out packer and run in tubing.
5) Circulate hole clean to PBTD. Land tubing at 915.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 908.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 915.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.



60.3 mm Tubing

889.0
891.0
Lower Amaranth Completion Interval
896.0
903.0

908.0 Retrievable Packer

913.0
Lower Alida Completion Interval
914.5

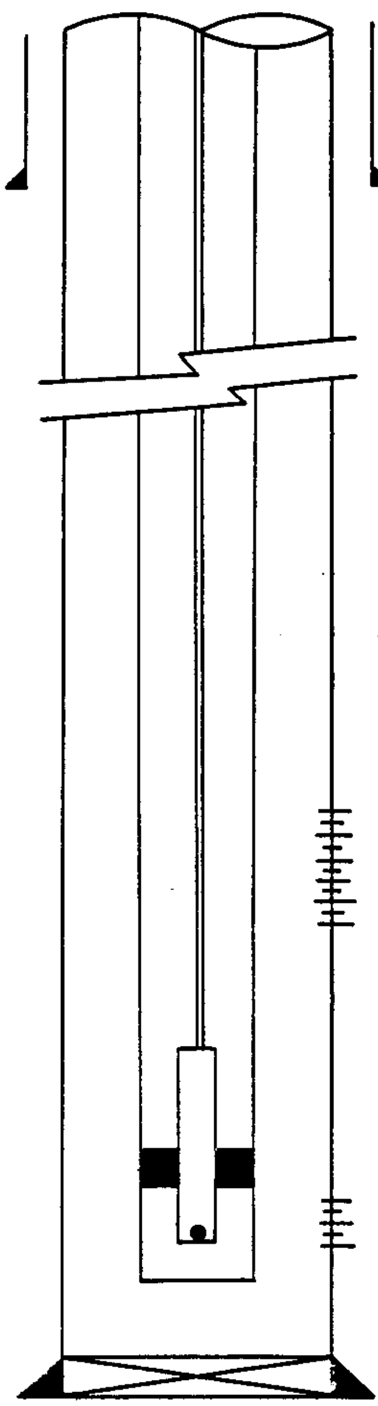
930.7 mKB 114.3 mm Casing Shoe

Schedule 'D' Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-32-1-25 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:



Schedule 'D' Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-32-1-25 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for each of the individual wells to be commingled under this application.

	Mission Canyon					Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (m^3/d)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
9-32-1-25 WPM	LAlida	0.383	26643	0.8/2.4	N/A	1.270	79169	3.6/1.3	N/A

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the well to be commingled. The production rates are based on the well's present production. The production rate from the Lower Amaranth for 9-32-1-25 WPM is based on the production before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for 9-32-1-25 WPM will be obtained from the pressure fall off test at well 7-32-1-25 WPM which is expected to be completed shortly. The results will be then analyzed and forwarded as soon as possible.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to November 1988
Offsetting Well 9-32-1-25 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
8-32-1-25 WPM	L. Amaranth	1.4	2.1
5-33-1-25 WPM	L. Amaranth	0.3	7.6
12-33-1-25 WPM	L. Amaranth	5.0	0.5
13-33-1-25 WPM	L. Amaranth	1.0	0.2

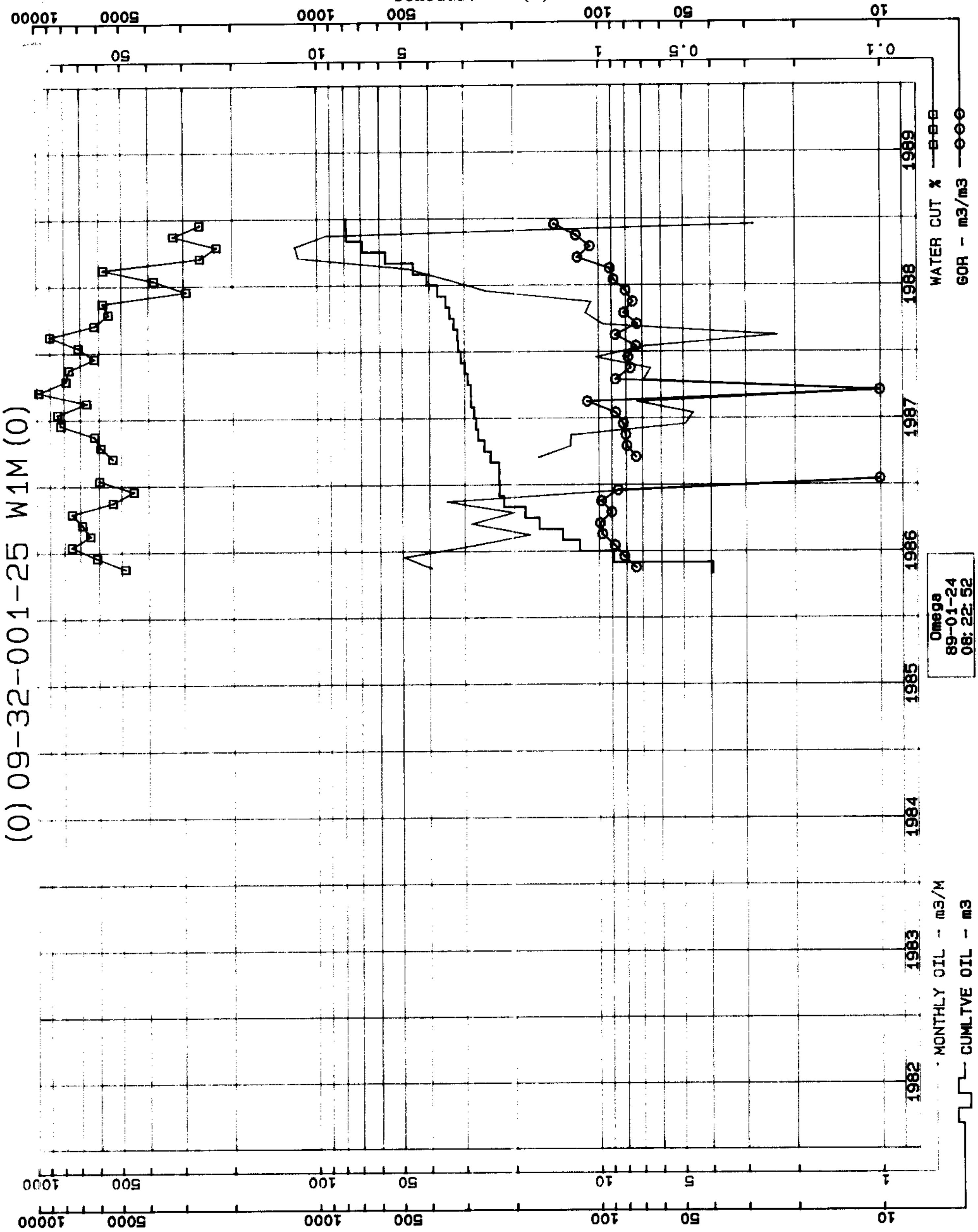
SCHEDULE "E" (i)

Attachment 2

Cumulative Water Injection to November 1988
Offsetting Well 9-32-1-25 WPM

Injection Well	Cumulative Water Inj. (m^3)
7-32-1-25 WPM	10385.8

Lower Amaranth Production
Schedule 'E'(i)



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Mission Canyon Completion
B. Mission Canyon Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Lower Amaranth performance prior to recompleting the Mission Canyon.

2. Isolate the Lower Amaranth, recomplete the well in the Mission Canyon and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Mission Canyon based on the difference between total production and the allocated Lower Amaranth production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Mission Canyon production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Lower Amaranth at the rate established in Step 5 and allocate production to the Mission Canyon by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zone during the three month period prior to the recompletion of the Lower Alida interval.

Well	Test Date	Hours	Oil	Water	Gas	Oil	Water
			(m^3)	(m^3)	($10^3 m^3$)	(m^3/d)	(m^3/d)
9-32-1-25 WPM	88/09/30	718	116.5	41.5	-	3.89	1.39
	88/10/31	744	119.7	35.5	-	3.86	1.15
	88/11/30	720	92.6	44.8	-	3.09	1.49
	AVERAGE					3.61	1.34

Average Water/Oil Ratio = 0.371 m^3/m^3
Average Gas/Oil Ratio = N/A

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

January 3, 1989

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

ATTENTION: Mr. R.A. Brekke, P.Eng.
Manitoba District Engineer

Re: Omega et al Waskada 7-35-1-26 (WPM)
Omega et al Waskada 8-35-1-26 (WPM)
Omega Waskada 5-3-2-26 (WPM)
Commingled Production

Dear Richard:

Further to your letter of December 21, 1988, enclosed are your approved applications to commingle production in the subject wellbore. Please notify our Waskada Office before proceeding with the recompletions.

As with previous approvals, the following conditions apply:

1. Oil and Gas Production Tax Liabilities are to be calculated on the basis of total volume from the well and not separately from each zone.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The wells are to be included in the bi-monthly commingled report.

Production measurement and zone testing proposals contained in your application are acceptable.

Upon review of recent progress reports on the commingling project, it is noted that fluid levels at the well Omega Waskada 9-35-1-26 (WPM) have been consistently high (43 to 66 joints since commingling). Please indicate what corrective strategy Omega plans to counteract this.

The commingling project has been underway since March 1988. The annual production test for the three initial wells (5-6-1-25, 10-35-1-26 and 6-3-2-26) should be scheduled for completion by the end of March 1989.

Yours sincerely,

Original Signed By
L. R. DUBREUIL

L.R. Dubreuil
Director of Petroleum

cc Waskada

WELL 9-32-1-25 WPM PRODUCTION TEST DATA*

Lower Alida Zone

DATE	OIL (m^3)	WATER (m^3)
89/01/01	1.0	5.5
89/01/02	0.7	4.3
89/01/03	0.8	4.4
89/01/04	1.0	3.9
89/01/05	1.1	4.6
89/01/06	1.3	5.3
89/01/07	1.1	4.6
89/01/08	1.0	4.2
89/01/09	1.0	3.8
89/01/10	0.9	3.8
89/01/11	0.9	3.6
89/01/12	0.9	3.5
89/01/13	0.9	2.8
89/01/14	0.6	2.0
89/01/15	1.4	4.3
89/01/16	2.6	7.9
89/01/17	1.0	3.2
89/01/18	1.0	3.2
89/01/19	1.2	3.5
89/01/20	0.9	2.7
89/01/21	1.2	3.5
89/01/22	0.8	2.4

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

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

DEPARTMENT OF ENERGY AND MINES
DEC 29 1988
PETROLEUM BRANCH

December 21, 1988

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. L.R. Dubreuil
Executive Director

Dear Sir:

RE: Omega et al Waskada 7-35-1-26 WPM
Omega et al Waskada 8-35-1-26 WPM
Omega Waskada 5-3-2-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbores.

The proposed zones of interest for commingling in these wells are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Wells
2) Schedule B - Location of Wells
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
(ii) Methods and Frequency of Measuring Production
(iii) Production Allocation

The justification for proposing commingled production at these wells remains with economics. Due to low oil prices the economics for drilling a new well are not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after January 2, 1989. To expedite the approval process, we have directly sent notification of this application to the offset mineral owners, Baxter Lake Holdings Company Ltd., Chevron Canada Resources Ltd., and Rex Petroleums Ltd.

Also attached to this application is the MG 416 form to recomplete the subject wells and the most recent daily production test data from the tested zones. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Manitoba District Engineer

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

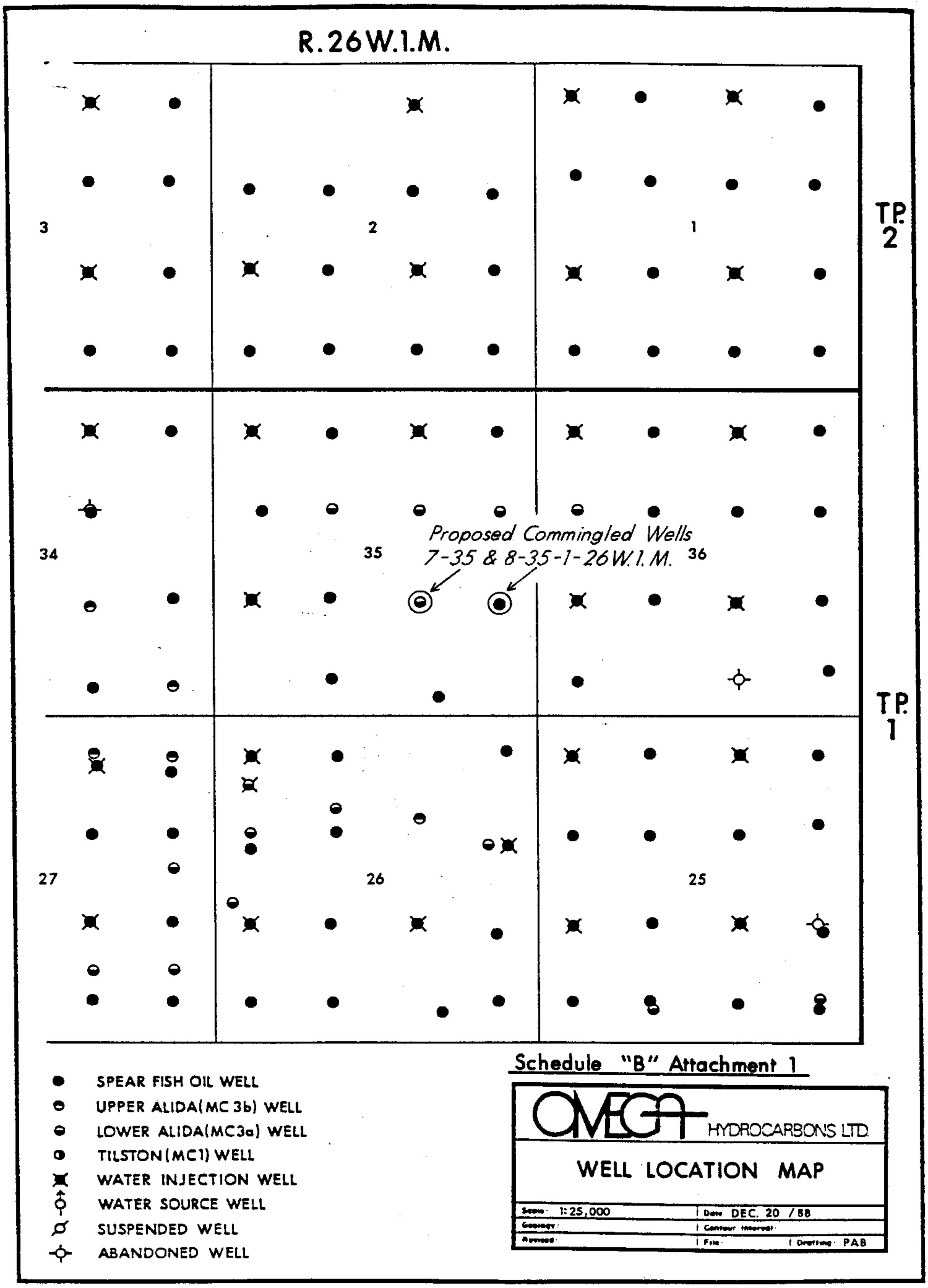
Description of Wells

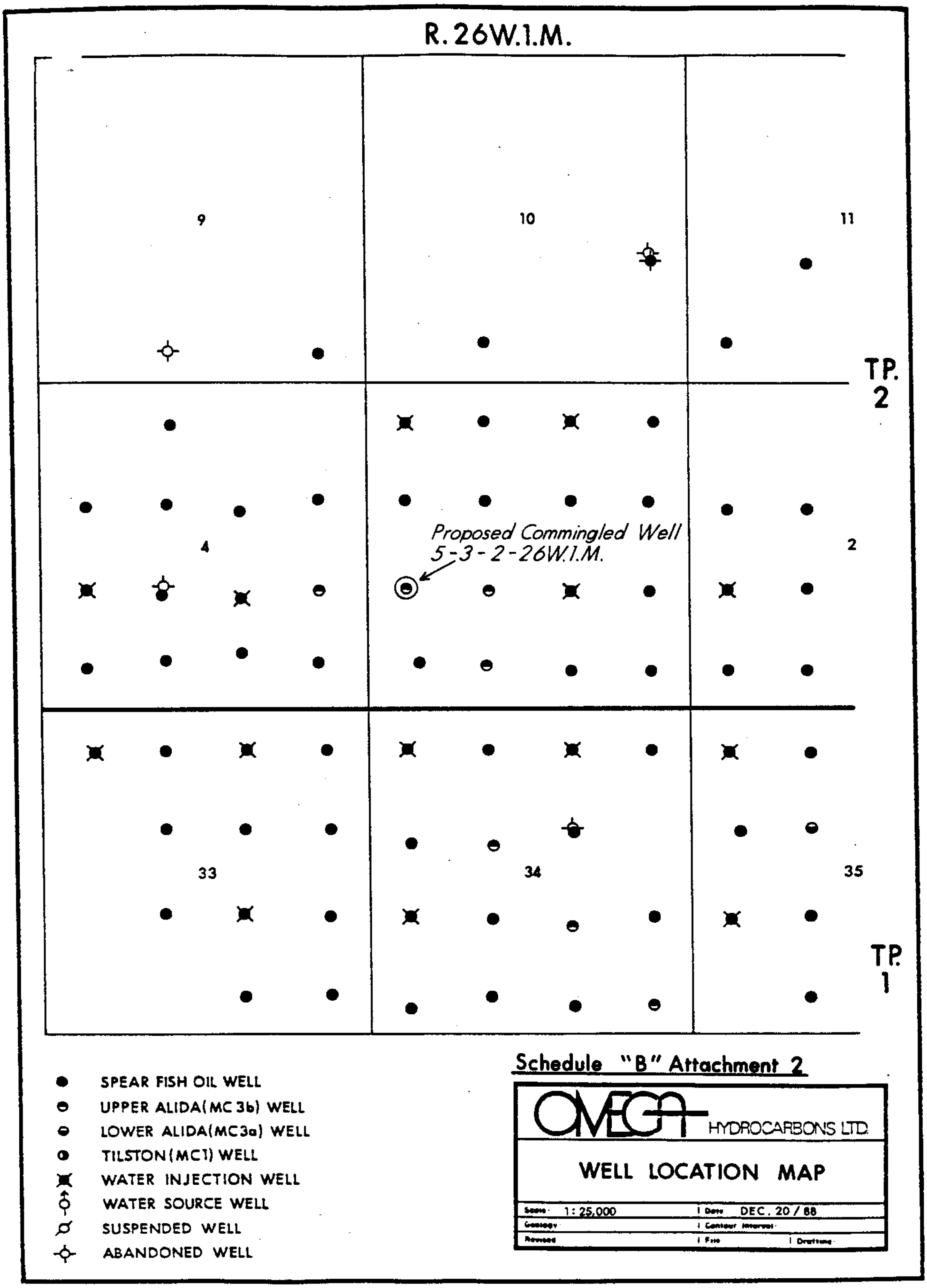
Name	Licence Number	Location
Omega et al Waskada 7-35-1-26	3433	Legal subdivision seven (7) of Section thirty-five (35), Township one (1) Range twenty-six (26) West of the Principal Meridian.
Omega et al Waskada 8-35-1-26	3534	Legal subdivision eight (8) of Section thirty-five (35), Township one (1) Range twenty-six (26) West of the Principal Meridian.
Omega Waskada 5-3-2-26	3249	Lega subdivision five (5) of Section three (3), Township two (2) Range twenty-six (26) West of the Principal Meridian.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Wells

See Attachment 1 and 2


R.26W.1.M.
TP. 2
TP. 1
3
2
1
34
35
36
27
26
25
Proposed Commingled Wells
7-35 & 8-35-1-26W.1.M.
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "B" Attachment 1
OMEGA HYDROCARBONS LTD.
WELL LOCATION MAP
Scale 1:25,000
Date DEC. 20 /88
Drafting PAB



Schedule "B" Attachment 2

SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

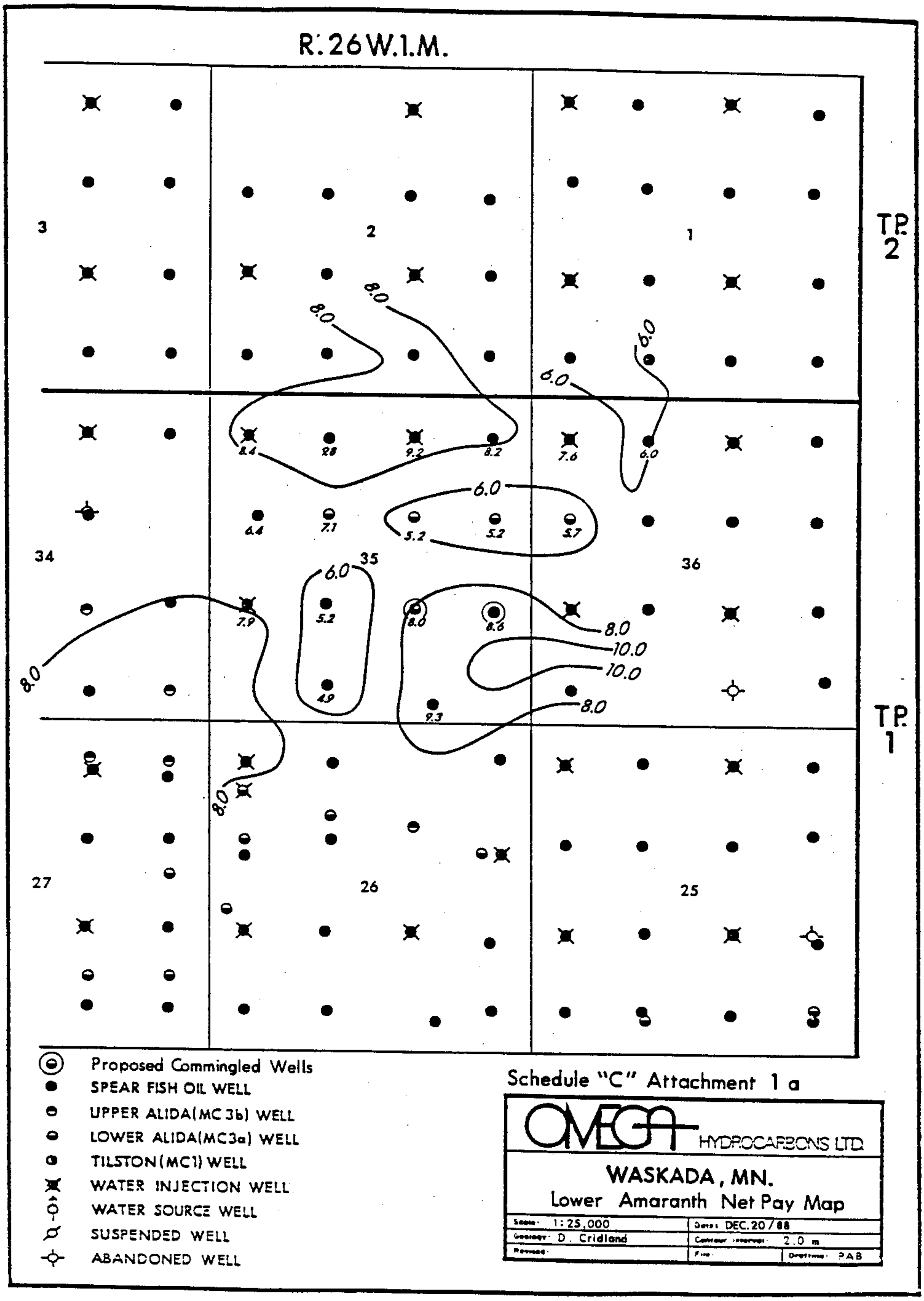
The Geological parameters are outlined in a series of maps as listed below.

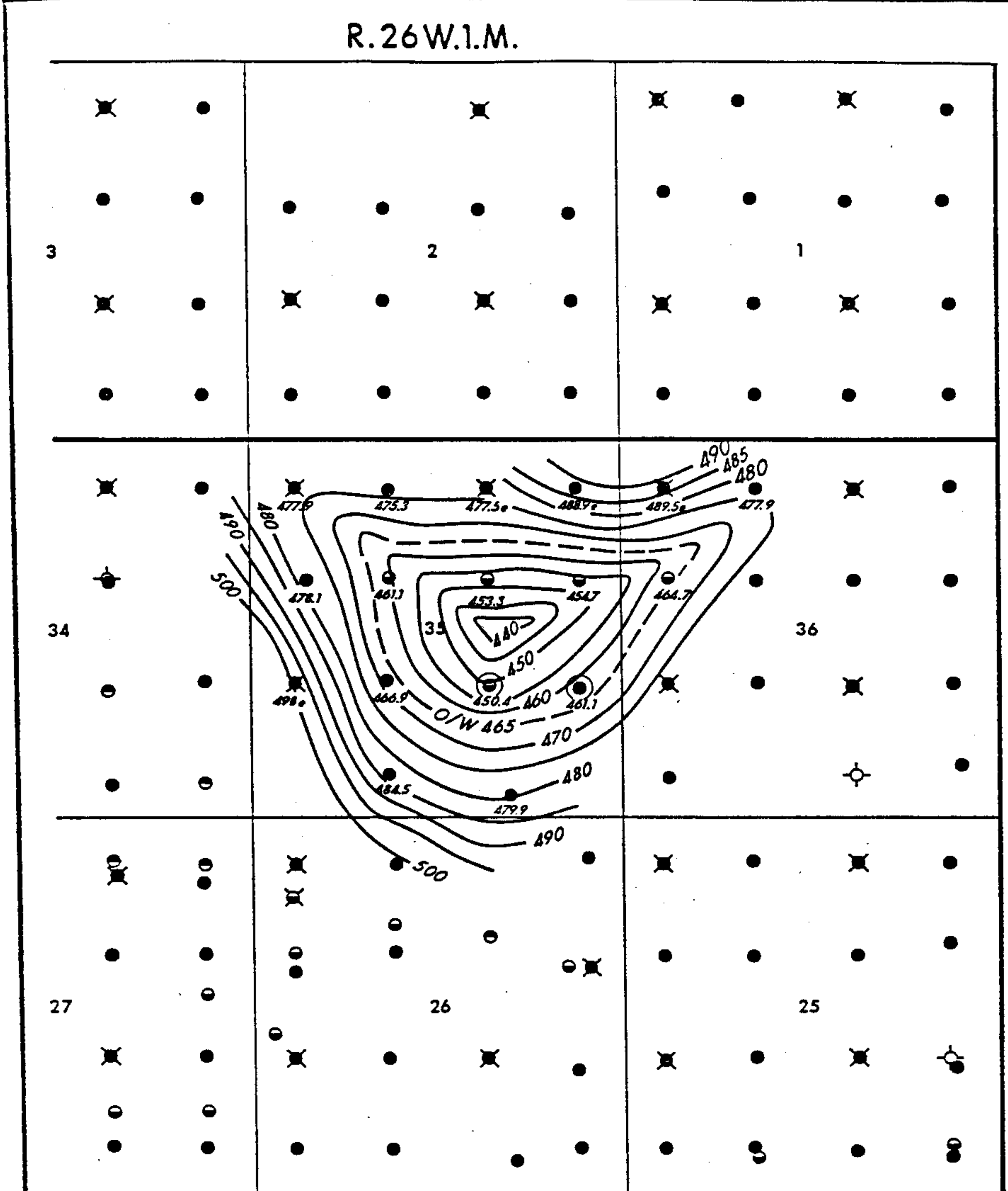
Omega et al Waskada 7-35-1-26 WPM
Omega et al Waskada 8-35-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top - of Mc3a Porosity Map
Attachment 1c - Lower Alida (Mc3a) Øh Map

Omega Waskada 5-3-2-26 WPM

Attachment 2a - Lower Amaranth Net Pay Map
Attachment 2b - Structure Top - of Mc3b Porosity
Attachment 2c - Upper Alida (Mc3b) Øh Map


R. 26 W.1.M.
T.P. 2
T.P. 1
3
2
1
34
35
36
27
26
25
8.0
6.0
10.0
8.4
9.8
9.2
8.2
7.6
6.4
7.1
5.2
5.7
7.9
4.9
8.6
9.3
Proposed Commingled Wells
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "C" Attachment 1 a
OMEGA HYDROCARBONS LTD.
WASKADA, MN.
Lower Amaranth Net Pay Map
Scale: 1:25,000
Date: DEC. 20/88
Geology: D. Cridland
Contour interval: 2.0 m
Revised:
File:
Drafting: PAB



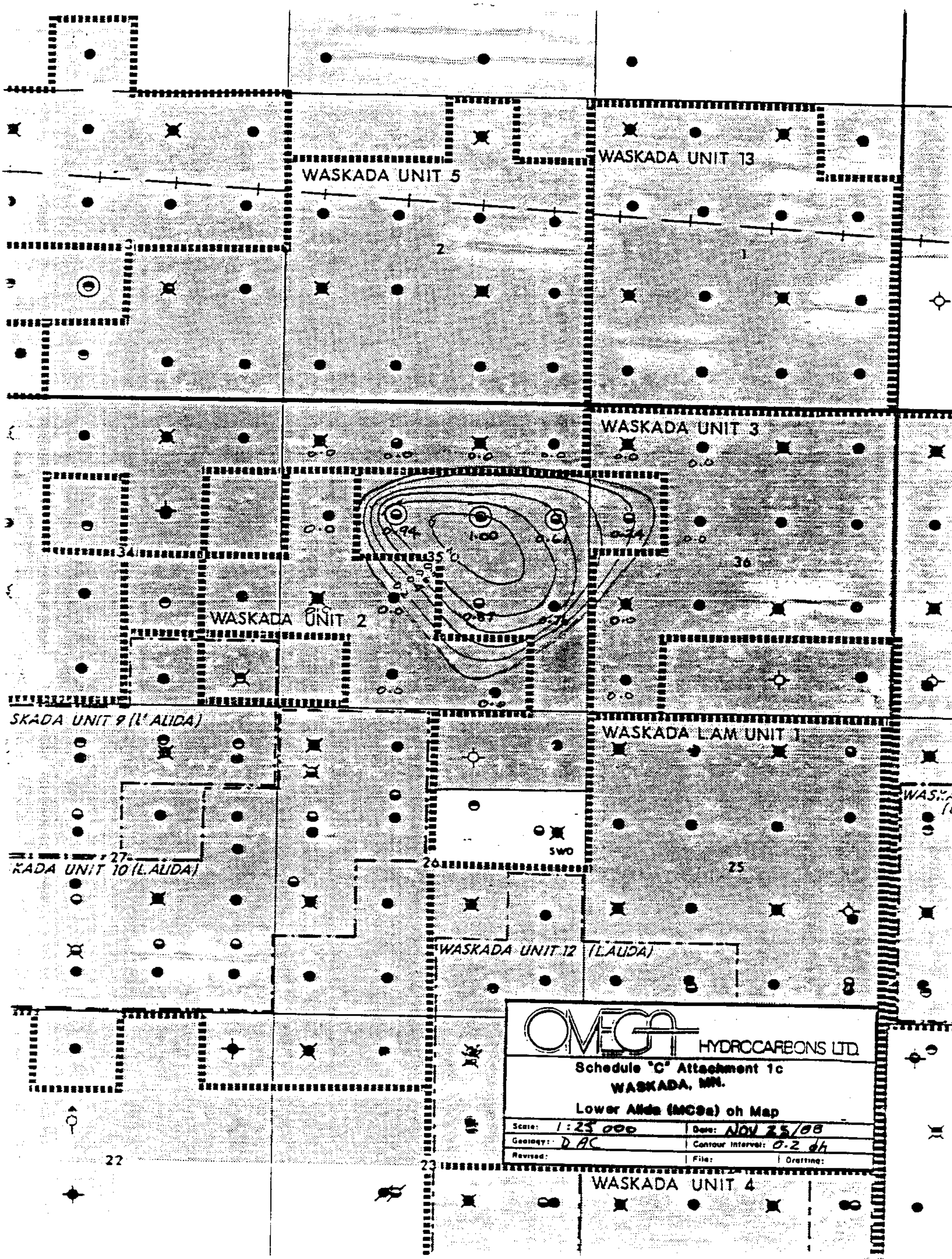
◉ Proposed Commingled Wells
● SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

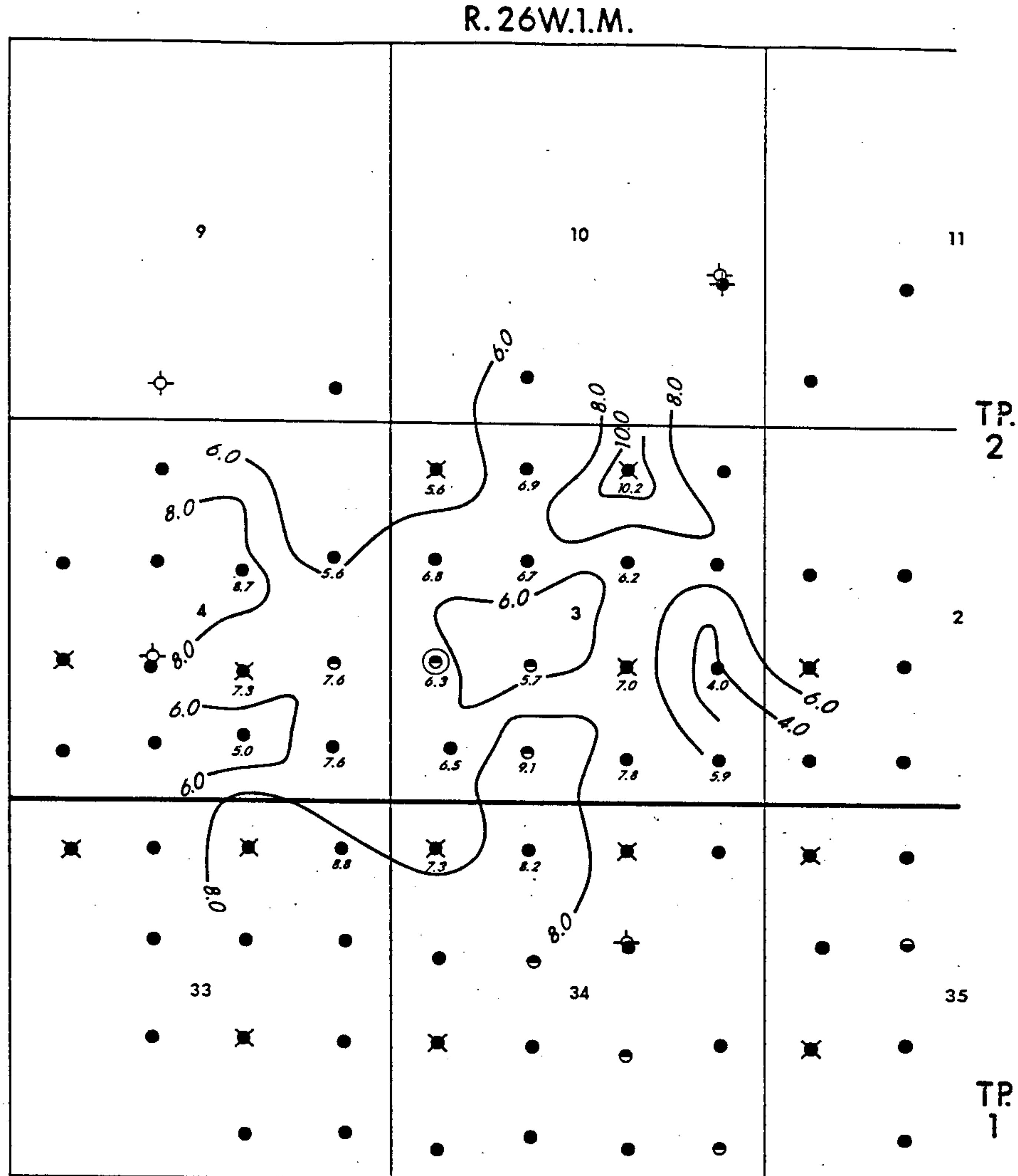
Schedule "C" Attachment 1 b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Structure-Top of MC3a Porosity

Scale 1:25,000		Date DEC. 20/88	
Geologist D. Cridland		Contour interval 5.0 m	
Revised		File	Drafting PAB


WASKADA UNIT 5
WASKADA UNIT 13
WASKADA UNIT 3
WASKADA UNIT 2
SKADA UNIT 9 (L. ALIDA)
KADA UNIT 10 (L.AUDA)
WASKADA LAM UNIT 1
WASKADA UNIT 12 (LAUDA)
WASKADA UNIT 4
SWD
OMEGA HYDROCARBONS LTD.
Schedule "C" Attachment 1c
WASKADA, MN.
Lower Alida (MC3a) oh Map
Scale: 1:25 000
Date: NOV 25/88
Geology: DAC
Contour Interval: 0.2 oh
Revised:
File:
Drafting:



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

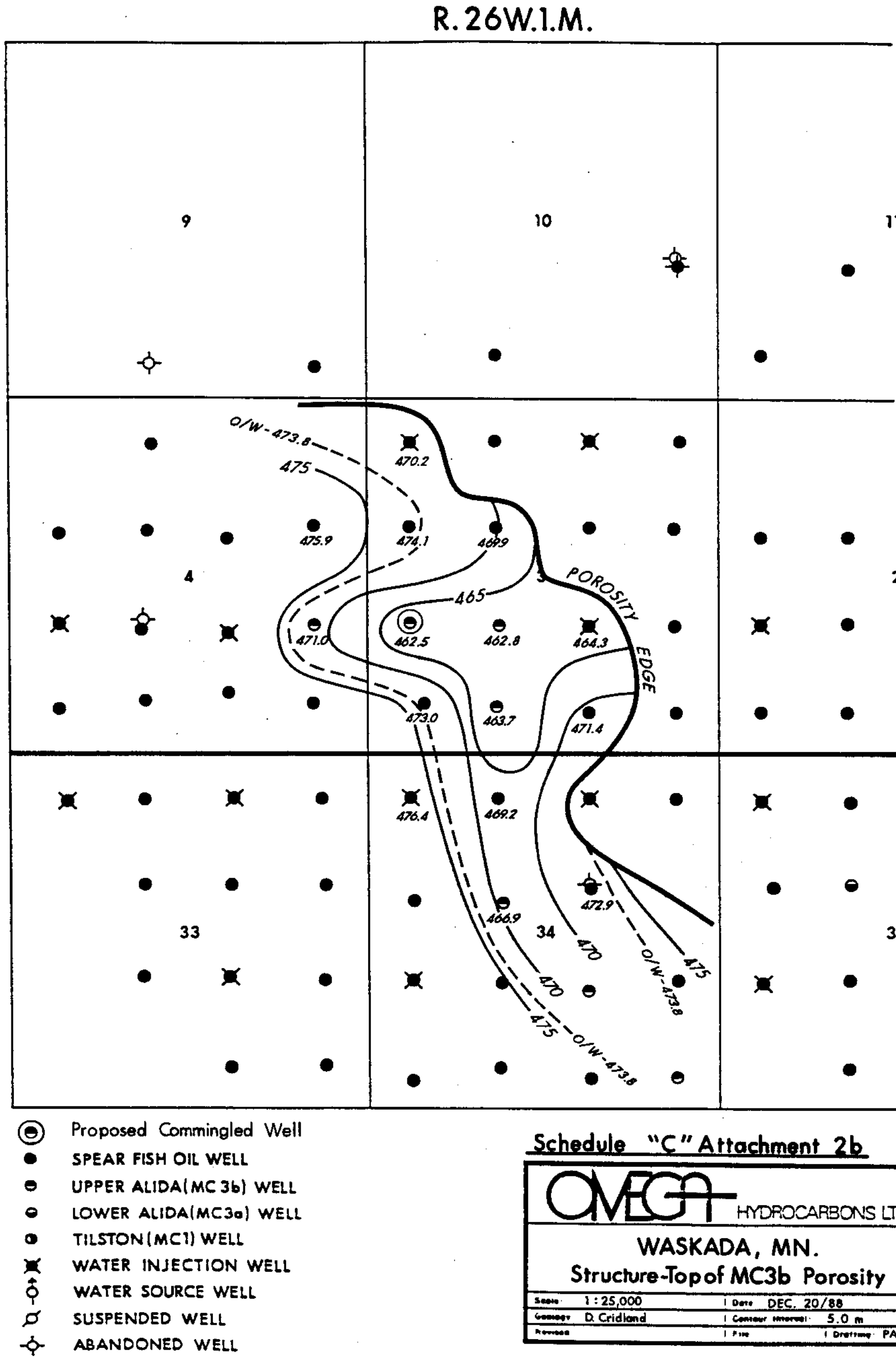
Schedule "C" Attachment 2 a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Amaranth Net Pay Map

Scale · 1 : 25,000	Date DEC. 20/88
Geology · D. Cridland	Contour Interval · 2.0 m
Revised ·	File · / Drafting · PAB.



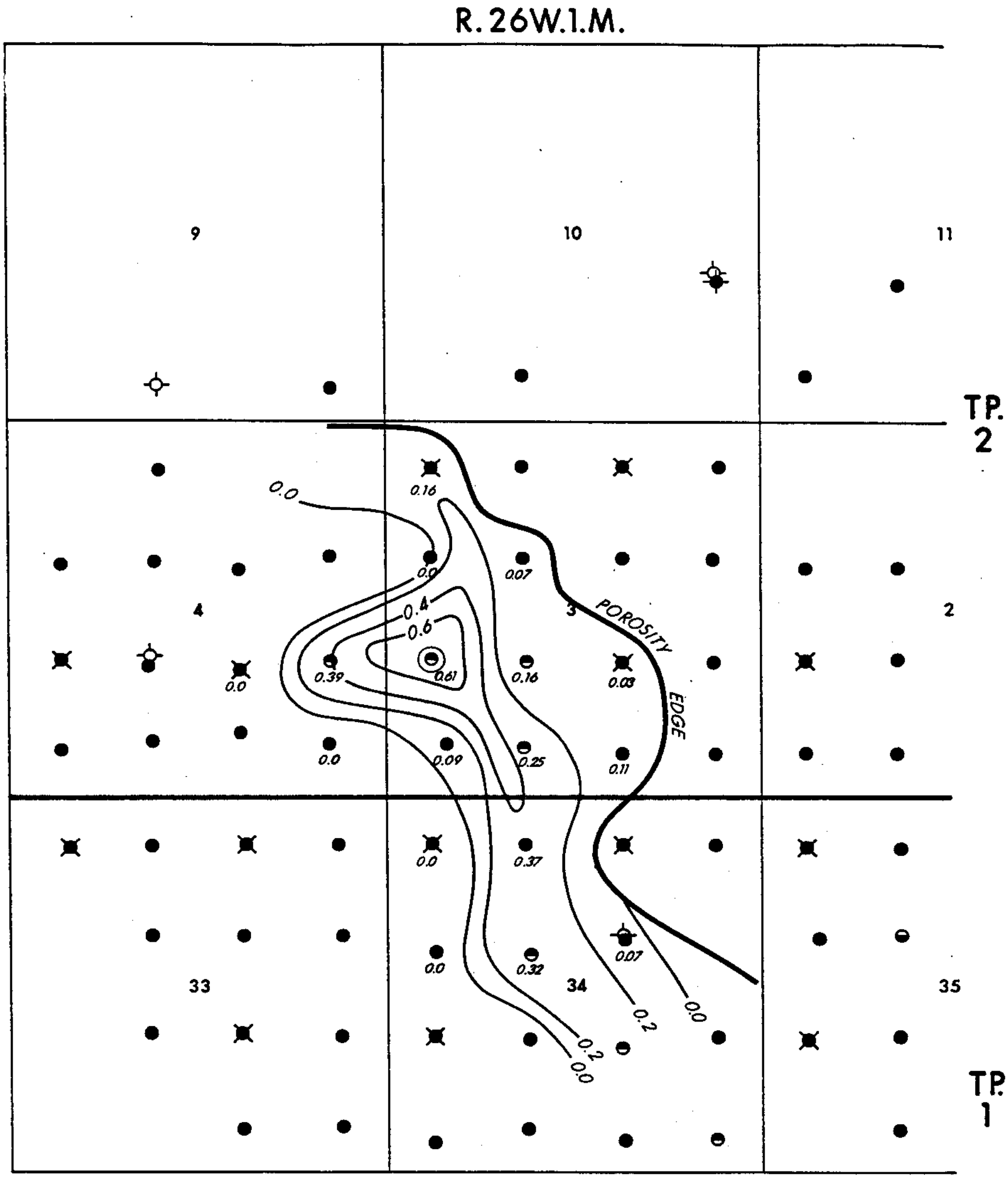
Schedule "C" Attachment 2b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3b Porosity

Scale 1 : 25,000	Date DEC. 20/88		
Geology D. Cridland	Contour Interval 5.0 m		
Revised	File	Drafting PAB.	



Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 2c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Alida(MC3b) øh Map

Scale: 1:25,000	Date: DEC. 20/88
Geology: D.Cridland	Contour Interval: 0.2 øh
Revised:	File: Drafting: PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion programs for the well is attached.

Omega et al Waskada 7-35-1-26 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Omega et al Waskada 8-35-1-26 WPM

Attachment No. 4 sets out the workover program.

Attachment No. 5 sets out the current completion.

Attachment No. 6 sets out the commingled production completion.

Omega Waskada 5-3-2-26 WPM

Attachment No. 7 sets out the workover program.

Attachment No. 8 sets out the current completion.

Attachment No. 9 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 7-35-1-26

Commingled Production - Well Completion Program

A. LAm Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Rig up and run a retrievable bridge plug on wireline. Land and set at 917.0 mKB.
5) Perforate the Lower Amaranth from 901.0 - 911.0 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
6) Frac the Lower Amaranth using 7 tonne gelled water (20/40 sand @ 0.8m^3/minute).
7) Run in tubing and circulate out sand to 917.0 mKB.
8) Land tubing at 883.0 mKB.
9) Run BHP and rods.
10) Release rig.

B. LAm Evaluation

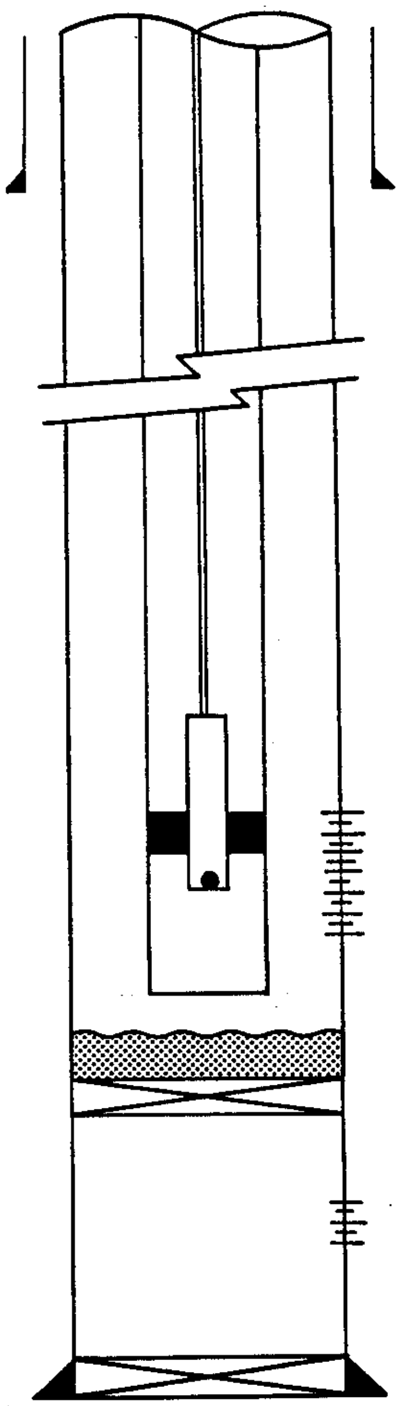
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the LAm on a dialy basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump. Circulate hole clean to 917.0 mKB.
3) Pull tubing. Make up retrieving tool and pull bridge plug.
4) Pull tubing and rig out retrieving tool.
5) Run in tubing and circulate hole clean to PBTD. Land tubing at 930.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 917.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 930.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

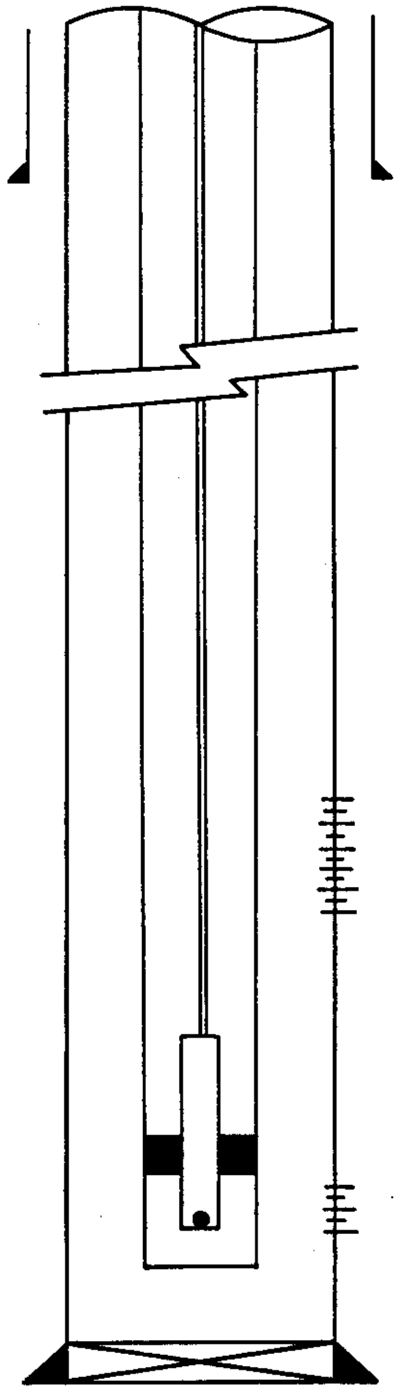


Schedule "D" Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 7-35-1-26 WP
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:



Schedule "D" Attachment No. 3.

OMEGA HYDROCARBONS LTD.

Omega Waskada 7-35-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

Schedule "D" - Attachment No.4
OMEGA WASKADA 8-35-1-26

Commingled Production - Well Completion Program

A. Lower Alida Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Perforate the Lower Alida from 930.0 - 932.0 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
5) Run tubing w/retrievable packer. Set at 924.0 mKB.
6) Acid squeeze the Lower Alida using 1.0 m^3 15% HCL.
7) Run BHP and rods.
8) Release rig.

B. Lower Alida Evaluation

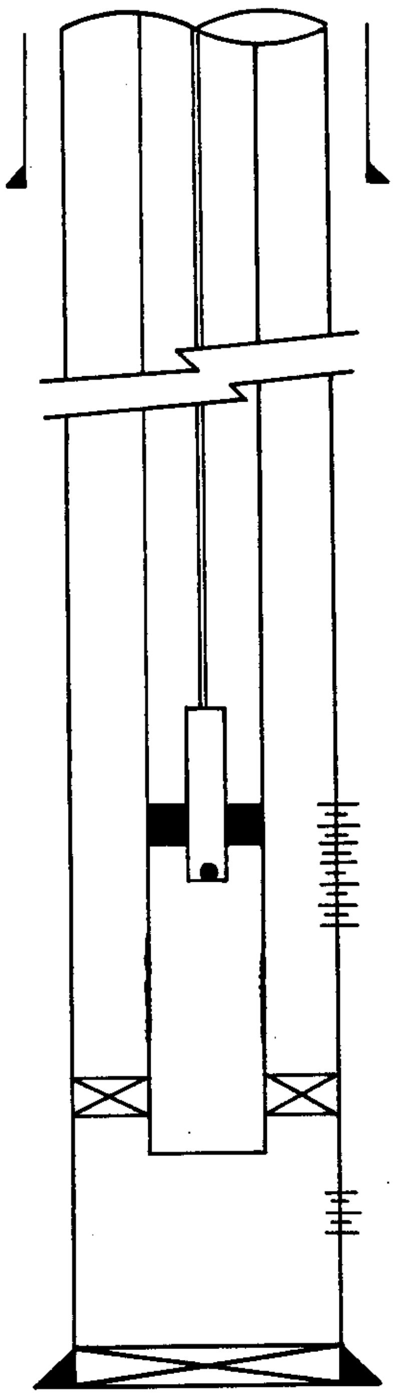
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the Lower Alida on a dialy basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump.
3) Release packer and pull tubing.
4) Rig out packer and run in tubing.
5) Circulate hole clean to PBTD. Land tubing at 934.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 924.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 934.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.



60.3mm Tubing

900.0

Lower Amaranth Completion Interval

911.0

924.0 Retrievable Packer

930.0
Lower Alida Completion Interval
932.0

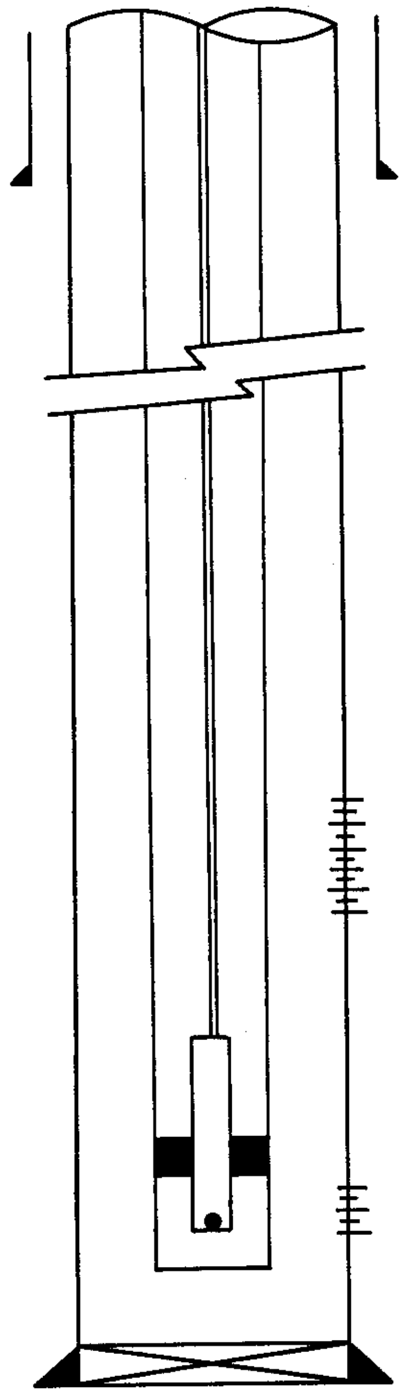
971.0mKB 114.3mm Casing Shoe

Schedule "D" Attachment No. 5

OMEGA HYDROCARBONS LTD.

Omega Waskada 8-35-1-26 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



Schedule "D" Attachment No. 6

OMEGA HYDROCARBONS LTD.

Omega Waskada 8-35-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

Schedule "D" - Attachment No.7
OMEGA WASKADA 5-3-2-26

Commingled Production - Well Completion Program

A. LAm Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Rig up and run a retrievable bridge plug on wireline. Land and set at 924.0 mKB.
5) Perforate the Lower Amaranth from 907.0 - 915.0 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
6) Frac the Lower Amaranth using 10 tonne gelled water (20/40 sand @ $0.8m^3$/minute).
7) Run in tubing and circulate out sand to 924.0 mKB.
8) Land tubing at 892.0 mKB.
9) Run BHP and rods.
10) Release rig.

B. LAm Evaluation

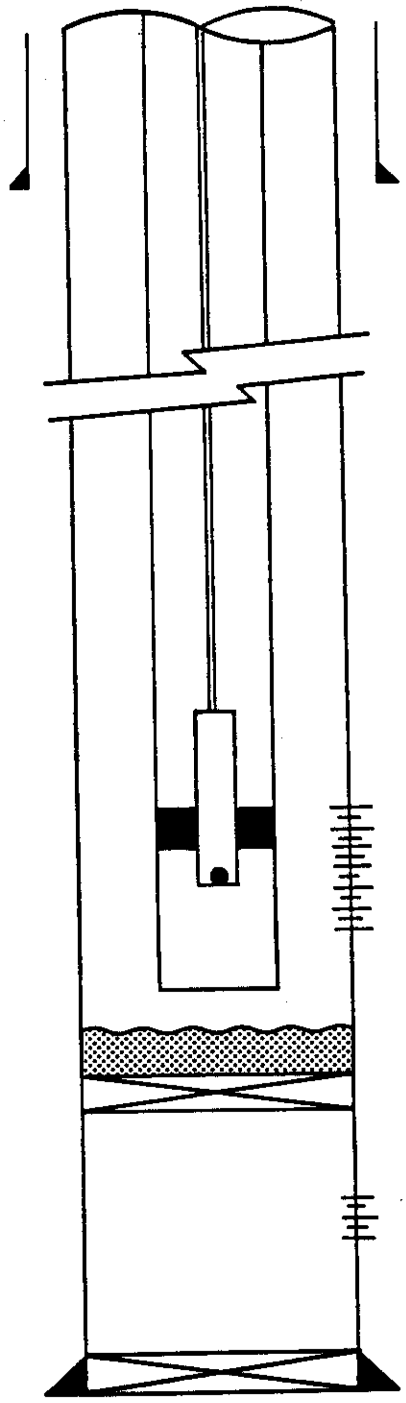
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the LAm on a dialy basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump. Circulate hole clean to 924.0 mKB.
3) Pull tubing. Make up retrieving tool and pull bridge plug.
4) Pull tubing and rig out retrieving tool
5) Run in tubing and circulate hole clean to PBTD. Land tubing at 941.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 924.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release rig.
12) Run tubing and land at 941.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

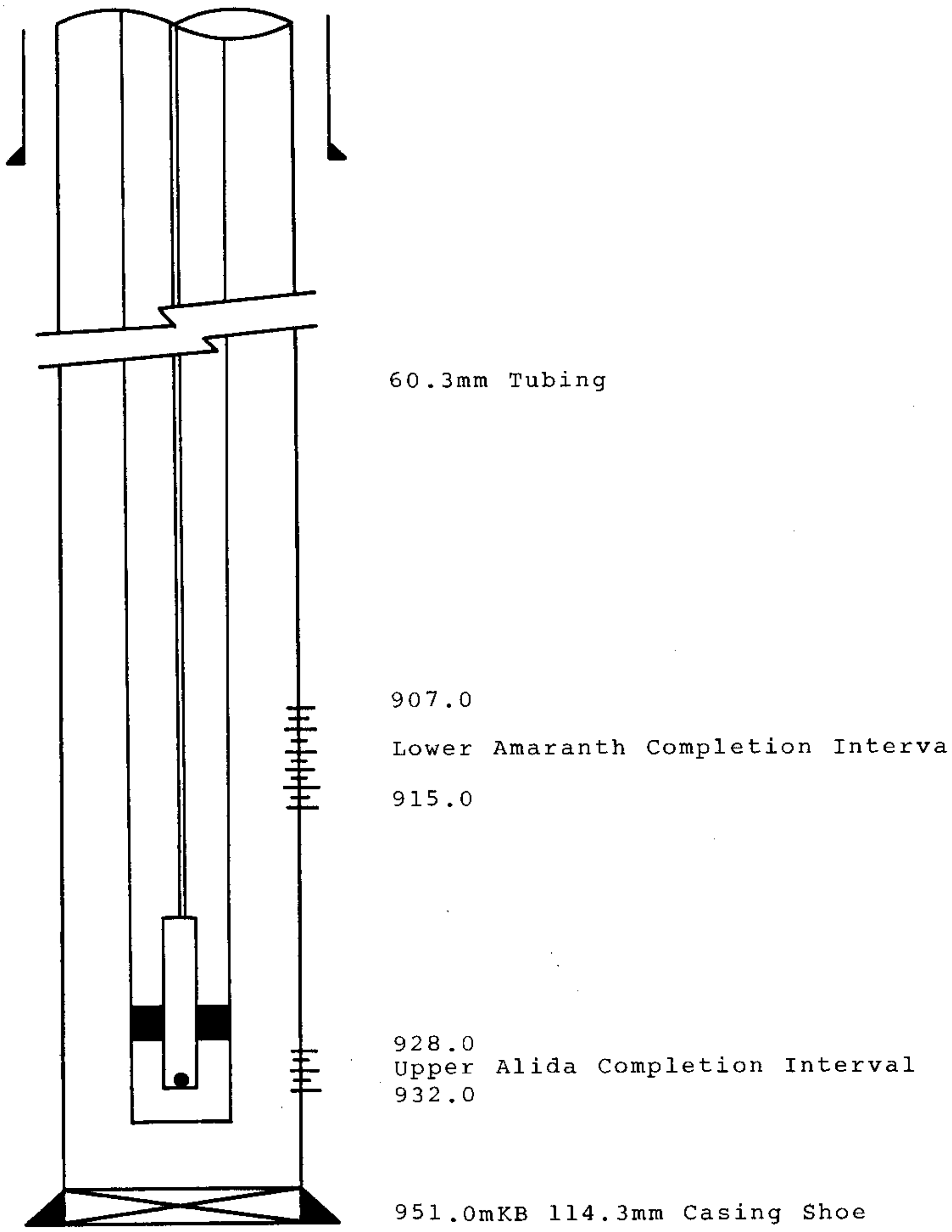


Schedule "D" Attachment No. 8

OMEGA HYDROCARBONS LTD.

Omega Waskada 5-3-2-26 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



Shedule "D" Attachment No. 9

OMEGA HYDROCARBONS LTD.

Omega Waskada 5-3-2-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for each of the individual wells to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (m^3/d)	Øh (m)	OOIP (m^3)	Prod Rate (m^3/d)	Pool Pressure (kPa)
7-35-1-26 WPM	LAlida	0.87	60522	1.42/0.16	6585	1.10	68571	4.70/0.20	9200
8-35-1-26 WPM	LAlida	0.76	52870	6.0/3.20	6585	1.19	74182	0.93/0.03	9200
5-3-2-26 WPM	UAlida	0.61	42435	4.61/0.27	7074	0.87	54234	3.60/0.30	2060

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Upper and Lower Alida formations it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells within one kilometre of the wells to be commingled. The production rates from the Lower Alida for 7-35-1-26 WPM, the Lower Amaranth for 8-35-1-26 WPM and the Upper Alida for 5-3-2-26 WPM are based on the production rates before these wells were recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2-5.

The pool pressure for the Lower Amaranth zone for 7-35 and 8-35-1-26 WPM is estimated from the fall off tests at wells 5-35, 15-35 and 5-36-1-26 WPM performed in April 1986, February 1986 and August 1987 respectively. The pool pressure for the Lower Amaranth zone for 5-3-2-26 WPM is based on the fall tests at wells 7-3, 13-3 and 7-4-2-26 WPM in March 1986 and February 1987. The pool pressures for the Mississippian zones in these wells are based on the build up tests performed on wells 10-35-1-26 and 6-3-2-26 WPM in December performed on wells 10-35-1-26 and 6-3-1-26 WPM in December 1987. New pressure tests have been performed on most of the above mentioned wells this year. These results will be forwarded as soon as the analyses are completed.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to November 1988
Offsetting Well 7-35 and 8-35-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
2-35-1-26 WPM	L. Amaranth	0.03	0.43
3-35-1-26 WPM	L. Amaranth	0.06	8.60
6-35-1-26 WPM	L. Amaranth	0.08	4.10
9-35-1-26 WPM	L. Alida	7.60	0.42
10-35-1-26 WPM	L. Alida/L. Amaranth	4.20	0.25
11-35-1-26 WPM	L. Alida/L. Amaranth	3.90	0.16
4-36-1-26 WPM	L. Amaranth	0.93	0.11
12-36-1-26 WPM	L. Alida/L. Amaranth	8.60	6.65

Current Production Rates to November 1988
Offsetting Well 5-3-2-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
3-3-2-26 WPM	U. Alida	0.26	8.12
4-3-2-26 WPM	L. Amaranth	0.04	0.27
6-3-2-26 WPM	U. Alida/L. Amaranth	3.60	0.61
11-3-2-26 WPM	L. Amaranth	0.31	0.05
12-3-2-26 WPM	L. Amaranth	1.80	0.21
1-4-2-26 WPM	L. Amaranth	1.24	0.86
8-4-2-26 WPM	U. Alida	0.91	10.96
9-4-2-26 WPM	L. Amaranth	0.82	0.18

SCHEDULE "E" (i)

Attachment 2

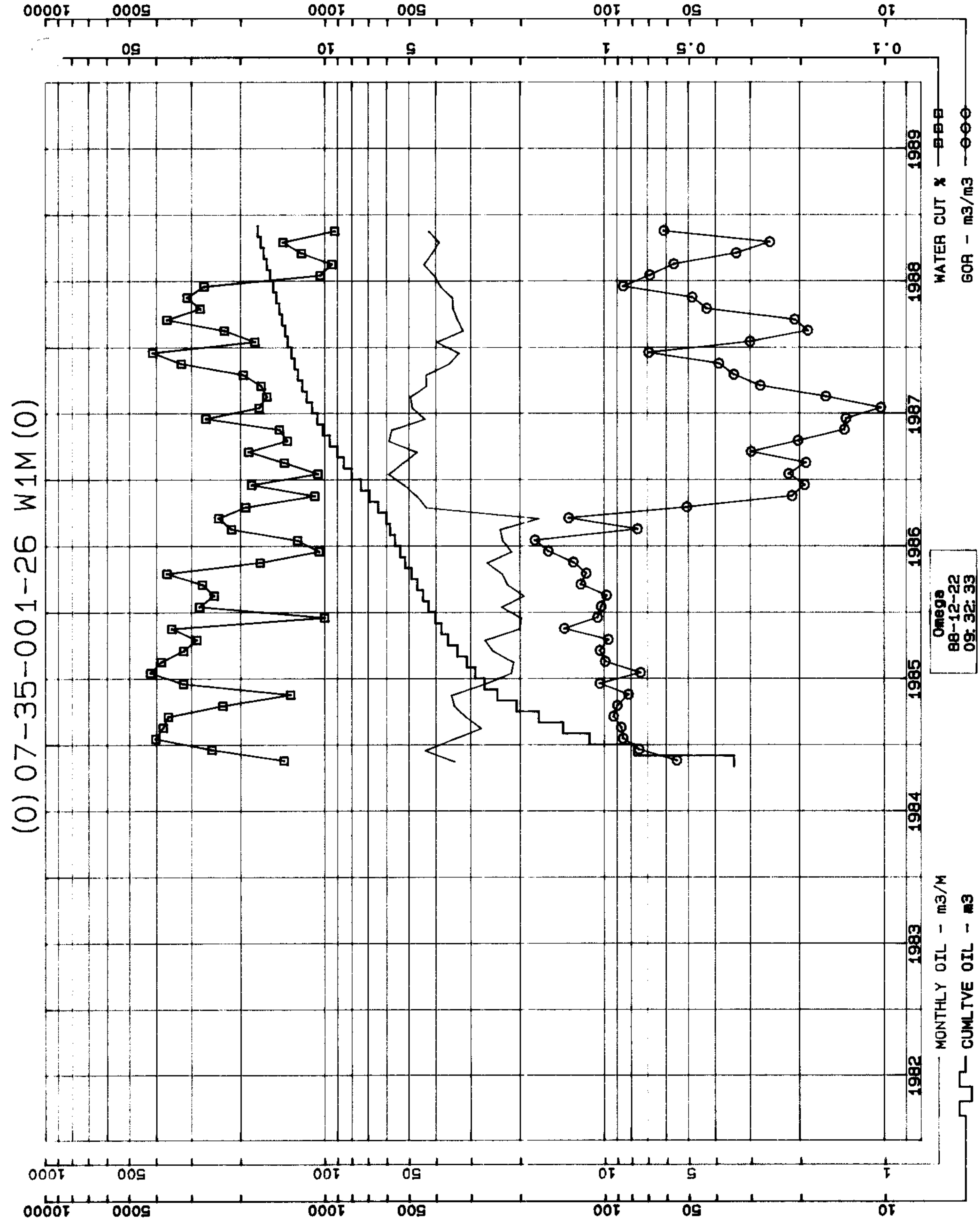
Cumulative Water Injection to November 1988
Offsetting Well 7-35 and 8-35-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
5-35-1-26 WPM	19930.4
15-35-1-26 WPM	21143.4
5-36-1-26 WPM	10015.5

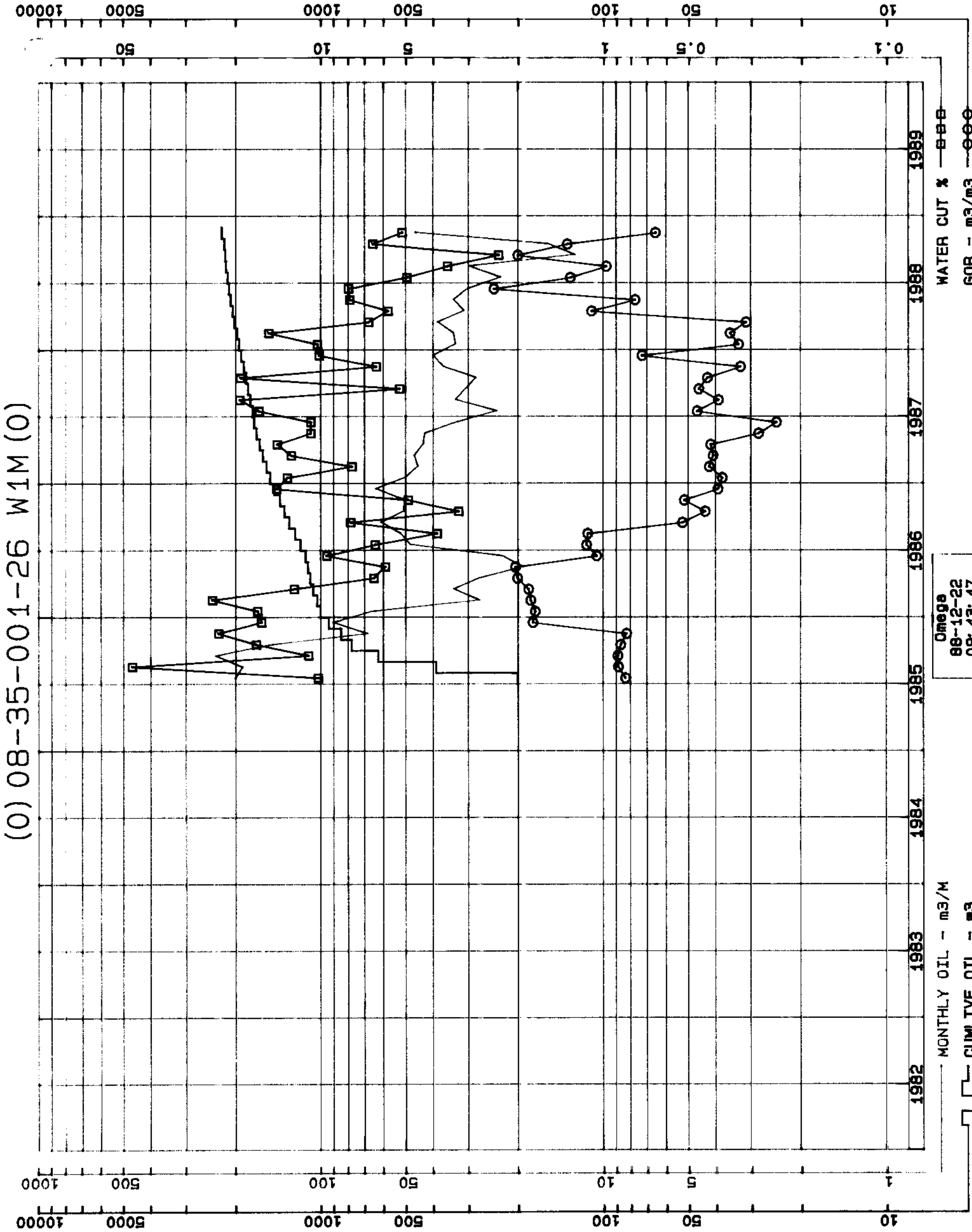
Cumulative Water Injection to November 1988
Offsetting Well 5-3-2-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
13-34-1-26 WPM	21553.9
7-3-2-26 WPM	15661.8
13-3-2-26 WPM	15255.0
7-4-2-26 WPM	20560.7

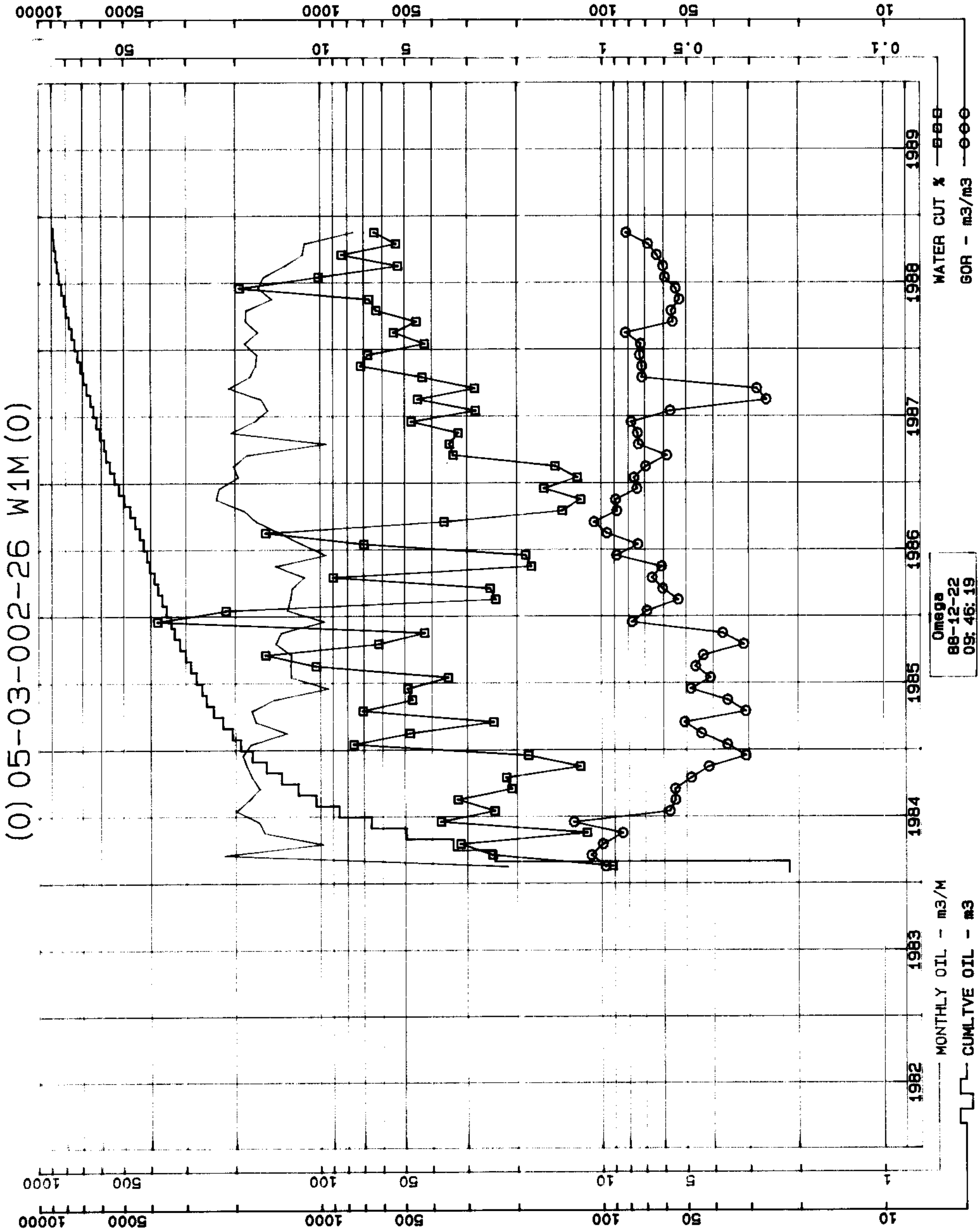
Schedule "E" (i) Attachment 3
'Lower Alida Production'



Schedule "E" (i) Attachment 4
'Lower Amaranth Production'



Schedule 'E' (i) Attachment 5
'Upper Alida Production'



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Mission Canyon * performance prior to recompleting the Lower* Amaranth.

2. Isolate the Mission Canyon*, recomplete the well in the Lower Amaranth* and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Mission Canyon* at the rate established in Step 1. Allocate production to the Lower Amaranth* based on the difference between total production and the allocated Mission Canyon* production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Mission Canyon production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Mission Canyon* at the rate established in Step 5 and allocate production to the Lower Amaranth* by difference.

8. Repeat steps 5 to 7.

* NOTE: This applies to wells 7-35-1-26 WPM and 5-3-2-26 WPM. For well 8-35-1-26 WPM. "Mission Canyon" should substituted with "Lower Amaranth" and vice versa where noted.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the indicated zone during the six month period prior to the recompletion of the second interval.

Well		Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
7-35-1-26 WPM	L. Alida	88/11/17	24	1.55	0.08	0.05
		88/11/05	24	1.49	0.10	0.04
		88/10/21	24	1.38	0.14	0.03
		88/10/08	24	1.47	0.15	0.02
		88/09/21	24	1.40	0.12	0.01
		88/09/08	24	1.35	0.13	0.02
		88/08/20	24	1.52	0.08	0.04
		88/08/11	24	1.41	0.12	0.02
		88/07/15	24	1.52	0.05	0.06
		88/07/11	24	1.43	0.16	0.03
		88/06/12	24	1.43	0.23	0.04
		88/06/02	24	1.08	0.51	0.10
	AVERAGE			1.42	0.16	0.04

Average Water/Oil Ratio = 0.113 m^3/m^3
Average Gas/Oil Ratio = 28.169 m^3/m^3

Well		Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
8-35-2-26 WPM	L. Amaranth	88/11/13	24	2.13	0.07	0.06
		88/10/20	24	0.55	0.03	0.04
		88/10/07	24	0.69	0.02	0.03
		88/09/20	24	0.87	0.02	0.04
		88/09/09	24	0.20	0.00	0.04
		88/08/09	24	1.18	0.02	0.05
		88/08/08	24	0.26	0.01	0.07
		88/07/16	24	0.51	0.01	0.05
		88/07/08	24	0.68	0.03	0.05
		88/06/27	24	1.89	0.08	0.08
		88/06/19	24	1.34	0.06	0.07
		88/06/03	24	0.86	0.06	0.20
	AVERAGE			0.93	0.03	0.06

Average Water/Oil Ratio = 0.032 m^3/m^3
Average Gas/Oil Ratio = 64.516 m^3/m^3

Well		Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
5-3-2-26 WPM	U. Alida	88/11/12	24	2.70	0.14	0.14
		88/11/08	24	2.10	0.09	0.06
		88/10/18	24	4.43	0.14	0.12
		88/10/06	24	4.40	0.14	0.17
		88/09/22	24	2.90	0.25	0.13
		88/09/03	24	4.90	0.20	0.10
		88/08/24	24	5.90	0.18	0.16
		88/08/10	24	4.99	0.10	0.12
		88/07/20	24	6.06	0.19	0.20
		88/07/07	24	5.02	0.44	0.13
		88/06/06	24	5.91	1.04	0.17
		88/06/05	24	4.91	0.32	0.20
	AVERAGE			4.61	0.27	0.14

Average Water/Oil Ratio = 0.059 m^3/m^3
Average Gas/Oil Ratio = 30.369 m^3/m^3

PRODUCTION TEST DATA *

WELL 7-35-1-26 WPM - LOWER AMARANTH ZONE

DATE	OIL (m^3)	WATER (m^3)
88/12/08	6.4	6.4
88/12/09	8.0	5.3
88/12/10	12.4	0.9
88/12/11	12.9	0.4
88/12/12	12.4	0.7
88/12/13	10.9	0.3
88/12/14	8.3	0.7
88/12/15	7.8	0.4
88/12/16	5.3	0.3
88/12/17	10.6	0.4
88/12/18	7.3	0.6
88/12/19	10.7	0.9
88/12/20	7.4	0.6
88/12/21	4.7	0.2

WELL 8-35-1-26 WPM - LOWER ALIDA ZONE

DATE	OIL (m^3)	WATER (m^3)
88/12/08	4.8	4.8
88/12/09	7.7	1.9
88/12/10	8.3	1.1
88/12/11	9.4	0.3
88/12/12	9.9	0.9
88/12/13	7.2	3.1
88/12/14	8.2	3.2
88/12/15	8.2	3.2
88/12/16	8.4	3.1
88/12/17	7.5	2.9
88/12/18	6.4	3.7
88/12/19	6.9	4.1
88/12/20	8.4	2.8
88/12/21	6.0	3.2

WELL 5-3-2-26 WPM - LOWER AMARANTH ZONE

DATE	OIL (m^3)	WATER (m^3)
88/12/08	7.0	8.6
88/12/09	8.8	8.8
88/12/10	3.7	8.6
88/12/11	7.9	2.4
88/12/12	7.5	1.1
88/12/13	5.3	2.0
88/12/14	4.3	1.4
88/12/15	4.3	2.0
88/12/16	4.6	2.1
88/12/17	3.7	2.0
88/12/18	3.7	2.0
88/12/19	3.8	2.1
88/12/20	5.9	0.7
88/12/21	3.6	0.3

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
DEC 19 1988
PETROLEUM BRANCH

Decmeber 15, 1988

BAXTER LAKE HOLDINGS COMPANY LTD.
9535 - 154 Street
Edmonton, Alberta
T5P 2E8

Attention: Mr. Erhard Schulz

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 5-3-2-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by December 30, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke
Manitoba District Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

December 15, 1988

CHEVRON CANADA RESOURCES LTD.
500 - 5th Avenue S.W.
Calgary, Alberta
T2P 0L7

Attention: Mr. R.J. Terlesky
Joint Interest

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 5-3-2-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by December 30, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke, P. Eng.
Manitoba District Engineer

DB/jb

c.c.: ~~Bob Dobreuil~~
Waskada Special Projects - Commingling File

Manitoba

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

(204) 945-6577

December 2, 1988

Omega Hydrocarbons Ltd.
1300, 112 - 4th Avenue S.W.
Calgary, Alberta
T2P OH3

Attention: R. A. Brekke, P. Eng.
Manitoba District Engineer

Dear Richard:

Re: Omega Chevron Waskada 11-34-1-26 (WPM)
Commingled Production

Further to your letter of November 25, 1988, enclosed is your approved application to commingle production in the subject wellbore. Please notify our Waskada office before proceeding.

As with previous approvals, the following conditions apply:

1. Oil and Gas Production Tax liabilities are to be calculated on the basis of total volume from the well and not separately from each zone.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bimonthly commingling report.

Production measurement and zone testing proposals contained in your application are acceptable.

Please note that only one copy of applications to commingle is required.

Yours sincerely,

Original Signed By
L. R. DUBREUIL

L. R. Dubreuil
Director

LRD/sml

Enclosure

cc: Waskada office

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
DEC 1 1988
PETROLEUM BRANCH

November 30, 1988

HUDSON'S BAY OIL AND GAS COMPANY LIMITED
c/o Amoco Canada Petroleum Company Ltd.
Station M
P.O. Box 200
Calgary, Alberta
T2P 2H8

Attention: Mr. J. Pawelek
Joint Interest Southeast

Dear Sirs:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following wells in the Waskada field:

Omega et al Waskada 7-35-1-26 WPM
Omega et al Waskada 8-35-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the wells which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by December 14, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke
Manitoba District Engineer

DB/jb
c.c.: Bob Dubreuil

Chevron

Chevron Canada Resources
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7 · Phone (403) 234-5000
Fax 234-5947

K.E. Godard
Chief Engineer

1988-11-25

DEPARTMENT OF ENERGY AND MINES
DEC 1 198
PETROLEUM BRANCH

Application to Commingle Production
in Waskada by Omega Hydrocarbons Ltd.

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

Attention: Mr. L. R. Dubreuil

Gentlemen:

Chevron Canada Resources has no objections towards Omega's application to commingle production from the Lower Amaranth and Mission Canyon formations in the Waskada well located at 5-3-2-26 WPM.

Yours very truly,

for C. G. FOLDEN, P.Eng.
Manager,
Reservoir Engineering

BRC/sll

cc: Omega Hydrocarbons Limited
Attention: Mr. D. Boyko

OMEGA
HYDROCARBONS LTD.

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

November 25, 1988

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. L.R. Dubreuil
Executive Director

Dear Sir:

RE: Omega Waskada 11-34-1-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at this well remains with economics. Due to low oil prices the economics for drilling a new well are not justified. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after December 9, 1988. To expedite the approval process, we have directly sent notification of this application to the offset mineral owners, Baxter Lake Holdings Company Ltd. and Chevron Canada Resources Ltd.

Also attached to this application is the MG 416 form to recomplete the subject well and the most recent daily production test data from the Lower Amaranth zone. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Manitoba District Engineer

DB/jb

c.c. Waskada Special Projects - Commingled Production File

SCHEDULE 'A'

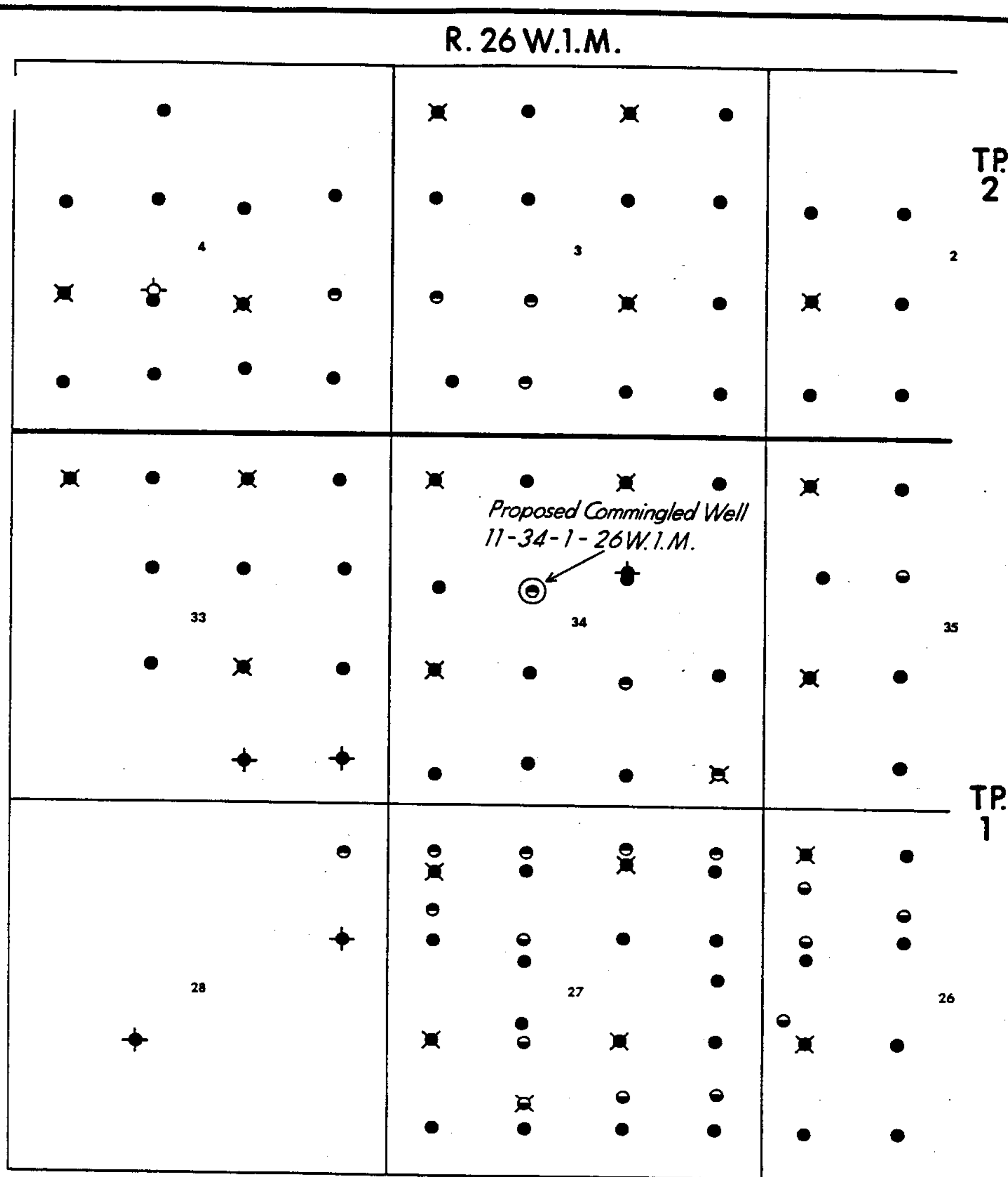
Description of Well

Name	Licence Number	Location
Omega Waskada 11-34-1-26	3114	Legal subdivision eleven (11) of Section thirty-four (34), Township one (1) Range twenty-six (26) West of the Principal Meridan.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1



PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WELL LOCATION MAP

Scale 1:25,000	Date NOV.30/88	
Geology DAC	Contour Interval	
Revised	File	Drafting PAB

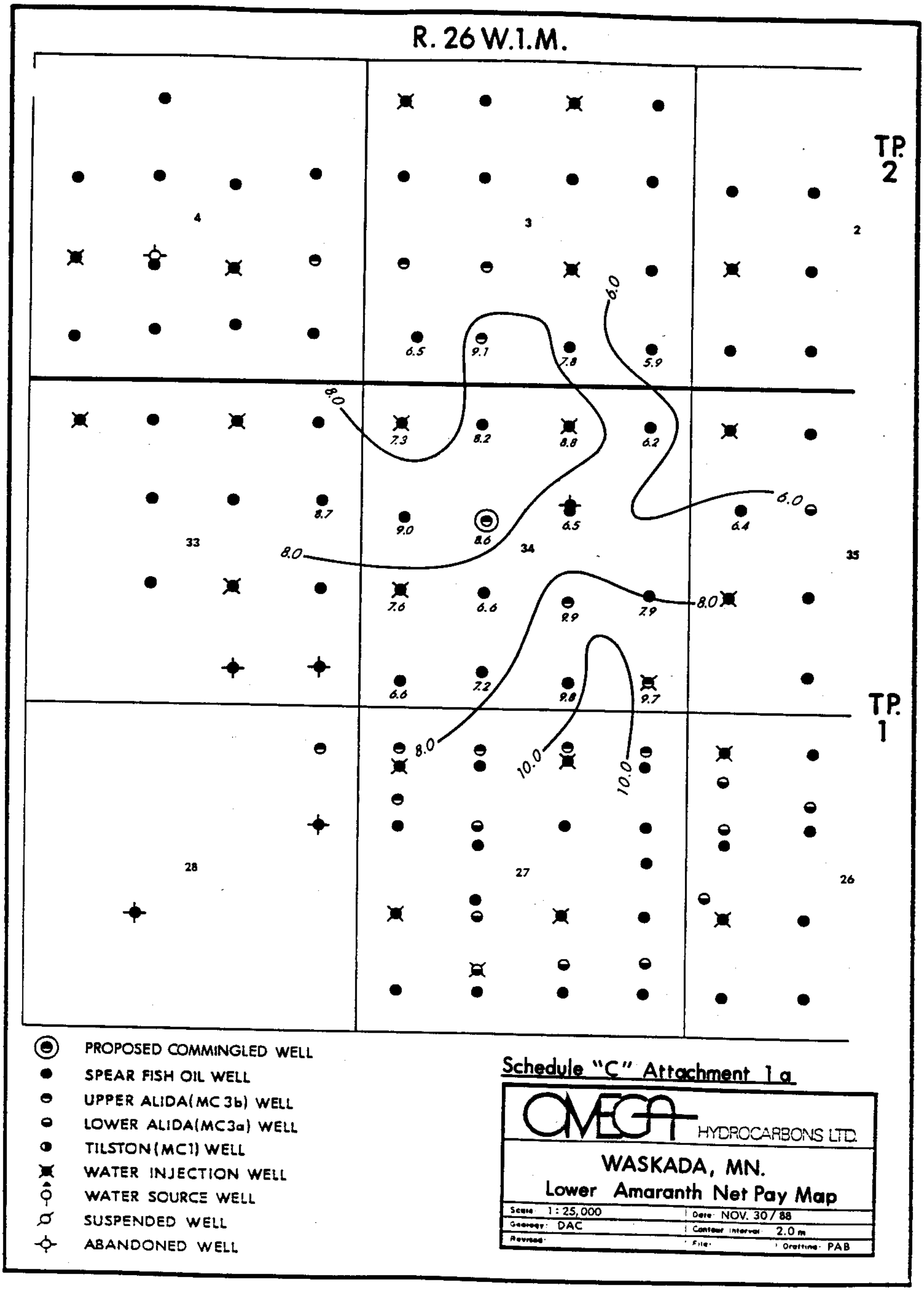
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 11-34-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top - of MC3b Porosity Map
Attachment 1c - Upper Alida (MC3b) Øh Map


R. 26 W.1.M.
TP. 2
TP. 1
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6.5
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7.8
5.9
8.0
7.3
8.2
8.8
6.2
6.0
8.7
9.0
8.6
6.5
6.4
7.6
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7.9
6.6
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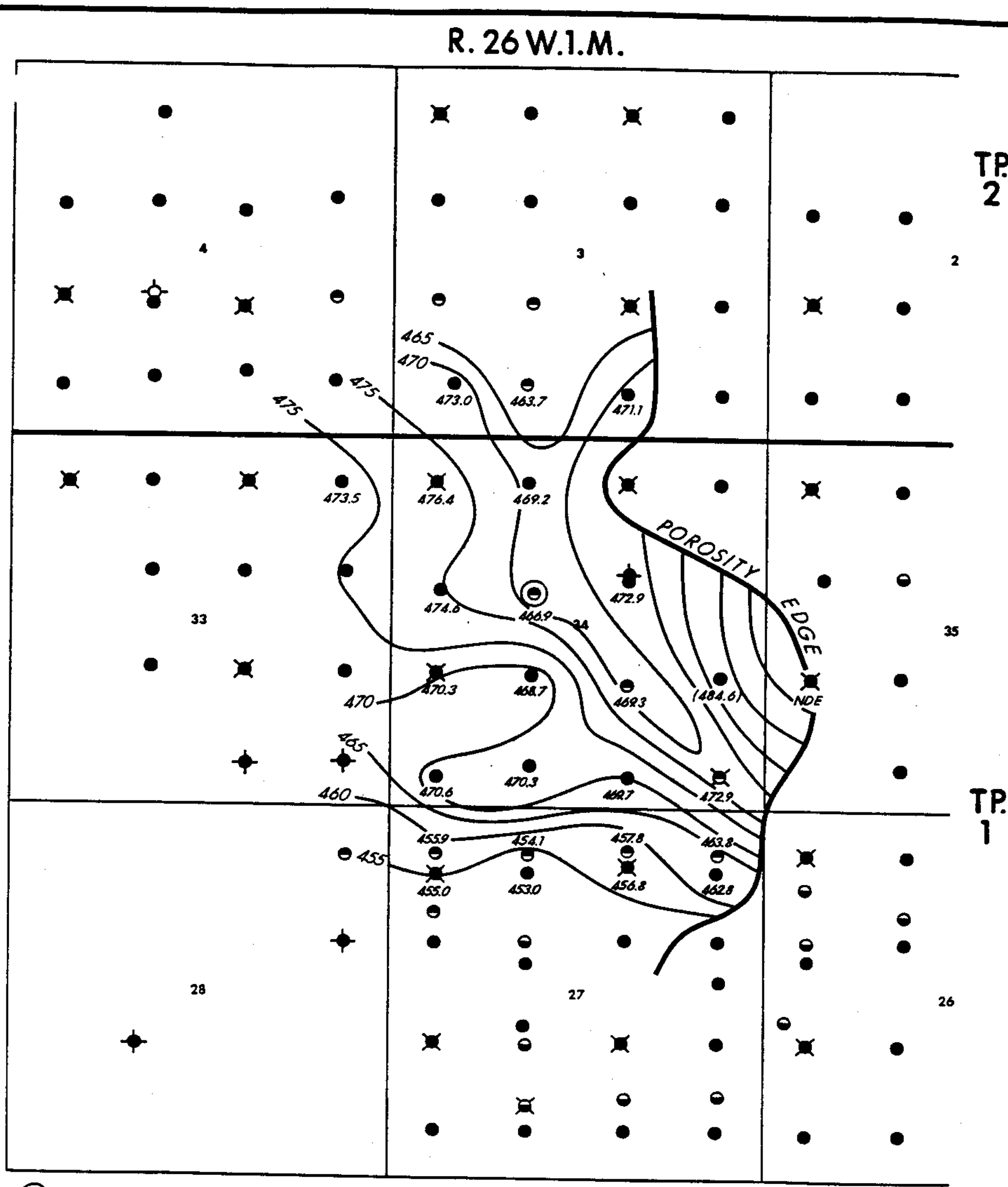
9.7
10.0
PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "C" Attachment 1 a
OMEGA HYDROCARBONS LTD.
WASKADA, MN.
Lower Amaranth Net Pay Map
Scale 1 : 25,000
Date NOV. 30/88
Geology DAC
Contour Interval 2.0 m
Revised
File
Drafting PAB



PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

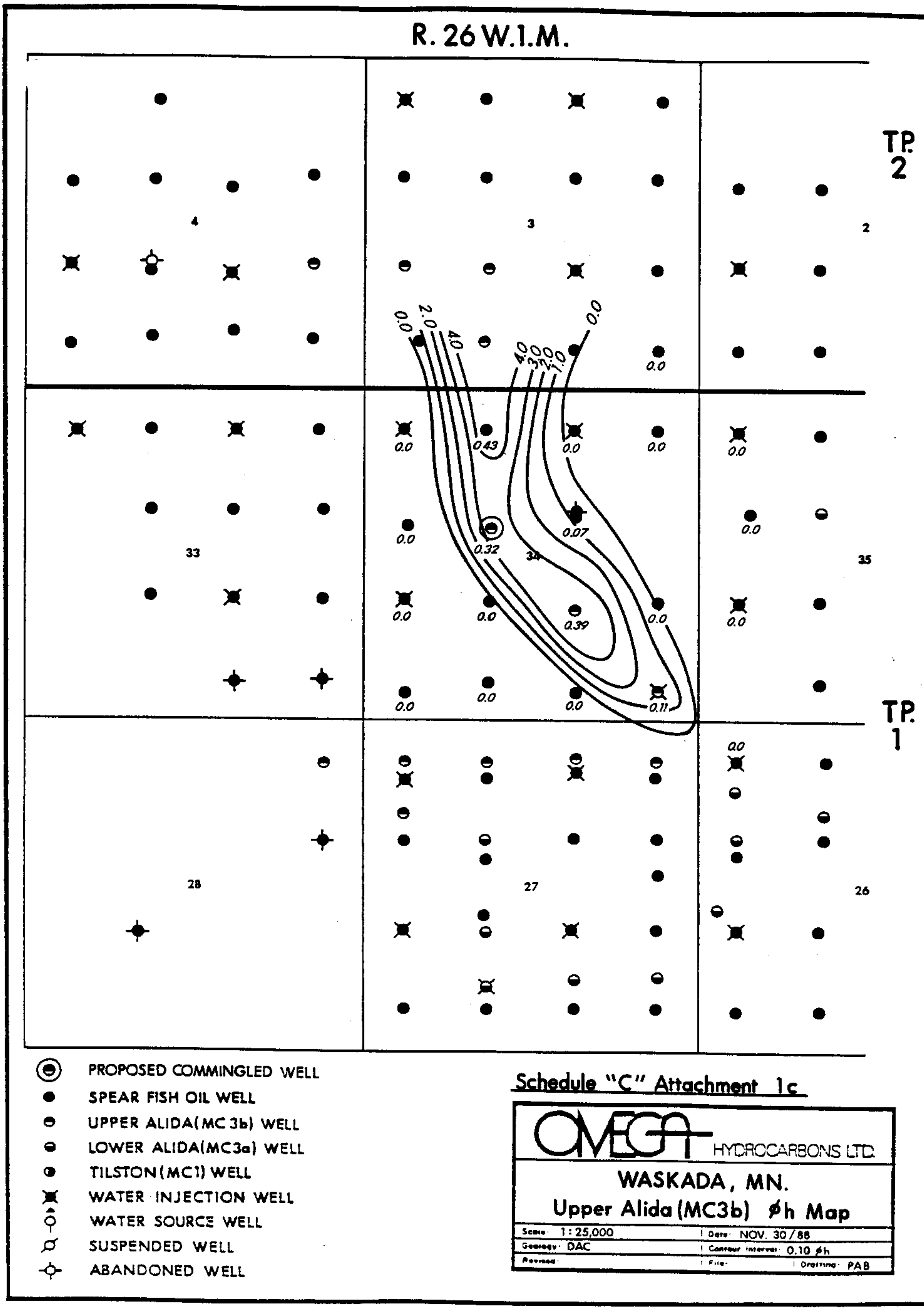
Schedule "C" Attachment 1 b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Structure-Top of MC3b Porosity

Scale 1: 25,000	Date NOV. 30/88
Geology: D.A.C.	Contour Interval 5.0 m
Revised	File: Drafting PAB



R. 26 W.1.M.
TP. 2
TP. 1
4
3
2
33
34
35
28
27
26
PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "C" Attachment 1c
OMEGA HYDROCARBONS LTD.
WASKADA, MN.
Upper Alida (MC3b) øh Map
Scale: 1:25,000
Date: NOV. 30/88
Geology: DAC
Contour Interval: 0.10 øh
Revised:
File:
Drafting: PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 11-34-1-26 WPM

Attachment No. 1 set outs the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets our the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 11-34-1-26

Commingled Production - Well Completion Program

A. LAm Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Rig up and run a drillable bridge plug on wireline. Land and set at 925.0 mKB.
5) Perforate the Lower Amaranth from 909.0 - 919.0 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
6) Frac the Lower Amaranth using 10 tonne gelled water (20/40 sand @ $0.8m^3$/minute).
7) Run in tubing and circulate out sand to 925.0 mKB.
8) Land tubing at 891.0 mKB.
9) Run BHP and rods.
10) Release rig.

B. LAm Evaluation

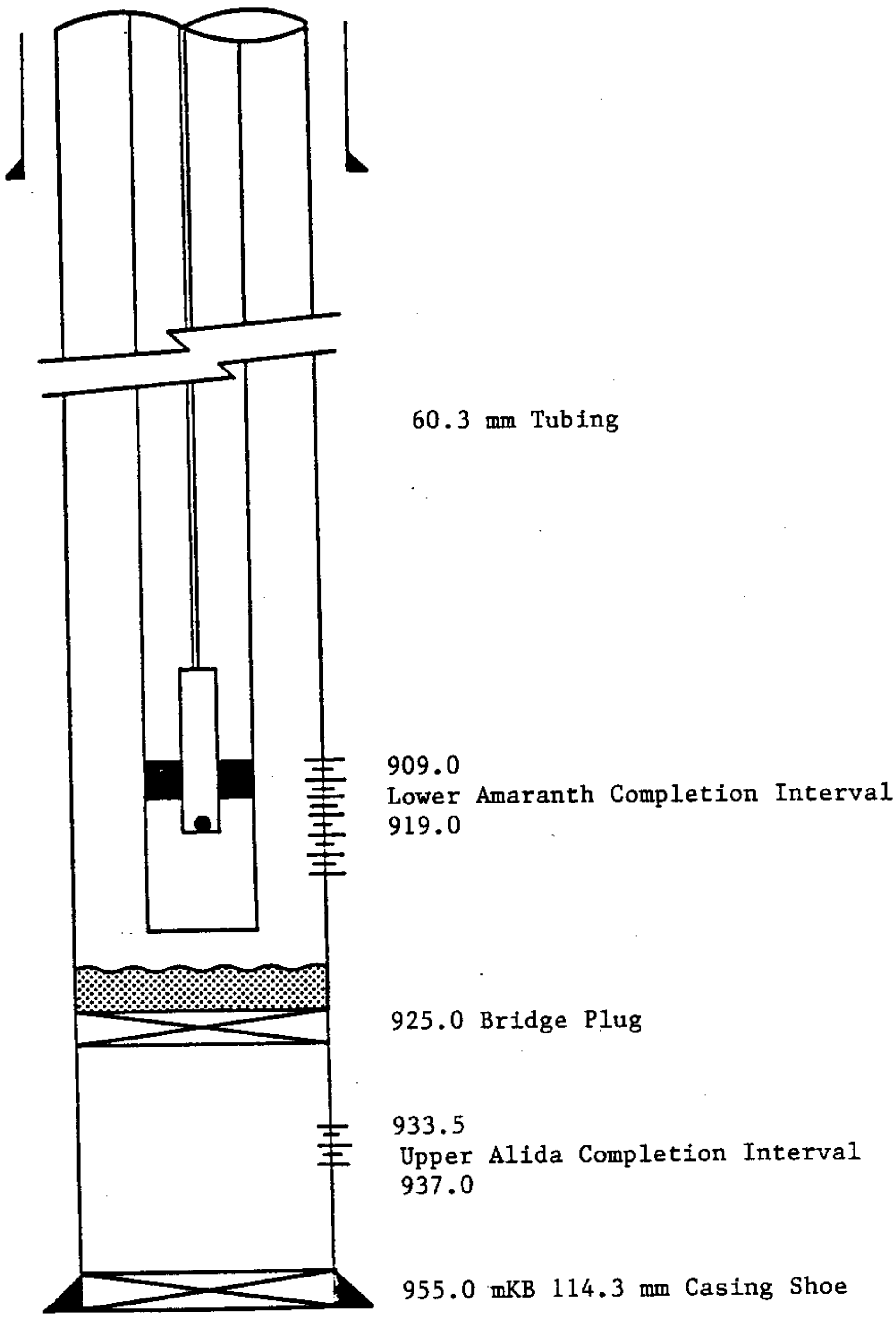
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the LAm on a dialy basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump. Circulate hole clean to 925.0 mKB.
3) Pull tubing. Make up bit and scraper and drill out bridge plug.
4) Pull tubing and rig out bit and scraper.
5) Run in tubing and circulate hole clean to PBTD. Land tubing at 955.0 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 925.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 936.6 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

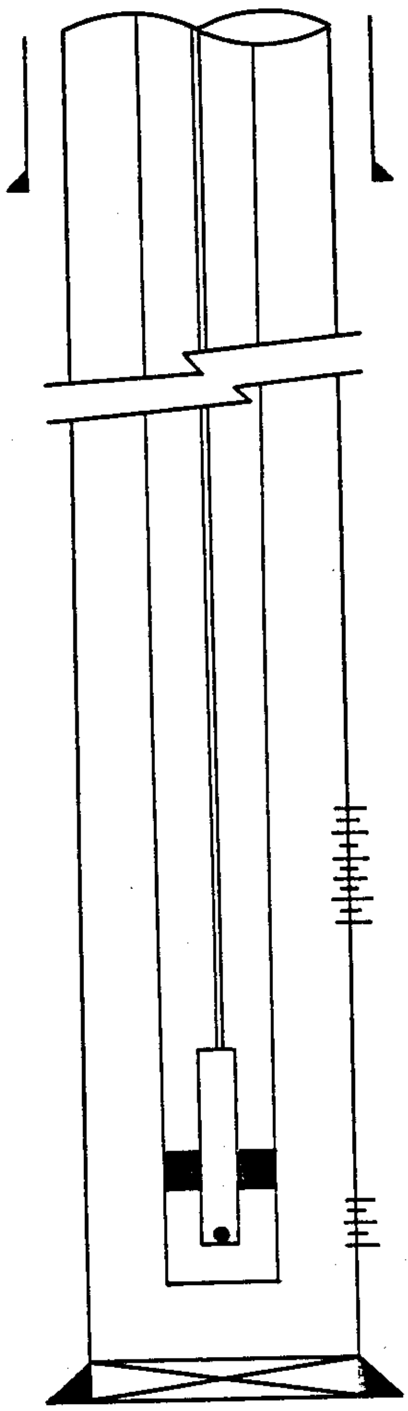


Schedule 'D' Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 11-34-1-26 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



OMEGA HYDROCARBONS LTD.

Omega Waskada 11-34-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the well to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
11-34-1-26 WPM	U Alida	0.320	22261	3.0/0.1	N/A	1.340	83534	2.6/5.2	4100

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Upper Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells offsetting the well to be commingled. These production rates are based on the wells' present production. The production rate from the Upper Alida for 11-34-1-26 WPM is based on the production rate before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for 11-34-1-26 WPM is estimated from the results of the pressure fall off test at wells 5-34 and 15-34-1-26 WPM performed in February 1986. The pressure test for the Upper Alida zone will be obtained when the next planned bottom hole pressure test is performed. The results will be forwarded at that time.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to October 1988
Offsetting Well 11-34-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
6-34-1-26 WPM	L. Amaranth	0.2	7.3
7-34-1-26 WPM	U. Alida	S.I.	S.I.
10-34-1-26 WPM	L. Amaranth	0.1	2.3
12-34-1-26 WPM	L. Amaranth	0.3	3.8
14-34-1-26 WPM	L. Amaranth	0.2	0.9

SCHEDULE "E" (i)

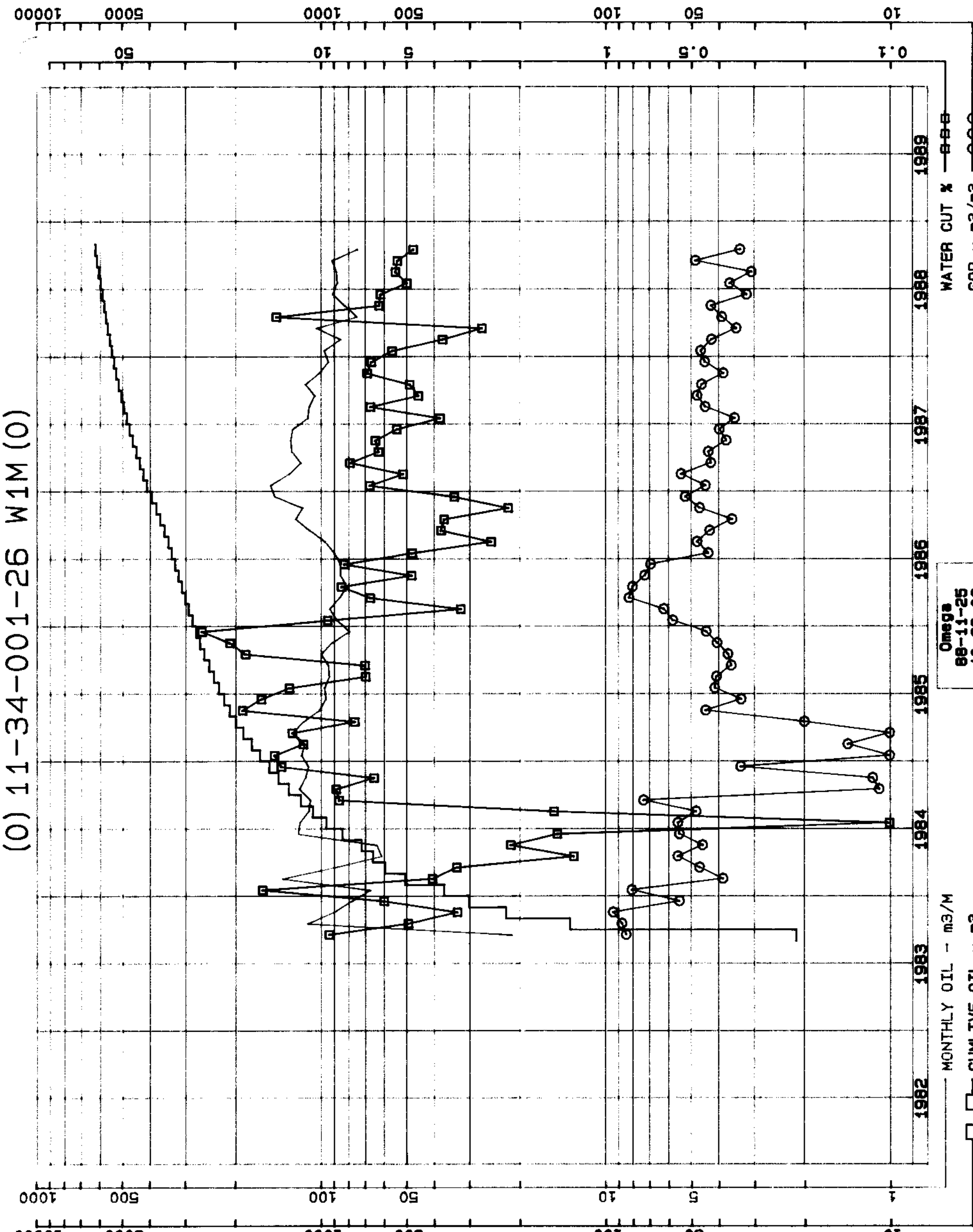
Attachment 2

Cumulative Water Injection to October 1988
Offsetting Well 11-34-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
1-34-1-26 WPM	14027.8
5-34-1-26 WPM	18056.7
13-34-1-26 WPM	21380.1
15-34-1-26 WPM	19436.5

Schedule 'E' (i)
Attachment 3

Upper Alida Production



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Mission Canyon performance prior to recompleting the Lower Amaranth.

2. Isolate the Mission Canyon, recomplete the well in the Lower Amaranth and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Mission Canyon at the rate established in Step 1. Allocate production to the Lower Amaranth based on the difference between total production and the allocated Mission Canyon production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Mission Canyon production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Mission Canyon at the rate established in Step 5 and allocate production to the Lower Amaranth by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Upper Alida zone during the six month period prior to the recompletion of the Lower Amaranth interval.

Well	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
11-34-1-26 WPM	88/10/16	24	2.82	0.06	0.04
	88/10/07	24	2.30	0.12	0.03
	88/09/13	24	3.22	0.07	0.07
	88/09/05	24	3.14	0.20	0.07
	88/08/13	24	2.69	0.11	0.03
	88/08/03	24	3.40	0.07	0.07
	88/07/18	24	3.41	0.07	0.07
	88/07/07	24	2.77	0.15	0.04
	88/06/16	24	3.13	0.13	0.05
	88/06/05	24	2.95	0.16	0.05
	88/05/19	24	3.36	0.08	0.07
	88/05/02	24	2.42	0.13	0.05
	AVERAGE		3.01	0.11	0.05

Average Water/Oil Ratio = 0.037 m^3/m^3
Average Gas/Oil Ratio = 16.611 m^3/m^3

11-34-1-26 WPM PRODUCTION TEST DATA *

LOWER AMARANTH ZONE

DATE	OIL (m^3)	WATER (m^3)
88/11/13	0.6	11.2
88/11/14	0.8	6.8
88/11/15	3.9	7.3
88/11/16	3.1	2.6
88/11/17	4.1	3.3
88/11/18	2.7	4.9
88/11/19	2.2	4.0
88/11/20	2.6	4.7
88/11/21	3.3	9.8
88/11/22	0.5	0.7
88/11/23	7.6	1.4
88/11/24	1.9	5.6
88/11/25	3.0	4.5
88/11/26	2.6	6.0
88/11/27	3.7	5.6

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

File "Waskada Commingling" (General)

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
NOV 21 1988
PETROLEUM BRANCH

November 16, 1988

CHEVRON CANADA RESOURCES LTD.
500 - 5th Avenue S.W.
Calgary, Alberta
T2P 0L7

Attention: Mr. R.J. Terlesky
Joint Interest

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 5-3-2-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by December 1, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke, P. Eng.
Manitoba District Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

November 16, 1988

BAXTER LAKE HOLDINGS COMPANY LTD.
9535 - 154 Street
Edmonton, Alberta
T5P 2E8

Attention: Mr. Erhard Schulz

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 5-3-2-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by Decmeber 1, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke
Manitoba District Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

November 16, 1988

HUDSON'S BAY OIL AND GAS COMPANY LIMITED
c/o Amoco Canada Petroleum Company Ltd.
Station M
P.O. Box 200
Calgary, Alberta
T2P 2H8

Attention: Mr. J. Pawelek
Joint Interest Southeast

Dear Sirs:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 9-32-1-25 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by December 1, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke
Manitoba District Engineer

DB/jb
c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD

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

DEPARTMENT OF ENERGY AND MINES
NOV 14 1988
PETROLEUM BRANCH

November 7, 1988

CHEVRON CANADA RESOURCES LTD.
500 - 5th Avenue S.W.
Calgary, Alberta
T2P 0L7

Attention: Mr. R.J. Terlesky
Joint Interest

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Chevron Waskada 11-34-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by November 21, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Dan Boyko or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

R.A. Brekke, P. Eng.
Manitoba District Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

FILE Waskada "Commingling"

Chevron Canada Resources
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7 · Phone (403) 234-5000
Fax 234-5947

K.E. Urdarc
Chief Engineer

1988-11-15

DEPARTMENT OF ENERGY AND MINES
18 1988
PETROLEUM BRANCH

Application to Commingle Production
in Waskada by Omega Hydrocarbons Ltd.

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

Attention: Mr. Charles S. Kang
Chairman

Gentlemen:

Chevron Canada Resources has no objections towards Omega's application to commingle production from the Lower Amaranth and Mission Canyon formations in the Waskada well located at 11-34-01-26 WPM.

Yours very truly,

~~C. G. FOLDEN~~, P.Eng.
Manager,
Reservoir Engineering

JRB/sll

cc: Omega Hydrocarbons Limited
Attention: Mr. D. Boyko

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

November 8, 1988

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

Attention: R. A. Brekke, P. Eng.
Manitoba District Engineer

Dear Richard:

Re: Commingled Production
Omega Waskada 12-36-1-26 (WPM)

Further to your application of October 31/88, enclosed is your approved application to commingle production in the subject wellbore. Please notify our Waskada office before proceeding.

As with previous approvals, the following conditions apply:

1. Provincial Crown royalties are to be calculated on the basis of total volume from the well and not separately for each zone.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bimonthly commingling report.

Production measurement and zone testing proposals contained in your application are acceptable.

Yours sincerely,

Original Signed by
L. R. DUBREUIL

L. R. Dubreuil
Acting Director of Petroleum

LRD/sml

Enclosure

cc: Waskada Office

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

DEPARTMENT OF ENERGY AND MINES
NOV 7
PETROLEUM BRANCH

November 1, 1988

REX PETROLEUMS LTD.
600, 5212 - 3rd Avenue S.W.
Calgary, Alberta
T5P 3T3

Attention: Mr. D. A. Robinson
Land Manager

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following wells in the Waskada field:

Omega Waskada 7-35-1-26 WPM
Omega Waskada 8-35-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the wells which are the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by November 14, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brekke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dan Boyko, P. Eng.
Petroleum Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

HYDROCARBONS LTD.

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

November 1, 1988

BAXTER LAKE HOLDINGS COMPANY LTD.
9535 - 154 Street
Edmonton, Alberta
T5P 2E8

Attention: Mr. Erhard Schulz

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following wells in the Waskada field:

Omega Waskada 7-35-1-26 WPM
Omega Waskada 8-35-1-26 WPM
Omega Waskada 11-34-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the wells which are the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by November 14, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brekke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dan Boyko, P. Eng.
Petroleum Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD
1515 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743

NOV 9 1988

October 31, 1988

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Charles S. Kang
Chairman

Dear Sir:

RE: Omega Waskada 12-36-1-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

The proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Methods and Frequency of Measuring Production
   (iii) Production Allocation

The justification for proposing commingled production at this well remains with economics. Due to lower oil prices the economics for drilling a new well are worse than the economics of the last application. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after November 7, 1988. To expedite the approval process, we have directly sent notification of this application to the offset mineral owners, Hudson's Bay Oil and Gas Limited, Baxter Lake Holdings Company Ltd. and Rex Petroleums Ltd.

Also attached to this application is the MG 4`6 form to recomplete the subject well and the most recent daily production test data from the Lower Amaranth zone. Should you require additional information in regards to this application please contact either Dan Boyko or myself at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Manitoba District Engineer

DB/jb

c.c. Bob Dubreuil

SCHEDULE 'A'

Description of Well

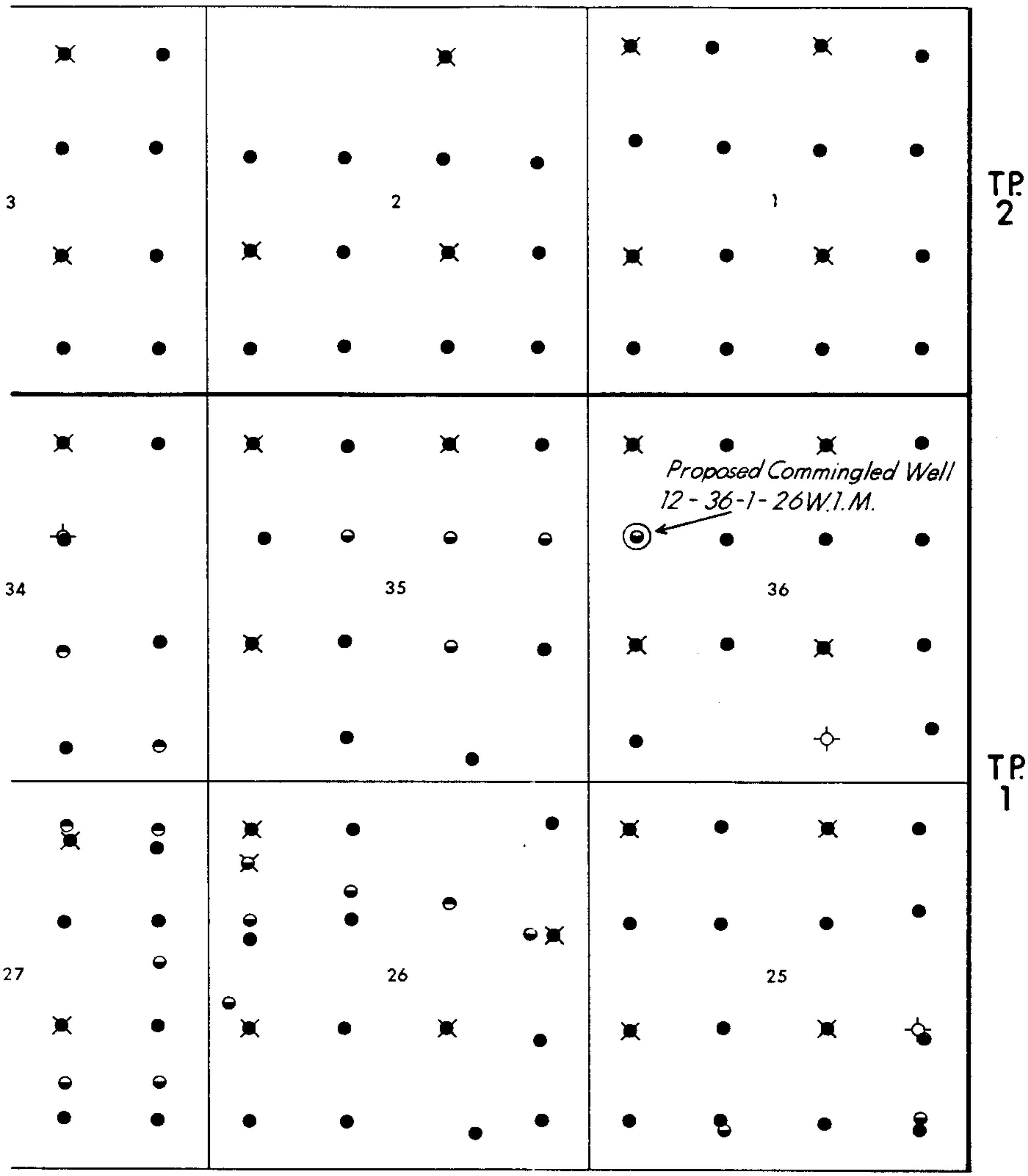
Name	Licence Number	Location
Omega Waskada 12-36-1-26	2983	Legal subdivision twelve (12) of Section thirty-six (36), Township one (1) Range twenty-six (26) West of the Principal Meridan.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1

R.26W.1.M.



- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD

WELL LOCATION MAP

Scale 1:25,000	Date OCT. 25/88
Geology	Contour Interval
Revised	File / Drafting PAB

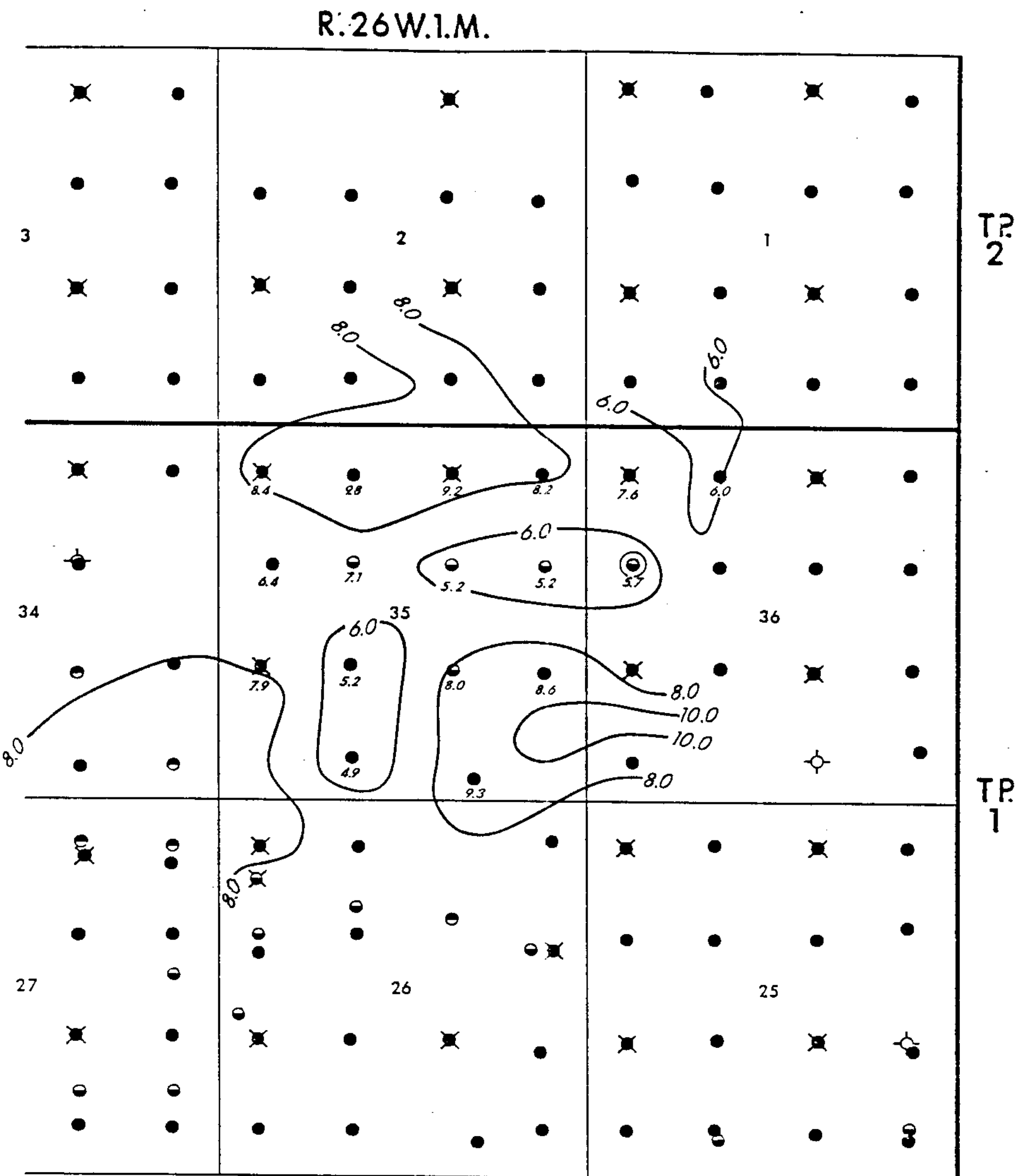
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 12-36-1-26 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top - of MC3a Porosity Map
Attachment 1c - Lower Alida (MC3a) Øh Map



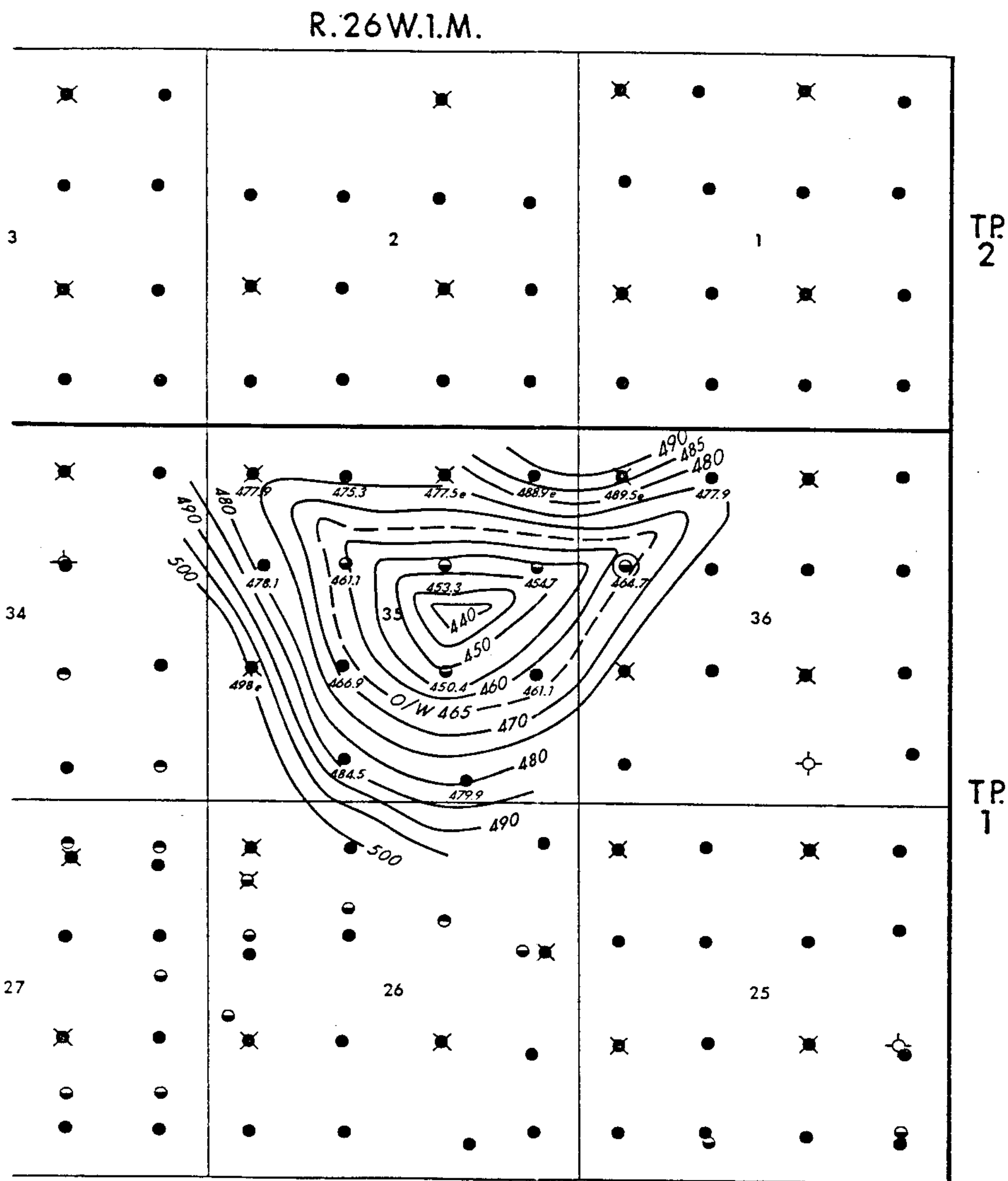
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1 a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Amaranth Net Pay Map

Scale: 1:25,000	Date: OCT. 25/88
Geology: D. Cridland	Contour interval: 2.0 m
Revised:	File: Drafting: PAB



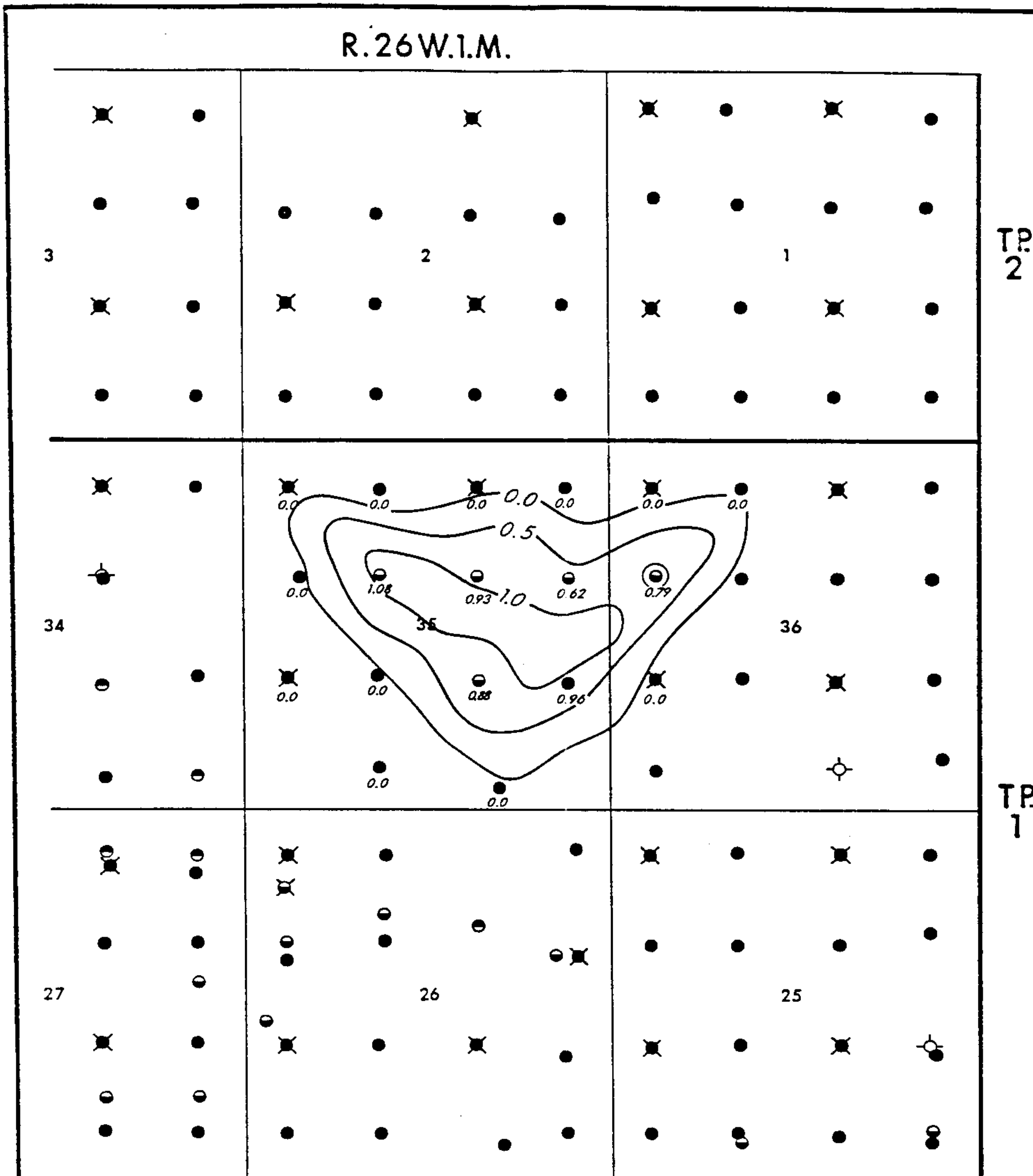
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Structure-Top of MC3a Porosity

Scale 1:25,000		Date OCT. 25/88	
Geologist D. Cridland		Contour Interval 5.0 m	
Revised		File	Drafting PAB



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1 c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Alida (MC3a) ϕh Map

Scale:	1: 25,000	Date:	OCT. 25/88
Geology:	D. Cridland	Contour interval:	0.5 ϕ h
Revised:		File:	Drafting: PAB

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 12-36-1-26 WPM

Attachment No. 1 sets out the workover program.
Attachment No. 2 sets out the current completion.
Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1
OMEGA WASKADA 12-36-1-26

Commingled Production - Well Completion Program

A. LAm Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Rig up and run a drillable bridge plug on wireline. Land and set at 915.0 mKB.
5) Perforate the Lower Amaranth from 902.0 - 910.5 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
6) Frac the Lower Amaranth using 10 tonne gelled water (20/40 sand @ $0.8m^3$/minute).
7) Run in tubing and circulate out sand to 915.0 mKB.
8) Land tubing at 884.0 mKB.
9) Run BHP and rods.
10) Release rig.

B. LAm Evaluation

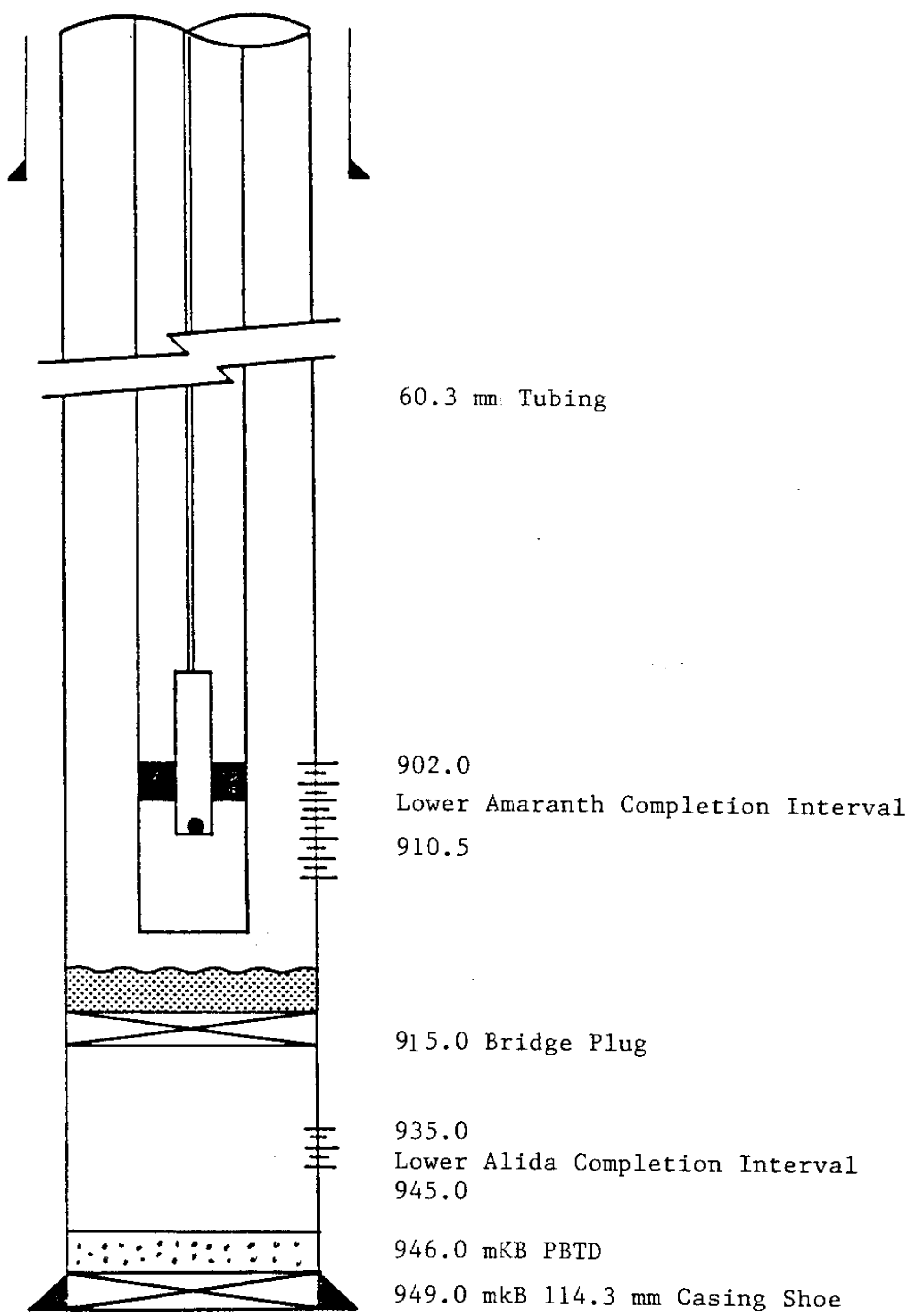
1) Put well on production to lease tank.
2) Conduct 24 - hour tests on the LAm on a dialy basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull rods and pump. Circulate hole clean to 915.0 mKB.
3) Pull tubing. Make up bit and scraper and drill out bridge plug.
4) Pull tubing and rig out bit and scraper.
5) Run in tubing and circulate hole clean to PBTD. Land tubing at 945.1 mKB.
6) Run in BHP and rods.
7) Place well on commingled production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 915.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 945.1 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

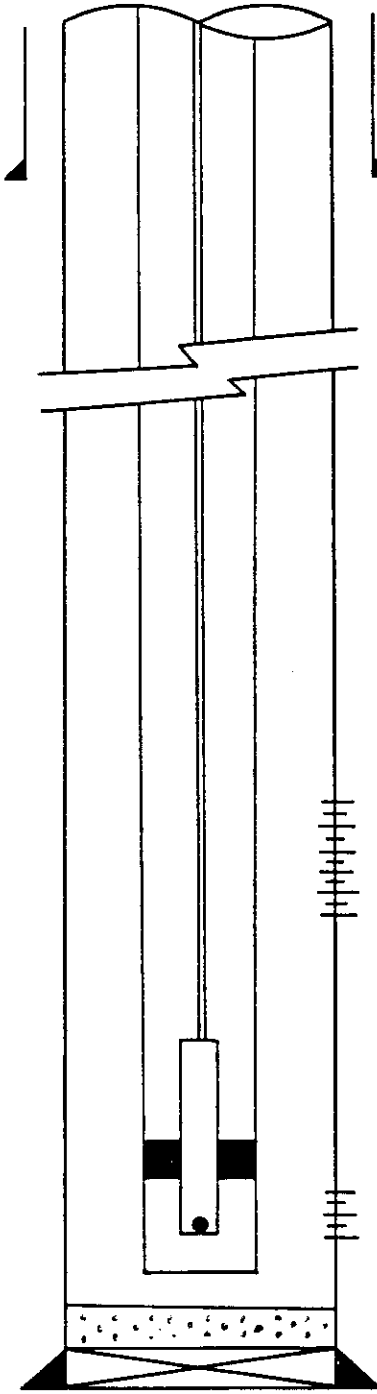


Schedule 'D' Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 12-36-1-26 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:



Schedule 'D' Attachment No.3

OMEGA HYDROCARBONS LTD.

Omega Waskada 12-36-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the well to be commingled under this application.

	Mission Canyon					Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
12-36-1-26 WPM	L Alida	0.079	5496	3.0/0.8	N/A	0.709	44197	8.2/0.3	7100

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formation it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells offsetting the well to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Alida for 12-36-1-26 WPM is based on the production rate before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for the Lower Amaranth zone for 12-36-1-26 WPM is estimated from the results of the pressure fall off test at wells 5-36 and 13-36-1-26 WPM performed in November 1986 and August 1987 respectively. The pressure test for the Lower Alida zone will be obtained when the next planned bottom hole pressure test is performed. These results will be forwarded at that time.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to September 1988
Offsetting Well 12-36-1-26 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
8-35-1-26 WPM	L. Amaranth	0.8	0.0
9-35-1-26 WPM	L. Amaranth/L. Alida	8.0	0.5
16-35-1-26 WPM	L. Amaranth	1.9	0.1
6-36-1-26 WPM	L. Amaranth	1.7	0.3
11-36-1-26 WPM	L. Amaranth	1.1	0.1
14-36-1-26 WPM	L. Amaranth	1.9	0.1

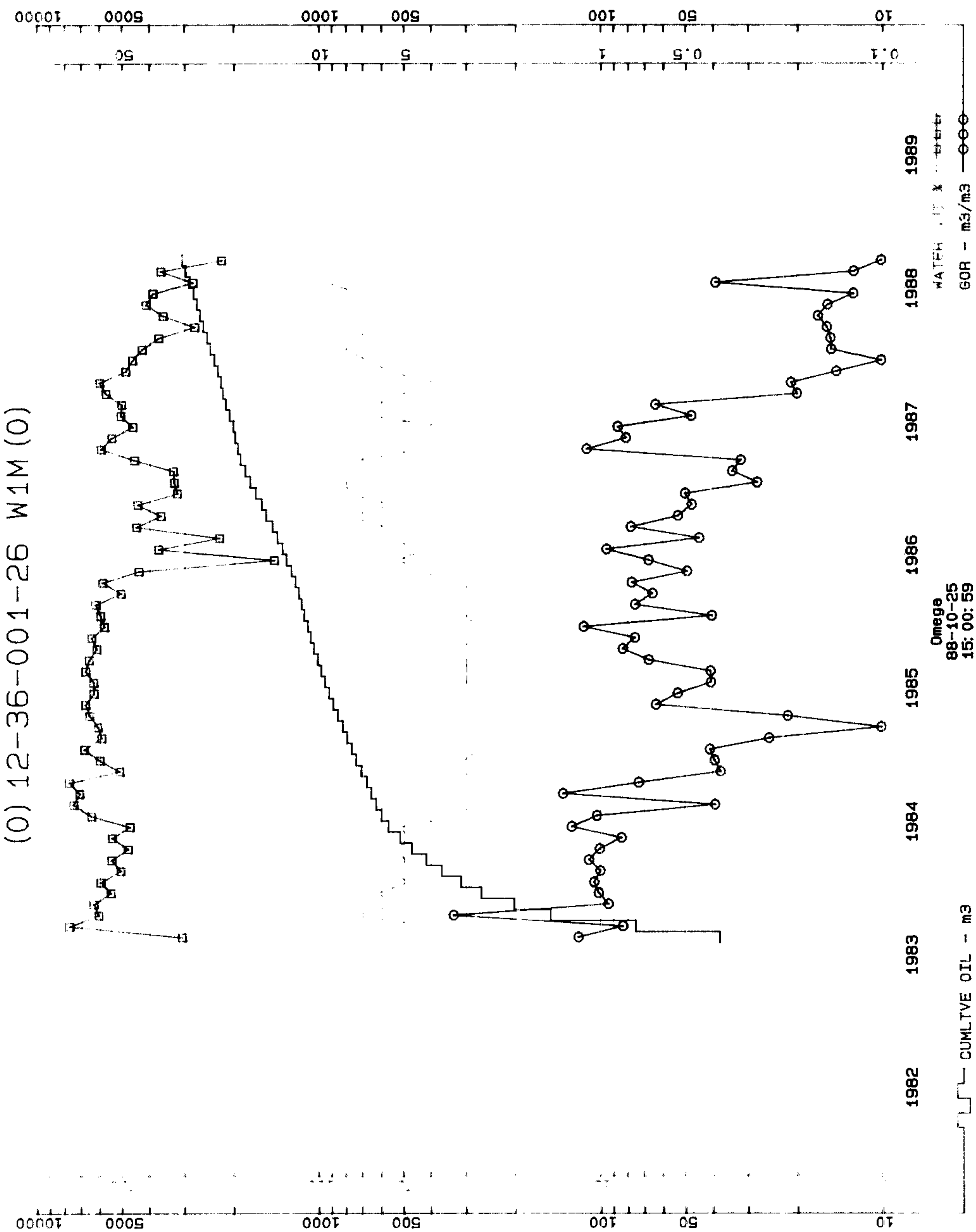
SCHEDULE "E" (i)

Attachment 2

Cumulative Water Injection to September 1988
Offsetting Well 12-36-1-26 WPM

Injection Well	Cumulative Water Inj. (m^3)
5-36-1-26 WPM	9515.9
13-36-1-26 WPM	21762.4

Lower Alida Production   Schedule 'E'(i) Attachment 3



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Mission Canyon performance prior to recompleting the Lower Amaranth.

2. Isolate the Mission Canyon, recomplete the well in the Lower Amaranth and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Mission Canyon at the rate established in Step 1. Allocate production to the Lower Amaranth based on the difference between total production and the allocated Mission Canyon production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Mission Canyon production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Mission Canyon at the rate established in Step 5 and allocate production to the Lower Amaranth by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Alida zone during the six month period prior to the recompletion of the Lower Amaranth interval.

Well	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
12-36-1-26 WPM	88/09/16	24	2.86	0.58	0.01
	88/09/07	24	3.38	0.38	0.01
	88/08/20	24	3.31	0.63	0.01
	88/08/12	24	2.97	0.52	0.02
	88/07/29	24	3.56	1.92	0.03
	88/07/06	24	3.64	0.07	0.11
	88/06/21	24	2.36	1.27	0.01
	88/06/07	24	2.60	0.87	0.02
	88/05/15	24	2.31	0.94	0.02
	88/05/07	24	2.94	0.98	0.02
	88/04/15	24	2.95	1.14	0.02
	88/04/06	24	2.71	0.68	0.03
	AVERAGE		2.97	0.83	0.02

Average Water/Oil Ratio = 0.279 m^3/m^3
Average Gas/Oil Ratio = 6.734 m^3/m^3

12-36-1-26 WPM PRODUCTION TEST DATA *

LOWER AMARANTH ZONE

DATE	OIL (m^3)	WATER (m^3)
88/10/10	12.0	0.5
88/10/13	11.0	1.0
88/10/14	9.3	0.9
88/10/15	9.8	1.1
88/10/16	7.8	0.9
88/10/17	9.8	1.1
88/10/18	6.8	0.5
88/10/19	8.4	0.6
88/10/20	10.2	0.1
88/10/21	9.0	0.1
88/10/22	8.2	0.7
88/10/23	7.5	0.7
88/10/24	7.3	0.7
88/10/25	6.2	0.6
88/10/26	6.7	0.5
88/10/27	6.5	0.5
88/10/28	6.8	0.6
88/10/29	5.8	0.5
88/10/30	8.2	0.3

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

October 17, 1988

Omega Hydrocarbons Ltd.
1300, 112 - 4th Avenue S.W.
Calgary, Alberta
T2P OH3

Attention: R. Brekke

Dear Richard:

Re: <u>Omega Waskada Prov. 10-6-1-25 (WPM)</u>

Further to your application of September 20, 1988 and our recent telephone conversation, enclosed is your approved application to commingle production in the subject wellbore. Please notify our Waskada office before proceeding.

As with previous approvals, the following conditions apply:

1. Provincial Crown royalties are to be calculated on the basis of total volume from the well and not separately for each zone.

2. Pumping fluid levels are to be determined monthly and every effort is to be made to keep these levels as low as possible.

3. The well is to be included in the bimonthly commingling report which you submit.

Production measurement and zone testing proposals contained in your application are acceptable.

Please note that applications of this type should be made directly to the Petroleum Branch and not to The Oil and Natural Gas Conservation Board.

Yours sincerely,

L. R. Dubreuil
Acting Director of Petroleum

LRD/sml

Enclosure

c.c. Waskada Office

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

October 4, 1988

HUDSON'S BAY OIL AND GAS COMPANY LIMITED
c/o Dome Petroleum Limited
P.O. Box 200
Calgary, Alberta
T2P 2H8

Attention: Joint Operations

Dear Sirs:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 12-36-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by October 21, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brekke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dan Boyko, P. Eng.
Petroleum Engineer

DB/lb
c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

October 4, 1988

BAXTER LAKE HOLDINGS COMPANY LTD.
9535 - 154 Street
Edmonton, Alberta
T5P 2E8

Attention: Mr. Erhard Schulz

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 12-36-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by October 21, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brekke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dan Boyko, P. Eng.
Petroleum Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

October 4, 1988

REX PETROLEUMS LTD.
600, 5212 - 3rd Avenue S.W.
Calgary, Alberta
T5P 3T3

Attention: Mr. D. A. Robinson
Land Manager

Dear Sir:

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 12-36-1-26 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by October 21, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brekke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dan Boyko, P. Eng.
Petroleum Engineer

DB/jb

c.c.: Bob Dubreuil
Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD
SUN LIFE PLAZA III
4th AVENUE S.W.
CALGARY, ALBERTA, CANADA
TELEPHONE (403) 261 0743

DEPARTMENT OF ENERGY AND MINES
SEP 21 1988
PETROLEUM BRANCH

September 20, 1988

MANITOBA ENERGY AND MINES
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Charles S. Kang
Chairman

Dear Sir:

RE: Omega Waskada 10-6-1-25 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbore.

he proposed zones of interest for commingling in this well are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Well
2) Schedule B - Location of Well
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
(ii) Methods and Frequency of Measuring Production
(iii) Production Allocation

The justification for proposing commingled production at this well remains with economics. Due to lower oil prices the economics for drilling a new well are worse than the economics of the last application. However, the economics of commingling production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil and the rights of mineral owners are believed to be beneficial as set forth in our application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after September 26, 1988. To expedite the approval process, we have directly sent notification of this application to the offset mineral owner, Chevron Canada Ltd.

Also attached to this application is the MG 416 form to recomplete the subject well. Should you require additional information in regards to this application please contact either Dan Boyko or Richard Brekke at (403) 261-0743.

Yours very truly,

OMEGA HYDROCARBONS LTD.

R. A. Brekke, P. Eng.
Manitoba District Engineer

DB/lb

c.c. Bob Dubreuil

SCHEDULE 'A'

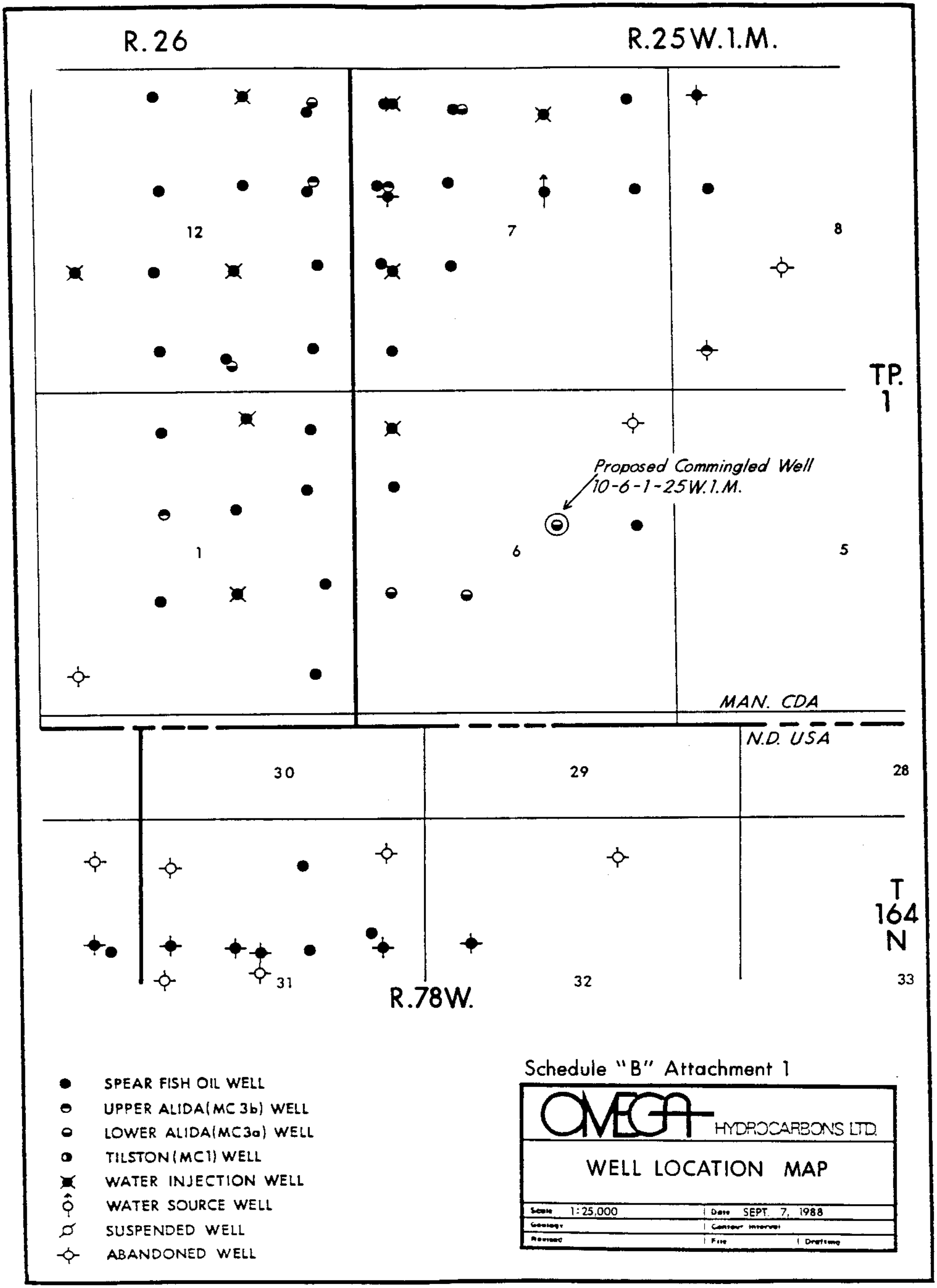
Description of Well

Name	Licence Number	Location
Omega Waskada 10-6-1-25	3939	Legal subdivision ten (10) of Section six (6), Township one (1) Range twenty-five (25) West of the Principal Meridan.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Well

See Attachment 1


R.26
R.25W.1.M.
12
7
8
TP.
1
Proposed Commingled Well
10-6-1-25W.1.M.
1
6
5
MAN. CDA
N.D. USA
30
29
28
T
164
N
31
32
33
R.78W.
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
Schedule "B" Attachment 1
OMEGA HYDROCARBONS LTD.
WELL LOCATION MAP
Scale 1:25,000
Date SEPT. 7, 1988
Geology
Contour Interval
Revised
File
Drafting

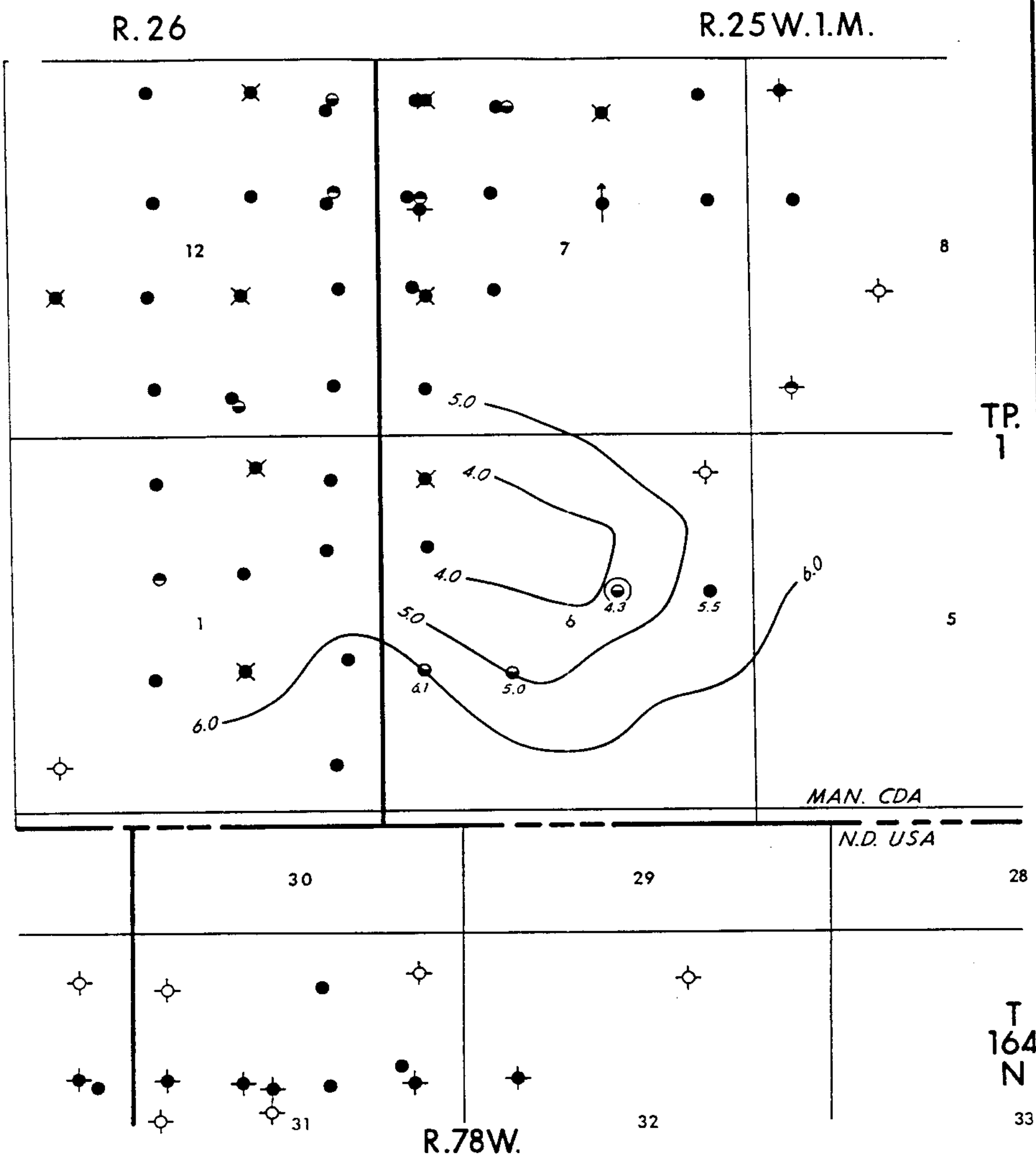
SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 10-6-1-25 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top - of MC3a Porosity Map
Attachment 1c - Lower Alida (MC3a) Oh Map



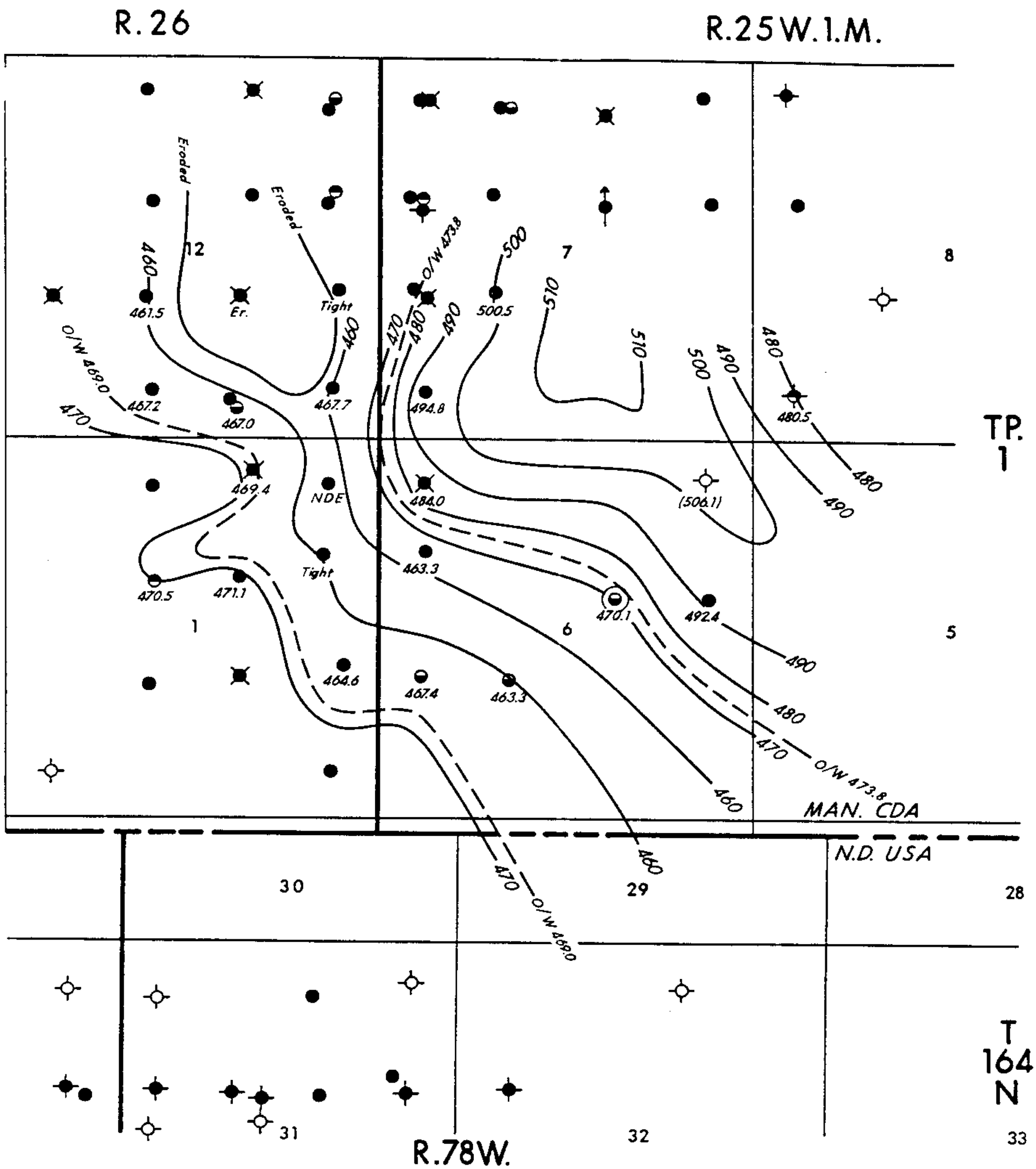
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Lower Amaranth Net Pay Map

Scale 1:25,000	Date SEPT. 7, 1988		
Geology D.Cridland	Contour Interval 1.0 m		
Revised	File	Drafting PAB	



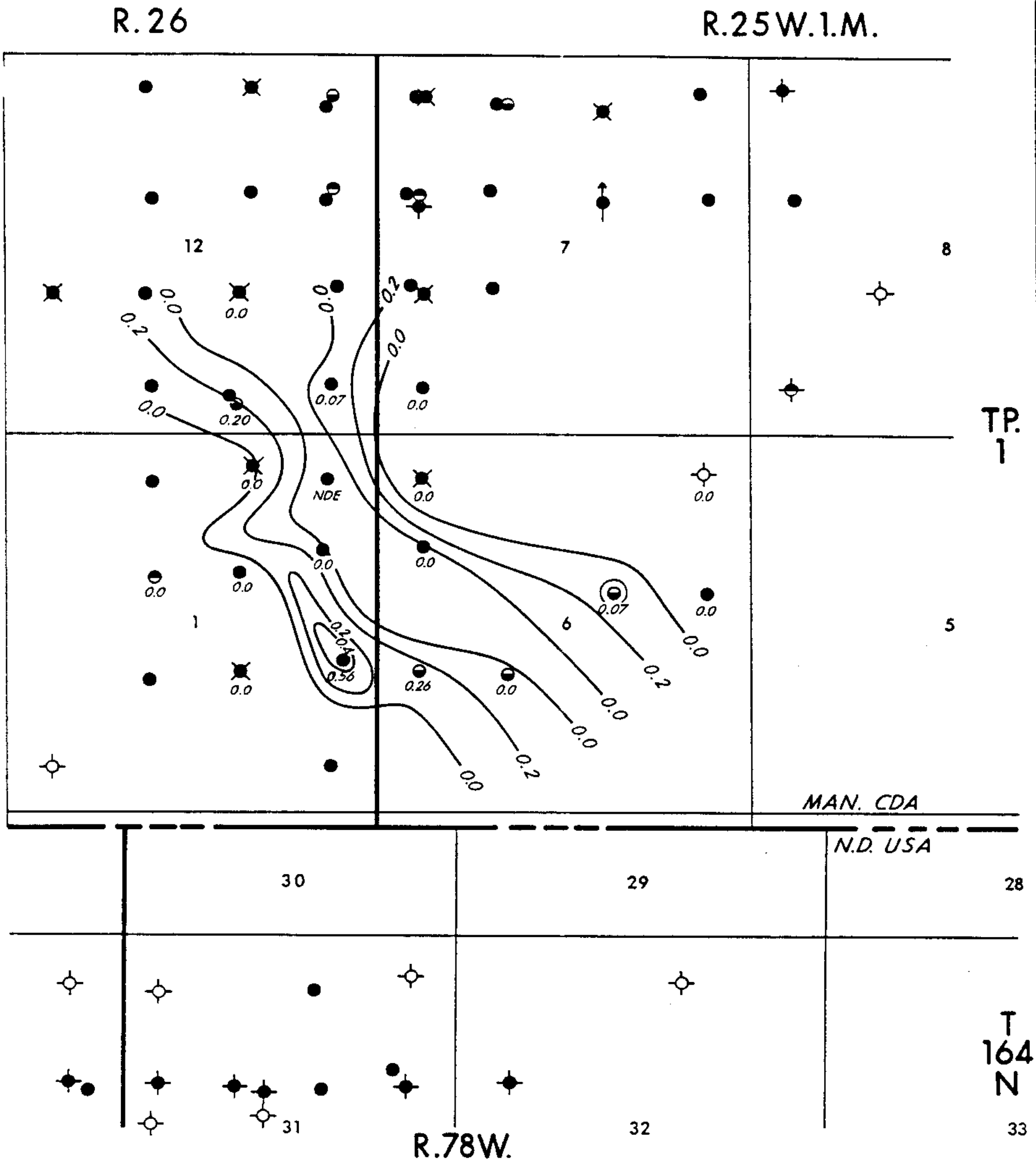
Proposed Commingled Well
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1 b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Structure-Top of MC3a Porosity

Scale	1: 25,000	Date	SEPT. 7, 1988
Geologist	D. Cridland	Contour Interval	10 m
Revised		File	Drafting PAB



- Proposed Commingled Well
- SPEAR FISH OIL WELL
- UPPER ALIDA(MC 3b) WELL
- LOWER ALIDA(MC3a) WELL
- TILSTON(MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Lower Alida(MC3a) ∅h Map

Scale 1:25,000	Date SEPT. 7, 1988
Geology D. Cridland	Contour interval 0.2 ∅ h
Revised	File / Drafting PAB.

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion program for the well is attached.

Omega Waskada 10-6-1-25 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Schedule "D" - Attachment No.1

OMEGA WASKADA 10-6-1-25

Commingled Production - Well Completion Program

A. LAm Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Rig up perforating unit.
4) Rig up and run a drillable bridge plug on wireline. Land and set at 934.0 mKB.
5) Perforate the Lower Amaranth from 921.5 - 929.0 mKB with 79mm HSC gun at 13 spm. Rig out wireline.
6) Frac the Lower Amaranth using 4 tonne gelled water (20/40 sand @ $0.8m^3$/minute).
7) Run in tubing and circulate out sand to 934.0 mKB.
8) Land tubing at 904.0 mKB.
9) Run BHP and rods.
10) Release rig.

B. LAm Evaluation

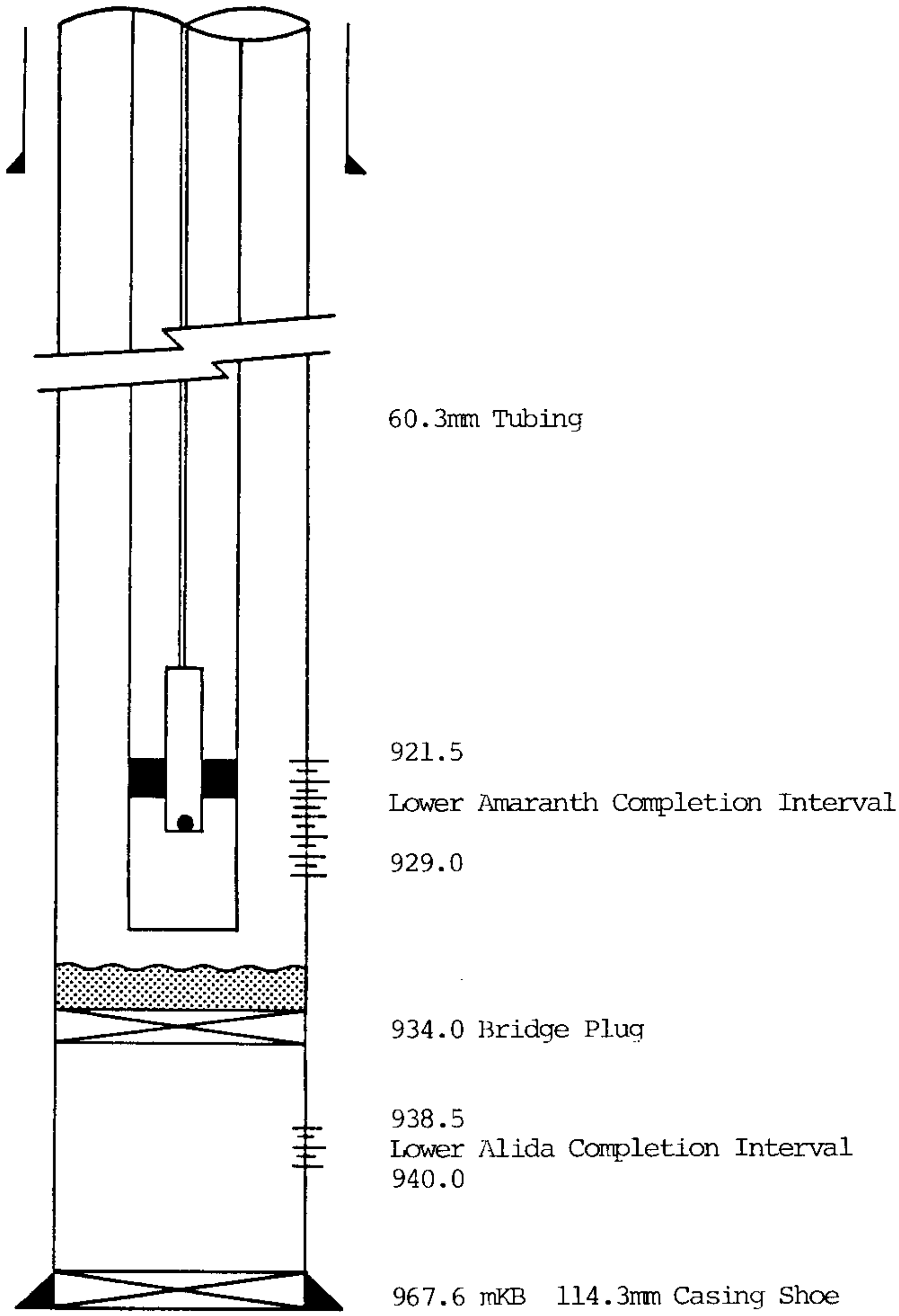
1) Put well on production.
2) Conduct 24 - hours tests on the LAm on a weekly basis for one month.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Circulate out sand to PBTD.
4) Land the tubing at about 942.0 mKB.
5) Run BHP and rods.
6) Put well on production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 934.0 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 942.0 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

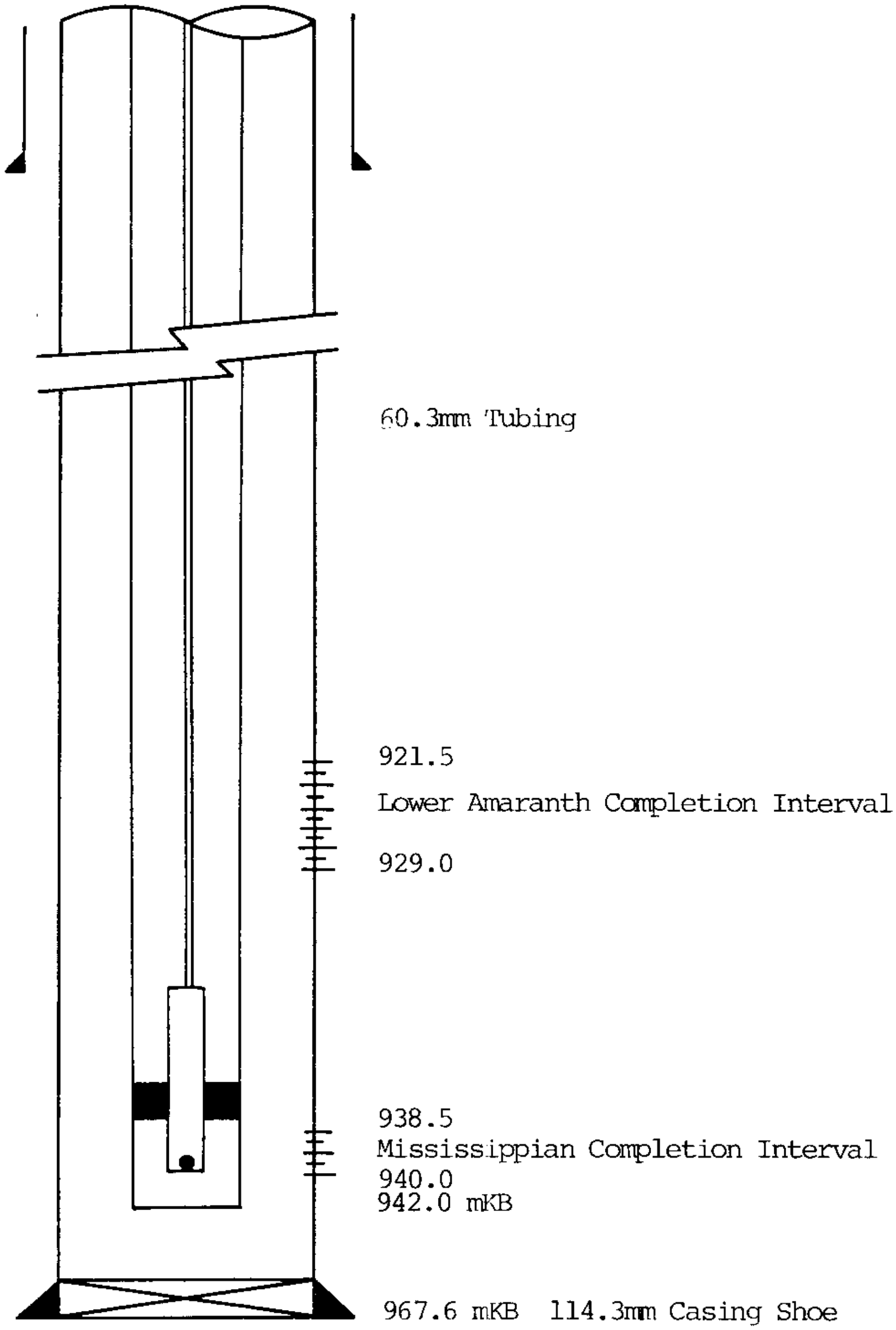


Schedule 'D' Attachment No.2

OMEGA HYDROCARBONS LTD.

Omega Waskada 10-6-1-25 WPM
Current Completion

Scale:	Date:
Geology:	Contour interval:
Revised:	File: Drafting:



Schedule 'D' Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Waskada 10-6-1-25 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for the well to be commingled under this application.

	Mission Canyon					Lower Amaranth			
Location	Zone	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)	Øh (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
10-6-1-25 WPM	L Alida	0.070	4870	2.8/0.7	4600	0.965	60156	4.3/4.3	N/A

Original oil in place calculations were determined by using the h and/or Øh values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formations it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formations it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Schedule "E" (i) Attachment 1 contains current oil and water production rates for all wells offsetting the wells to be commingled. The production rates are based on the wells' present production. The production rate from the Lower Alida for 10-6-1-25 WPM is based on the production rate before it was recompleted. Additional technical data in support of this application is included in Schedule "E" (i) Attachments 2 and 3.

The pool pressure for this well is estimated from the result of the December 1987 build up test on the Lower Alida formation in well 5-6-1-25 WPM. The pressure for the Lower Amaranth zone will be obtained when the next planned bottom hole pressure test is performed. These results will be forwarded at that time.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to July, 1988
Offsetting Well 10-6-1-25 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
5-6-1-25 WPM	Lower Amaranth/L.Alida	6.0	6.8
6-6-1-25 WPM	Lower Amaranth	0.0	1.8
9-6-1-25 WPM	Lower Amaranth	2.2	1.9
10-6-1-25 WPM	Lower Alida	2.8	0.7
12-6-1-25 WPM	Lower Amaranth	1.2	2.3

SCHEDULE "E" (i)

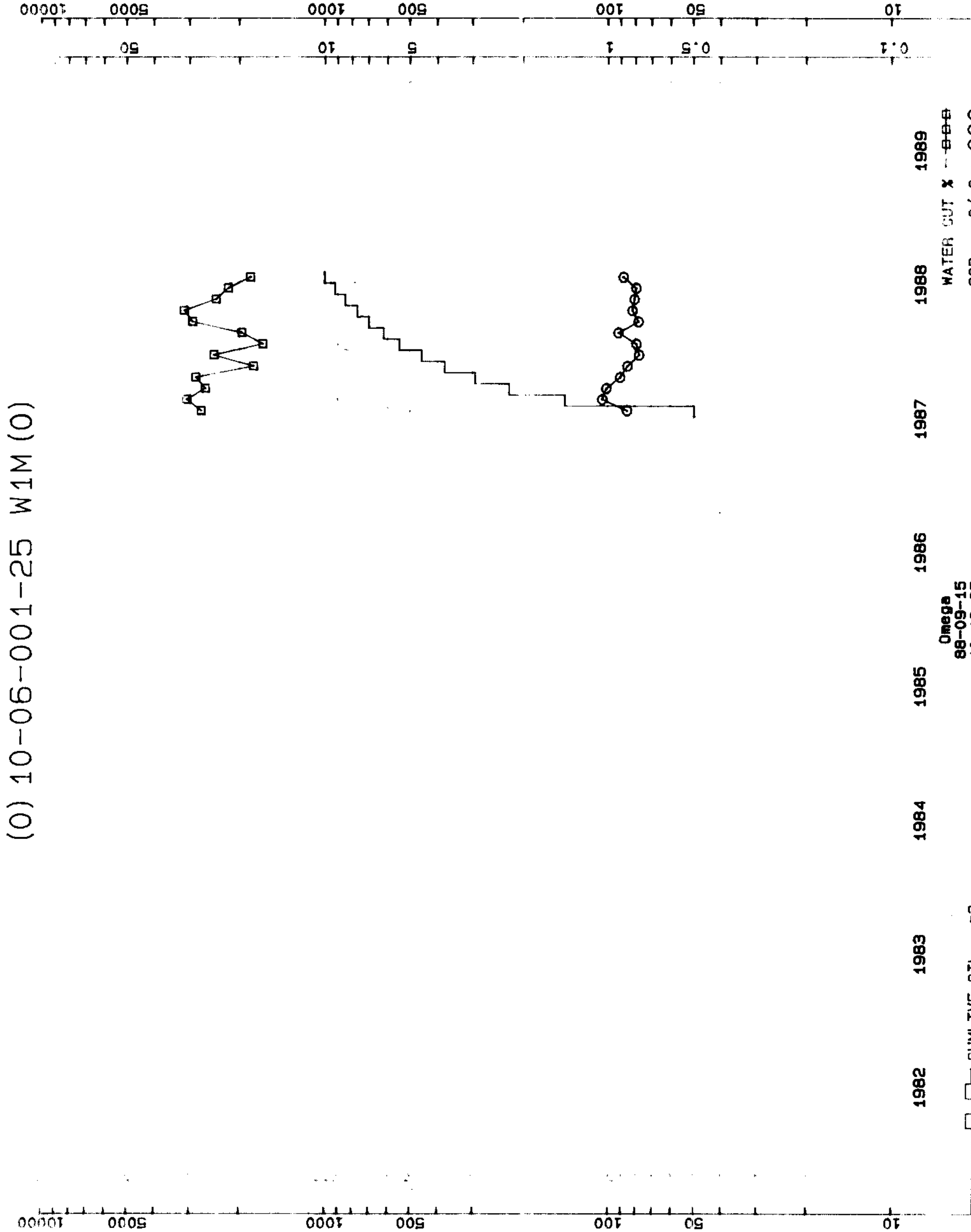
Attachment 2

Cumulative Water Injection to June, 1988
Offsetting Well 10-6-1-25 WPM

Injection Well	Cumulative Water Inj. (m^3)
13-6-1-25 WPM	20767.0

Lower Alida Production

Schedule 'E' (i) Attachment 3



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover program for the candidate well is included in Schedule "D" of this application. The program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Mission Canyon performance prior to recompleting the Lower Amaranth.

2. Isolate the Mission Canyon, recomplete the well in the Lower Amaranth and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Mission Canyon at the rate established in Step 1. Allocate production to the Lower Amaranth based on the difference between total production and the allocated Mission Canyon production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Mission Canyon production rate.

6. Recomplete the well for commingled production(Section C).

7. Test the well monthly and allocate production to the Mission Canyon at the rate established in Step 5 and allocate production to the Lower Amaranth by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Alida zone during the six month period prior to the recompletion of the Lower Amaranth interval.

Well	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)	Oil (m^3/d)	Water (m^3/d)
10-6-1-25 WPM	88/07/31	594	81.1	24.8	-	3.28	1.00
(Lease tank	88/06/30	720	76.1	21.4	-	2.54	0.71
well)	88/05/31	744	77.5	24.8	-	2.50	0.80
	88/04/30	719	71.2	32.7	-	2.38	1.09
	88/03/31	728	78.8	32.8	-	2.60	1.08
	88/02/29	638	74.6	18.3	-	2.81	0.69
	AVERAGE					2.68	0.89

Average Water/Oil Ratio = 0.33 m^3/m^3
Average Gas/Oil Ratio = N/A (solution gas will be estimated)

OMEGA
HYDROCARBONS LTD.

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

SEP 19 1988

September 16, 1988

CHEVRON CANADA RESOURCES LTD.
500 - 5th Avenue S.W.
Calgary, Alberta
T2P 0L7

Attention: K.E. Godard
Chief Engineer

Dear Sir:

RE: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. has made application for approval to commingle production from the Lower Amaranth and Mission Canyon formations in the following well in the Waskada field:

Omega Waskada 10-6-1-25 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the well which is the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by September 26, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brekke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dan Boyko, P. Eng.
Petroleum Engineer

DMB/lb

c.c. B. Dubreuil
Waskada Special Projects - Commingling File

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

August 11, 1988

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
CALGARY, Alberta T2P OH3

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

Re: Commingled Production
Omega Waskada 9-33-1-25 (WPM)
Omega Waskada 8-8-2-25 (WPM)

Dear Gordon:

Enclosed are approved applications to commingle production from the Lower Amaranth and Mission Canyon Formations in the subject wellbores. Your proposed method of production measurement and allocation is acceptable.

With respect to Omega Waskada 8-8-2-25 (WPM) in which the Lower Amaranth zone is unitized, the following procedure is to be used in calculation of the Oil and Gas Production Tax:

1. Estimate Lower Amaranth and Mission Canyon rates as provided in application.

2. Includes estimated Lower Amaranth production in total Waskada Unit No. 8 production and determine allocated production from the Unit to the 8-8 tract (using established tract factors).

3. Calculate Oil and Gas Production Tax using the sum of Lower Amaranth unitized production + the ~~estimated~~ estimated Mission Canyon production.

For the well Omega Waskada 9-33-1-25, the Oil and Gas Production Tax is to be calculated based on total volume from the well.

As with previous commingling approvals, the following conditions also apply:

1. Pumping fluid levels are to be obtained monthly and every effort is to be made to keep these levels as low as possible and to avoid reservoir cross flow.

2. A bi-monthly statistical and narrative review of the commingling project shall continue to be submitted.

Yours respectfully,

H. Clare Moster, P. Eng.
Executive Director, Petroleum Division

cc: Waskada Office

OMEGA
HYDROCARBONS LTD

?00 SUN LIFE PLAZA III
1?2 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 26? 0?43

August 5, 1988

MANITOBA ENERGY AND MINES
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. H. Clare Moster
Executive Director

Dear Sir:

Re: Omega Waskada 9-33-1-25 WPM
Omega Waskada 8-8-2-25 WPM
Application to Commingle Production

This letter is to confirm that no objections or interventions were received on or before August 4, 1988 by Omega Hydrocarbons Ltd. against the Application to Commingle the subject wells. The notifications of this application were sent to Enron Oil Canada Ltd. and Hudson's Bay Oil and Gas Company Limited and are attached for your information.

I trust that this will allow you to proceed with approval of the application expeditiously.

Yours truly,

OMEGA HYDROCARBON LTD.

G. A. Cormack
Manager, Production Operations

c.c.: Waskada Special Projects - Commingled Production
R. Brekke

OMEGA HYDROCARBONS LTD.

[illegible]

July 21, 1988

~~HUDSON'S BAY OIL AND GAS COMPANY LIMITED~~
c/o Dome Petroleum Limited
P.O. Box 200
Calgary, Alberta
[illegible]

Attention: Joint Operations

Dear Sirs,

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intends to apply for approval to commingle production from the Lower Amaranth and Mission Canyon Formations in the following well in the Waskada Field:

Omega Waskada 9-33-1-25 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to directly notify those companies which have working interests in lands offsetting the wells which are the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or interventions towards this application are received by August 4, 1988, the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brooke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dan Sdyko, P. Eng.
Petroleum Engineer

DS/fb
c.c.: Waskada Special Projects - Commingling File

OMEGA
[illegible] HYDROCARBONS LTD.

[illegible]

July 21, 1988

ESSO OIL CANADA LTD.
[illegible], 700 - 9th Avenue S.W.
Calgary, Alberta
[illegible]

Attention: [illegible]

[illegible]

Re: Application to Commingle Production
Waskada Field

Please be advised that this is a Notice that Omega Hydrocarbons Ltd. intend to apply for approval to commingle production from the Lower Amaranth & [illegible] Formations in the following well in the Waskada Field:

Omega Waskada 8-8-2-25 WPM

Omega has been asked by the Manitoba Department of Energy and Mines to [illegible] notify those companies which have working interests in lands [illegible] the wells which are the subject of the application. Thus, you are hereby notified of Omega's application. If no valid objections or [illegible] towards this application are received by August [illegible] the application may be approved.

Should you require a copy of the application or would like to discuss any aspect of the application, please contact either Richard Brekke or myself at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Sid Boyko, P. Eng.
Petroleum Engineer

[illegible]

[illegible] Waskada Special Projects - Commingling File

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
JUL 29 1988
PETROLEUM BRANCH

July 25, 1988

MANITOBA ENERGY AND MINES
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Charles S. Kang
Chairman

Dear Sir:

RE: Omega Waskada 9-33-1-25 WPM
Omega Waskada 8-8-2-25 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, 1984, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbores.

The proposed zones of interest for commingling in both wells are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Wells
2) Schedule B - Location of Wells
3) Schedule C - Net Pay and Structure Maps
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
(ii) Methods and Frequency of Measuring Production
(iii) Production Allocation

.../2

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

August 11, 1988

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

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

Re: Commingled Production
Omega Waskada 9-33-1-25 (WPM)
Omega Waskada 8-8-2-25 (WPM)

Dear Gordon:

Enclosed are approved applications to commingle production from the Lower Amaranth and Mission Canyon Formations in the subject wellbores. Your proposed method of production measurement and allocation is acceptable.

With respect to Omega Waskada 8-8-2-25 (WPM) in which the Lower Amaranth zone is unitized, the following procedure is to be used in calculation of the Oil and Gas Production Tax:

1. Estimate Lower Amaranth and Mission Canyon rates as provided in application.

2. Includes estimated Lower Amaranth production in total Waskada Unit No. 8 production and determine allocated production from the Unit to the 8-8 tract (using established tract factors).

3. Calculate Oil and Gas Production Tax using the sum of the lower amaranth allocated production + ~~estimated~~ Estimated Mission Canyon production.

For the well Omega Waskada 9-33-1-25, the Oil and Gas Production Tax is to be calculated based on total volume from the well.

As with previous commingling approvals, the following conditions also apply:

1. Pumping fluid levels are to be obtained monthly and every effort is to be made to keep these levels as low as possible and to avoid reservoir cross flow.

2. A bi-monthly statistical and narrative review of the commingling project shall continue to be submitted.

Yours respectfully,

H. Clare Moster, P. Eng.
Executive Director, Petroleum Division

cc: Waskada Office

The justification for proposing commingled production on these two wells remains with economics. Due to low oil prices at this time, the economics for either drilling a new well or commingling production are worse than the economics of the last application dated June 29, 1988. However, the economics of commingled production still meet our minimum investment criteria.

The effects of commingled production on the conservation of oil on the rights of mineral owners are believed to be beneficial as set forth in the application dated June 29, 1988.

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after August 9, 1988. To expedite the approval process, we have directly sent notification of this application to the offset mineral owners. These owners are Hudson's Bay Oil and Gas Company Limited and Enron Canada Ltd.

Also attached to this application are the MG 416 forms to recomplete the subject wells.Should you require additional information in regards to this application please contact either Dan Boyko or Richard Brekke at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

G. A. Cormack
Manager, Production Operations

DB/jb

c.c. Bob Dubreuil

SCHEDULE 'A'

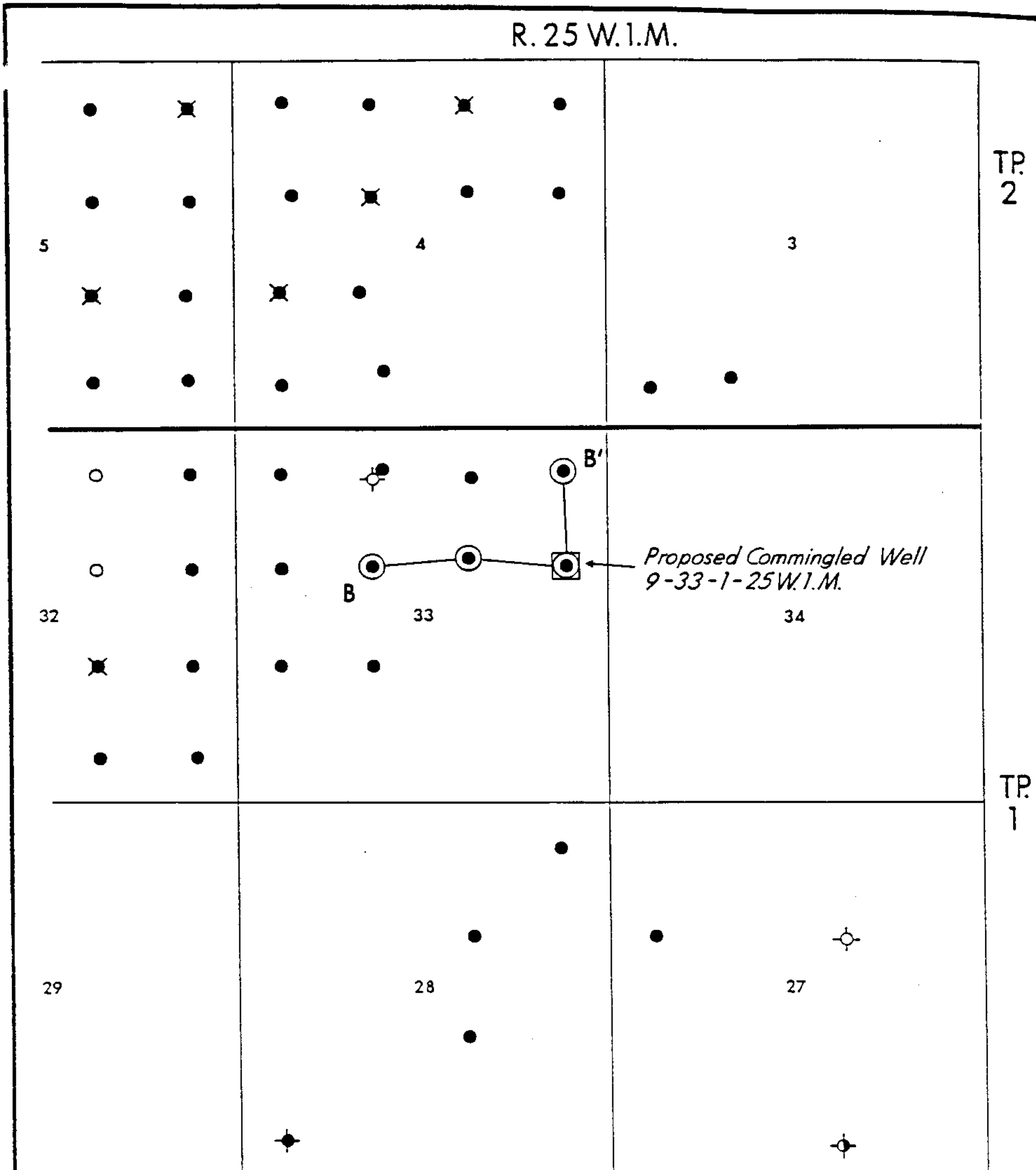
Description of Wells

Name	Licence Number	Location
Omega Waskada 9-33-1-25	3805	Legal subdivision nine (9) of Section thirty-three (33), Township one (1) Range twenty-five (25) West of the Principal Meridan.
Omega Waskada 8-8-2-25	3342	Legal subdivision eight (8) of Section eight (8), Township two (2), Range twenty-five (25) West of the Principal Meridan.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Wells

See Attachments 1 and 2



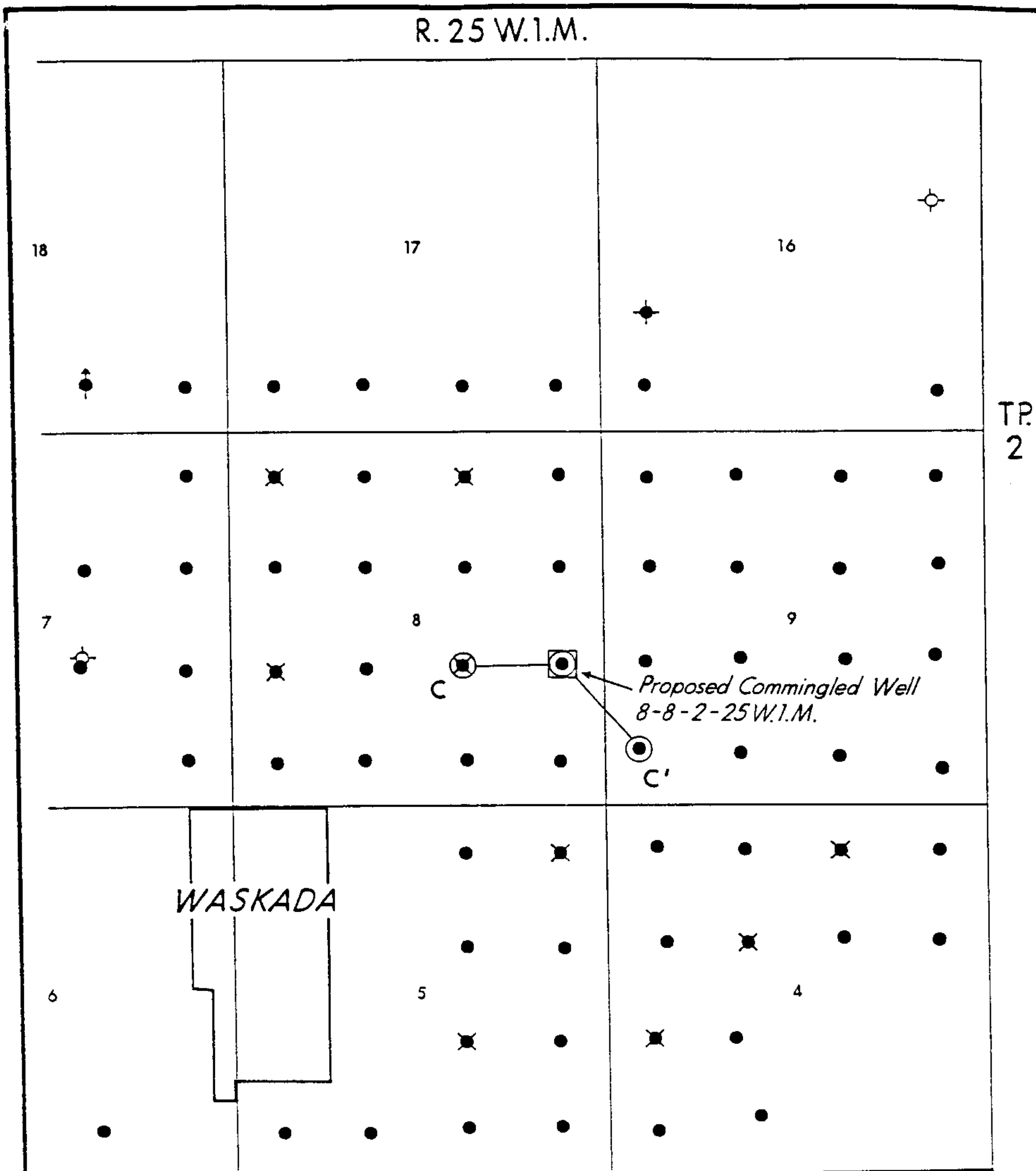
- PROPOSED COMMINGLED WELL
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD.

WELL LOCATION MAP

Scale 1:25,000	Date JULY 4, 1988
Geology	Contour Interval
Revised	File: Drafting



- PROPOSED COMMINGLED WELL
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 2

OMEGA HYDROCARBONS LTD.

WELL LOCATION MAP

Scale: 1:25,000	Date: JULY 4, 1988
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness Extent and Fluid Interfaces of the Pools

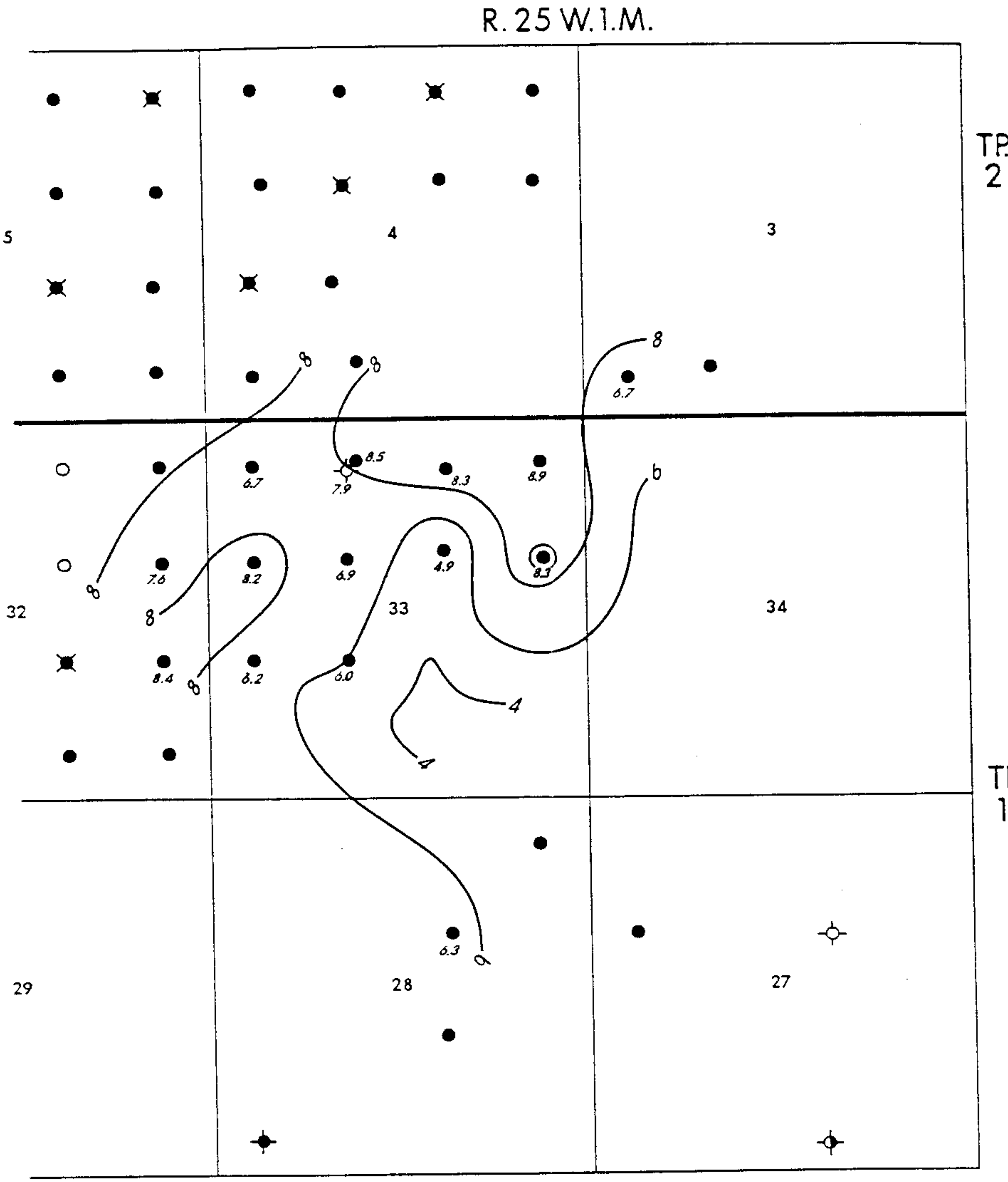
The Geological parameters are outlined in a series of maps as listed below.

Omega Waskada 9-33-1-25 WPM

Attachment 1a - Lower Amaranth Net Pay Map
Attachment 1b - Structure Top - of Tilston Porosity Map
Attachment 1c - Tilston Øh Map

Omega Waskada 8-8-2-25 WPM

Attachment 2a - Lower Amaranth Net Pay Map
Attachment 2b - Structure Top - of Tilston Porosity Map
Attachment 2c - Tilston Øh Map



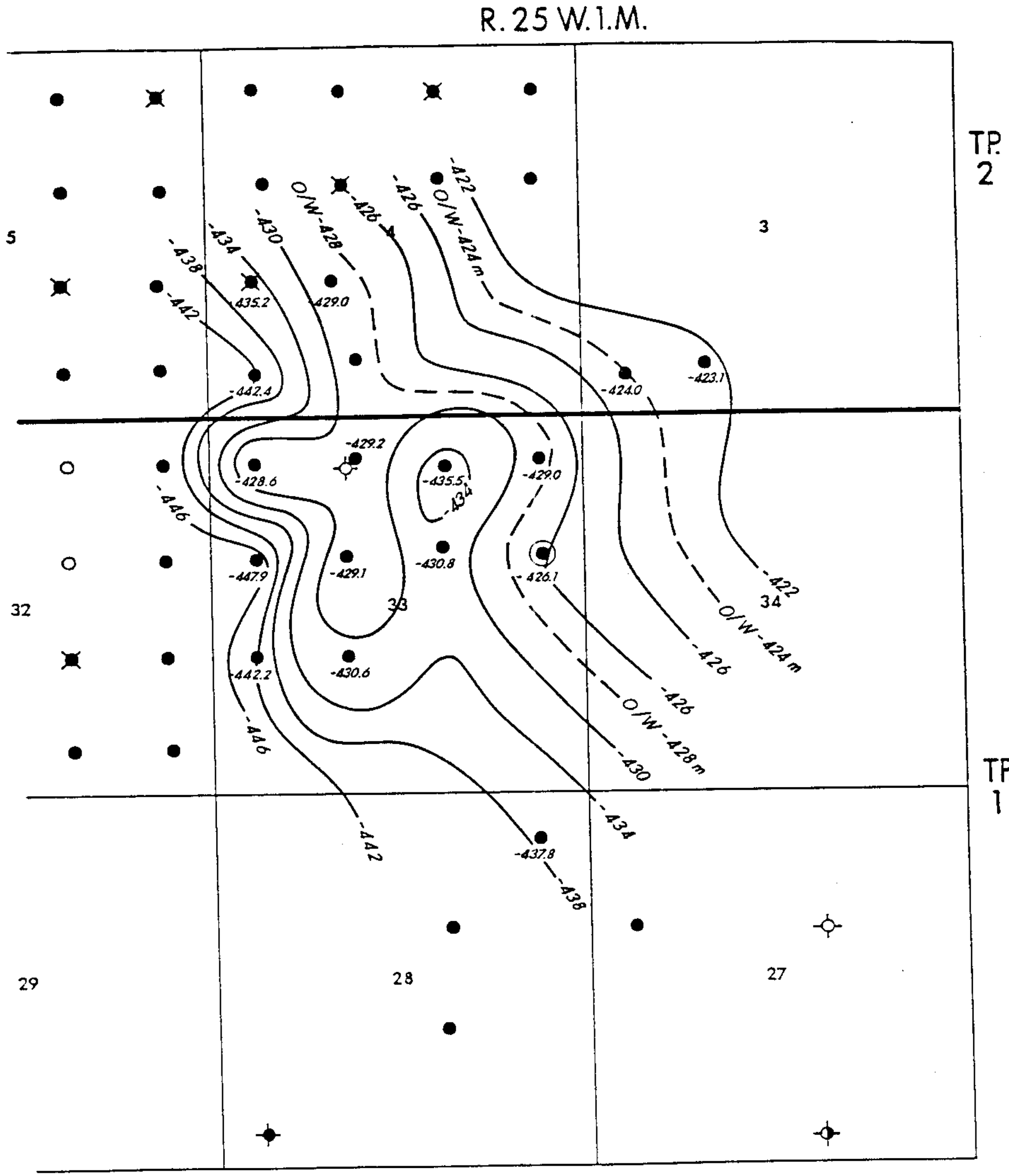
PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 1a

OMEGA HYDROCARBONS LTD

WASKADA, MN.
Lower Amaranth Net Pay Map (B–B')

Scale 1:25,000	Date JULY 4 / 88	
Geology D.C.	Contour interval 2 m	
Revised	File	Drafting PAB.



PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

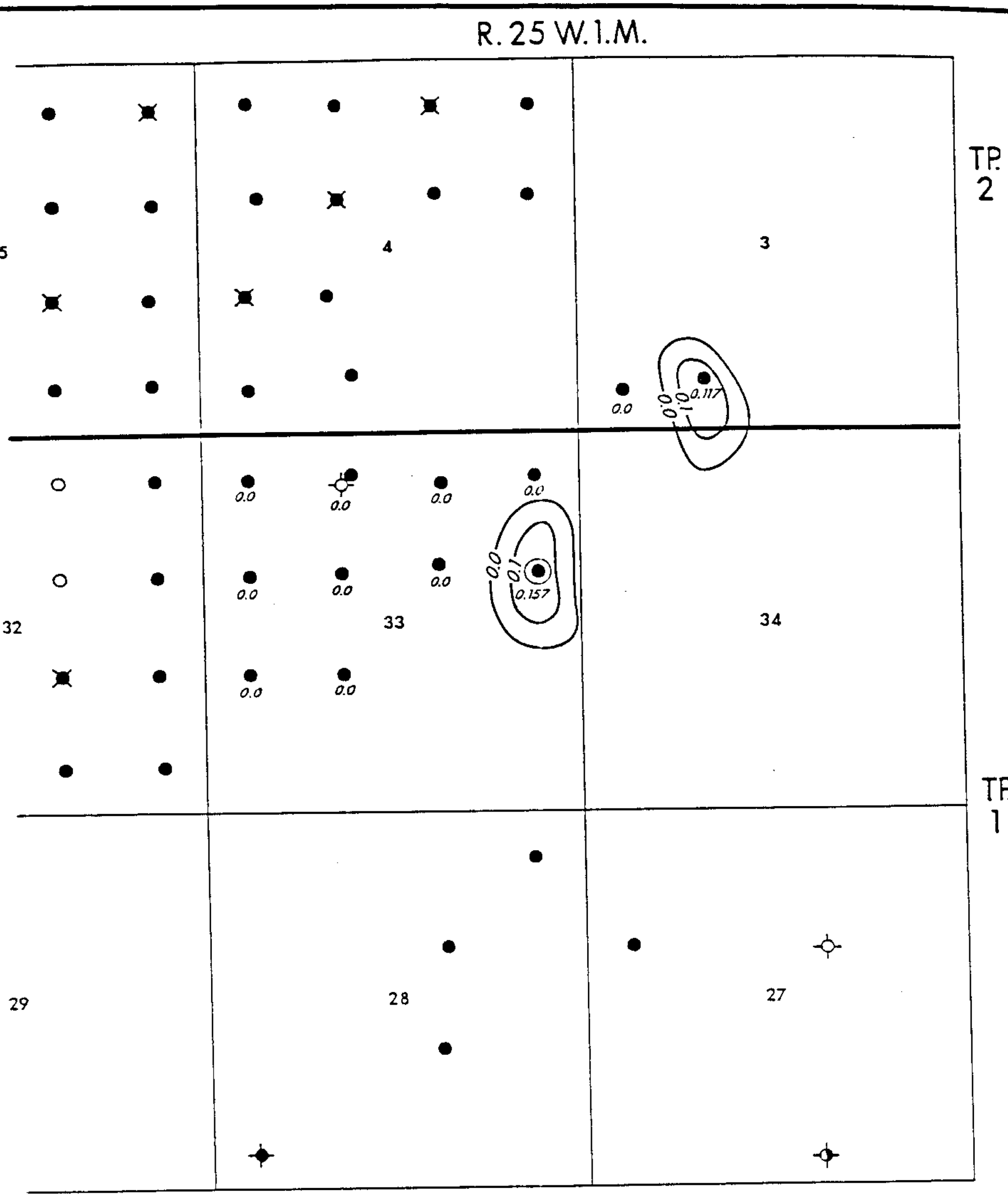
Schedule "C" Attachment 1b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Tilston Porosity Structure Map

Scale	1 : 25,000	Date	JULY 4. 1988
Geology	D. C.	Contour interval	4.0 m
Revised		File	Drafting P.A.B.



PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

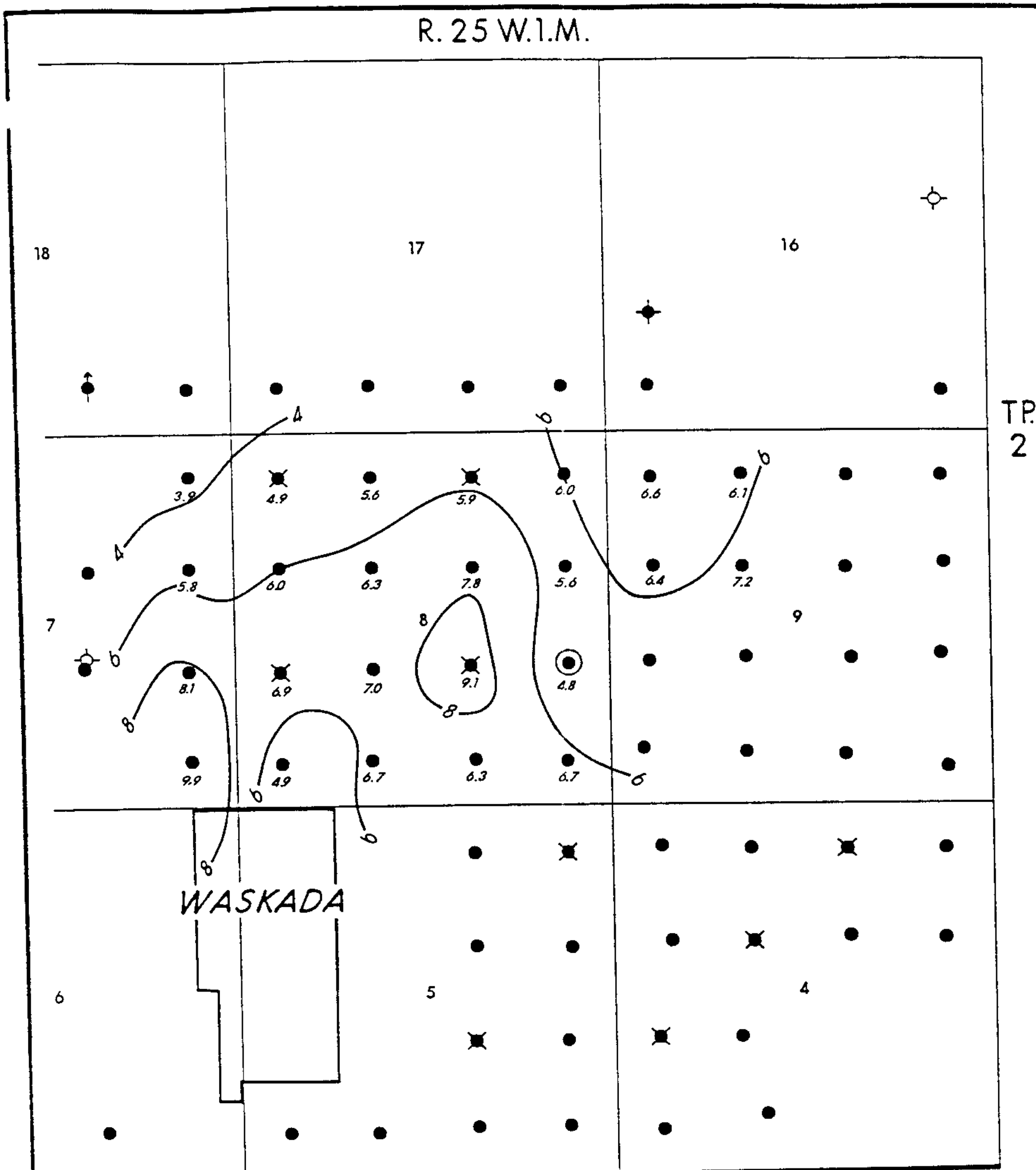
Schedule "C" Attachment 1c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Tilston Beds ϕh Map

Scale 1: 25,000	Date JULY 4, 1988
Geology D. C.	Contour interval 0.1 ϕh
Revised	File / Drafting P.A.B.



PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC 3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

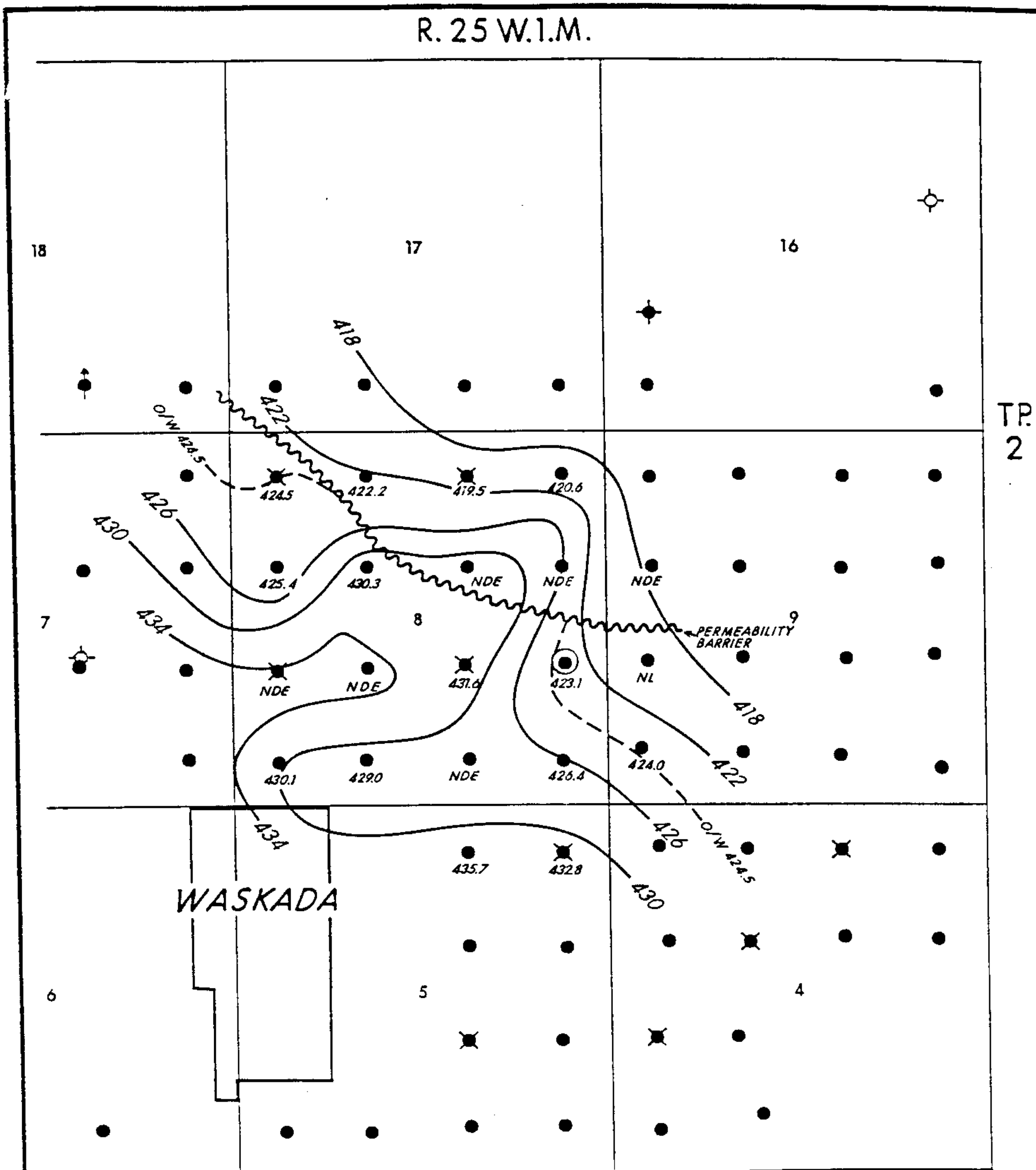
Schedule "C" Attachment 2a

OMEGA HYDROCARBONS LTD

WASKADA, MN.

Lower Amaranth Net Pay Map (C-C')

Scale 1: 25,000	Date JULY 4, 1988		
Geology D.C.	Contour Interval 2 m		
Revised	File	Drafting PAB	



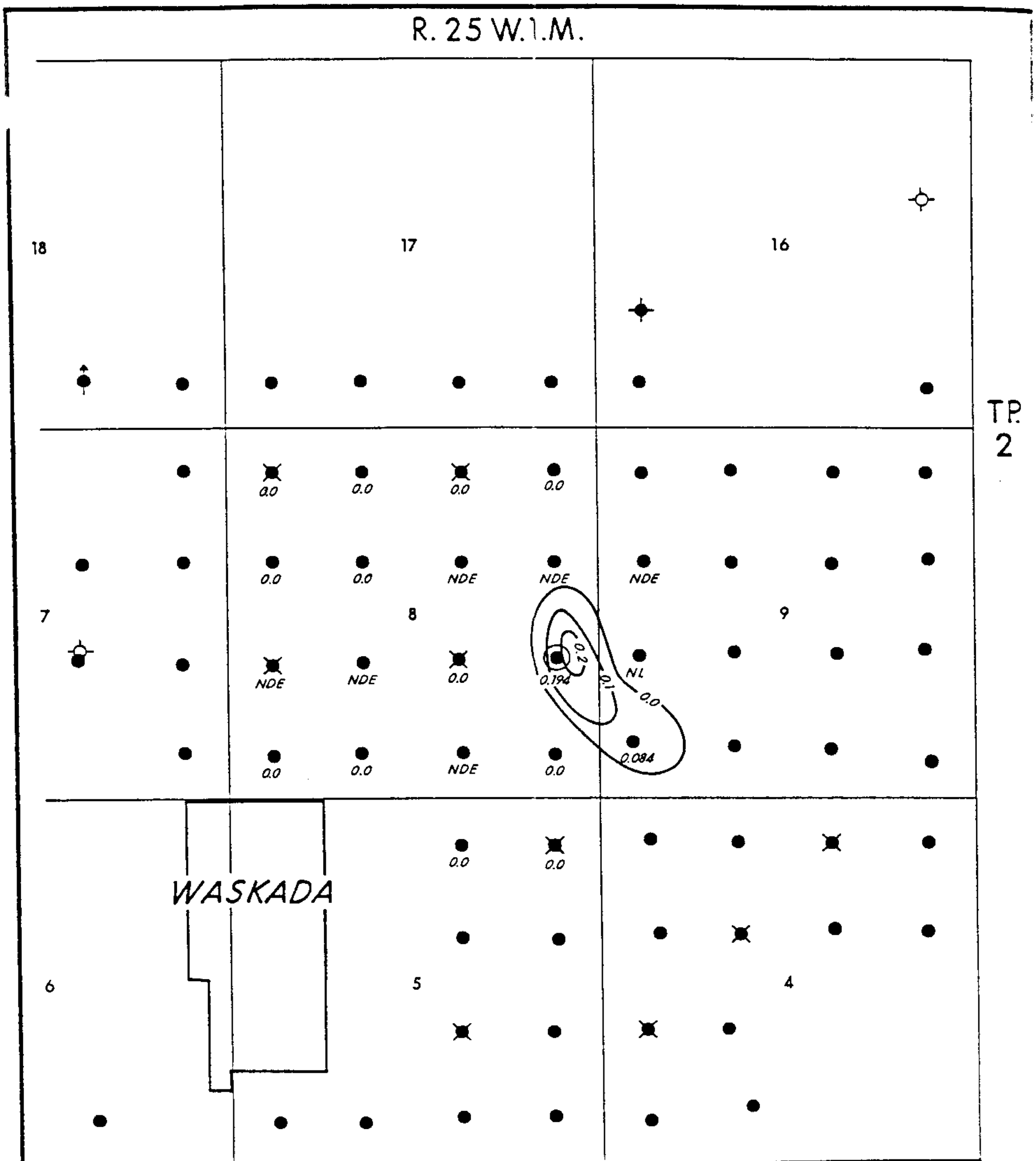
PROPOSED COMMINGLED WELL
SPEAR FISH OIL WELL
UPPER ALIDA(MC 3b) WELL
LOWER ALIDA(MC3a) WELL
TILSTON(MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL

Schedule "C" Attachment 2b

OMEGA HYDROCARBONS LTD.

WASKADA, MN.
Tilston Porosity Structure Map

Scale: 1: 25,000	Date: JULY 4, 1988
Geology: D.C.	Contour Interval: 4.0 m
Revised	File: Drafting: P.A.B.



- PROPOSED COMMINGLED WELL
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "C" Attachment 2c

OMEGA HYDROCARBONS LTD.

WASKADA, MN.

Tilston Beds ∅h Map

Scale: 1:25,000	Date: JULY 4, 1988	
Geology: D.C.	Contour interval: 0.1 ∅h	
Revised:	File:	Drafting: P.A.B.

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion programs for each of the wells are attached.

Omega Waskada 9-33-1-25 WPM

Attachment No. 1 sets out the workover program.

Attachment No. 2 sets out the current completion.

Attachment No. 3 sets out the commingled production completion.

Omega Waskada 8-8-2-25 WPM

Attachment No. 4 sets out the workover program.

Attachment No. 5 sets out the current completion.

Attachment No. 6 sets out the commingled production completion.

SCHEDULE"D" - ATTACHMENT NO. 1

OMEGA WASKADA 9-33-1-25

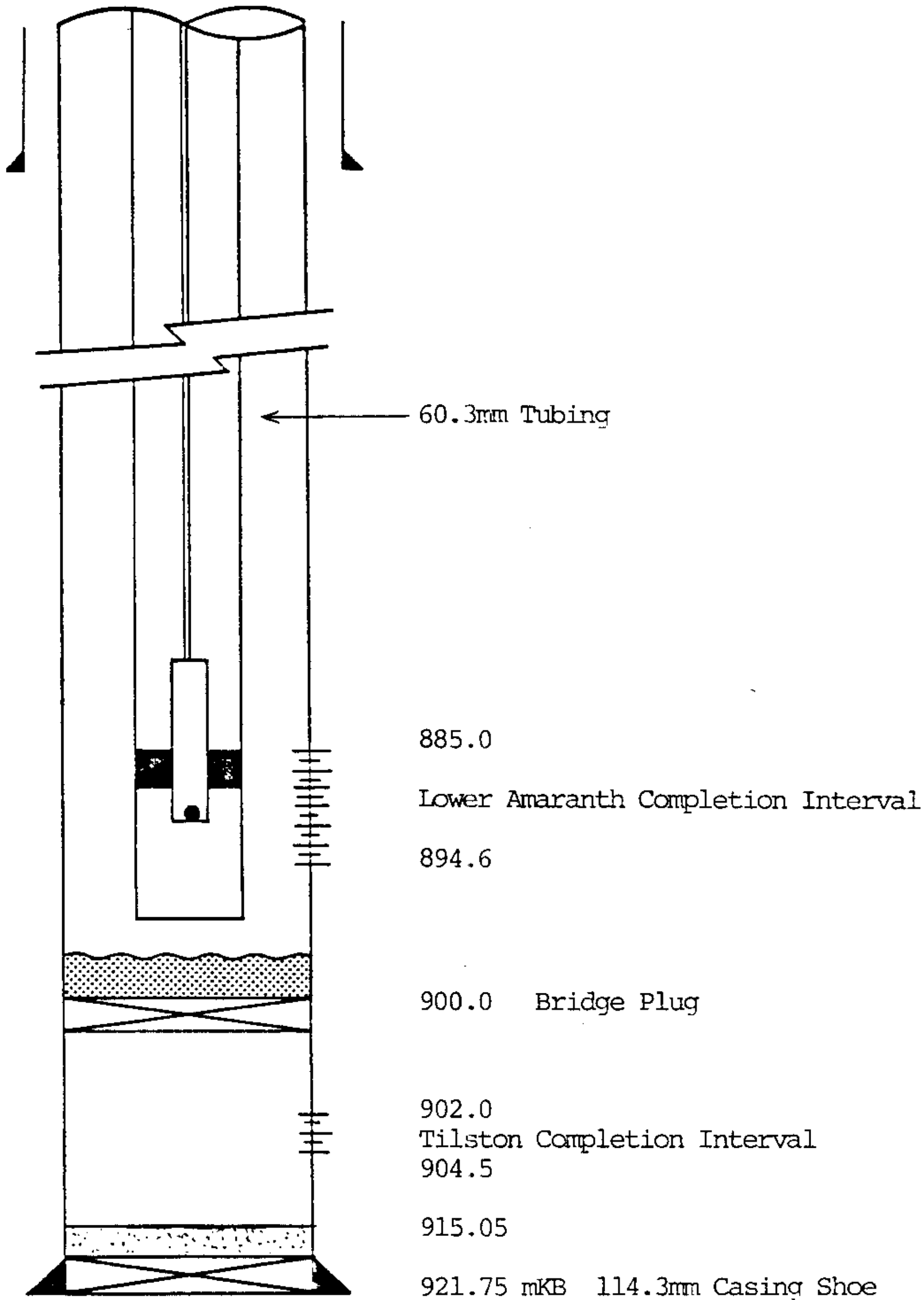
Commingled Production - Well Completion Program

A. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Pull tubing and make up bit and scraper.
4) Run in bit and scraper and drill out bridge plug.
5) Rig out bit and scraper.
6) Run in tubing and circulate clean. Tag PBTD.
7) Land tubing at 906 mKB.
8) Run BHP and rods.
9) Place well on production.

B. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 899 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 906 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

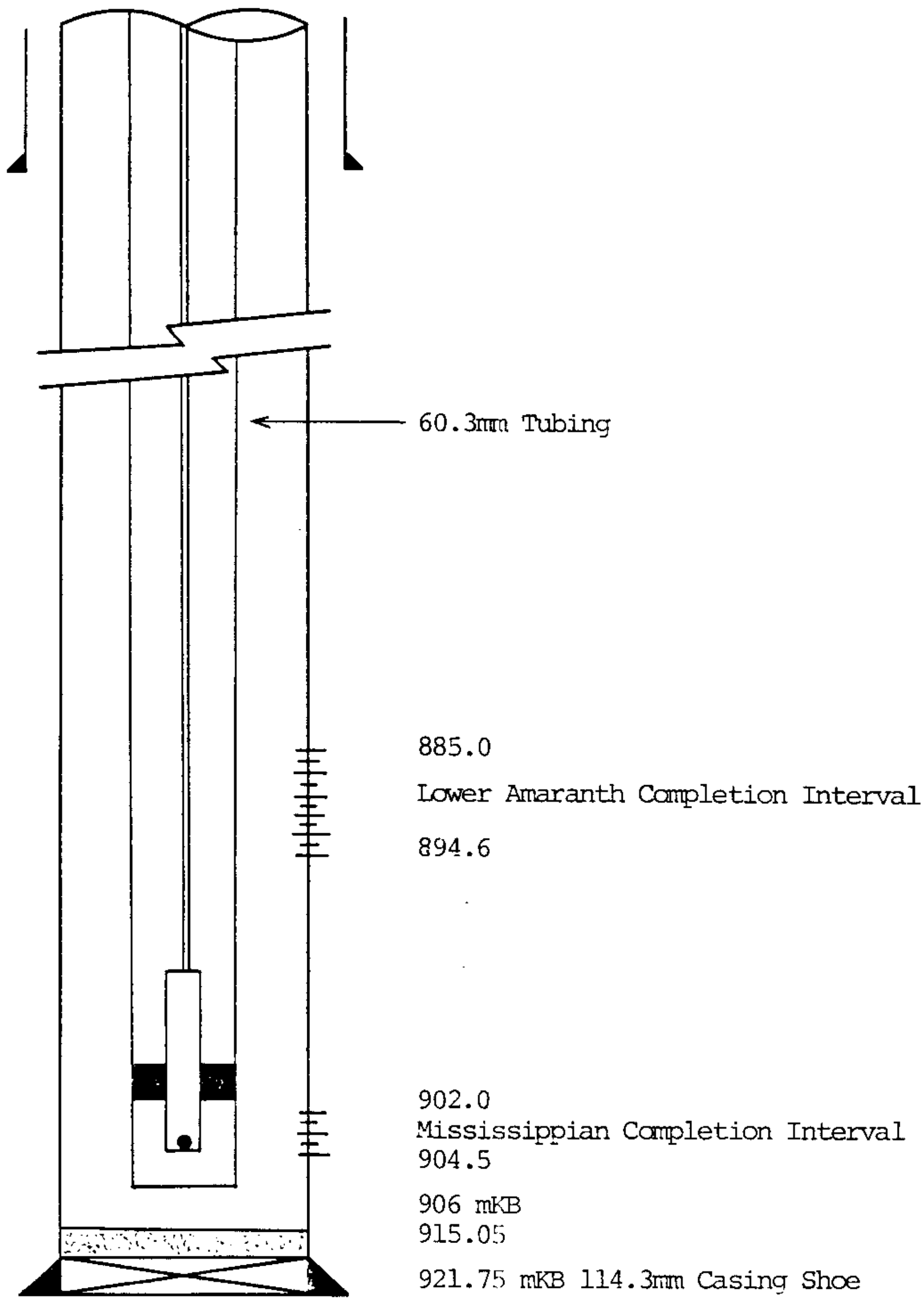


Schedule 'D' Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-33-1-25 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:



Schedule 'D' Attachment No. 3

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-33-1-25 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

SCHEDULE"D" - ATTACHMENT NO. 4

OMEGA WASKADA 8-8-2-25

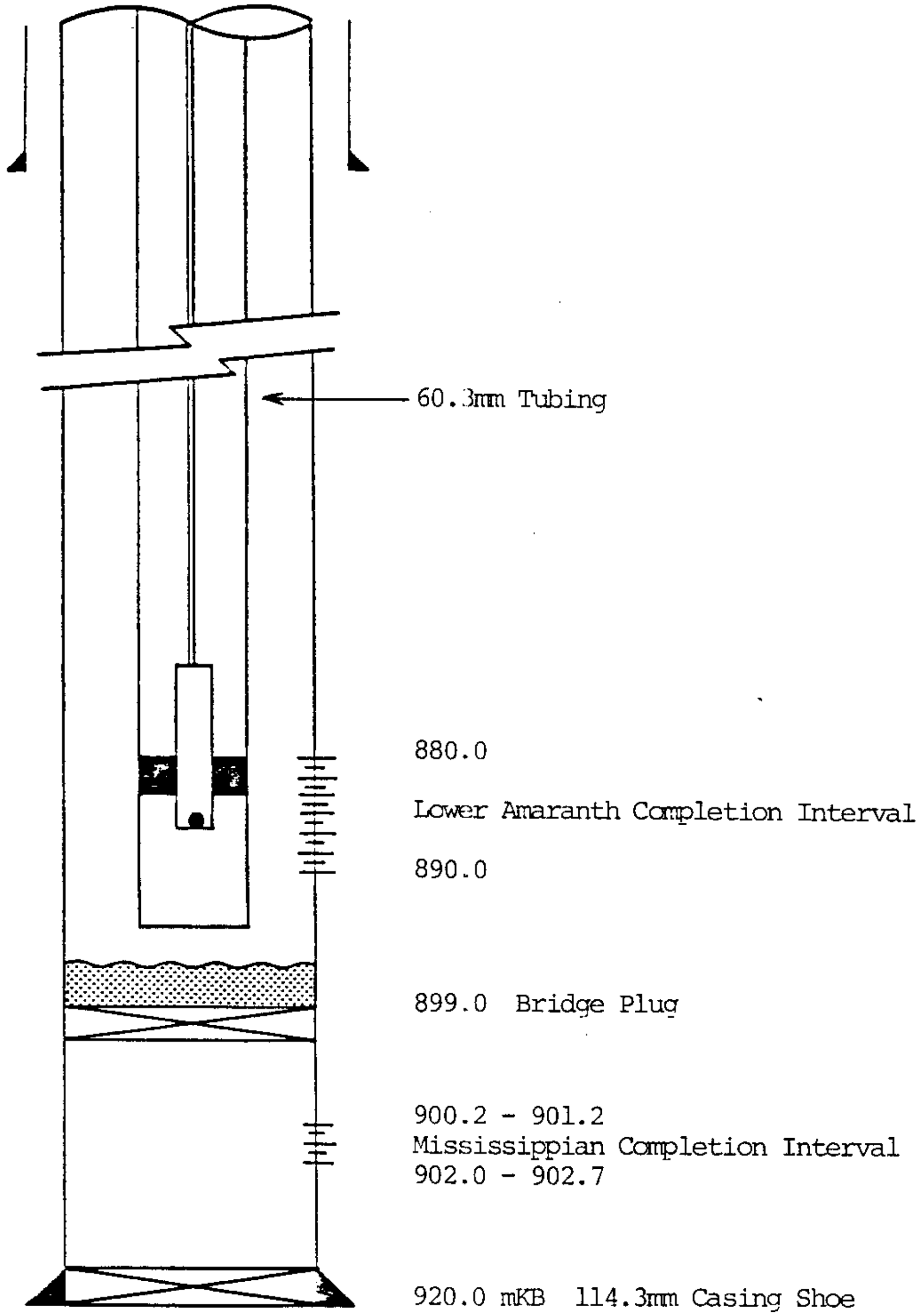
Commingled Production - Well Completion Program

A. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods. Circulate clean to PBTD.
3) Pull tubing and make up bit and scraper.
4) Run in bit and scraper and drill out bridge plug.
5) Rig out bit and scraper.
6) Run in tubing and circulate clean. Tag PBTD.
7) Land tubing at 905 mKB.
8) Run BHP and rods.
9) Place well on production.

B. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 897 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 905 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

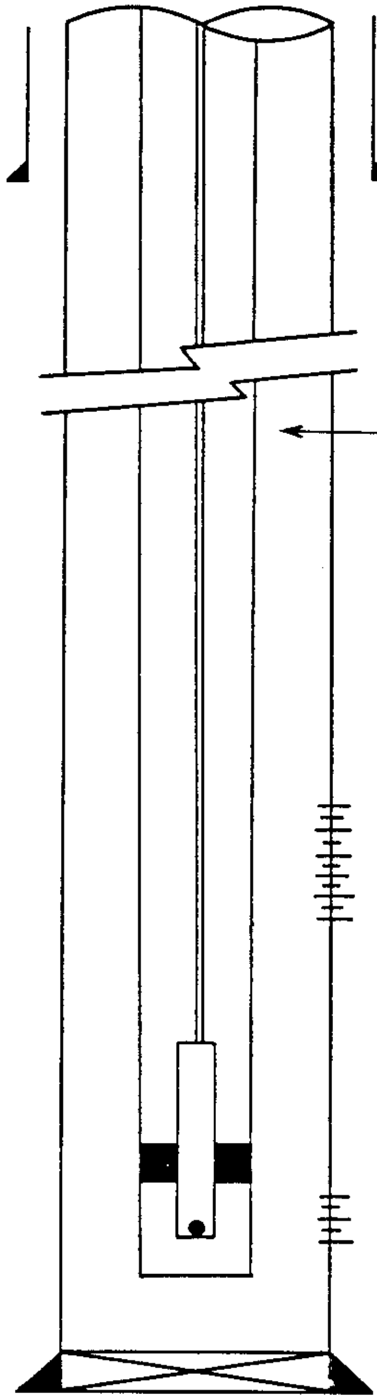


Schedule 'D' Attachment No. 5

OMEGA HYDROCARBONS LTD.

Omega Waskada 8-8-2-25 WPM
Current Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:



Schedule 'D' Attachment No. 6

OMEGA HYDROCARBONS LTD.

Omega Waskada 8-8-2-25 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

Below is a table which summaries the specific geological and reservoir characteristics for each of the individual wells to be commingled under this application.

		Mission Canyon				Lower Amaranth			
Location	Zone	Phi h (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (m^3/d)	Phi h (m)	OOIP (m^3)	Prod. Rate (m^3/d)	Pool Pressure (kPa)
9-33-1-25 WPM	Tilston	0.420	29217	0.7/3.4	N/A	1.270	79169	2.0/2.0	N/A
8-8-2-25 WPM	Tilston	0.274	19061	1.4/4.3	N/A	0.759	47314	0.8/0.1	N/A

Original oil in place calculations were determined by using the h and/or Phi h values contained in Schedule C in combination with other average reservoir parameters. For the Lower Amaranth formations it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formations it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Attachment 1 contains current oil and water production rates for all wells offsetting the wells to be commingled. The production rates from the Lower Amaranth zones are based on the wells' present production. The production rates from the Tilston are based on the production rates of these wells before they were recompleted. Additional technical data in support of this application is included in Attachment 2-6.

The Pool pressure for the Lower Amaranth zone for 8-8-2-25 WPM will be obtained from fall off tests that have been planned for 1988. The pool pressure for that Lower Amaranth zone for 9-33-1-25 WPM will be obtained from bottom hole pressure tests that are planned when Waskada Unit 17 is incorporated. The results of these tests will be forwarded upon the completion of these tests.

SCHEDULE "E" (i)

Attachment 1

Current Production Rates to May, 1988
Offsetting Well 9-33-1-25 WPM

Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
9-33-1-25 WPM	Lower Amaranth	2.0	2.0
6-33-1-25 WPM	Lower Amaranth	0.3	0.1
10-33-1-25 WPM	Lower Amaranth	1.0	0.4
11-33-1-25 WPM	Lower Amaranth	0.4	0.3
14-33-1-25 WPM	Lower Amaranth	1.1	0.2
15-33-1-25 WPM	Lower Amaranth	1.1	0.2
16-33-1-25 WPM	Lower Amaranth	1.4	0.2

Current Production Rates to May, 1988
Offsetting Well 8-8-2-25 WPM

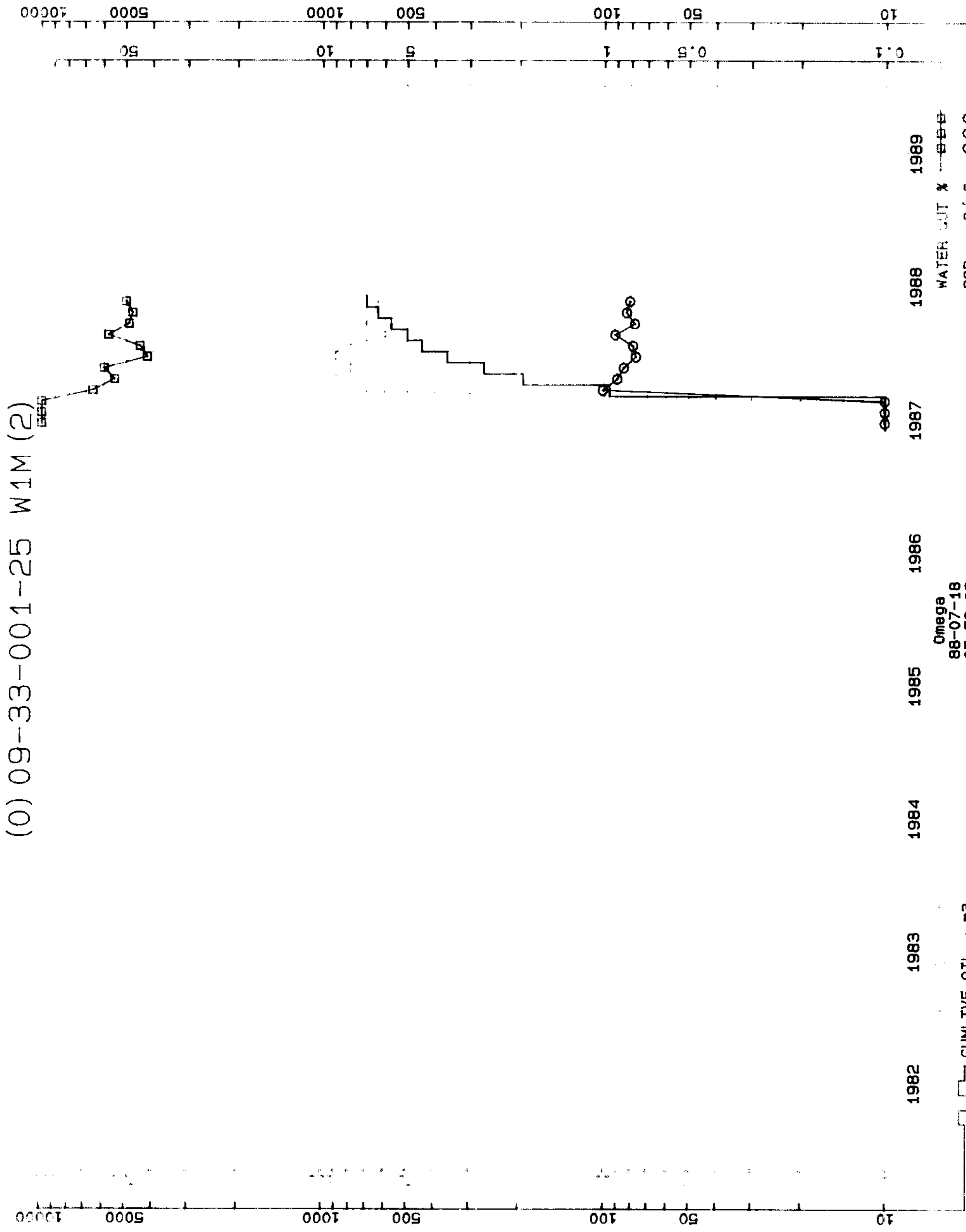
Well	Producing Zone	Oil (m^3/d)	Water (m^3/d)
8-8-2-25 WPM	Lower Amaranth	0.8	0.1
1-8-2-25 WPM	Lower Amaranth	0.4	0.5
2-8-2-25 WPM	Lower Amaranth	0.9	0.3
9-8-2-25 WPM	Lower Amaranth	1.3	0.8
10-8-2-25 WPM	Lower Amaranth	4.5	5.0
4-9-2-25 WPM	Lower Amaranth	1.8	7.7
5-9-2-25 WPM	Lower Amaranth	0.9	3.2
12-9-2-25 WPM	Lower Amaranth	1.4	0.8

SCHEDULE "E" (i)

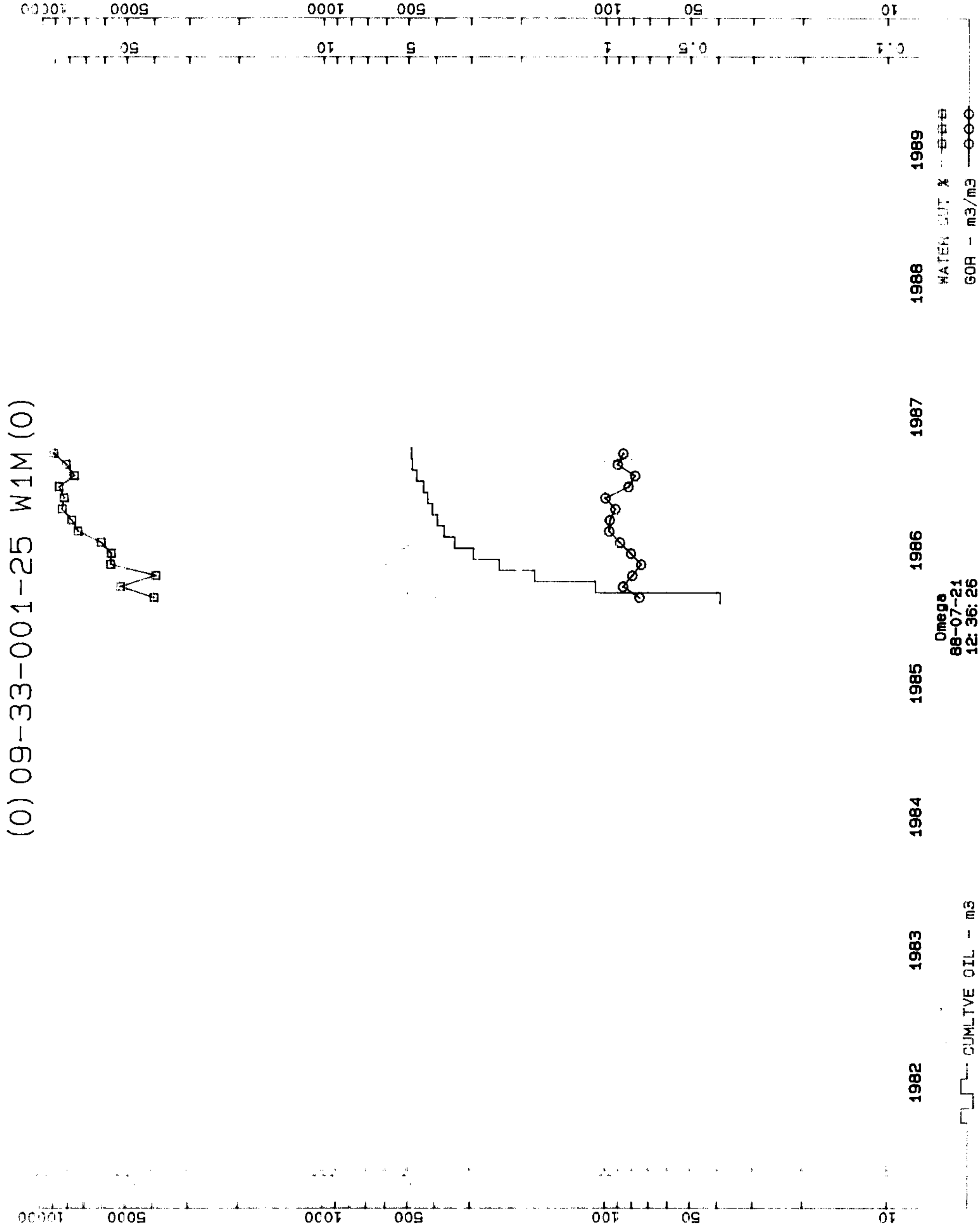
Attachment 2

Cumulative Water Injection to May, 1988
Offsetting Well 8-8-2-25 WPM

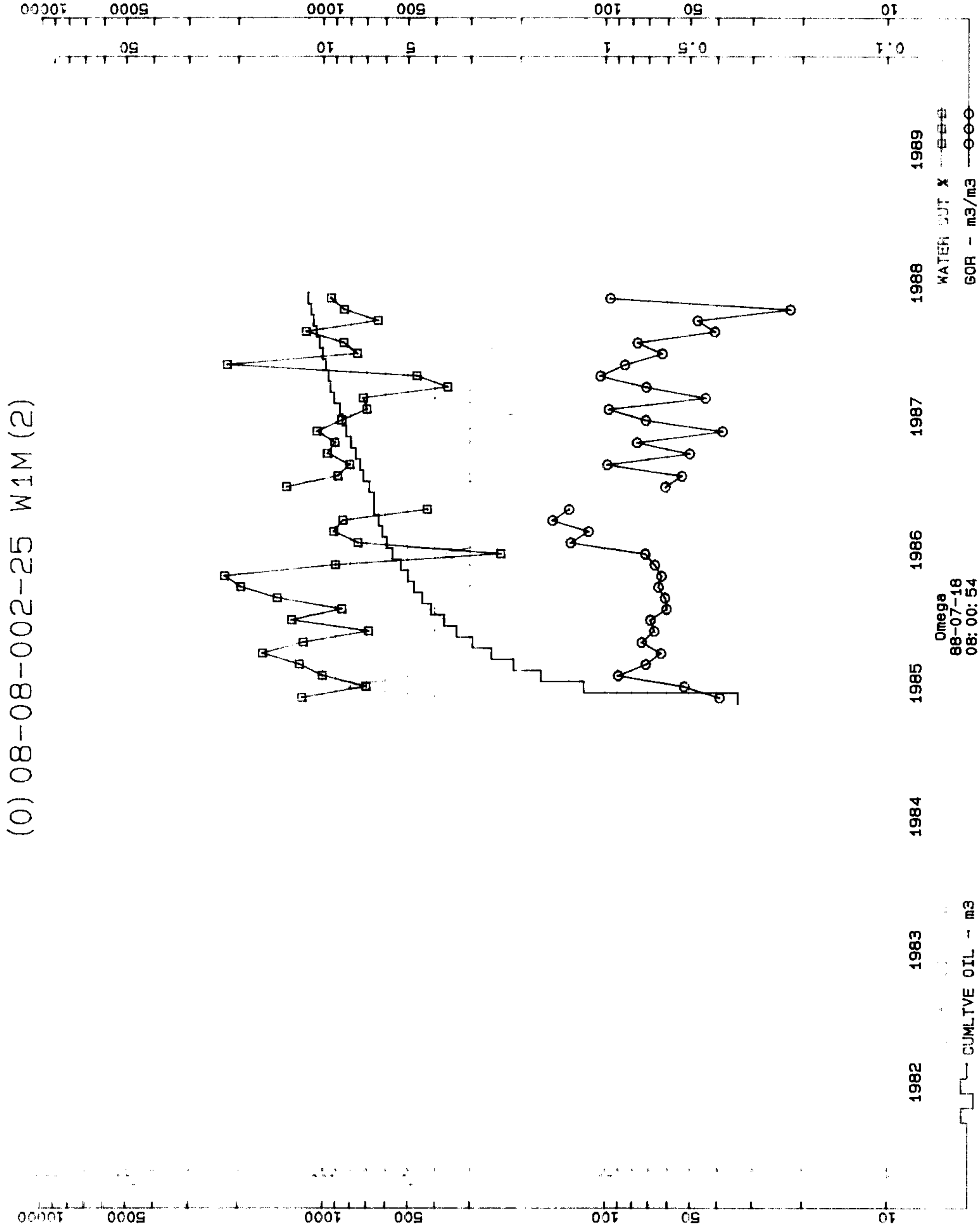
Injection Well	Cumulative Water Inj. (m^3)
5-8-2-25 WPM	40728.3
7-8-2-25 WPM	33266.9
13-8-2-25 WPM	24789.4
15-8-2-25 WPM	27055.5


(0) 09-33-001-25 W1M (2)
10 50 100 500 1000 5000 10000
0.1 0.5 1 5 10 50
1982 1983 1984 1985 1986 1987 1988 1989
WATER CUT %
GOR - m3/m3
CUMLTVE OIL - m3
Omega
88-07-18
07:52:06

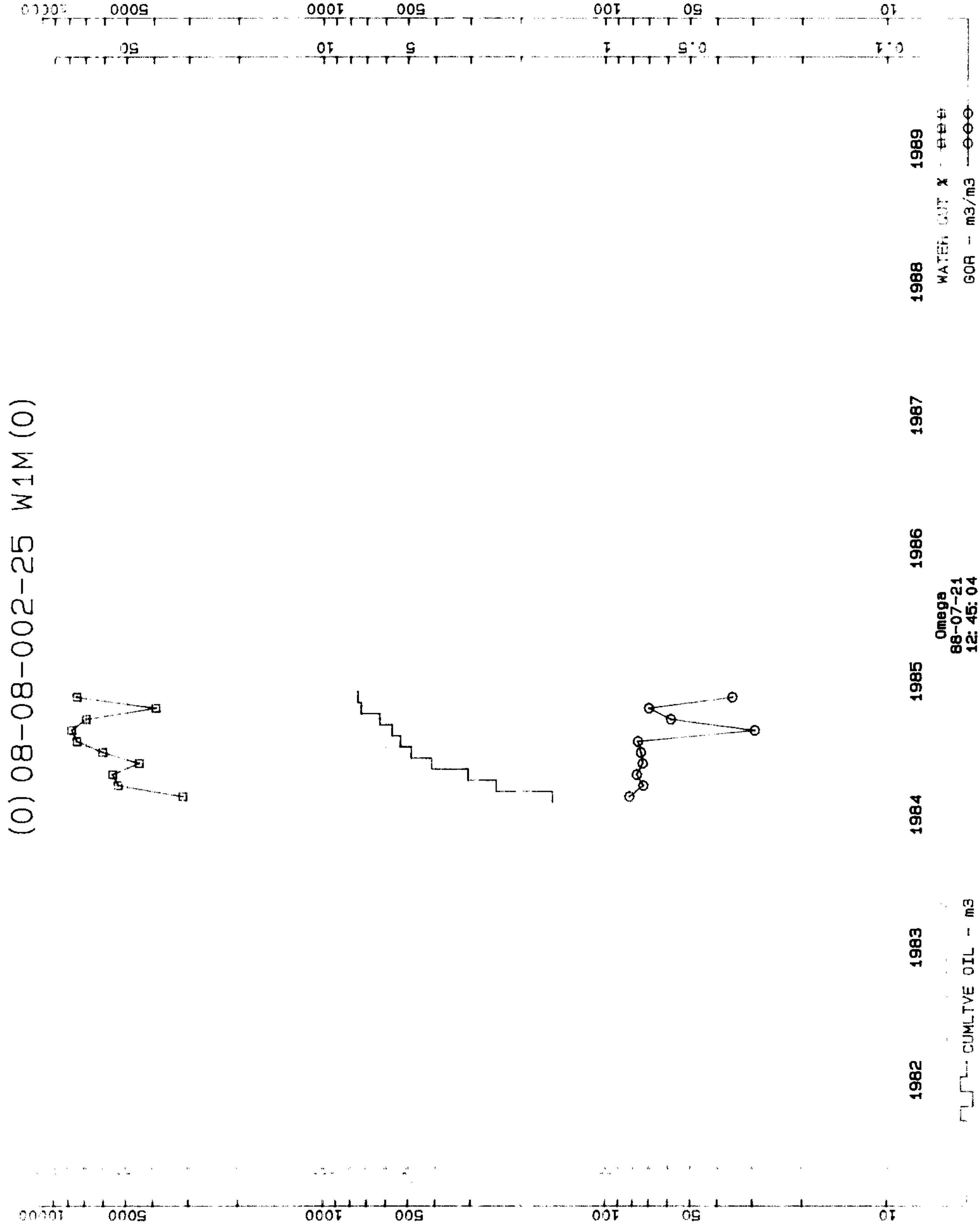
Schedule "E" (i) Attachment 4
'Tilston Production'



Schedule "E" (i) Attachment 5
'Lower Amaranth Production'



Schedule "E" (i) Attachment 6
'Tilston Production'



SCHEDULE "E"

(ii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

Since these two wells have already proved to be productive in both the Lower Amaranth and Tilston zones, and both wells are presently producing from the Lower Amaranth zone, the following program is proposed to measure and allocate production:

1. Establish the Lower Amaranth performance prior to commingling the Tilston and Lower Amaranth zones.
2. Recomplete the well for commingled production.
3. Production test the well monthly. Allocate production to the Lower Amaranth at the rate established in Step 1. Allocate production to the Tilston based on the difference between total production and the allocated Lower Amaranth production.
4. Annually, isolate the Tilston and test the Lower Amaranth to establish the Lower Amaranth production rate.

SCHEDULE "E"

(iii)

PRODUCTION ALLOCATION

Following is the production performance established for the Lower Amaranth zone during the six month period prior to the recompletion of the Tilston interval.

Well	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (m^3)	Oil (m^3/d)	Water (m^3/d)
9-33-1-25 WPM	88/06/30	696	55.3	61.1	-	1.91	2.11
(Lease tank	88/05/31	744	63.3	63.3	-	2.04	2.04
well)	88/04/30	663	64.0	57.8	-	2.32	2.09
	88/03/31	774	71.0	68.1	-	2.29	2.20
	88/02/29	696	56.1	76.9	-	1.93	2.65
	88/01/31	744	83.9	67.8	-	2.71	2.19
	AVERAGE					2.20	2.21

Average Water/Oil Ratio = 1.00 m^3/m^3
Average Gas/Oil Ratio = N/A

	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (m^3)
8-8-2-25 WPM	88/06/09	24	0.83	0.03	0.03
	88/06/08	24	0.87	0.06	0.03
	88/05/16	24	0.98	0.04	0.07
	88/05/08	24	0.84	0.05	0.01
	88/04/19	24	0.87	0.07	0.01
	88/04/06	24	0.91	0.04	0.01
	88/03/17	24	0.91	0.04	0.01
	88/03/07	24	0.96	0.03	0.01
	88/02/08	24	1.17	0.08	0.01
	88/02/07	24	1.00	0.05	0.01
	88/01/21	24	1.14	0.06	0.04
	88/01/15	24	0.88	0.03	0.03
	88/01/05	24	1.03	0.05	0.04
	AVERAGE		0.95	0.05	0.02

Average Water/Oil Ratio = 0.053 m^3/m^3
Average Gas/Oil Ratio = 0.021 m^3/m^3

Manitoba Commingled Production - Omega

Energy and Mines

Petroleum

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

(204) 945-6577

July 26, 1988

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

Attention: Mr. Dan Boyko

Re: Omega Waskada 9-35-1-26 (WPM)
Omega Waskada 11-35-1-26 (WPM)

Dear Dan

Enclosed are approved applications to commingle production from the Lower Amaranth and Mission Canyon Formations in the subject wellbores. Your proposed method of production measurement and allocation is acceptable.

As with previous commingling approvals, the following conditions apply:

1. Provincial production tax is to be calculated on the basis of total volume from each well and not separately for each zone.

2. Pumping fluid levels are to be obtained monthly, and every effort is to be made to keep these levels as low as possible to avoid reservoir cross flow.

3. A bi-monthly statistical and narrative review of the commingling project shall continue to be submitted.

In our letter of December 18, 1987 approving commingling in three wells, Omega was requested to provide, prior to year end 1988, a review of the feasibility of using reservoir simulation to more rigorously evaluate the impact of commingling on ultimate recovery. Subsequent to this, and based on our more recent discussions, we are left with the impression that Omega has rejected such an evaluation as non feasible. We ask that you provide your comments in this regard, and if such option has been rejected, a summary of your investigations which has led to this conclusion.

Yours respectfully,

Original ...
L. R. Dub...

for H. Clare Moster, P. Eng.
Executive Director, Petroleum

encl

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
JUL 20 1988
PETROLEUM BRANCH

July 18, 1988

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

Attention: Mr. H. Clare Moster
Executive Director

Dear Sir:

RE: Omega Waskada 9-35-1-26 WPM
Omega Waskada 11-35-1-26 WPM
Application to Commingle Production

This letter is to confirm that no objections or interventions were received on or before July 6, 1988 by Omega Hydrocarbons Ltd. against the Application to Commingle the subject wells. The notification of this application was sent to Rex Petroleums Limited, Baxter Lake Holdings Limited, Hudson's Bay Oil and Gas Company Limited and Chevron Canada Resources Limited.

I trust that this will allow you to proceed with approval of the application expeditiously.

Yours truly,

OMEGA HYDROCARBONS LTD.

G.A. Cormack
Manager, Production Operations

c.c. Waskada Special Projects - Commingled Production
R. Brekke

Manitoba

Memorandum

Date July 14, 1988

To H.C. Moster

From Marc Arbez

Subject

Telephone

Re: Omega Waskada 9-35-1-26 (WPM)
Omega Waskada 11-35-1-26 (WPM)
Commingled Production

Omega Hydrocarbons Ltd. has made application for approval to commingle production from the Lower Amaranth and the Mission Canyon (MC3) formations in the subject wells.

Recommendation:

In order to expedite the approval process for this production commingled application, Omega sent notifications to all the offset mineral owners (Rex Petroleums Limited, Baxter Lake Holdings Company Limited, Hudson's Bay Oil and Gas Company Limited and Chevron Canada Resources Limited).

Since there have been no objections to the notice prior to July 6, 1988, it is recommended that the application be approved.

Discussion:

The well 11-35-1-26 (WPM) was drilled in August, 1983 and went on production in the Mission Canyon (MC3a) on September 1, 1983. There has been a fairly severe oil production decline and water cut increase for this well since the beginning of 1987. In April 1988, the producing MC3a zone was plugged off and the Lower Amaranth was perforated and fraced. The Lower Amaranth was put on production May 1, 1988. Over the month of May, the well produced out of the Lower Amaranth formation for 20 days and produced 59.6 m^3 oil and 18.3 m^3 water. Individually, the MC3a and Lower Amaranth zones exhibit marginal production rates for the well 11-35-1-26 (WPM).

The well 9-35-1-26 (WPM) was drilled in September 1983 and went on production in the Mission Canyon (MC3a) on September 14, 1983. The well currently produces an average of less than 2 m^3 oil per day. In April 1988, the producing MC3a zone was plugged and the Lower Amaranth was perforated and fraced. The Lower Amaranth was put on production May 17, 1988. During the month of May, the well produced for 7 days and only yeilded 7.3 m^3 oil and 0.7 m^3 water. Marginal production rates are exhibited by the individual MC3a and Lower Amaranth zones for 9-35-1-26 (WPM)

Omega is applying for commingled production from the two subject wells because the marginal Lower Amaranth production potential (due to limited recoverable reserves and low forecasted production rates) does not justify the cost of drilling for this oil potential. On the other hand, Omega feels that by commingling production from the Lower Amaranth and the MC3a, they can economically recover oil using a single wellbore.

Figure No. 1 shows the producing zones in the immediate area surrounding the subject wells. The well 10-35-1-26 (WPM) is a commingled producer; both the Lower Amaranth and the MC3a are currently producing in this well

The following companies have significant land holdings in the area: Rex Petroleums Limited, Baxter Lake Holdings Company Limited, Hudson's Bay Oil and Gas Company Limited and Chevron Canada Resources Limited. As all the companies could be potentially affected by the application, Omega has sent them notices of the application to commingle production. A sample copy of this notice is attached.

Omega has provided an economic analysis assuming (1) single well commingled production and (2) drilling a new well, completing and producing from the Lower Amaranth Formation. In case (1), the after tax payout period is calculated at 0.6 years whereas in case (2), the payout period is 5.1 years. In case (1), the net present values (M$ @ 15%) is 56.7. In case (2), the net present value is (M$ @ 15%) is -24.4.

The following assumptions have been incorporated into Omega's economic analysis:

a) Production Prediction:

In both cases, the following production predictions were made: initial production rates - 2 m^3/d, production decline rate = 30% for the first year and 15% per year thereafter.

b) Price Forecast:

Omega's oil price forecast for 1988 is assumed to be $120/$m^3$, escalated at 15% per year.

c) Other Costs:

The following assumptions were also made:

1) 15% freehold royalty
2) $1,500 per well per month operating costs escalated at 5% per year
3) new well: capital cost of $175,000, CEDIP incentive of $39,000 and a Manitoba royalty/mineral tax incentive equivalent of 1 845 m^3 of holiday oil
4) commingled production: capital cost of $18,000

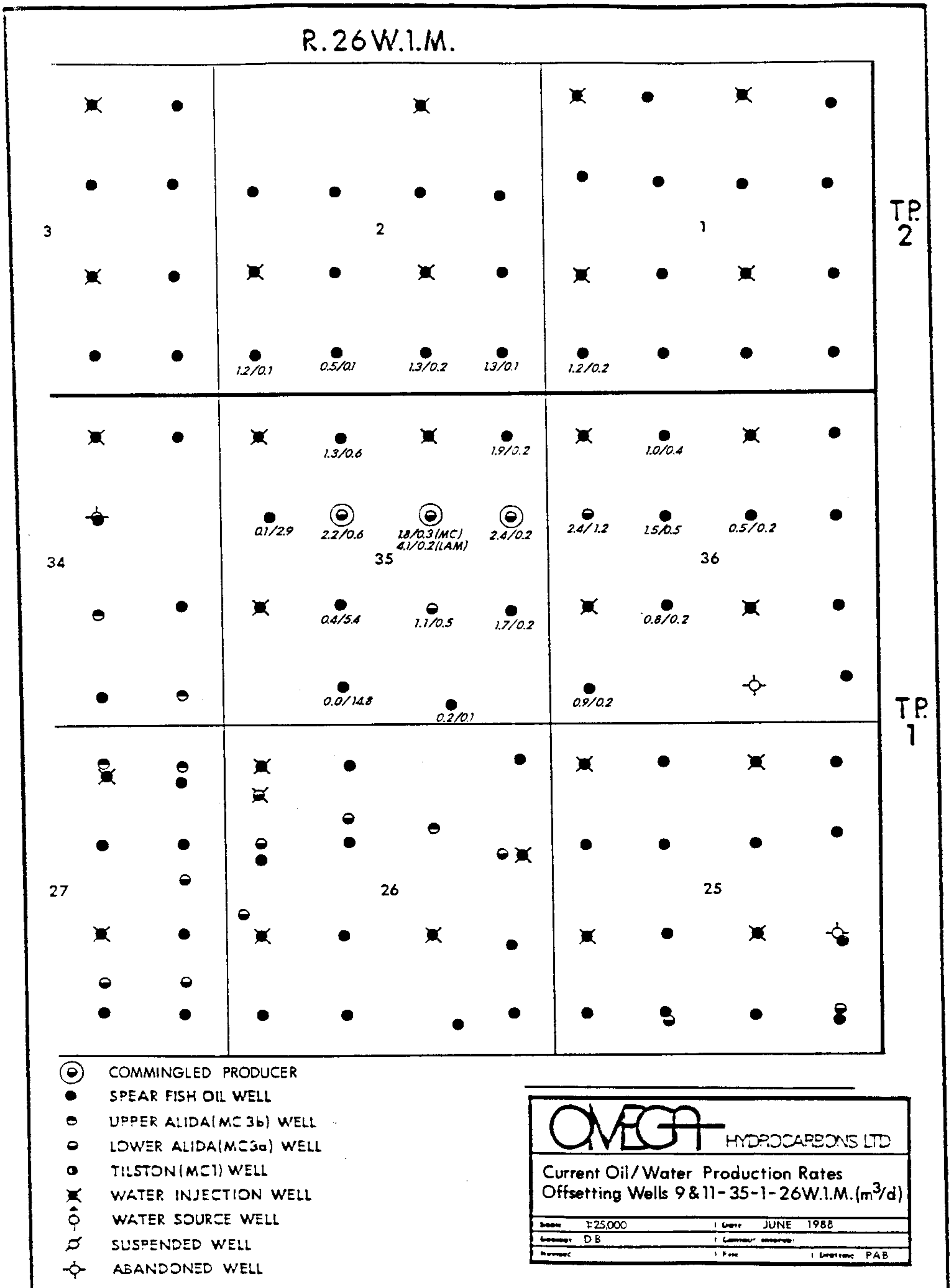
By incorporating these economic and production forecasts, Omega has determined that the prospects of economically drilling a new well are doubtful, whereas, the economics appear in favour for commingled production.

Table 1 outlines the annual production testing program Omega proposes to run to allocate production to the MC3a and Lower Amaranth zones for the subject wells. Initially, production can be allocated by subtracting the established MC3a production rate from the commingled rate to allocate the Lower Amaranth production.

Marc Arbez

MA:dah

attach


R. 26 W.1.M.
T.P. 2
T.P. 1
3
2
1
34
35
36
27
26
25
1.2/0.1
0.5/0.1
1.3/0.2
1.3/0.1
1.2/0.2
1.3/0.6
1.9/0.2
1.0/0.4
0.1/2.9
2.2/0.6
1.8/0.3 (MC)
4.1/0.2 (LAM)
2.4/0.2
2.4/1.2
1.5/0.5
0.5/0.2
0.4/5.4
1.1/0.5
1.7/0.2
0.8/0.2
0.0/14.8
0.2/0.1
0.9/0.2
COMMINGLED PRODUCER
SPEAR FISH OIL WELL
UPPER ALIDA (MC 3b) WELL
LOWER ALIDA (MC3a) WELL
TILSTON (MC1) WELL
WATER INJECTION WELL
WATER SOURCE WELL
SUSPENDED WELL
ABANDONED WELL
OMEGA HYDROCARBONS LTD
Current Oil/Water Production Rates
Offsetting Wells 9 & 11-35-1-26W.1.M. (m³/d)
1:25,000
JUNE 1988
DB
PAB

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 921 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 936 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

279

Chevron

Chevron Canada Resources
500 - Fifth Avenue S.W., Calgary, Alberta T2P 0L7 · Phone (403) 234-5000
Fax 234-5947

K.I. Godard
Chief Engineer

DEPARTMENT OF ENERGY AND MINES
Deputy Minister's Office
JUL 11 1988

1988-07-05

Application to Commingle Production
in Waskada by Omega Hydrocarbons Ltd.

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

Attention: Mr. Charles S. Kang
Chairman

Gentlemen:

Chevron Canada Resources has no objections towards Omega's application to commingle production from the Lower Amaranth and Mission Canyon formations in the following wells in Waskada:

06-06-01-25 WPM
09-35-01-26 WPM
11-35-01-26 WPM

Yours very truly,

for C. G. FOLDEN, P.Eng.
Manager,
Reservoir Engineering

BRC/sll

cc: Omega Hydrocarbons Limited
Attention: Mr. D. Boyko

PC: Clare Moster/88 07 14/RA

OMEGA
HYDROCARBONS LTD

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

DEPARTMENT OF ENERGY AND MINES
JUL 4 1988
PETROLEUM BRANCH

June 29, 1988

MANITOBA ENERGY AND MINES
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Charles S. Kang
Chairman

Dear Sir:

RE: Omega Waskada 9-35-1-26 WPM
Omega Waskada 11-35-1-26 WPM
Application to Commingle Production

Pursuant to Section 120 of the Petroleum Drilling and Production Regulations, 1984, Omega Hydrocarbons Ltd. hereby makes application to commingle production from two zones within the subject wellbores.

The proposed zones of interest for commingling in both wells are the Lower Amaranth and the Mission Canyon formations. In support of this application we submit the following information:

1) Schedule A - Description of Wells
2) Schedule B - Location of Wells
3) Schedule C - Net Pay and Structure Maps (refer to a previous application dated November 19, 1987)
4) Schedule D - Present and Proposed Completion Details
5) Schedule E - (i) Geological and Reservoir Characteristics
   (ii) Reasons Justifying the Proposed Commingling
   (iii) Methods and Frequency of Measuring Production
   (iv) Production Allocation
   (v) Effects on Conservation or the Rights of Owners

.../2

We would appreciate your earliest attention to this matter and hope that commingled production can commence on or shortly after July 15, 1988. To expediate the approval process we have directly sent notification of this application to the offset mineral owners. These owners include Rex Petroleums Limited, Baxter Lake Holdings Company Limited, Hudson's Bay Oil and Gas Company Limited, and Chevron Canada Resources Limited.

Should you require additional information in regards to this application please contact either Dan Boyko or Richard Brekke at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

G. A. Cormack
Manager, Production Operations

DB/lb

c.c. Bob Dubreuil

SCHEDULE 'A'

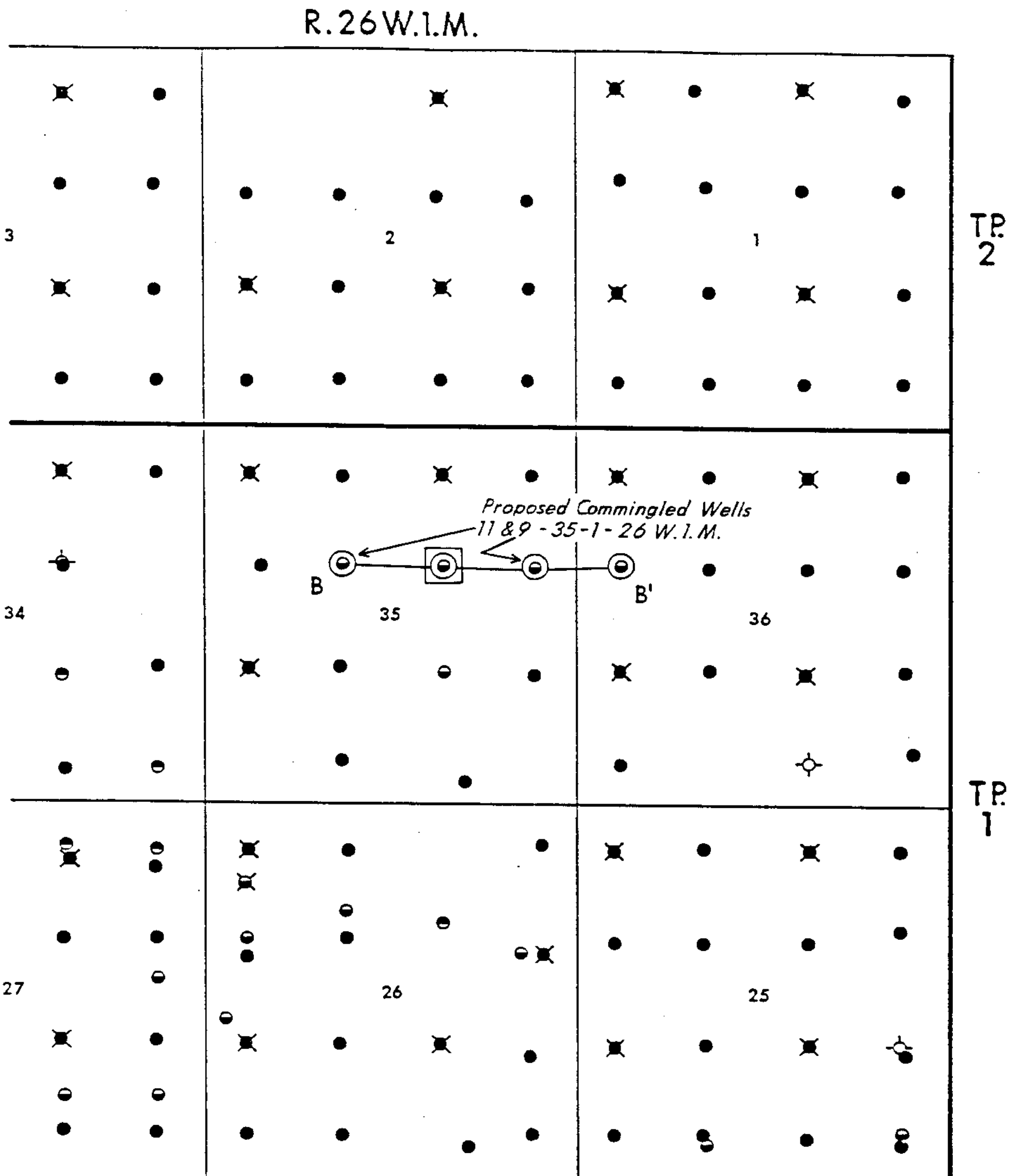
Description of Wells

Name	**Licence Number**	**Location**
Omega Waskada 9-35-1-26	3100	Legal subdivision nine (9) of Section thirty-five (35), Township one (1) Range twenty-six (26) West of the Principal Meridan.
Omega Waskada 11-35-1-26	3096	Legal subdivision eleven (11) of Section thirty-five (35), Township one (1), Range twenty-six West of the Principal Meridan.

SCHEDULE "B"

Locations of all Wells within One Kilometre of those included in the Proposed Commingling Wells

See Attachment 1



- COMMINGLED PRODUCER
- SPEAR FISH OIL WELL
- UPPER ALIDA (MC 3b) WELL
- LOWER ALIDA (MC3a) WELL
- TILSTON (MC1) WELL
- WATER INJECTION WELL
- WATER SOURCE WELL
- SUSPENDED WELL
- ABANDONED WELL

Schedule "B" Attachment 1

OMEGA HYDROCARBONS LTD

WELL LOCATION MAP

Scale 1:25,000 | Date JUNE 1988

SCHEDULE "C"

Interpreted Structure, Effective Reservoir Thickness
Extent and Fluid Interfaces of the Pools

Refer to previous commingling application
dated November 17, 1987

SCHEDULE "D"

Present and Proposed Completion Details

Detailed recompletion programs for each of the wells are attached.

Omega Waskada 9-35-1-26 WPM

Attachment No. 1 sets out the workover program.
Attachment No. 2 sets out the current completion.
Attachment No. 3 sets out the Lower Amaranth test completion.
Attachment No. 4 sets out the commingled production completion.
Attachment No. 5 sets out the production test completion.

Omega Waskada 11-35-1-26 WPM

Attachment No. 6 sets out the workover program.
Attachment No. 7 sets out the current completion.
Attachment No. 8 sets out the Lower Amaranth test completion.
Attachment No. 9 sets out the commingled production completion.
Attachment No. 10 sets out the production test completion.

SCHEDULE"D" - ATTACHMENT NO. 1

OMEGA WASKADA 9-35-1-26

Commingled Production - Well Completion Program

A. LAm Completion

1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods.
3) Run in tubing and tag PBTD. Pull tubing.
4) Release rig.
5) Rig up slickline and run pressure bombs to 923.0 mKB. Record the pressure for 7 days.
6) Pull pressure bombs and release slickline unit.
7) Dump sand to fill well to 913 mKB. Allow sufficient time for sand to settle.
8) Rig up wireline. Tag sand fill level.
9) Perforate the Lower Amaranth from 898 - 909 mKB with 79 mm HSC gun at 13 SPM. Rig out wireline.
10) Frac the Lower Amaranth using 5 tonne gelled crude (20/40 sand @ $2m^3$/minute).
11) Move in service rig and rig up.
12) Run in tubing and circulate out sand to 913 mKB.
13) Land tubing at 911 mKB.
14) Run BHP and rods.
15) Release rig.

B. LAm Evaluation

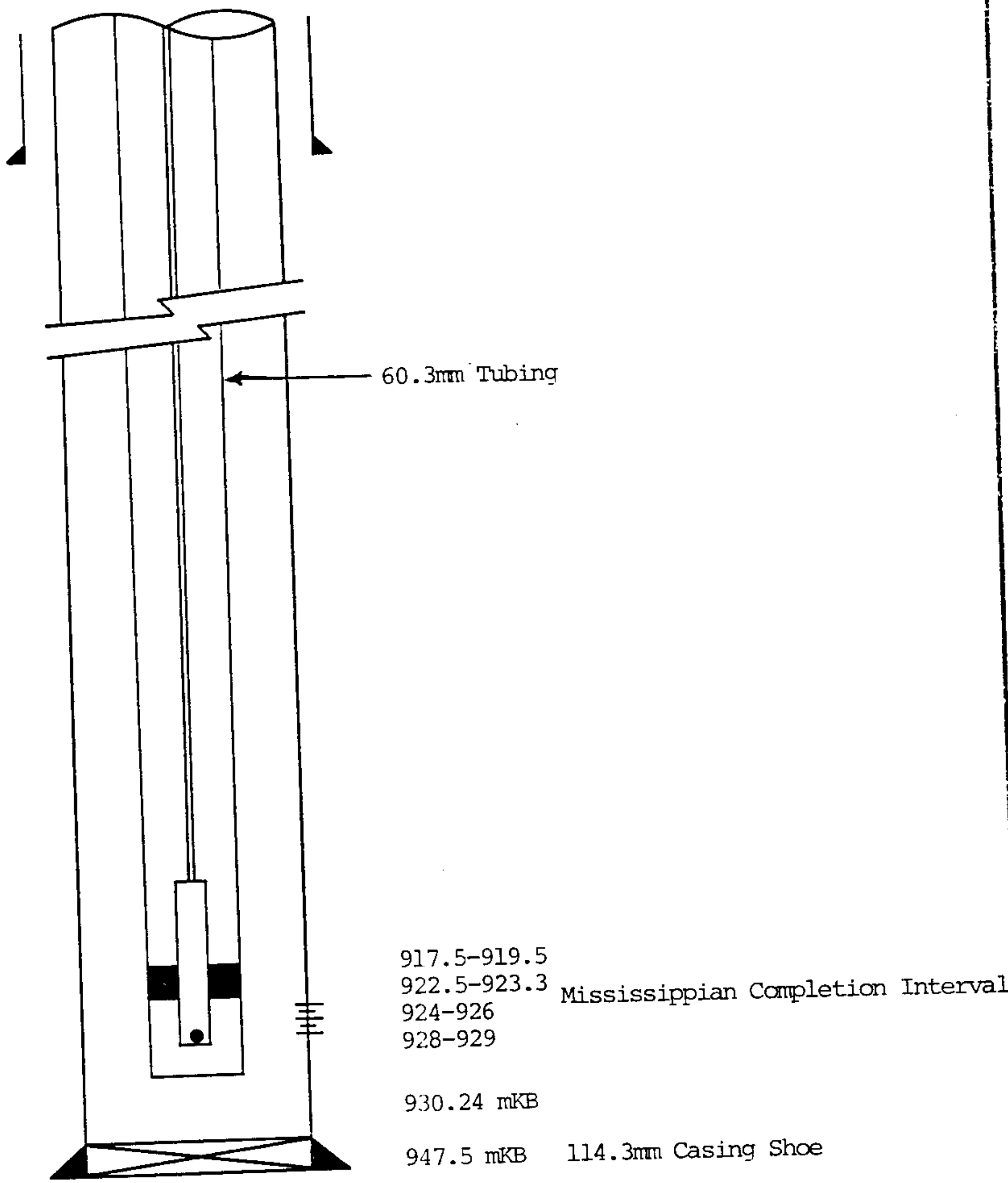
1) Put well on production.
2) Conduct 24 - hours tests on the LAm on a weekly basis for two months.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Circulate out sand to PBTD.
4) Land the tubing at about 930 mKB.
5) Run BHP and rods.
6) Put well on production.

D. Annual Testing Program

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Pull tubing.
4) Run in hole with tubing and retrievable packer. Tubing to be completed with perforated joint above the packer and bull plug below the packer.
5) Set packer at 913 mKB.
6) Run BHP and rods.
7) Release rig.
8) Production test the Lower Amaranth for one week.
9) Move in service rig and rig up.
10) Pull BHP and rods.
11) Release packer and pull out of hole.
12) Run tubing and land at 930 mKB.
13) Run BHP and rods.
14) Release rig.
15) Put well on production.

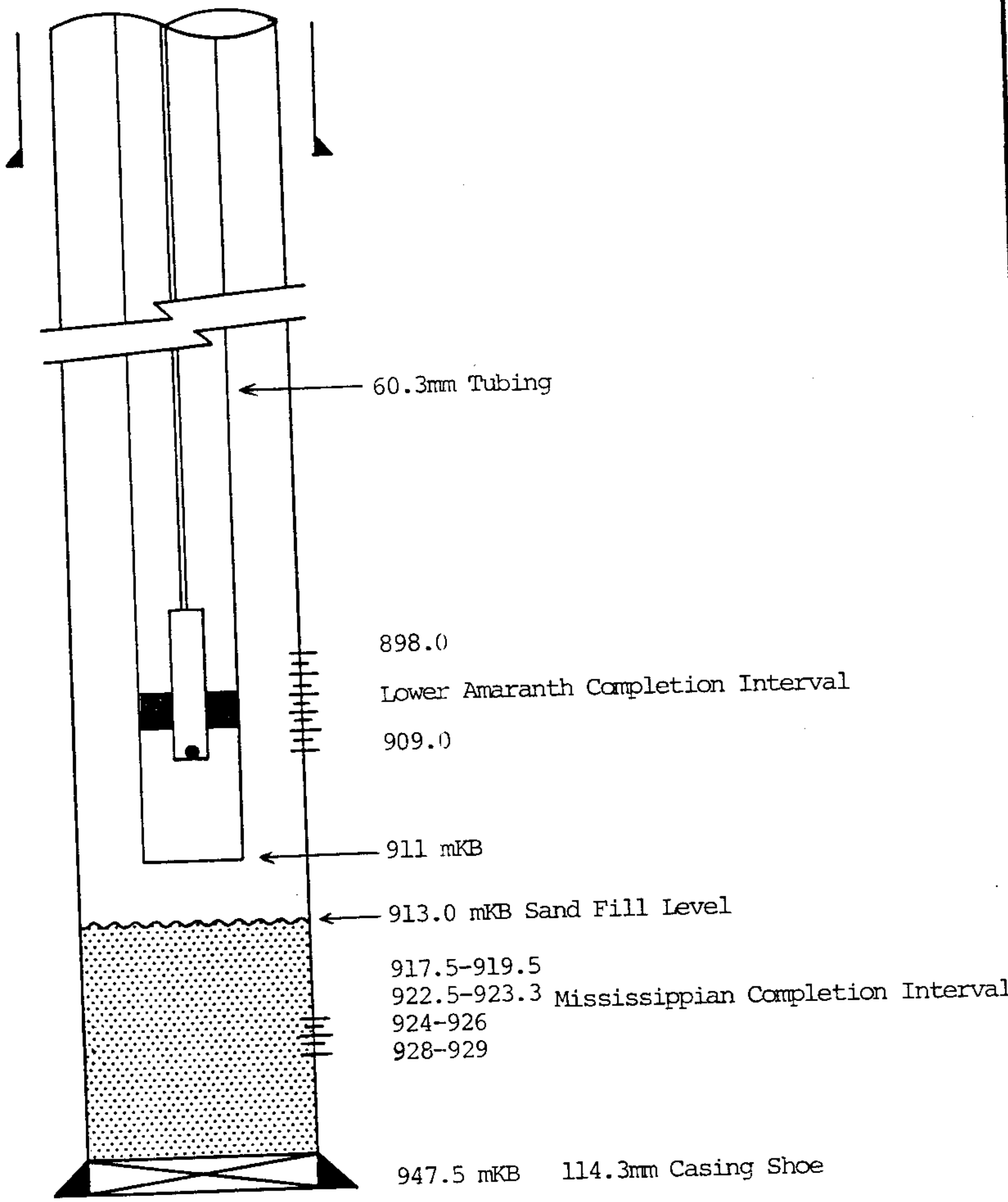


Schedule 'D' Attachment No. 2

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-35-1-26 WPM
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

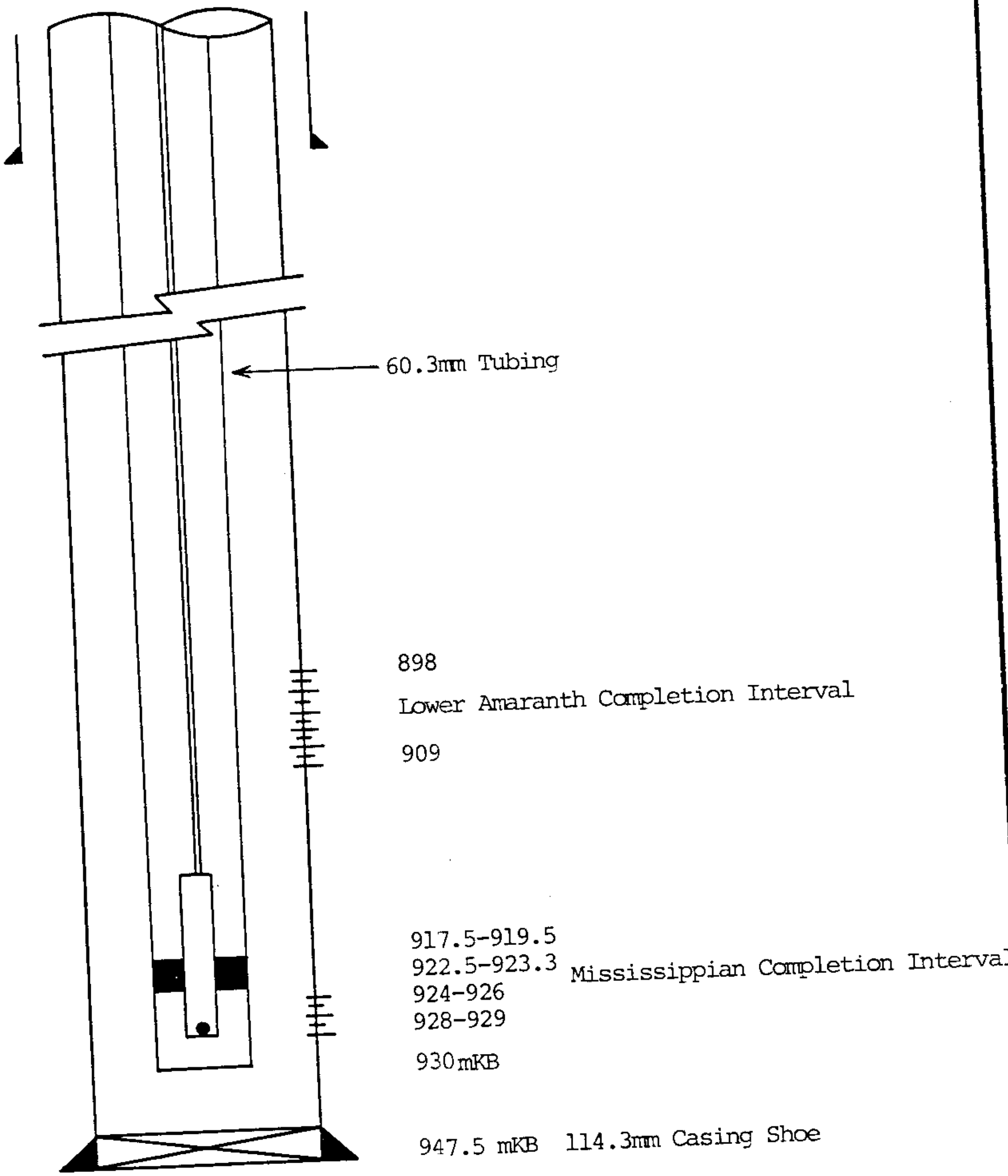


Schedule 'D' Attachment No.3

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-35-1-26 WPM
Lower Amaranth Test Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

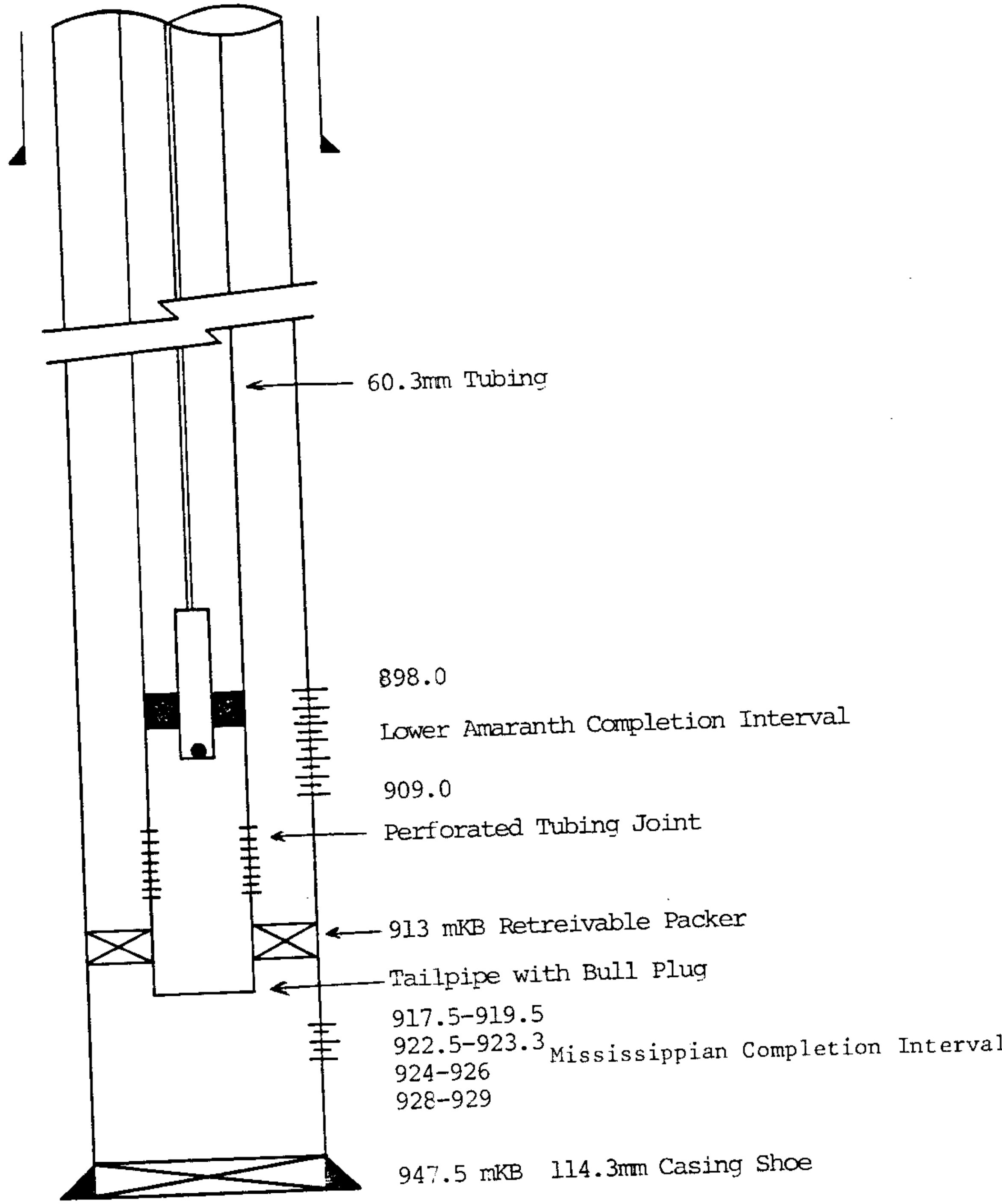


Schedule 'D' Attachment No.4

OMEGA HYDROCARBONS LTD.

Omega Waskada 9-35-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:



Schedule 'D' Attachment No. 5

OMEGA HYDROCARBONS LTD

Omega Waskada 9-35-1-26 WPM
Annual Production Test Completion

Scale:	Date:	
Geology:	Contour Interval:	
Revised:	File:	Drafting:

SCHEDULE"D" - ATTACHMENT NO. 6

OMEGA WASKADA 11-35-1-26

Commingled Production - Well Completion Program

A. LAm Completion

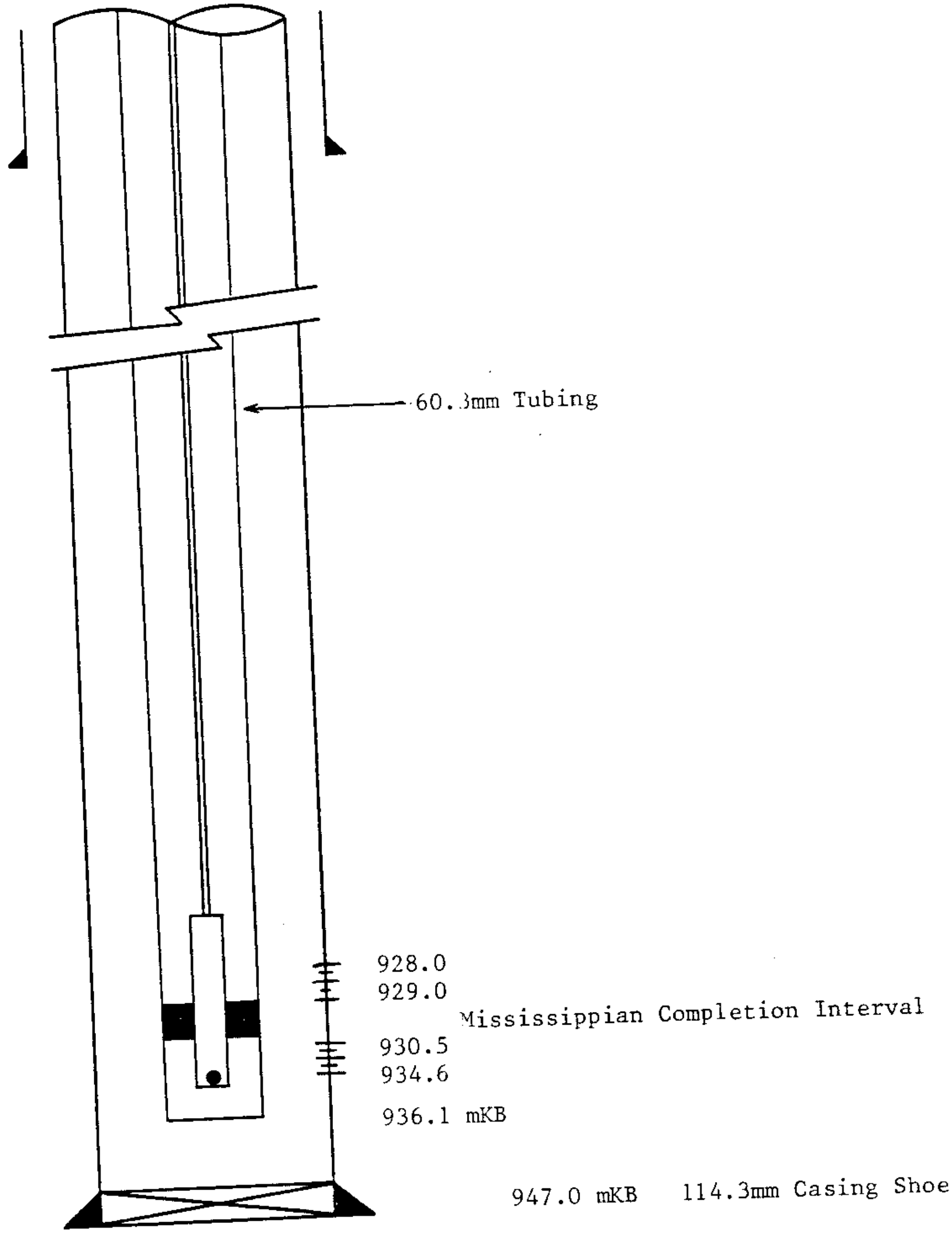
1) Move in service rig and rig up.
2) Hot oil and pull BHP and rods.
3) Run in tubing and tag PBTD. Pull tubing.
4) Release rig.
5) Rig up slickline and run pressure bombs to 931.0 mKB. Record the pressure for 7 days.
6) Pull pressure bombs and release slickline unit.
7) Dump sand to fill well to 921 mKB. Allow sufficient time for sand to settle.
8) Rig up wireline. Tag sand fill level.
9) Perforate the Lower Amaranth from 903 - 914 mKB with 79 mm HSC gun at 13 SPM. Rig out wireline.
10) Frac the Lower Amaranth using 5 tonne gelled crude (20/40 sand @ $2m^3$/minute).
11) Move in service rig and rig up.
12) Run in tubing and circulate out sand to 921 mKB.
13) Land tubing at 918 mKB.
14) Run BHP and rods.
15) Release rig.

B. LAm Evaluation

1) Put well on production.
2) Conduct 24 - hours tests on the LAm on a weekly basis for two months.

C. Recomplete for Commingled Production

1) Move in service rig and rig up.
2) Pull BHP and rods.
3) Circulate out sand to PBTD.
4) Land the tubing at about 936 mKB.
5) Run BHP and rods.
6) Put well on production.

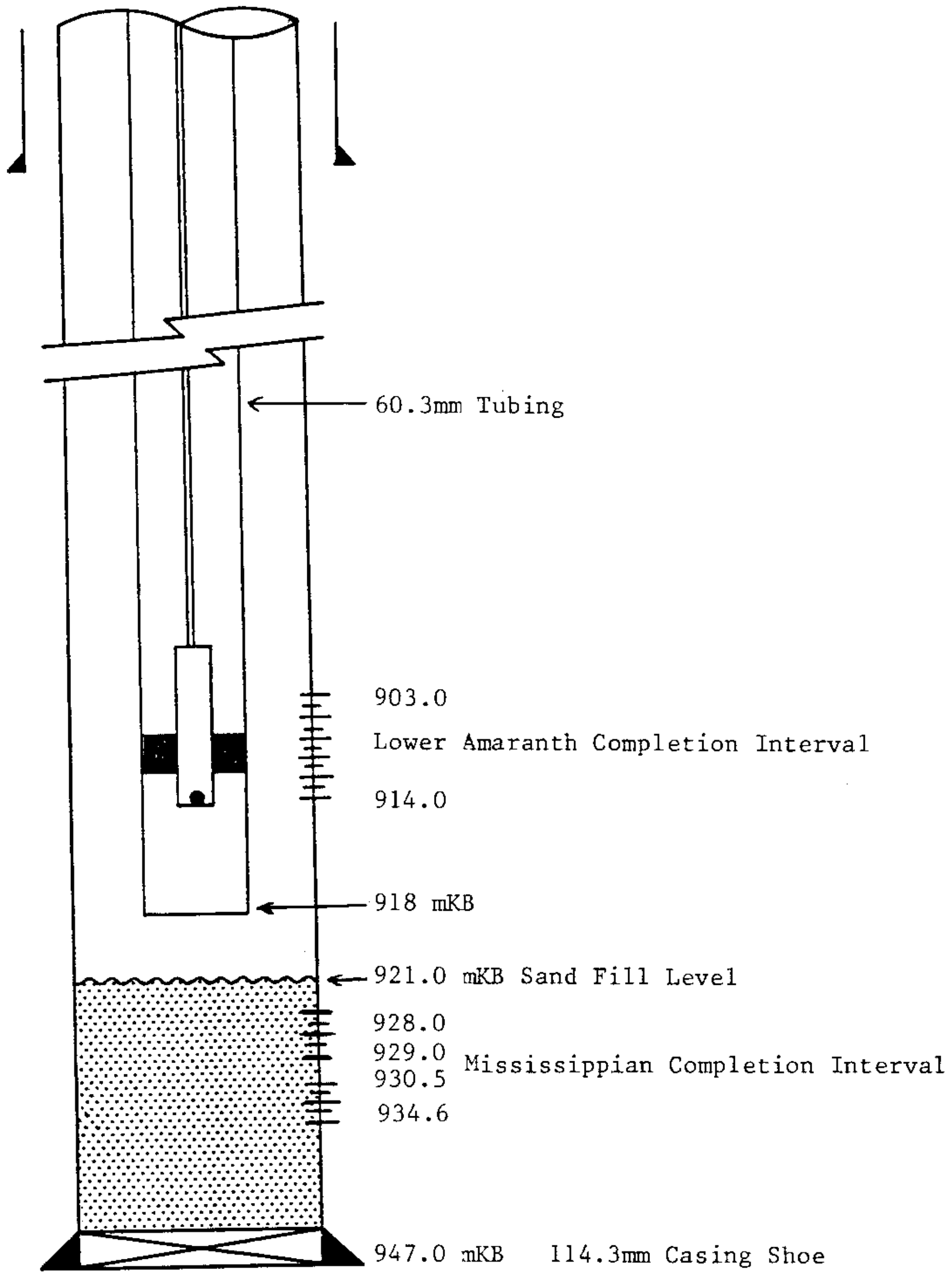


Schedule 'D' Attachment No. 7

OMEGA HYDROCARBONS LTD.

Omega Waskada 11-35-1-26
Current Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

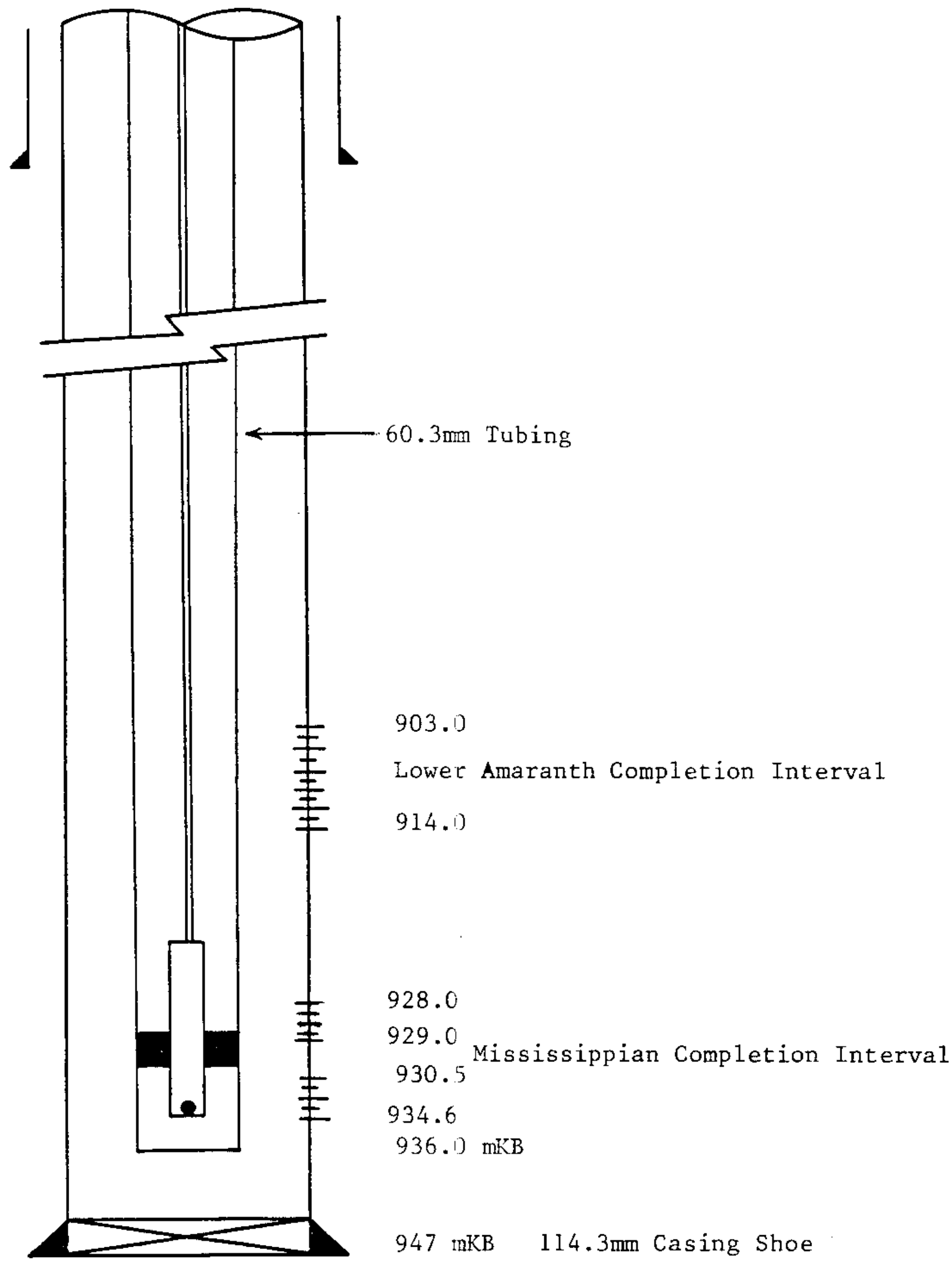


Schedule 'D' Attachment No.8

OMEGA HYDROCARBONS LTD.

Omega Waskada 11-35-1-26 WPM
Lower Amaranth Test Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:

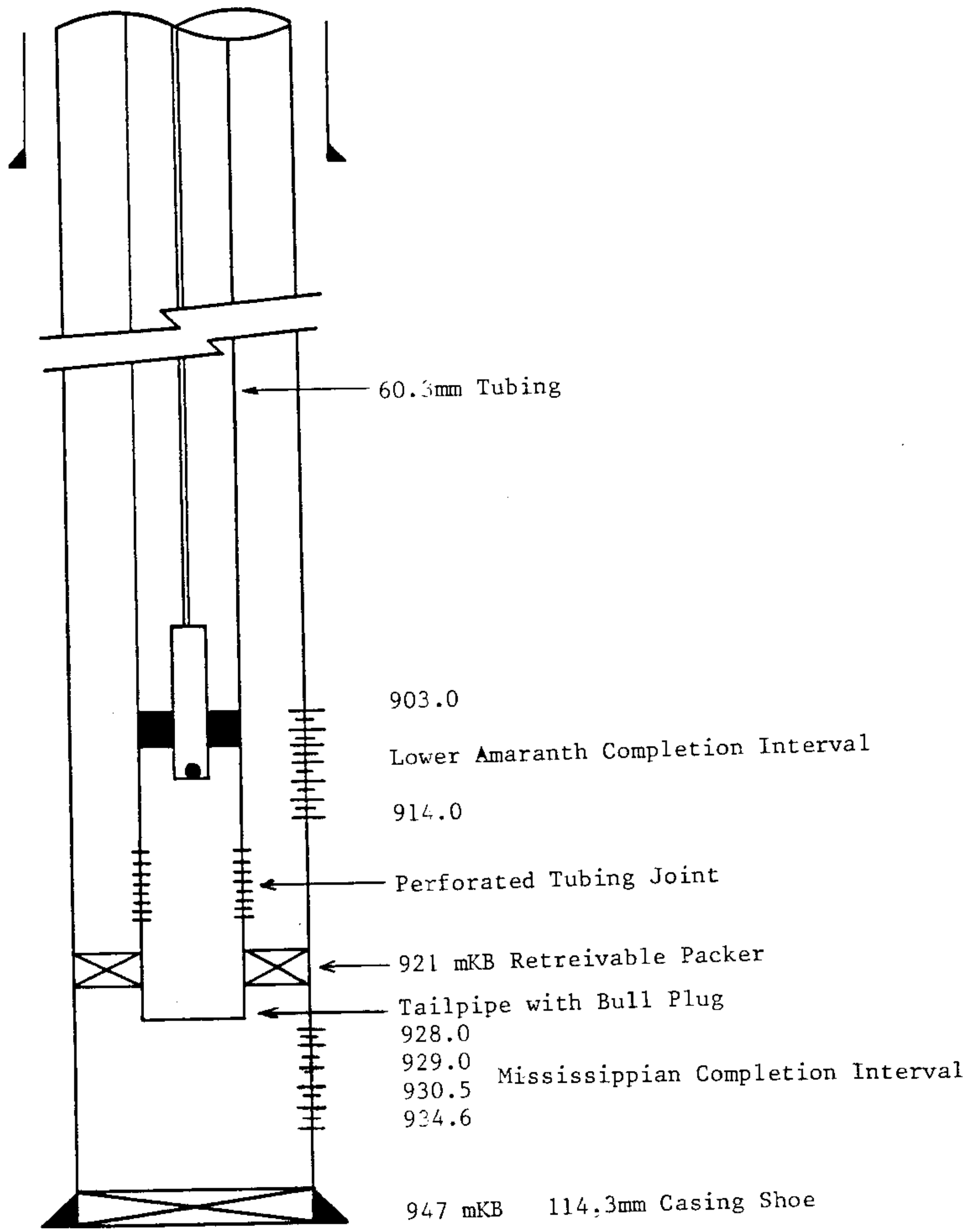


Schedule 'D' Attachment No. 9

OMEGA HYDROCARBONS LTD.

Omega Waskada 11-35-1-26 WPM
Commingled Production Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: / Drafting:



Schedule 'D' Attachment No. 10

OMEGA HYDROCARBONS LTD.

Omega Waskada 11-35-1-26 WPM
Annual Production Test Completion

Scale:	Date:
Geology:	Contour Interval:
Revised:	File: Drafting:

SCHEDULE "E"

(i)

Geological and Reservoir Characteristics, Hydrocarbons Reserves, Production and Injection History, Production Capacity and Pool Pressures

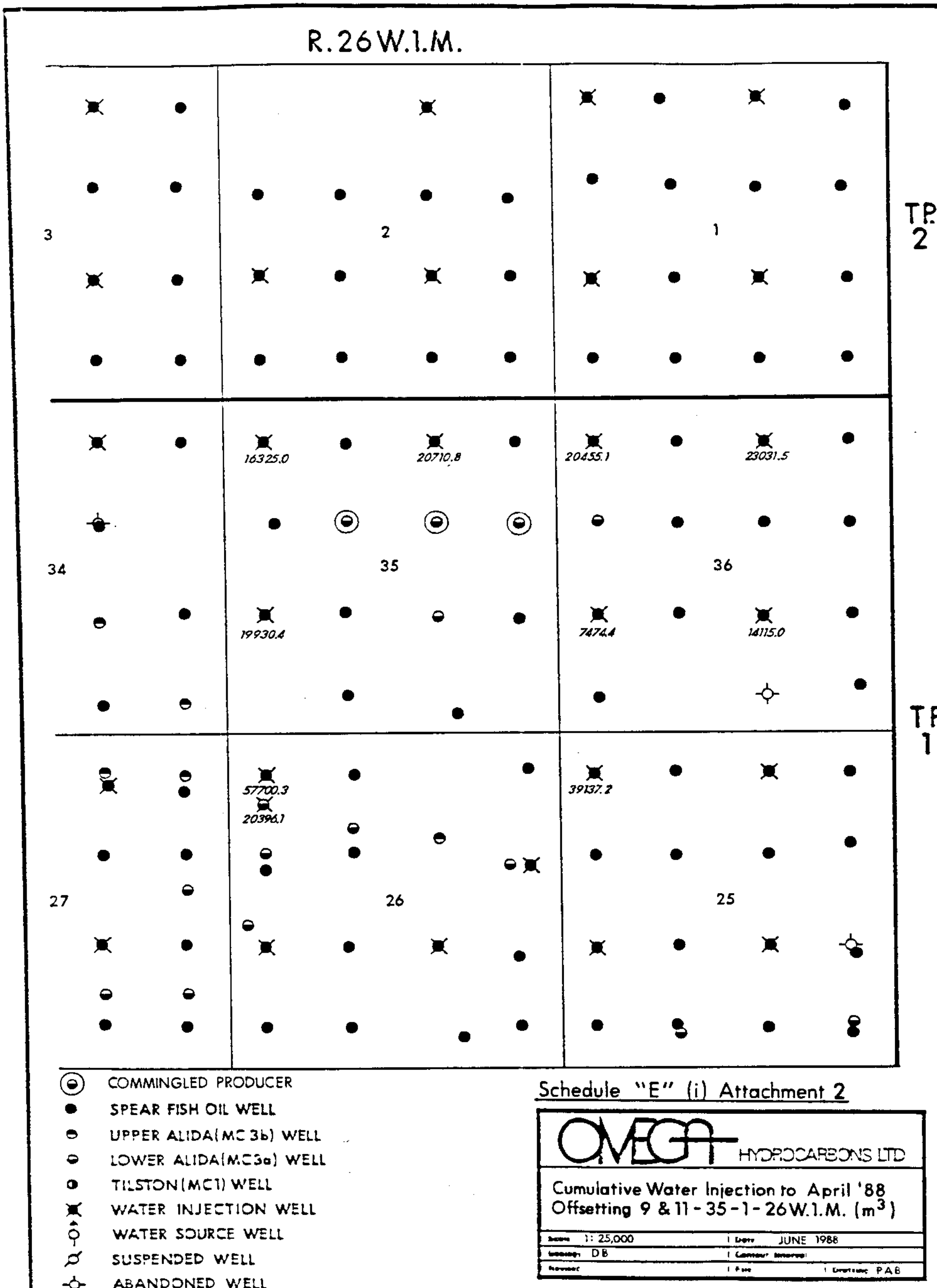
Below is a table which summaries the specific geological and reservoir characteristics for each of the individual wells to be commingled under this application.

Location	Zone	Mission Canyon Oh (m)	Mission Canyon OOIP (m^3)	Mission Canyon Prod. Rate (m^3/d)	Mission Canyon Pool Pressure (m^3/d)	Lower Amaranth Oh (m)	Lower Amaranth OOIP (m^3)	Lower Amaranth Prod. Rate (m^3/d)	Lower Amaranth Pool Pressure (kPa)
9-35-1-26 WPM	LAlida	0.620	43130	2.4/0.2	N/A	0.783	48810	1.0/0.2	6500
11-35-1-26 WPM	LAlida	1.080	75130	2.2/0.6	N/A	1.060	66078	1.0/0.5	6500

Original oil in place calculations were determined by using the h and/or oh values contained in Schedule C in combination with other average reservoir parameters. for the Lower Amaranth formation it was assumed that A=16 ha, Sw=0.55, Bo=1.155 Rm^3/m^3. For the Lower Alida formations it was assumed that A=16 ha, Sw=0.50, Bo=1.15 Rm^3/m^3.

Attachment 1 contains current oil and water production rates for all wells within one kilometre of the wells to be commingled. This map was used to estimate the Lower Amaranth production rates at both of the commingled wells following completion. Additional technical data in support of this application is included in Attachments 2-4.

Pool pressures for the Lower Amaranth zones for 9-35 and 11-35-1-26 WPM have been extrapolated from fall off tests at wells 15-35 and 5-36-1-26 WPM. In the cases where the pressures are not available, bottom hole pressure tests have been planned and analyses will be performed. The results of these tests will be forwarded as soon as possible.



Schedule "E" (i) Attachment 2

OMEGA HYDROCARBONS LTD

Cumulative Water Injection to April '88
Offsetting 9 & 11 - 35 - 1 - 26 W.1.M. (m^3)

Scale 1: 25,000	Date JUNE 1988
DB	Contour Interval
	Drafting PAB

SCHEDULE "E"

(v)

Effects on Conservation or the Rights of Owners

Omega submits that commingling of production from the two zones will have a beneficial impact on the conservation of crude oil. Waste would be prevented in that crude oil which exists behind pipe would now be recoverable. In the absence of commingling, this crude oil behind pipe would never be recovered and ultimately lost. Further, existing units could be vertically enlarged and new units could be established in those areas where vertical zone prospects exist. This, of course, accomplishes the more efficient and effective development and production of crude oil resources of the respective pools, resulting in improved benefits to owners, the Province of Manitoba and Omega.

Omega further submits that commingling will have no detrimental effects on the rights of owners as a consequence of the pools being in communication through the wellbore. In each of the wells, the lessor is the owner of all petroleum, natural gas related hydrocarbons in both of the zones, indeed, in all of the zones underlying the wells. In addition, Omega is the sole lessee and working interest holder of the petroleum, natural gas and related hydrocarbons and also operator of all the wells. Identical production operations will be employed in recovering production from both zones as those used in recovering production from a single zone; consequently commingling will result in production profiles identical to those experienced by producing the zones separately. Royalties and production taxes will be calculated on production from each zone based on the results of the tests to be conducted by Omega.

Accordingly, Omega firmly believes that commingling production from the two zones will result only in positive effects on conservation or the rights of owners under all possible circumstances from the pools being in communication through the wellbore.

SCHEDULE "E"

(ii)

Reasons Justifying the Proposed Commingling

Marginal production potential from the Lower Amaranth formation has been identified in each of the commingled production candidate wells. The cost of drilling for this oil potential cannot be economically justified with such limited recoverable reserves and low forecasted production rates. However, these reserves can be economically recovered using a single wellbore, dual zone, commingled production completion.

Listed below are the results of our economic studies for recovery of this marginal oil potential.

	BEFORE TAX		AFTER TAX	
	Payout	Net Present Value (M$) @15%	Payout	Net Present Value (M$) @15%
Case 1: Drill New Well	5.1 yrs.	-25.6	5.1 yrs.	-24.4
Case 2: Single Well, Commingled Production	0.4 yrs.	89.9	0.6 yrs.	56.7

Assumptions made that are common to both Case 1 and Case 2 in this study include: an oil price forecast for 1988 of $\$120/m^3$ escalated at 5% per year, initial production rates of $2m^3/d$ (12.5 B/D), a production decline rate of 30% in the first year and 15% per year thereafter, 15% freehold royalty, and operating costs of $1500/month escalated at 5% per year. Also included in Case 1, the new well case, is a capital cost of $175,000, a CEDIP incentive equivalent to $39,000, and Manitoba royalty/mineral tax incentive equivalent to 1845 m^3 of holiday oil. Case 2, the single well commingled production case, includes a capital cost of $18,000.

The economics of drilling a new well do not meet our minimum investment criteria. However, the economics for the commingled production case are quite favourable.

SCHEDULE "E"

(iii)

Methods and Frequency of Measuring Production

Periodic well testing will be required which will enable us to allocate production to the proper reservoir. This testing must be accomplished in a manner which does not add signficantly to either the well completion cost or to the annual well operating cost.

The proposed workover programs for each of the candidate wells are included in Schedule "D" of this application. Each program consists of four sections:

A. Lower Amaranth Completion
B. Lower Amaranth Evaluation
C. Recompletion for Commingled Production
D. Annual Testing Program

These four completion sections will enable us to measure and allocate production as follows:

1. Establish the Mission Canyon performance prior to recompleting in the Lower Amaranth.

2. Isolate the Mission Canyon, recomplete the well in the Lower Amaranth and test the well (Section A and B).

3. Recomplete the well for commingled production (Section C).

4. Production test the well monthly. Allocate production to the Mission Canyon at the rate established in Step 1. Allocate production to the Lower Amaranth based on the difference between total production and the allocated Mission Canyon production.

5. Annually, isolate the Mission Canyon and test the Lower Amaranth (Section D). Establish the Mission Canyon production rate.

6. Recomplete the well for commingled production (Section C).

7. Test the well monthly and allocate production to the Mission Canyon at the rate established in Step 5 and allocate production to the Lower Amaranth by difference.

8. Repeat steps 5 to 7.

SCHEDULE "E"

(iv)

PRODUCTION ALLOCATION

Following is the production performance established for the Mission Canyon zone during the six month period prior to the recompletion of the Lower Amaranth interval.

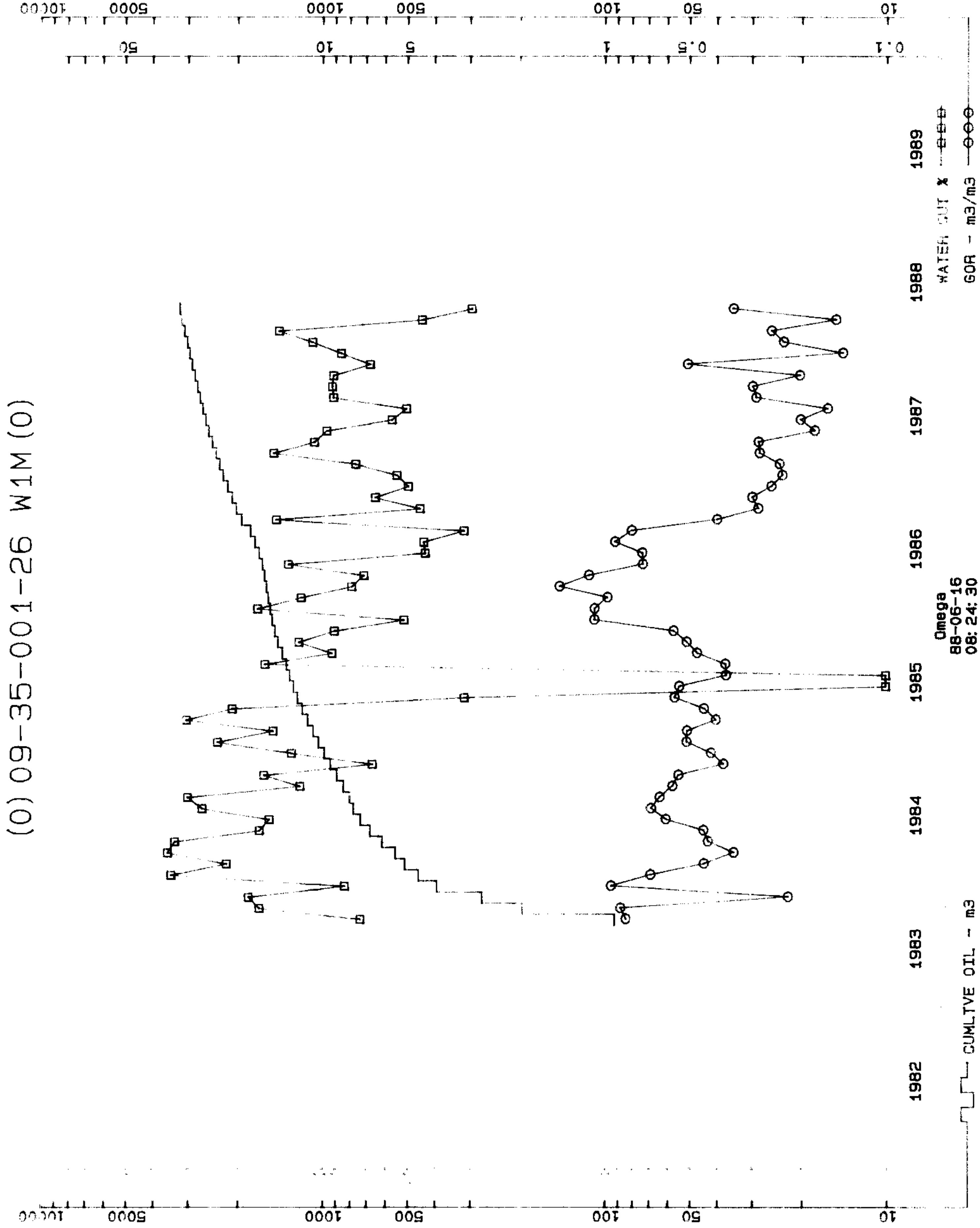
Well	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (m^3)
9-35-1-26 WPM	88/04/13	24	3.04	0.06	0.08
	88/03/20	24	2.65	0.05	0.02
	88/03/04	24	2.56	0.14	0.02
	88/02/18	24	3.62	0.04	0.03
	88/02/01	24	3.12	0.47	0.03
	88/01/11	24	2.57	0.05	0.02
	88/01/02	24	2.18	0.38	0.03
	87/12/14	24	2.37	0.15	0.01
	87/12/02	24	2.34	0.02	0.02
	87/11/13	24	2.81	0.12	0.10
	87/11/02	24	3.00	0.03	0.03
	87/10/13	24	2.54	0.08	0.03
	AVERAGE		2.73	0.13	0.04

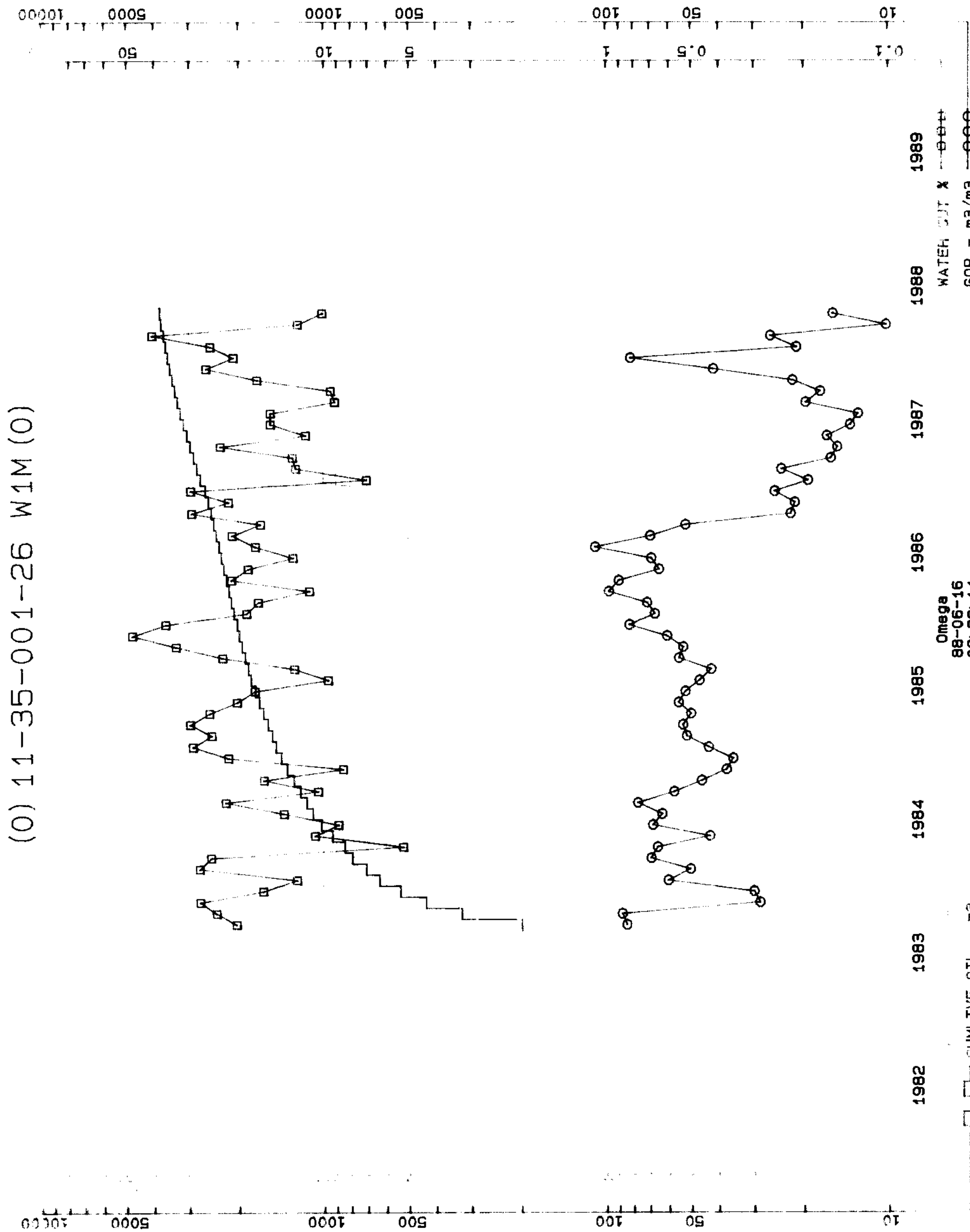
Average Water/Oil Ratio = $0.048 m^3/m^3$
Average Gas/Oil Ratio = $0.015 m^3/m^3$

Well	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (m^3)
11-35-1-26 WPM	88/04/04	24	2.82	0.15	0.02
	88/03/19	24	2.61	0.43	0.01
	88/03/01	24	2.93	0.19	0.01
	88/02/16	24	2.32	1.05	0.02
	88/02/03	24	2.78	0.88	0.02
	88/01/14	24	2.70	0.40	0.01
	88/01/05	24	2.64	0.70	0.02
	87/12/21	24	2.89	0.18	0.11
	87/12/08	24	2.55	0.32	0.10
	87/11/19	24	2.70	0.48	0.10
	87/11/10	24	2.87	0.55	0.03
	87/10/30	24	3.21	0.20	0.03
	87/10/17	24	2.60	0.39	0.02
	87/10/03	24	2.79	0.15	0.03
	AVERAGE		2.74	0.43	0.04

Average Water/Oil Ratio = $0.157 m^3/m^3$
Average Gas/Oil Ratio = $0.015 m^3/m^3$

Schedule "E" Attachment 3

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WATER CUT %
GOR - m3/m3
CUMLTVE OIL - m3

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

June 15, 1988

MANITOBA PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C E4E

Attention: Mr. Clare Moster

Dear Clare:

Re: Waskada Commingled Production Strategy

The purpose of this letter is to summarize the topics discussed at a meeting held between Omega Hydrocarbons Ltd. and the Manitoba Petroleum Branch on June 2, 1988.

Production and operating data was presented for the first two months of commingled production from pilot wells 5-6-1-25, 10-35-1-26 and 6-3-2-26 WPM. Everyone appeared satisfied that the procedures as laid out in the commingling approval had been met and that any future reservoir related problems would be identified through a monthly reporting system.

Based on the performance to date of the pilot wells Omega indicated its eagerness to proceed with the other commingling candidates identified in a letter to the Petroleum Branch dated March 25, 1988. We have interpreted your response to this request as positive and agree that it is important to keep the Petroleum Branch informed of our overall commingling strategy at Waskada. To expedite future commingling approvals, it was jointly agreed that Omega would production test the potential commingled zone by initially submitting the regular application form for well recompletions and note that the well was a potential commingling candidate. If the production from the new zone is economical then an application to commingle production will be made. The Petroleum Branch indicated that a letter should be sent offsetting working interest owners notifying them of Omega's intentions at the same time the application is submitted. Assuming there was no intervention by a party with cause, the Petroleum Branch indicated that a typical commingling approval could take between 2 and 3 weeks from the date of application.

. . . . . / 2

If you feel any of the items contained herein have been taken out of context please contact me directly in our Calgary office.

Yours very truly,

OMEGA HYDROCARBONS LTD.

G. A. Cormack
Manager, Production Operations

c.c.: T. J. Hall
Waskada Special Projects - Commingled Production

WASKADA PRODUCTION COMMINGLING PROJECT

PROGRESS UPDATE

(88 06 02)

1. Through modifications made to the production equipment the three pilot wells are currently all pumped off. Based on this data crossflow between zones is being minimized. Since commingling occurred operational problems have also been minimal. (See Attachment 1)

2. Improved Oil Recovery

   In all three pilot wells incremental oil is being produced. Although some flush production still exists in the March and April production volumes, the incremental oil production was 11.1 m^3/d and 12.1 m^3/d, respectively. (See Attachment 2)

3. No Production Reporting and Financial Accounting Difficulties

   During the first two months of commingled production for the pilot wells the production reporting and financial accounting have both proceeded smoothly using the procedure established in the original application. (See Attachment 3)

Attachment 2(a)

WASKADA PRODUCTION COMMINGLING PROJECT

INCREMENTAL OIL PRODUCTION

	March Production Oil (m^3/d)	March Production Water (m^3/d)	April Production Oil (m^3/d)	April Production Water (m^3/d)
5-6-1-25				
Lower Alida	3.0	2.5	3.0	2.5
Lower Amaranth	1.7	2.7	5.7	5.5
	4.7	5.2 (wc=52.5%)	8.7	8.0 (wc= 47.9%)
Expected	5.5	5.9 (wc=51%)		
10-35-1-26				
Lower Alida	1.8	0.4	1.7	0.2
Lower Amaranth	6.7	0.2	4.1	0.0
	8.5	0.6 (wc=6.6%)	5.8	0.2 (wc=3.3%)
Expected	3.6	0.6 (wc=14%)		
6-3-2-26				
Upper Alida	1.4	1.2	1.3	0.8
Lower Amaranth	2.8	0.0	2.3	0.0
	4.2	1.2 (wc=20%)	3.6	0.8 (wc=18.2%)
Expected	5.6	1.9 (wc=25%)		

- hot w/ pumping heating up.

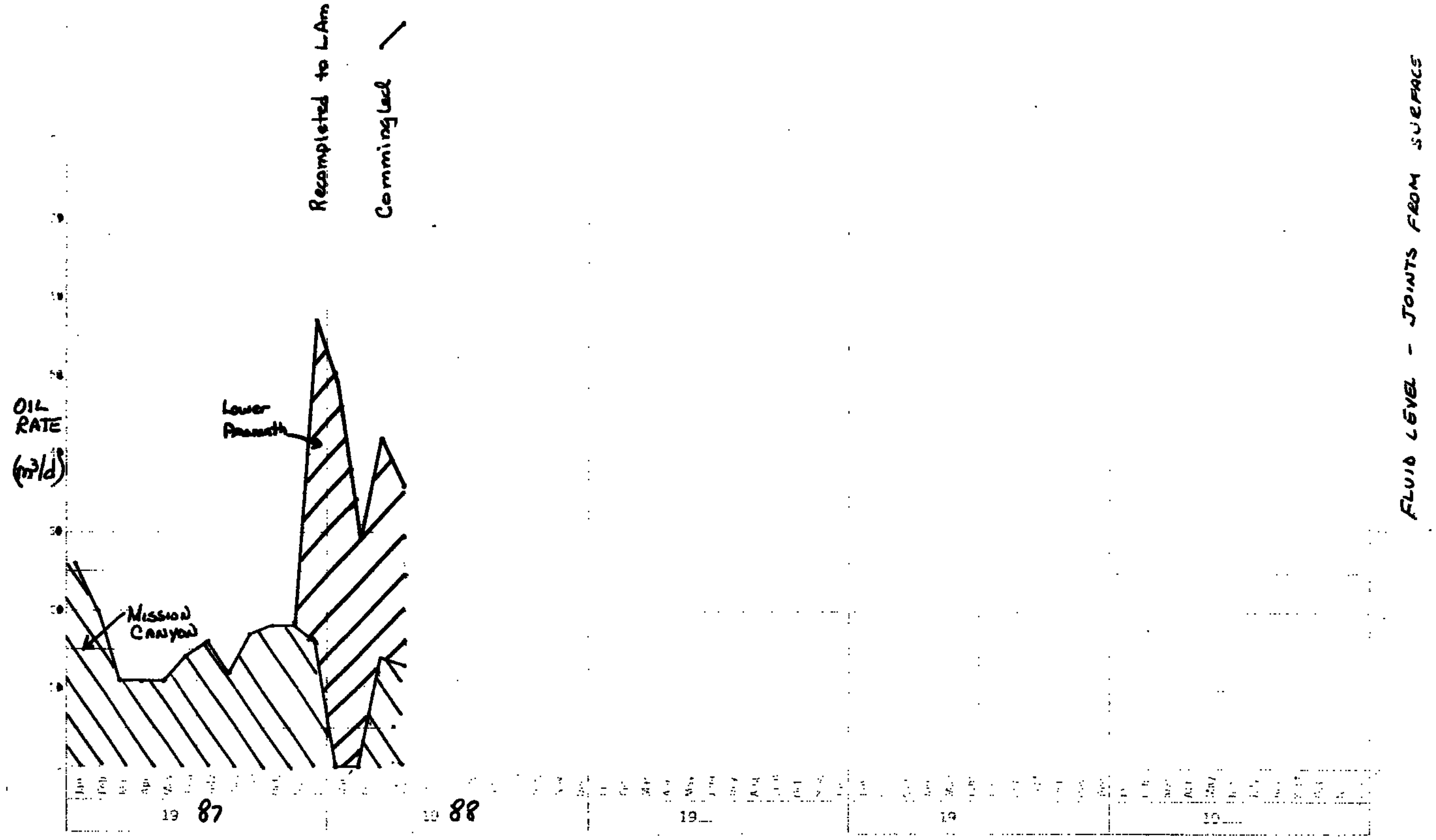
flush prod prod from MC

Attachment 2(b)

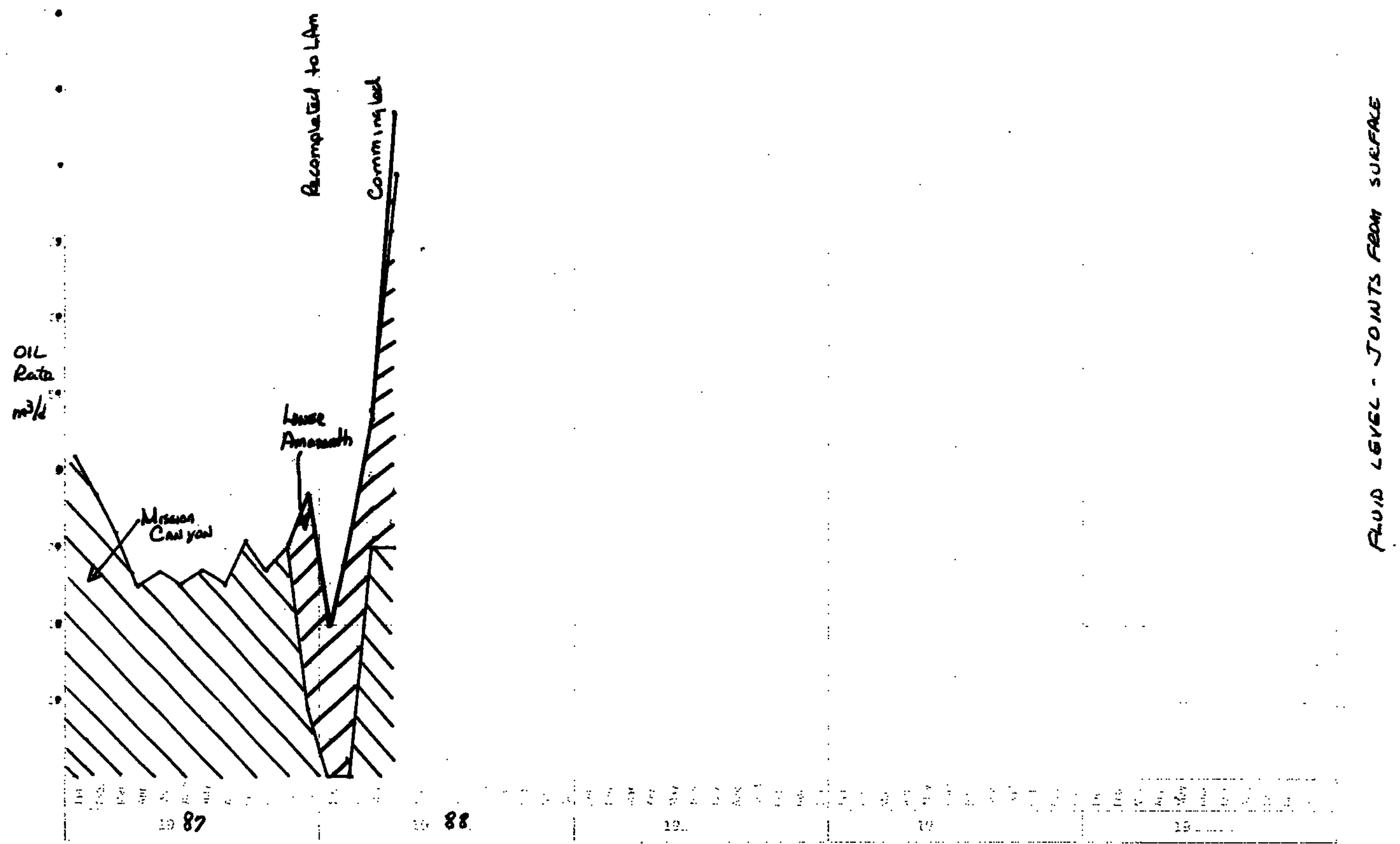
WASKADA PRODUCTION COMMINGLED PROJECT

EXPECTED COMMINGLED PRODUCTION

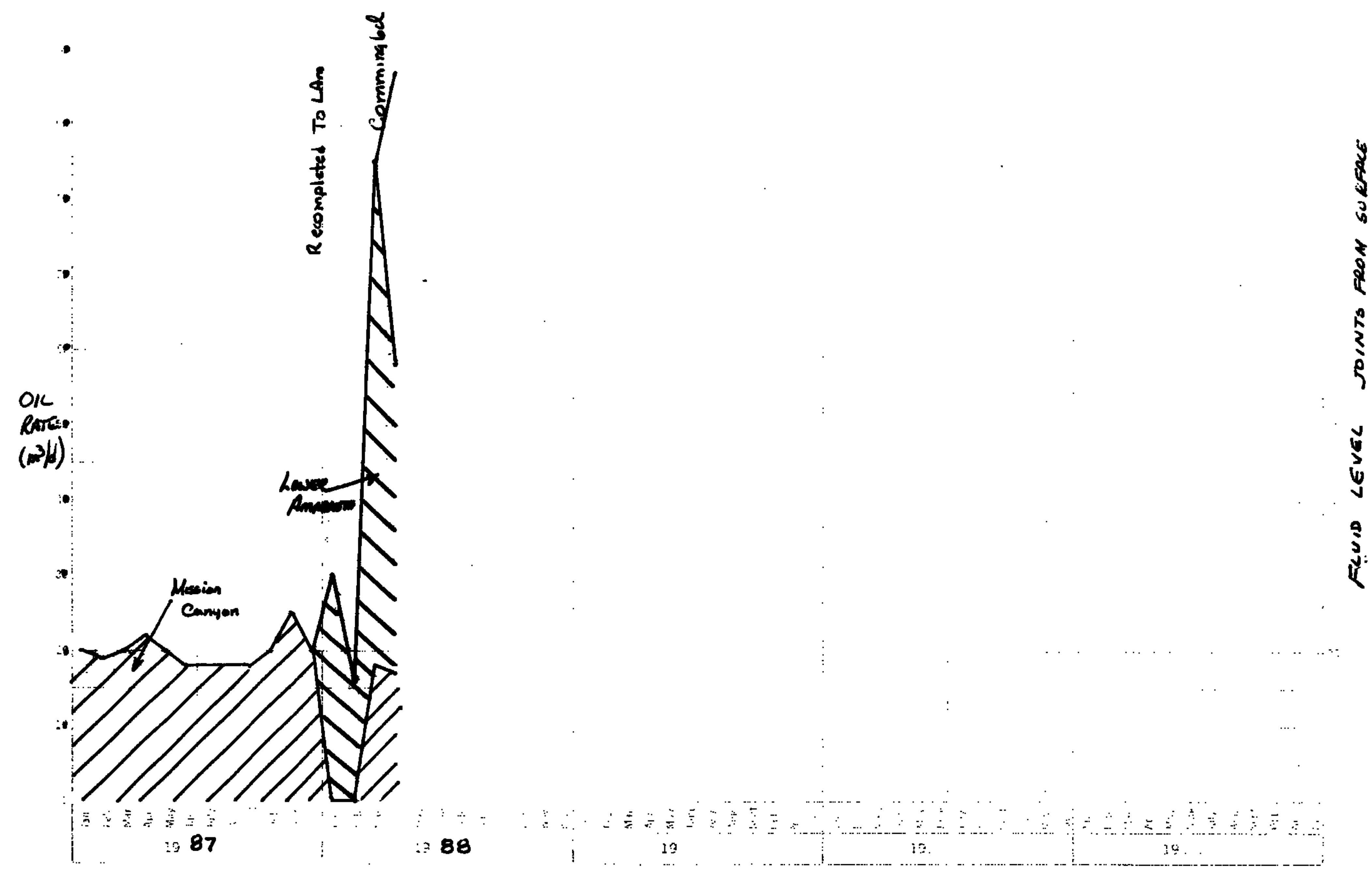
	MISSISSIPPIAN Assigned (m^3/d)	LOWER AMARANTH Jan./Feb. Data (m^3/d)	Expected Commingled Production (m^3/d)
5-6-1-25			
Oil	3.0	2.5	5.5
Water	2.5	3.4	5.9
Water Cut	45%	57%	51%
10-35-1-26			
Oil	2.0	1.6	3.6
Water	0.3	0.3	0.6
Water Cut	13%	16%	14%
6-3-2-26			
Oil	1.6	4.0	5.6
Water	1.0	0.9	1.9
Water Cut	39%	19%	25%



OMEGA WASKADA 6-3-2-26



OMEGA WASKADA 5-6-1-25



Omega Waskada 10-35-1-X

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

February 26, 1988

Manitoba Petroleum Board
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Bob Dubreuil

Dear Sir:

RE: Waskada Commingled Producing Wells

Enclosed, is a tabulation of the recent production and production tests for the three wells, just prior to commencing the commingled production phase.

Also enclosed, is a tabulation of the events which have occurred in each of these wells, since the initiation of the program to commingle production.

We believe that the program is proceeding as planned and required. The well bore restrictions will be removed, so that commingled production can commence on or about March 1st, 1988.

Yours truly,

R.A. Beamish
Joint Internal Co-ordinator

RAB/hr
Enclosures.

WASKADA - COMMINGLED WELL REPORTS SUMMARY

05-06-01-25 WPM

87-12-10	180 hr. bottom hole pressure survey.
87-12-18	Sand pack-off Mississippian (935m KB)
87-12-20	Perforate LAm 911 - 921m KB - 121 holes
	Polyemulsion Frac with 7T. 20/40 sand down casing
	(Total fluid pumped 21.1m^3)
87-12-22	Land tubing at 925.25m KB and ran BHP and partially scrapered rod string.
88-01-07	Fluid level 55 joints from surface. Water salinity 75,000 ppm.
88-02-09	Fluid level 54 joints.
88-02-24	Fluid level 54 joints, salinity 78,600 ppm.

10-35-01-26 WPM

87-12-09	180 hr. bottom hole pressure survey.
87-12-19	Sand plug at 919m KB.
	Perforate LAm 900 - 912.0m KB - 150 holes
87-12-20	Gelled crude frac 5T 20/40 sand down casing.
	(Total Fluid 19.3m^3)
87-12-22	Pumped sand down csg.
87-12-23	Installed pack-off, circulate clean to 918m KB
	Ran BHP and partially scrapered rod string.
87-12-31	Hot oil down annulus to clean pump with 6.3m^3 (well now pumping).
88-01-07	Fluid level 47 joints from surface.
88-01-12	Hot oil down casing to clean pump with 6.3m^3.
88-01-20	Circulate sand out to 918.0m KB, reland tbg. at 913.95m KB.
88-01-21	Ran BHP and partially scrapered rod string.
88-02-08	Fluid level 96 joints, salinity 96,400 ppm.
88-02-24	Fluid level 96 joints, salinity 76,800 ppm.

06-03-02-26 WPM

87-12-09	180 Bottom hole pressure survey.
87-12-18	Pull tubing and pump sand down csg.
87-12-19	Sand plug at 919m KB.
	Perforate LAm 906 - 915m KB - 115 holes.
87-12-20	Land tubing at 922.2m KB.
	Acidize with 1.0 m3 15% HCl down tbg.
	Land tubing at 846.37m KB
	Gelled crude frac with 5T 20/40 sand down tbg.
	(Total fluid pumped 20.7 m^3)
88-01-07	Fluid level 94 joints from surface. Water salinity 92,800 ppm.
88-02-08	Fluid level 94 joints, water production to low to sample.
88-02-24	Fluid level 95 joints, salinity 87,500 ppm.

WASKADA COMMINGLING WELL PRODUCTION DATA

	MISSISSIPPIAN			LOWER AMARANTH						
	DEC/87 PROD.			JAN/88 PROD.			FEB/88 PROD TESTS			
	Hrs.	Oil, m3 (m3/OD)	Water, m3 (m3/OD)	Hrs.	Oil, m3 (m3/OD)	Water, m3 (m3/OD)	Date	Hrs.	Oil, m3 (m3/OD	Water, m3 (m3/OD)
05-06-01-25 WPM	720	90.4 (3.0)	65.9 (2.20)	744	60.8 (1.96)	130.3 (4.20)	1-7	168	17.2 (2.46)	11.9 (1.70)
							8-14	168	11.1 (3.01)	22.5 (3.21)
							15-17	72	15.6 (5.20)	2.6 (0.87)
							19-24	144	31.1 (5.18)	6.6 (1.10)
10-35-01-26 WPM	720	74.1 (2.47)	12.6 (0.42)	712	90.6 (3.05)	9.9 (0.33)	2	24	2.53	0.13
							7	24	2.32	0.20
							17	24	2.02	0.20
							24	24	2.10	0.16
06-03-02-26 WPM	720	52.7 (1.76)	45.2 (1.51)	744	152.7 (4.93)	38.7 (1.25)	7	24	4.12	0.31
							15	24	3.88	0.20
							20	24	3.78	0.24

OMEGA
HYDROCARBONS LTD
?00 SUN LIFE PLAZA III
?? 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261 0743

DEPARTMENT OF ENERGY AND MINES
MAR 29 1988
PETROLEUM BRANCH

March 25, 1988

Manitoba Petroleum Branch
555 - 33o Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. H. Clare Moster
Executive Director

Dear Sir:

RE: Waskada Commingled Production

We propose to proceed expeditiously with commingling of production from the Lower Amaranth and Mississippian zones at Waskada.

In accordance with item number 2 of your letter February 12, 1988 we hereby apply to recomplete three wells for the purpose of obtaining production data on the new zone and pressure data on the existing zone. Those three wells are:

Omega Waskada 6-6-1-25 WPM
Omega Waskada 9-35-1-26 WPM
Omega Waskada 11-35-1-26 WPM

Table 1, attached, lists the commingling candidate wells by the phases in which we anticipate proceeding with the project.

Our Application dated November 19, 1987 sets out pertinent data for the Lower Amaranth and Mississippian pools. The initial conpletion programs for each of the three Phase 1 wells will be identical to the steps set out in the Application and entitled the Lower Amaranth (LAm) Completion and LAm Evaluation. Enclosed is a copy of Form MG 416 for each of the three wells setting forth specific details.

I trust this is the information you require at this time.

Yours truly,
OMEGA HYDROCARBONS LTD.

G. A. Cormack,
Manager, Production Operations

GAC/lb

Table 1

WASKADA COMMINGLING CANDIDATES

			CURRENT STATUS				PROSPECTIVE ZONE				
Well	Short Term Gain (Loss) m^3/d	Prospective Gain m^3/d	Zone	Productivity Oil/Wtr m^3/d	Unit	W.I.	Zone	Potential Oil/Wtr m^3/d	Expected Data Source	Unit	W.I.
Phase #1											
6-6-1-25	0.8	2.0	L Alida	1.2/3.2	-	100%	LAm	2.0/ -	Est.	-	100%
9-35-1-26	(1.0)	1.0	L Alida	2.0/0.2	-	100%	LAm	1.0/ -	Est.	-	100%
11-35-1-26	(1.2)	1.0	L Alida	2.2/0.5	-	100%	LAm	1.0/ -	Est.	-	100%
Phase #2											
8-8-2-25	0.4	1.5	LAm	0.8/0.1	8	100%	Tilston	1.4/4.0	Prod. Test	-	100%
Phase #3											
10-6-1-25	(1.0)	2.0	L Alida	3.0/0.6	-	100%	LAm	2.0/ -	Est.	-	100%
12-31-1-25	(1.7)	1.3	LAm	3.0/6.0	#3	100%	L Alida	1.3/2.8	Prod. Test	-	100%
2-25-1-26	(2.2)	1.8	LAm	4.0/0	#1	100%	L Alida	1.8/3.9	Prod. Test	-	100%
12-36-1-26	(0.5)	1.5	L Alida	2.0/2.0	-	100%	LAm	1.5/ -	Est.	-	100%

OMEGA
HYDROCARBONS LTD

2000 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 26[illegible]

February 26, 1988

Manitoba Petroleum Board
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E5

Attention: Mr. Ben Dubreuil

Dear Sir:

RE: Waskada Commingled Producing Wells

Enclosed, is a tabulation of the recent production and production tests for the three wells, just prior to commencing the commingled production phase.

Also enclosed, is a tabulation of the events which have occurred in each of these wells, since the initiation of the program to commingle production.

We believe that the program is proceeding as planned and required. The well bore restrictions will be removed, so that commingled production can commence on or about March 1st, 1988.

Yours truly,

R.A. Beamish

R.A. Beamish
Joint Interest Co-ordinator

RAB/h:
Enclosures.

WASKADA - COMMINGLED WELL REPORTS SUMMARY

05-06-9[illegible]-[illegible] W[illegible]

[illegible]	[illegible] hr. bottom hole pressure survey.
[illegible]	[illegible] pack-off Mississippian [illegible] KB
[illegible]	[illegible] 1m 91[illegible] - 91[illegible]m KB - [illegible]
	[illegible]
	[illegible] fluid pumped [illegible]m3
[illegible]	[illegible] tubing at 925.[illegible]m KB [illegible]
	[illegible]
[illegible]	Fluid level [illegible] joints from [illegible]
[illegible]	[illegible] joints.
[illegible]	[illegible]

10-[illegible]

[illegible]

0[illegible]

[illegible]

				Water, m3 (m3/OD)
05-0[illegible]-[illegible] WPM	[illegible]	[illegible]	[illegible]	11.9
				(1.70)
				22.5
				(3.21)
				2.6
				(0.87)
				6.6
				(1.10)
10-35-0[illegible]-26 WPM	[illegible]	[illegible]	[illegible]	0.13
				0.20
				3.20
				0.16
06-03-02-26 WPM	[illegible]	[illegible]	[illegible]	0.31
				0.20
				0.24

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

February 12, 1988

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

Attention: Mr. T. J. Hall

Dear Jack:

Re: Commingling Production
Waskada Field

Your letter of February 1, 1988 regarding commingling of production in the Waskada Field is acknowledged.

Upon review of your proposal, and following our telephone discussion of February 11th, we offer the following comments:

1. The current three well project continues to be viewed by the Department as a pilot project designed to verify the economics of commingled production and to investigate the effects of this mode of production operation on ultimate recovery in a pressure maintenance environment. Consequently, we are not prepared to approve any further applications to commingle until the results of the pilot are available and the conditions of the pilot approval have been addressed. The only exception to this would be in situations where neither zone could be produced economically and where commingling is the only alternative to abandonment.

2. We are however, prepared to entertain applications to recomplete wells for purposes of obtaining production data on the new zones and pressure data on the existing zones. This will assist in defining which wells may be future candidates for commingling.

3. We would suggest that in any case where commingling involved a unitized zone, even where Omega is the only working interest owner, vertical enlargement would be necessary. This is because the Mississippian Formation is excluded from the normal definition of Unitized Strata in your Unit Agreements and because various royalty owners are also parties to the agreement.

Yours respectfully,

H. Clare Moster, P. Eng.
Executive Director

OMEGA
HYDROCARBONS LTD.

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

February 1, 1988

DEPARTMENT OF ENERGY AND MINES
FEB 3 1988
PETROLEUM BRANCH

Government of Manitoba
Department of Energy
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Clare Moster
Director

Dear Sir:

Pursuant to our discussions of January 28, 1988, this is a follow-up letter to outline a proposal as a mechanism toward expanding our commingling scheme at Waskada.

1. Omega will submit for approval on a well-by-well basis a recompletion program to temporarily suspend a zone on those wells intended to become commingled wells, indicating that the ultimate objective is to commingle production.

2. Upon Omega obtaining a pressure build-up profile on the producing zone the designated well would be temporarily plugged back and recompleted in the second zone.

3. Following a test period for gaining production data on the second zone, an application would be submitted for approval to remove the plug-off mechanism and thereby commingle production.

4. The application would contain all of the relevant information on both of the productive horizons, including a request for allocating oil, gas and water from each zone based on producing data.

.../2

Clare Moster
February 1, 1988
Page 2

5. This procedure would involve non-unitized wells initially but would include those unit wells in which Omega is the only working interest owner. Ultimately we envisage using this procedure for units in which Omega is not the only working interest owner. In those instances, Omega would obtain approval of the working interest owners with full intention of implementing vertical enlargement of the subject units.

6. For commingled wells not yet unitized we visualize having both horizons included in one unit and that where appropriate secondary recovery would be carried out on each horizon separately.

7. In those instances where the second zone completion does not result in economic production, an application will be submitted to return the well to production from the original zone.

The above procedure would, in our view, simplify the overall process leading toward commingling of production by precluding the making of a full blown application to commingle production until tests demonstrate the wisdom of such an application. It too would provide a means of making application on a single well, on an ongoing basis, in preference to the batch process as already initiated.

If this program meets with your approval, Omega would initiate this program in the very near future.

Yours truly,

OMEGA HYDROCARBONS LTD.

T.J. Hall
President

TJH/cla

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

February 2, 1988

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

Attention: Gordon A. Cormack
Manager, Production Operation

Re: Production Allocation
Commingled Production

Your letter of January 18, 1988 regarding the procedure for production allocation for the three wells recently approved for commingled production is acknowledged.

Your proposal to allocate production to the Mississippian pools based on the average production for 1987 is acceptable and is therefore approved. It is assumed that upon well testing, the test rates will subsequently be used for production allocation.

Yours respectfully,

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

LRD:HCM:dah

bc: Waskada Office

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
JAN 25 '88
PETROLEUM BRANCH

January 18, 1988

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

Attention: Mr. H. Clare Moster, Executive Director

Dear Sir:

Re: Waskada - Commingled Production
Production Allocation

We have reviewed your letter of December 18, 1987, outlining the conditions for approval of commingled production at Waskada. We hereby request that Condition No.3, outlining the procedure for production allocation, be amended as follows:

- During periods of commingled production, Mississippian production will be allocated at the average oil production rate from the well during 1987. Lower Amaranth production will be allocated at the difference between the total oil rate and the allocated Mississippian oil rate.

The original allocation formula outlined in Condition No. 3 required that production be allocated based on extrapolated production trends from the Mississippian. This method may not work well since the Mississippian production trends for the three pilot wells are either difficult to establish or are increasing at rates which we cannot realistically expect to continue. Therefore, for purposes of the pilot project, we believe it to be more prudent and administratively managable to allocate production as proposed within this letter.

Production graphs and tables for each of the pilot project wells are attached. Calculations of the 1987 average oil rates and water/oil rates (to be used for water allocation) for each of the pilot wells are also attached.

. . ./2

Please review and approve this request at your earliest convenience so that we may advise our accounting group of these changes prior to the start of commingled production.

If you have any questions regarding this request, please contact Dave Roberts at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Gordon A. Cormack
Manager, Production Operations

DR/ns/Letter22

Attachment

c.c. B. Sim (w/o attach)
R. Brekke " "
J. Maclagan " "
K. Trost " "
P. Patton " "
File: Waskada - Commingled Production

WASKADA - COMMINGLED PRODUCTION PILOT PROJECT

1987 AVERAGE RATE CALCULATIONS*

5-6-1-25 WPM (LOWER ALIDA)

TOTAL OIL	=	983.1 m^3
TOTAL WATER	=	825.4 m^3
TOTAL HOURS	=	7 808
AVE. OIL RATE	=	3.0 m^3/d
AVE. WATER/OIL RATIO	=	0.84 m^3/m^3

10-35-1-26 WPM (LOWER ALIDA)

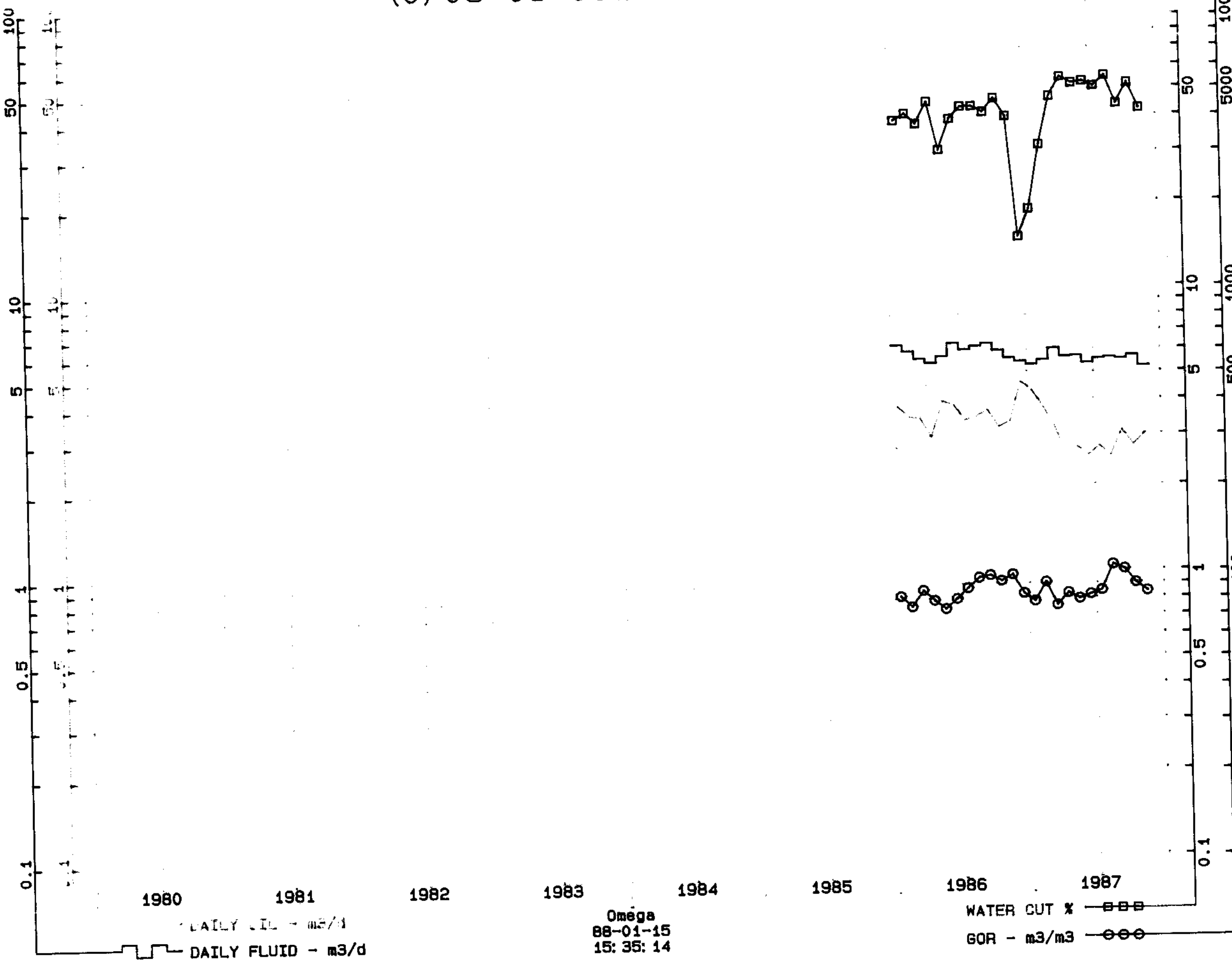
TOTAL OIL	=	661.7 m^3
TOTAL WATER	=	100.1 m^3
TOTAL HOURS	=	8 015
AVE. OIL RATE	=	2.0 m^3/d
AVE. WATER/OIL RATIO	=	0.15 m^3/m^3

6-3-2-26 WPM (UPPER ALIDA)

TOTAL OIL	=	526.0 m^3
TOTAL WATER	=	342.2 m^3
TOTAL HOURS	=	7 933
AVE. OIL RATE	=	1.6 m^3/d
AVE. WATER/OIL RATIO	=	1.54 m^3/m^3

* AVERAGE RATE CALCULATED FOR JANUARY - NOVEMBER 1987 INCLUSIVE.

(0) 05-06-001-25 W1M (0)



PAGE NO. 1

*** S T O R E ***
OMEGA PRODUCTION DATA BASE
WELL (0)05-06-001-25 W1M(0)

Omega
88-01-15
15:19:11

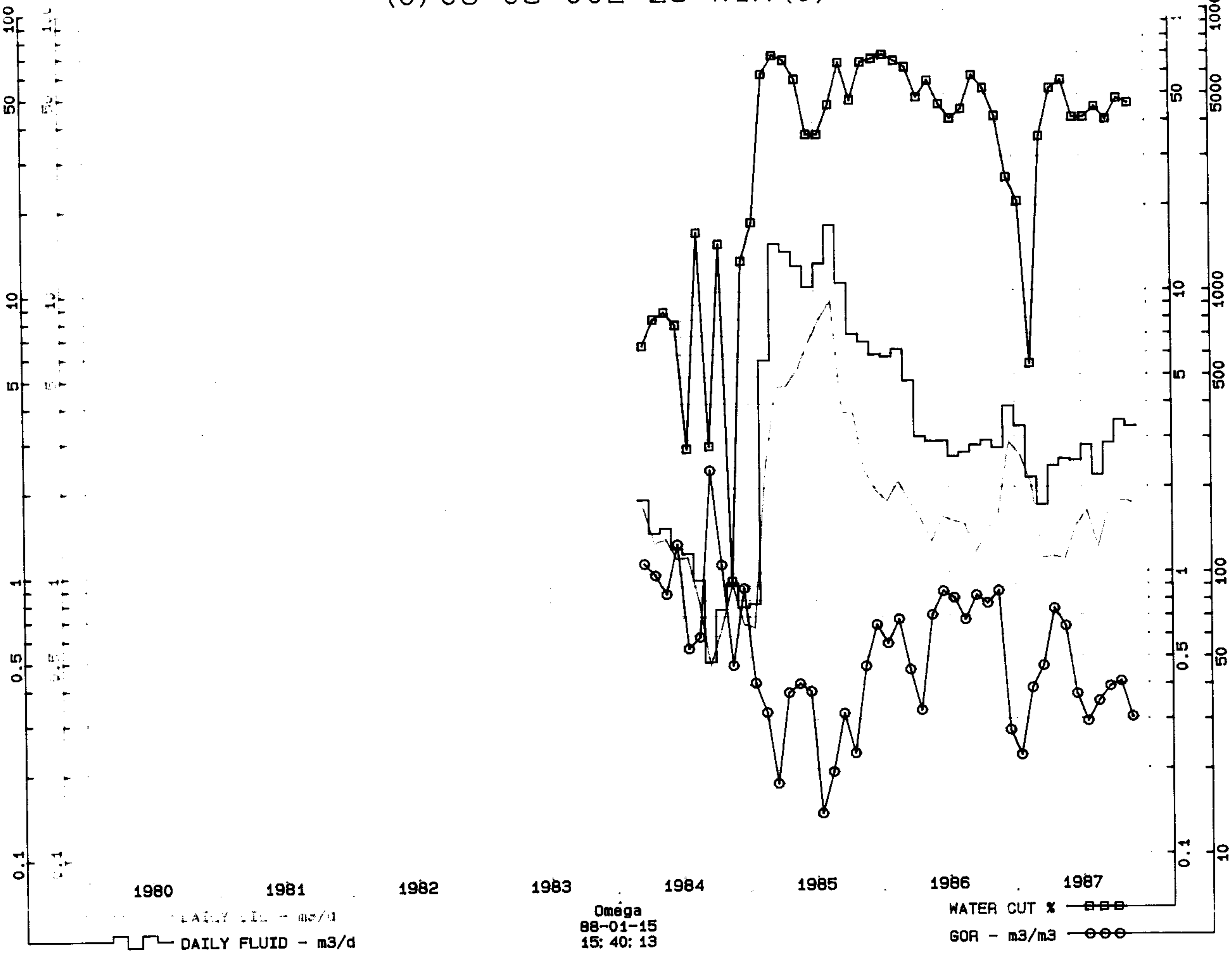
FIELD 1
POOL 3
BLOCK 99
ACCTG 4098

PROVINCE MAN.
WORKING INTEREST 100.00000%
ON PRDN 1986-01-12
ON INJN NOT ON YET

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

MONTH	HOURS	OIL m3/M	WATER m3/M	GAS km3/M	OIL m3/d	WATER m3/d	FLUID m3/d	WATER CUT %	WOR	GOR m3/m3	I.WATER m3/M	I.GAS km3/M	CUM.OIL m3	CUM.WAT m3	CUM.GAS km3	C.I.WAT m3	C.I.GAS km3
1986-01	474	75.6	48.4	6.2	3.8	2.5	6.3	39.0	0.64	82	0.0	0.0	75.6	48.4	6.2	0.0	0.0
1986-02	672	98.2	68.8	7.4	3.5	2.5	6.0	41.2	0.70	75	0.0	0.0	173.8	117.2	13.6	0.0	0.0
1986-03	705	102.4	62.6	8.8	3.5	2.1	5.6	37.9	0.61	86	0.0	0.0	276.2	179.8	22.4	0.0	0.0
1986-04	684	84.6	70.0	6.7	3.0	2.5	5.4	45.3	0.83	79	0.0	0.0	360.8	249.8	29.1	0.0	0.0
1986-05	580	96.0	42.3	7.1	4.0	1.8	5.7	30.6	0.44	74	0.0	0.0	456.8	292.1	36.2	0.0	0.0
1986-06	582	93.6	60.7	7.5	3.9	2.5	6.4	39.3	0.65	80	0.0	0.0	550.4	352.8	43.7	0.0	0.0
1986-07	732	104.2	80.0	9.1	3.4	2.6	6.0	43.4	0.77	87	0.0	0.0	654.6	432.8	52.8	0.0	0.0
1986-08	628	91.6	70.5	8.7	3.5	2.7	6.2	43.5	0.77	95	0.0	0.0	746.2	503.3	61.5	0.0	0.0
1986-09	702	108.5	76.8	10.5	3.7	2.6	6.3	41.4	0.71	97	0.0	0.0	854.7	580.1	72.0	0.0	0.0
1986-10	745	99.7	85.7	9.2	3.2	2.8	6.0	46.2	0.86	92	0.0	0.0	954.4	665.8	81.2	0.0	0.0
1986-11	660	92.7	61.8	9.0	3.4	2.2	5.6	40.0	0.67	97	0.0	0.0	1047.1	727.6	90.2	0.0	0.0
1986-12	744	143.9	25.4	12.0	4.6	0.8	5.5	15.0	0.18	83	0.0	0.0	1191.0	753.0	102.2	0.0	0.0
1987-01	726	130.6	30.2	10.2	4.3	1.0	5.3	18.8	0.23	78	0.0	0.0	1321.6	783.2	112.4	0.0	0.0
1987-02	665	104.4	48.3	9.5	3.8	1.7	5.5	31.6	0.46	91	0.0	0.0	1426.0	831.5	121.9	0.0	0.0
1987-03	720	96.7	84.9	7.3	3.2	2.8	6.1	46.8	0.88	75	0.0	0.0	1522.7	916.4	129.2	0.0	0.0
1987-04	675	72.0	87.0	6.0	2.6	3.1	5.7	54.7	1.21	83	0.0	0.0	1594.7	1003.4	135.2	0.0	0.0
1987-05	744	84.4	91.6	6.7	2.7	3.0	5.7	52.0	1.09	79	0.0	0.0	1679.1	1095.0	141.9	0.0	0.0
1987-06	692	73.0	81.6	6.0	2.5	2.8	5.4	52.8	1.12	82	0.0	0.0	1752.1	1176.6	147.9	0.0	0.0
1987-07	744	84.8	87.0	7.2	2.7	2.8	5.5	50.6	1.03	85	0.0	0.0	1836.9	1263.6	155.1	0.0	0.0
1987-08	730	76.7	93.7	8.0	2.5	3.1	5.6	55.0	1.22	104	0.0	0.0	1913.6	1357.3	163.1	0.0	0.0
1987-09	720	93.4	72.8	9.4	3.1	2.4	5.5	43.8	0.78	101	0.0	0.0	2007.0	1430.1	172.5	0.0	0.0
1987-10	672	76.7	82.4	6.9	2.7	2.9	5.7	51.8	1.07	90	0.0	0.0	2083.7	1512.5	179.4	0.0	0.0
1987-11	720	90.4	65.9	7.6	3.0	2.2	5.2	42.2	0.73	84	0.0	0.0	2174.1	1578.4	187.0	0.0	0.0
1987 ∑	7808	983.1	825.4														

(0) 06-03-002-26 W1M (0)



*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL (0)06-03-002-26 W1M(0)

Omega
88-01-15
15:19:11

FIELD 1
POOL 2
BLOCK 99
ACCTG 4528

PROVINCE MAN.
WORKING INTEREST 100.00000%
ON PRDN 1984-03-03
ON INJN NOT ON YET

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

MONTH	HOURS	OIL m3/M	WATER m3/M	GAS km3/M	OIL m3/d	WATER m3/d	FLUID m3/d	WATER CUT %	WOR	GOR m3/m3	I.WATER m3/M	I.GAS km3/M	CUM.OIL m3	CUM.WAT m3	CUM.GAS km3	C.I.WAT m3	C.I.GAS km3
1984-03	674	48.0	3.3	5.2	1.7	0.1	1.8	6.4	0.07	108	0.0	0.0	48.0	3.3	5.2	0.0	0.0
1984-04	648	34.5	3.0	3.4	1.3	0.1	1.4	8.0	0.09	99	0.0	0.0	82.5	6.3	8.6	0.0	0.0
1984-05	665	36.7	3.4	3.1	1.3	0.1	1.4	8.5	0.09	84	0.0	0.0	119.2	9.7	11.7	0.0	0.0
1984-06	671	31.5	2.6	4.0	1.1	0.1	1.2	7.6	0.08	127	0.0	0.0	150.7	12.3	15.7	0.0	0.0
1984-07	741	35.2	1.0	1.9	1.1	0.0	1.2	2.8	0.03	54	0.0	0.0	185.9	13.3	17.6	0.0	0.0
1984-08	768	25.3	4.9	1.5	0.8	0.2	0.9	16.2	0.19	59	0.0	0.0	211.2	18.2	19.1	0.0	0.0
1984-09	708	13.8	0.4	3.2	0.5	0.0	0.5	2.8	0.03	232	0.0	0.0	225.0	18.6	22.3	0.0	0.0
1984-10	745	19.6	3.4	2.1	0.6	0.1	0.7	14.8	0.17	107	0.0	0.0	244.6	22.0	24.4	0.0	0.0
1984-11	560	21.3	0.2	1.0	0.9	0.0	0.9	0.9	0.01	47	0.0	0.0	265.9	22.2	25.4	0.0	0.0
1984-12	744	20.4	3.0	1.8	0.7	0.1	0.8	12.8	0.15	88	0.0	0.0	286.3	25.2	27.2	0.0	0.0
1985-01	740	19.7	4.2	0.8	0.6	0.1	0.8	17.6	0.21	41	0.0	0.0	306.0	29.4	28.0	0.0	0.0
1985-02	584	56.4	82.3	1.8	2.3	3.4	5.7	59.3	1.46	32	0.0	0.0	362.4	111.7	29.8	0.0	0.0
1985-03	740	140.1	314.8	2.5	4.5	10.2	14.8	69.2	2.25	18	0.0	0.0	502.5	426.5	32.3	0.0	0.0
1985-04	719	138.7	276.7	5.2	4.6	9.2	13.9	66.6	1.99	37	0.0	0.0	641.2	703.2	37.5	0.0	0.0
1985-05	740	163.7	215.7	6.6	5.3	7.0	12.3	56.9	1.32	40	0.0	0.0	804.9	918.9	44.1	0.0	0.0
1985-06	720	198.2	112.3	7.5	6.6	3.7	10.4	36.2	0.57	38	0.0	0.0	1003.1	1031.2	51.6	0.0	0.0
1985-07	729	243.5	137.7	3.4	8.0	4.5	12.5	36.1	0.57	14	0.0	0.0	1246.6	1168.9	55.0	0.0	0.0
1985-08	740	285.9	244.0	5.6	9.3	7.9	17.2	46.0	0.85	20	0.0	0.0	1532.5	1412.9	60.6	0.0	0.0
1985-09	714	110.9	207.2	3.5	3.7	7.0	10.7	65.1	1.87	32	0.0	0.0	1643.4	1620.1	64.1	0.0	0.0
1985-10	744	114.0	104.4	2.6	3.7	3.4	7.0	47.8	0.92	23	0.0	0.0	1757.4	1724.5	66.7	0.0	0.0
1985-11	720	68.9	129.2	3.2	2.3	4.3	6.6	65.2	1.88	46	0.0	0.0	1826.3	1853.7	69.9	0.0	0.0
1985-12	718	58.4	119.1	3.8	2.0	4.0	5.9	67.1	2.04	65	0.0	0.0	1884.7	1972.8	73.7	0.0	0.0
1986-01	744	55.5	125.4	3.1	1.8	4.0	5.8	69.3	2.26	56	0.0	0.0	1940.2	2098.2	76.8	0.0	0.0
1986-02	619	54.4	105.5	3.7	2.1	4.1	6.2	66.0	1.94	68	0.0	0.0	1994.6	2203.7	80.5	0.0	0.0
1986-03	744	55.5	93.0	2.5	1.8	3.0	4.8	62.6	1.68	45	0.0	0.0	2050.1	2296.7	83.0	0.0	0.0
1986-04	719	46.5	44.4	1.5	1.6	1.5	3.0	48.8	0.95	32	0.0	0.0	2096.6	2341.1	84.5	0.0	0.0
1986-05	744	39.8	50.6	2.8	1.3	1.6	2.9	56.0	1.27	70	0.0	0.0	2136.4	2391.7	87.3	0.0	0.0
1986-06	716	46.9	40.1	4.0	1.6	1.3	2.9	46.1	0.86	85	0.0	0.0	2183.3	2431.8	91.3	0.0	0.0
1986-07	744	47.0	32.6	3.8	1.5	1.1	2.6	41.0	0.69	81	0.0	0.0	2230.3	2464.4	95.1	0.0	0.0
1986-08	744	45.8	36.4	3.1	1.5	1.2	2.7	44.3	0.79	68	0.0	0.0	2276.1	2500.8	98.2	0.0	0.0
1986-09	720	35.2	49.3	2.9	1.2	1.6	2.8	58.3	1.40	82	0.0	0.0	2311.3	2550.1	101.1	0.0	0.0
1986-10	737	42.7	47.1	3.3	1.4	1.5	2.9	52.4	1.10	77	0.0	0.0	2354.0	2597.2	104.4	0.0	0.0
1986-11	720	48.0	34.4	4.1	1.6	1.1	2.7	41.7	0.72	85	0.0	0.0	2402.0	2631.6	108.5	0.0	0.0
1986-12	698	84.1	28.3	2.3	2.9	1.0	3.9	25.2	0.34	27	0.0	0.0	2486.1	2659.9	110.8	0.0	0.0
1987-01	744	80.7	21.1	1.8	2.6	0.7	3.3	20.7	0.26	22	0.0	0.0	2566.8	2681.0	112.6	0.0	0.0
1987-02	672	57.0	3.3	2.2	2.0	0.1	2.2	5.5	0.06	39	0.0	0.0	2623.8	2684.3	114.8	0.0	0.0
1987-03	744	34.6	18.8	1.6	1.1	0.6	1.7	35.2	0.54	46	0.0	0.0	2658.4	2703.1	116.4	0.0	0.0
1987-04	719	33.9	37.0	2.5	1.1	1.2	2.4	52.2	1.09	74	0.0	0.0	2692.3	2740.1	118.9	0.0	0.0
1987-05	744	34.4	43.3	2.2	1.1	1.4	2.5	55.7	1.26	64	0.0	0.0	2726.7	2783.4	121.1	0.0	0.0
1987-06	720	43.6	30.5	1.6	1.5	1.0	2.5	41.2	0.70	37	0.0	0.0	2770.3	2813.9	122.7	0.0	0.0
1987-07	744	51.1	35.8	1.5	1.6	1.2	2.8	41.2	0.70	29	0.0	0.0	2821.4	2849.7	124.2	0.0	0.0
1987-08	744	37.6	30.5	1.3	1.2	1.0	2.2	44.8	0.81	35	0.0	0.0	2859.0	2880.2	125.5	0.0	0.0
1987-09	688	48.7	33.1	1.9	1.7	1.2	2.9	40.5	0.68	39	0.0	0.0	2907.7	2913.3	127.4	0.0	0.0

* * * S T O R E * * *
OMEGA PRODUCTION DATA BASE
WELL (0)06-03-002-26 W1M(0)

Omega
88-01-15
15:19:11

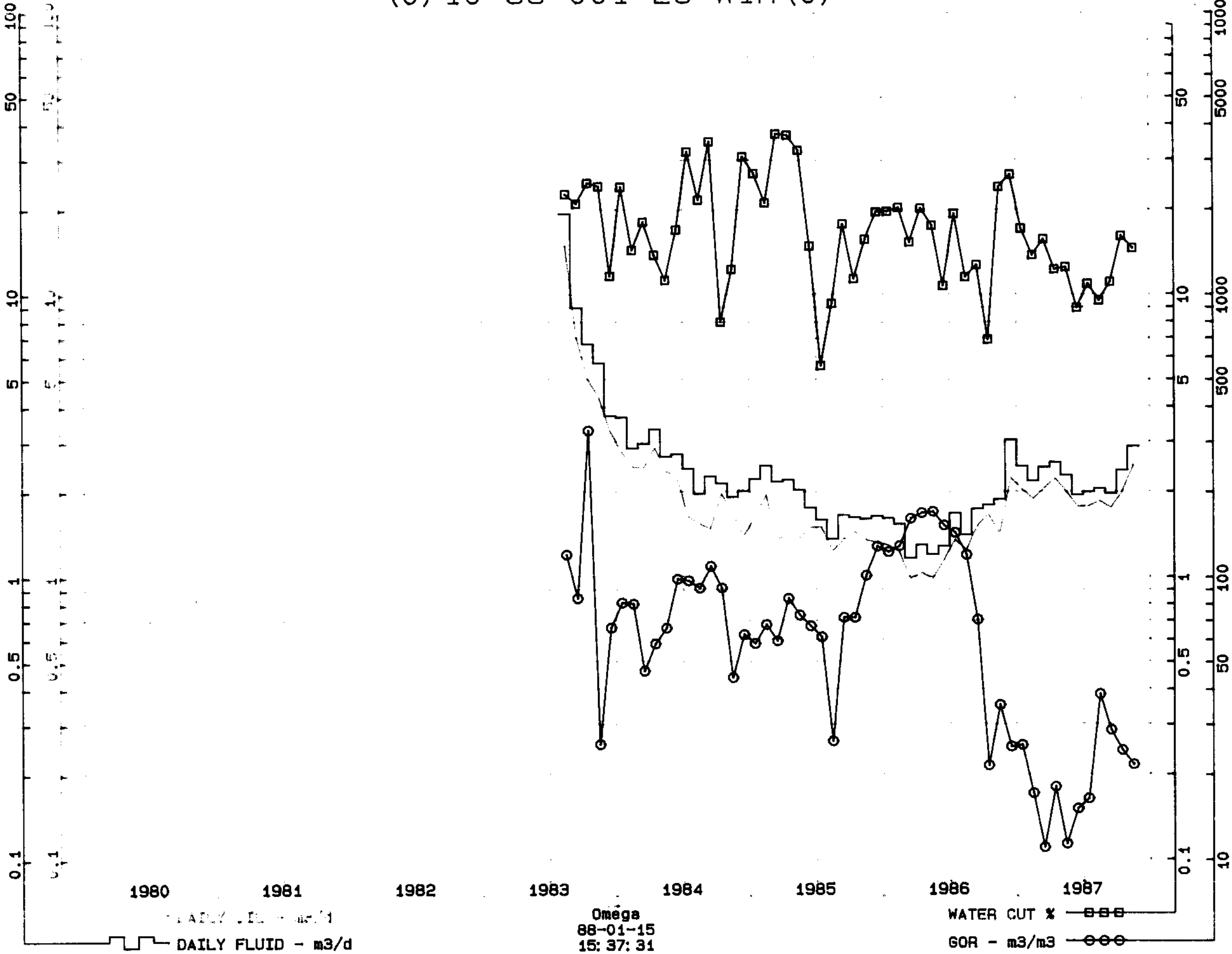
FIELD 1
POOL 2
BLOCK 99
ACCTG 4528

PROVINCE MAN.
WORKING INTEREST 100.00000%
ON PRDN 1984-03-03
ON INJN NOT ON YET

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

MONTH	HOURS	OIL m3/M	WATER m3/M	GAS km3/M	OIL m3/d	WATER m3/d	FLUID m3/d	WATER CUT %	WOR	GOR m3/m3	I.WATER m3/M	I.GAS km3/M	CUM.OIL m3	CUM.WAT m3	CUM.GAS km3	C.I.WAT m3	C.I.GAS km3
1987-10	694	51.7	47.6	2.1	1.8	1.6	3.4	47.9	0.92	41	0.0	0.0	2959.4	2960.9	129.5	0.0	0.0
1987-11	720	52.7	45.2	1.6	1.8	1.5	3.3	46.2	0.86	30	0.0	0.0	3012.1	3006.1	131.1	0.0	0.0
1987 £	7933	526	342.2														

(0) 10-35-001-26 W1M (0)



*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL (0)10-35-001-26 W1M(0)

Omega
88-01-15
15:19:11

PROVINCE MAN.
WORKING INTEREST 100.00000%
ON PRDN 1983-08-28
ON INJN NOT ON YET

FIELD 1
POOL 3
BLOCK 99
ACCTG 4429

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

MONTH	HOURS	OIL m3/M	WATER m3/M	GAS km3/M	OIL m3/d	WATER m3/d	FLUID m3/d	WATER CUT %	WOR	GOR m3/m3	I.WATER m3/M	I.GAS km3/M	CUM.OIL m3	CUM.WAT m3	CUM.GAS km3	C.I.WAT m3	C.I.GAS km3
1983-08	96	60.0	17.6	7.2	15.0	4.4	19.4	22.7	0.29	120	0.0	0.0	60.0	17.6	7.2	0.0	0.0
1983-09	720	212.7	56.5	17.9	7.1	1.9	9.0	21.0	0.27	84	0.0	0.0	272.7	74.1	25.1	0.0	0.0
1983-10	666	139.7	46.2	46.2	5.0	1.7	6.7	24.9	0.33	331	0.0	0.0	412.4	120.3	71.3	0.0	0.0
1983-11	715	129.3	41.2	3.3	4.3	1.4	5.7	24.2	0.32	26	0.0	0.0	541.7	161.5	74.6	0.0	0.0
1983-12	728	99.7	13.1	6.6	3.3	0.4	3.7	11.6	0.13	66	0.0	0.0	641.4	174.6	81.2	0.0	0.0
1984-01	744	86.4	27.4	7.0	2.8	0.9	3.7	24.1	0.32	81	0.0	0.0	727.8	202.0	88.2	0.0	0.0
1984-02	696	71.0	11.9	5.7	2.4	0.4	2.9	14.4	0.17	80	0.0	0.0	798.8	213.9	93.9	0.0	0.0
1984-03	744	75.3	16.6	3.5	2.4	0.5	3.0	18.1	0.22	46	0.0	0.0	874.1	230.5	97.4	0.0	0.0
1984-04	720	86.2	13.8	5.0	2.9	0.5	3.3	13.8	0.16	58	0.0	0.0	960.3	244.3	102.4	0.0	0.0
1984-05	738	72.8	9.2	4.8	2.4	0.3	2.7	11.2	0.13	66	0.0	0.0	1033.1	253.5	107.2	0.0	0.0
1984-06	713	67.1	13.7	6.6	2.3	0.5	2.7	17.0	0.20	98	0.0	0.0	1100.2	267.2	113.8	0.0	0.0
1984-07	739	50.5	23.9	4.9	1.6	0.8	2.4	32.1	0.47	97	0.0	0.0	1150.7	291.1	118.7	0.0	0.0
1984-08	768	49.3	13.6	4.5	1.5	0.4	2.0	21.6	0.28	91	0.0	0.0	1200.0	304.7	123.2	0.0	0.0
1984-09	716	44.0	23.5	4.8	1.5	0.8	2.3	34.8	0.53	109	0.0	0.0	1244.0	328.2	128.0	0.0	0.0
1984-10	745	61.2	5.3	5.6	2.0	0.2	2.1	8.0	0.09	92	0.0	0.0	1305.2	333.5	133.6	0.0	0.0
1984-11	716	50.1	7.0	2.2	1.7	0.2	1.9	12.3	0.14	44	0.0	0.0	1355.3	340.5	135.8	0.0	0.0
1984-12	744	43.2	19.2	2.7	1.4	0.6	2.0	30.8	0.44	63	0.0	0.0	1398.5	359.7	138.5	0.0	0.0
1985-01	740	49.9	18.3	2.9	1.6	0.6	2.2	26.8	0.37	58	0.0	0.0	1448.4	378.0	141.4	0.0	0.0
1985-02	672	54.6	14.6	3.7	2.0	0.5	2.5	21.1	0.27	68	0.0	0.0	1503.0	392.6	145.1	0.0	0.0
1985-03	740	42.1	24.8	2.5	1.4	0.8	2.2	37.1	0.59	59	0.0	0.0	1545.1	417.4	147.6	0.0	0.0
1985-04	719	41.7	24.2	3.5	1.4	0.8	2.2	36.7	0.58	84	0.0	0.0	1586.8	441.6	151.1	0.0	0.0
1985-05	740	42.3	20.3	3.1	1.4	0.7	2.0	32.4	0.48	73	0.0	0.0	1629.1	461.9	154.2	0.0	0.0
1985-06	720	44.8	7.8	3.0	1.5	0.3	1.8	14.8	0.17	67	0.0	0.0	1673.9	469.7	157.2	0.0	0.0
1985-07	731	45.7	2.7	2.8	1.5	0.1	1.6	5.6	0.06	61	0.0	0.0	1719.6	472.4	160.0	0.0	0.0
1985-08	744	38.2	3.9	1.0	1.2	0.1	1.4	9.3	0.10	26	0.0	0.0	1757.8	476.3	161.0	0.0	0.0
1985-09	714	40.4	8.7	2.9	1.4	0.3	1.7	17.7	0.22	72	0.0	0.0	1798.2	485.0	163.9	0.0	0.0
1985-10	744	44.6	5.7	3.2	1.4	0.2	1.6	11.3	0.13	72	0.0	0.0	1842.8	490.7	167.1	0.0	0.0
1985-11	720	40.5	7.5	4.1	1.4	0.3	1.6	15.6	0.19	101	0.0	0.0	1883.3	498.2	171.2	0.0	0.0
1985-12	727	39.8	9.7	5.1	1.3	0.3	1.6	19.6	0.24	128	0.0	0.0	1923.1	507.9	176.3	0.0	0.0
1986-01	744	40.0	9.8	4.9	1.3	0.3	1.6	19.7	0.25	123	0.0	0.0	1963.1	517.7	181.2	0.0	0.0
1986-02	672	34.2	8.7	4.4	1.2	0.3	1.5	20.3	0.25	129	0.0	0.0	1997.3	526.4	185.6	0.0	0.0
1986-03	744	30.5	5.5	4.9	1.0	0.2	1.2	15.3	0.18	161	0.0	0.0	2027.8	531.9	190.5	0.0	0.0
1986-04	719	30.9	7.8	5.2	1.0	0.3	1.3	20.2	0.25	168	0.0	0.0	2058.7	539.7	195.7	0.0	0.0
1986-05	744	30.6	6.5	5.2	1.0	0.2	1.2	17.5	0.21	170	0.0	0.0	2089.3	546.2	200.9	0.0	0.0
1986-06	718	34.2	4.1	5.2	1.1	0.1	1.3	10.7	0.12	152	0.0	0.0	2123.5	550.3	206.1	0.0	0.0
1986-07	744	41.9	10.0	6.0	1.4	0.3	1.7	19.3	0.24	143	0.0	0.0	2165.4	560.3	212.1	0.0	0.0
1986-08	744	38.5	5.0	4.6	1.2	0.2	1.4	11.5	0.13	119	0.0	0.0	2203.9	565.3	216.7	0.0	0.0
1986-09	720	45.4	6.6	3.2	1.5	0.2	1.7	12.7	0.15	70	0.0	0.0	2249.3	571.9	219.9	0.0	0.0
1986-10	738	51.3	3.8	1.1	1.7	0.1	1.8	6.9	0.07	21	0.0	0.0	2300.6	575.7	221.0	0.0	0.0
1986-11	720	42.7	13.5	1.5	1.4	0.5	1.9	24.0	0.32	35	0.0	0.0	2343.3	589.2	222.5	0.0	0.0
1986-12	729	68.0	24.6	1.7	2.2	0.8	3.0	26.6	0.36	25	0.0	0.0	2411.3	613.8	224.2	0.0	0.0
1987-01	744	63.2	13.0	1.6	2.0	0.4	2.5	17.1	0.21	25	0.0	0.0	2474.5	626.8	225.8	0.0	0.0
1987-02	672	52.7	8.4	0.9	1.9	0.3	2.2	13.7	0.16	17	0.0	0.0	2527.2	635.2	226.7	0.0	0.0

*** STORE ***
OMEGA PRODUCTION DATA BASE
WELL (0)10-35-001-26 W1M(0)

Omega
88-01-15
15:19:11

FIELD 1
POOL 3
BLOCK 99
ACCTG 4429

PROVINCE MAN.
WORKING INTEREST 100.00000%
ON PRDN 1983-08-28
ON INJN NOT ON YET

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

MONTH	HOURS	OIL m3/M	WATER m3/M	GAS km3/M	OIL m3/d	WATER m3/d	FLUID m3/d	WATER CUT %	WOR	GOR m3/m3	I.WATER m3/M	I.GAS km3/M	CUM.OIL m3	CUM.WAT m3	CUM.GAS km3	C.I.WAT m3	C.I.GAS km3
1987-03	744	63.7	11.8	0.7	2.1	0.4	2.4	15.6	0.19	11	0.0	0.0	2590.9	647.0	227.4	0.0	0.0
1987-04	719	66.7	9.3	1.2	2.2	0.3	2.5	12.2	0.14	18	0.0	0.0	2657.6	656.3	228.6	0.0	0.0
1987-05	744	61.9	8.8	0.7	2.0	0.3	2.3	12.4	0.14	11	0.0	0.0	2719.5	665.1	229.3	0.0	0.0
1987-06	720	53.1	5.2	0.8	1.8	0.2	1.9	8.9	0.10	15	0.0	0.0	2772.6	670.3	230.1	0.0	0.0
1987-07	744	55.0	6.7	0.9	1.8	0.2	2.0	10.9	0.12	16	0.0	0.0	2827.6	677.0	231.0	0.0	0.0
1987-08	744	57.4	6.0	2.2	1.9	0.2	2.0	9.5	0.10	38	0.0	0.0	2885.0	683.0	233.2	0.0	0.0
1987-09	720	52.5	6.5	1.5	1.8	0.2	2.0	11.0	0.12	29	0.0	0.0	2937.5	689.5	234.7	0.0	0.0
1987-10	744	61.8	11.8	1.5	2.0	0.4	2.4	16.0	0.19	24	0.0	0.0	2999.3	701.3	236.2	0.0	0.0
1987-11	720	74.1	12.6	1.6	2.5	0.4	2.9	14.5	0.17	22	0.0	0.0	3073.4	713.9	237.8	0.0	0.0
1987 Σ	8015	661.7	100.1														

Manitoba

Energy and Mines

Petroleum

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

(204) 945-6577

December 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 Sir:

Re: Omega Waskada 5-6-1-25 (WPM)
Omega Waskada 10-35-1-26 (WPM)
Omega Waskada 6-3-2-26 (WPM)
Commingled Production

Your application dated November 19, 1987, to commingle production from two zones in the subject wellbores is approved subject to the following conditions:

1. The Lower Amaranth production evaluation period shall be continued for a minimum of two months with weekly production tests. This extension is in the interests of obtaining accurate initial rate characteristics for possible future unitization purposes.

2. Pumping fluid levels are to be obtained on each well on a monthly basis subsequent to commingling.

3. Production reporting for the separate zones will be determined by extrapolation of existing Mississippian production trends with the difference being attributed to the Lower Amaranth.

4. A statistical and narrative summary of operations on the test wells is to be submitted as part of the monthly pressure maintenance review.

5. Provincial oil production taxes are to be calculated on the basis of total volume from each well and not separately for each zone.

6. A detailed analysis of the performance of the test wells is to be submitted prior to December 31, 1988. This report should detail all aspects of the pilot and additionally, should review the feasibility of utilizing reservoir simulation to more rigorously evaluate the impact of commingling on ultimate recovery.

Approval of this pilot project is for an evaluation period ending January 31, 1989, and subject to the above conditions is as outlined in your application. Depending on performance of the wells, the Petroleum Division may consider, at any time, extension of the approval for a further interim or indefinite period or curtailment of the project.

Yours sincerely,

H. Clare Moster, P. Eng.
Executive Director

LRD/HCM/sml

bc: Waskada Office

OMEGA
HYDROCARBONS LTD.

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

December 17, 1987

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

Attention: Mr. Bob Dubreuil

Dear Sir:

Re: Application to Commingle Production - Waskada Field

As requested in our telephone conversation of December 17, 1987, I have enclosed copies of Omega's Notice letters sent to companies holding a working interest in lands offsetting the commingled production candidate wells.

To date, we have forwarded a copy of our application to Chevron Canada Resources Limited; however, no other company has requested additional information.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dave Roberts

Dave Roberts, P. Eng.
Petroleum Engineering

DR/ns
Letter20

c.c. T.J. Hall

Enclosure.

OMEGA
HYDROCARBONS LTD.

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

December 7, 1987

Hudson's Bay Oil & Gas Company Limited
c/o Dome Petroleum Limited
P.O. Box 200
Calgary, Alberta
T2P 2H8

Attention: Joint Operations

Dear Sirs:

**Re: Application to Commingle Production
Waskada Field**

Enclosed herewith is a Notice which Omega Hydrocarbons Ltd. has received from the Manitoba Department of Energy and Mines respecting an application by Omega to commingle production. Omega has been asked by the said Department to distribute a copy of such Notice to those companies which have working interests in lands offsetting the wells which are the subject of the application. You will note that if no valid objections to or interventions in the application are received by the said Department prior to December 18, 1987, the application may be approved.

If you wish to discuss any aspect of the application, please feel free to get in touch with either the writer or Richard Brekke.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dave Roberts.

David Roberts, P. Eng.
Petroleum Engineering

DR/js
Encl.

Manitoba

_nergy and Mines

Petroleum

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

(204) 945-6577

November 27, 1987

RECEIVED
DEC 07 1987

NOTICE

Omega Hydrocarbons Ltd. has made application for approval to commingle production from the Lower Amaranth and Mission Canyon Formations in the following wells in the Waskada Field:

Omega Waskada 5-6-1-25 (WPM)

Omega Waskada 10-35-1-26 (WPM)

Omega Waskada 6-3-2-26 (WPM)

You, as operator of lands offsetting one or more of the wells, are hereby notified of Omega's application. If no valid objections to or interventions in this application are received at this office prior to December 18, 1987, the application may be approved.

Copies of the application are available from:

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P OH3

or can be viewed at the letterhead address.

H. C. Moster

H. Clare Moster, P. Eng.
Executive Director
Petroleum Division

OMEGA
HYDROCARBONS LTD.

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

December 7, 1987

Baxter Lake Holdings Company Limited
9535 - 154 Street
Edmonton, Alberta
T5P 2E8

Attention: Mr. Erhard Schulz

Dear Sirs:

**Re: Application to Commingle Production
Waskada Field**

Enclosed herewith is a Notice which Omega Hydrocarbons Ltd. has received from the Manitoba Department of Energy and Mines respecting an application by Omega to commingle production. Omega has been asked by the said Department to distribute a copy of such Notice to those companies which have working interests in lands offsetting the wells which are the subject of the application. You will note that if no valid objections to or interventions in the application are received by the said Department prior to December 18, 1987, the application may be approved.

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Yours truly,

OMEGA HYDROCARBONS LTD.

Dave Roberts

David Roberts, P. Eng.
Petroleum Engineering

DR/js
Encl.

Manitoba

ergy and Mines
Petroleum

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

(204) 945-6577

November 27, 1987

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Omega Waskada 10-35-1-26 (WPM)

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You, as operator of lands offsetting one or more of the wells, are hereby notified of Omega's application. If no valid objections to or interventions in this application are received at this office prior to December 18, 1987, the application may be approved.

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

or can be viewed at the letterhead address.

H. Clare Moster, P. Eng.
Executive Director
Petroleum Division

OMEGA
HYDROCARBONS LTD.

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

December 7, 1987

Rex Petroleum Ltd.
1480 Aquitane Tower
540 - 5th Avenue S.W.
Calgary, Alberta
T2P 0M2

Attention: Mr. D. A. Robinson
Land Manager

Dear Sirs:

Re: Application to Commingle Production
Waskada Field

Enclosed herewith is a Notice which Omega Hydrocarbons Ltd. has received from the Manitoba Department of Energy and Mines respecting an application by Omega to commingle production. Omega has been asked by the said Department to distribute a copy of such Notice to those companies which have working interests in lands offsetting the wells which are the subject of the application. You will note that if no valid objections to or interventions in the application are received by the said Department prior to December 18, 1987, the application may be approved.

If you wish to discuss any aspect of the application, please feel free to get in touch with either the writer or Richard Brekke.

Yours truly,

OMEGA HYDROCARBONS LTD.

Dave Roberts

David Roberts, P. Eng.
Petroleum Engineering

DR/js
Encl.

Manitoba

E gy and Mines   Petroleum

555 — 330 Graham Avenue
Winnipeg, Manitoba, CANADA
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(204) 945-6577

November 27, 1987

RECEIVED DEC 07 1987

NOTICE

Omega Hydrocarbons Ltd. has made application for approval to commingle production from the Lower Amaranth and Mission Canyon Formations in the following wells in the Waskada Field:

Omega Waskada 5-6-1-25 (WPM)

Omega Waskada 10-35-1-26 (WPM)

Omega Waskada 6-3-2-26 (WPM)

You, as operator of lands offsetting one or more of the wells, are hereby notified of Omega's application. If no valid objections to or interventions in this application are received at this office prior to December 18, 1987, the application may be approved.

Copies of the application are available from:

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

or can be viewed at the letterhead address.

H. Clare Moster, P. Eng.
Executive Director
Petroleum Division

Chevron

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

K.E. Godard
Chief Engineer

1987-12-16

Omega Hydrocarbons Ltd's Application
Commingled Production in Waskada

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

Attention: Mr. H. Clare Moster, P.Eng.

Gentlemen:

Chevron Canada Resources Limited does not object to the application by Omega Hydrocarbons Ltd. to commingle production from the Lower Amaranth and Mission Canyon formations in the Waskada field. Chevron does have the following concerns regarding the proposal.

1. Cross Flow

   Omega have addressed the problem of cross flow during production by installing artificial lift. Chevron is concerned that cross flow may occur if the wells are shut in. Since the Lower Amaranth formation is under waterflood and receiving pressure support, oil could cross flow into the Mission Canyon formation resulting in reduced oil recoveries.

2. Unit Expansion

   To optimize recoveries in the Lower Amaranth formation, Omega's wells should be included in the Waskada Units and produced under waterflood. Four months of noncommingled production data from the Lower Amaranth formation would be required before these wells could be included in the units.

If any further information is required, please contact Bonnie Nicol at (403) 234-5170.

Yours truly,

BRNicol

BRN/ds

for C. G. FOLDEN, P.Eng.
Supervising Engineer
Reservoir

cc: Omega Hydrocarbons Limited - Mr. D. Roberts

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555-330 GRAHAM AVENUE
WINNIPEG, MANITOBA
R3C 4E3

DEPARTMENT OF ENERGY AND MINES
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PETROLEUM BRANCH

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500 - 5th Avenue S.W.

City Ville	Province	Country Pays	Postal CODE postal
CALGARY	Alberta		T2P 0L7

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33-086-230 (11-80)

Manitoba

Energy and Mines Petroleum

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

(204) 945-6577

November 27, 1987

NOTICE

Omega Hydrocarbons Ltd. has made application for approval to commingle production from the Lower Amaranth and Mission Canyon Formations in the following wells in the Waskada Field:

Omega Waskada 5-6-1-25 (WPM)

Omega Waskada 10-35-1-26 (WPM)

Omega Waskada 6-3-2-26 (WPM)

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Copies of the application are available from:

Omega Hydrocarbons Ltd.
1300 Sun Life Plaza III
112 - 4th Avenue S.W.
Calgary, Alberta
T2P OH3

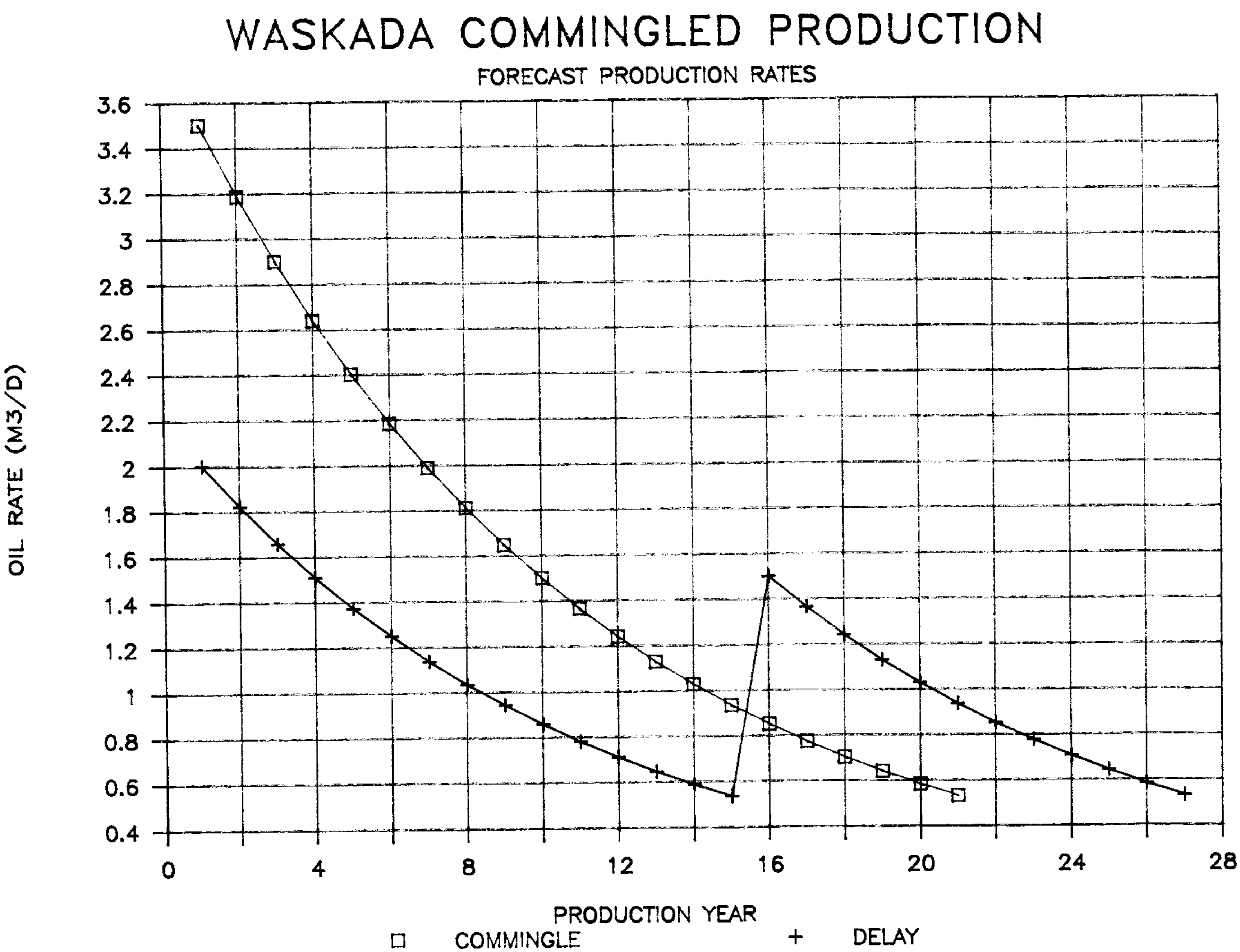
or can be viewed at the letterhead address.

H. Clare Moster, P. Eng.
Executive Director
Petroleum Division

WASKADA COMMINGLED PRODUCTION APPLICATION

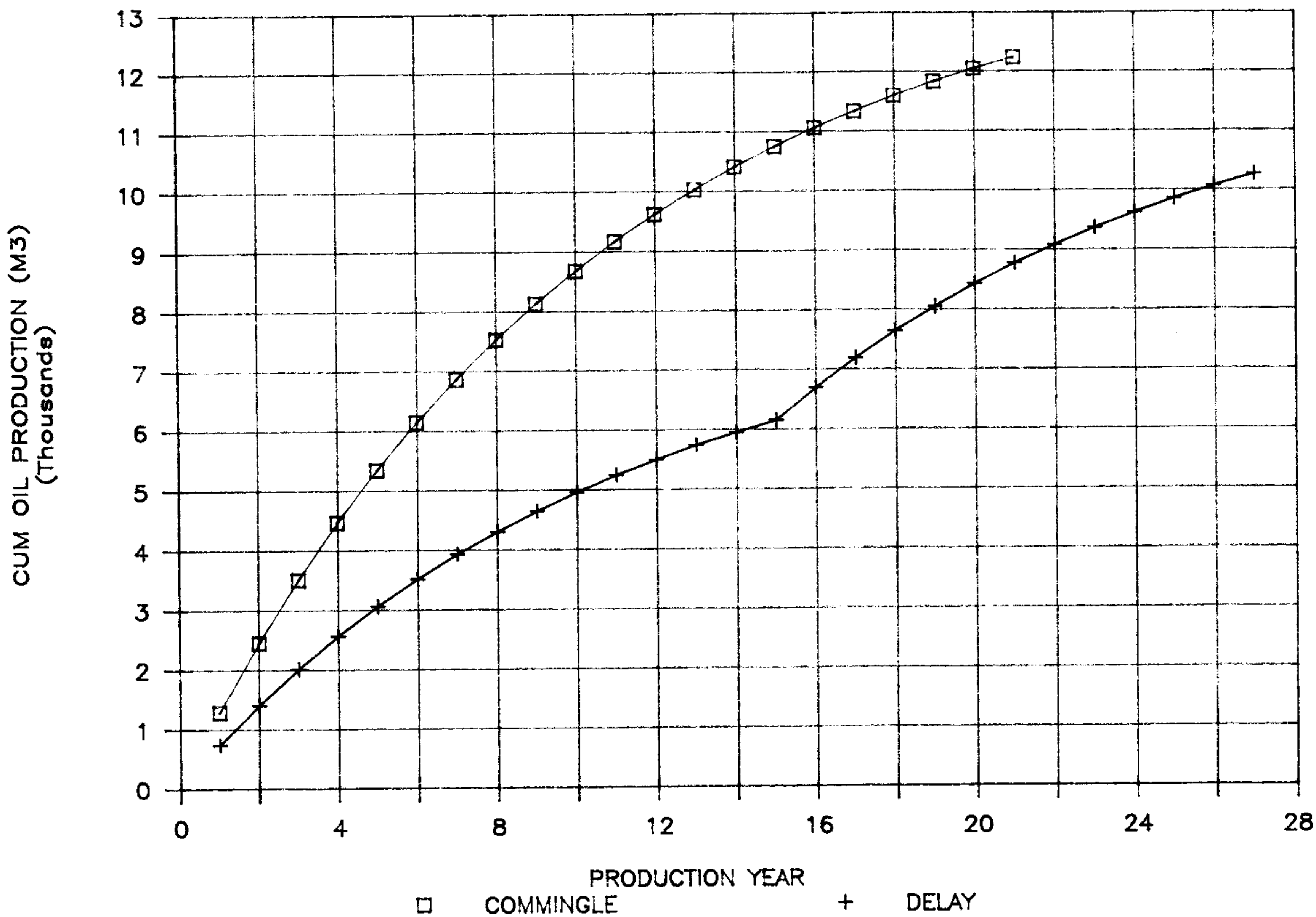
PROJECT ECONOMICS

	CASE 1	CASE 2
DESCRIPTION	SINGLE WELL COMMINGLED PRODUCTION	SINGLE WELL RECOMPLETE WELL AFTER FIRST ZONE DEPLETED
ESTIMATED RECOVERY	12 200 m3	10 200 m3
INCREMENTAL RECOVERY	2 000 m3 (20%) INCREMENTAL	- -
NPVAT(18%)	$345K	$235K


WASKADA COMMINGLED PRODUCTION
FORECAST PRODUCTION RATES
OIL RATE (M3/D)
3.6
3.4
3.2
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0
4
8
12
16
20
24
28
PRODUCTION YEAR
COMMINGLE
DELAY

WASKADA COMMINGLED PRODUCTION

CUMULATIVE PRODUCTION FORECAST



OTIS® CONTROL-A-FLOW® SUBSURFACE FLOW CONTROL EQUIPMENT

This exclusive Otis equipment is designed to simplify completion programs and help maintain production control for the life of the well! Control-A-Flow equipment has the versatility producers need in planning economical means of controlling flow downhole. For economy, future well maintenance requirements should be anticipated as accurately as possible during initial completions and well maintenance equipment installed to prevent excessive pulling jobs. Such equipment as Otis Circulating Devices, Concentric Gas Lift Mandrels, Selective Landing Nipples and Safety-Valve Nipples, can be installed initially and serviced by wireline methods in the future as required.

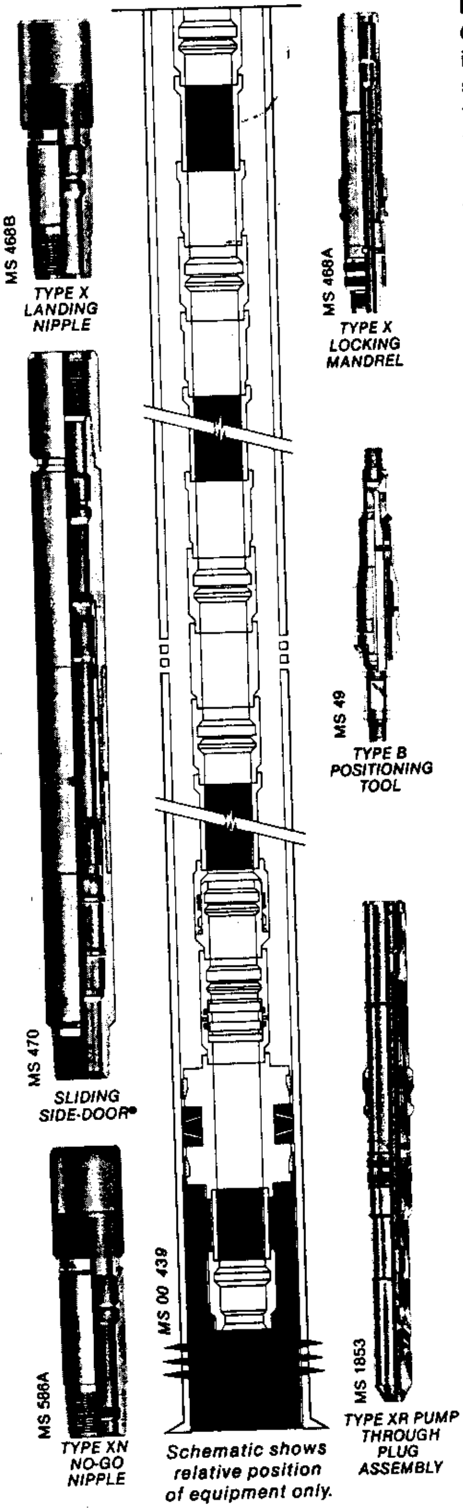
OTIS WIRELINE PRODUCTION EQUIPMENT INSTALLATION GUIDE

Flow Coupling/Selective Landing Nipple/Flow Coupling made up in sequence, as shown, throughout the tubing string provide a choice of locations to install flow controls as well conditions change. Flow couplings protect the tubing from fluid turbulence caused when flow controls are installed in the nipple.

Flow Coupling/Selective Landing Nipple/Blast Joint/Selective Landing Nipple are made up in the tubing in the sequence as shown to span perforated areas. The blast joint protects the tubing against erosion from the formations jetting action. Landing nipples provide locations for a packoff if necessary at a future date. Flow couplings protect tubing from fluid turbulence.

Otis Control-A-Flo Sliding Side-Doors® are the most widely used selective circulating tools in the oil and gas industry and are universally accepted with a design thoroughly proven through years of use. Otis Sliding Side-Doors are opened or essentially full-opening devices with an inner sleeve that can be opened or closed using standard wireline methods to provide communication between the tubing and tubing/casing annulus. They feature a nipple profile (Otis Type X or R) above the inner sliding sleeve and a polished pack-off area below as an integral part of the assembly. Otis Sliding Side-Doors ar available in two versions, one shifts down to close and up to open; the other shifts up to close, down to open.

No-Go Nipples have a restricted I.D. to provide positive locating and to prevent wireline tools and flow controls from dropping out of the bottom of the tubing string. Many are equipped with nipple profiles for locating chokes and other controls. Large sizes permit passage of properly sized through-tubing perforating guns, bottom-hole pressure bombs, etc.



Schematic shows relative position of equipment only.

NOTE: Otis Landing Nipples and related Otis Flow Controls are available in sizes 1 inch thru 8 5/8 inch for standard or sour service such as H_2S or CO_2. All subsurface Flow Controls can be specified for pumpdown application.

Wellhead Landing Nipples are designed to permit the well to be plugged temporarily while working on tree or moving rig.

Otis Locking Mandrels are available in a variety of types to provide positive positioning of flow controls in a number of downhole situations. All Otis Locking Mandrels can be run by wireline under pressure without killing the well. Otis Types X and R Selective Locking Mandrels permit the operator to control locating, locking landing in any Otis Type X or R Landing Nipple respectively, by means of the running tool. Type S Locking Mandrels are designed so they can be adjusted for locating into one of seven different Type S Landing Nipple profiles placed downhole in a progressive sequence. Otis Types B, C, and W are slip-type mandrels designed to locate and lock without landing nipples. The Type D is a collar lock mandrel that is designed to locate in API tubing collars and pack off. The Type RQ Lock Mandrels in designed to speed wireline work when running or pulling subsurface safety valves. Inside fish neck provides extra large I.D. for higher flow volumes and through tubing work.

Type B Otis Positioning Tool is designed to open or close the inner sleeve in the Otis Sliding Side-Doors. The positioning tool is run by wireline and shifts the inner sleeve into either an open or closed position. The Type XL Otis Shifting Tool only should be used for shifting Type XL or XP Safety Valve Nipples.

Otis Plug Chokes, set in no-go or selective nipples, are designed to be installed and retrieved by wireline. They are used for testing packers, plugging tubing prior to removing wellhead equipment, separating zones during production or stimulation procedures, and whenever plugging the tubing is necessary.

OMEGA
HYDROCARBONS LTD

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

November 19, 1987

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

Attention: Mr. H. Clare Moster
Executive Director

Dear Sirs:

Re: Commingling of Production

Further to our letter of November 10, 1987, please find enclosed herewith an application of Omega Hydrocarbons Ltd., in quadruplicate, for approval to commingle production from two or more zones within a wellbore.

We look forward to meeting with you and other members of your staff to discuss the application when you have had an opportunity to review the application.

Yours truly,

OMEGA HYDROCARBONS LTD.

for T.J. Hall
President

TJH/cla

Enclosure

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

November 10, 1987

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

Attention: Mr. H. Clare Moster
Executive Director

Dear Sirs:

Re: Commingling of Production

Further to our recent discussions respecting Omega's proposal to commingle the oil production from the Mississippian horizon (upper and lower Alida) with production from the lower Amaranth horizon in the Waskada oil field of Manitoba, the following represents in a general way our views on commingling and our reasons for wanting to commingle production.

Omega has been one of the most active exploration and development companies operating in Manitoba in the past years, particularly so when oil prices were considerably higher than are the prices today. During that time Omega commenced a program of drilling twin wells, considered to be appropriate and economic at the time, but under today's conditions a program that is not only uneconomic but unwise in view of the production results.

There are, as you are no doubt aware, now in existence several wells which are producing from one completed interval but which are quite capable of producing from both horizons. We are proposing to complete a well in the lower horizon and produce that zone for several months to observe its character and performance. If, as is the case respecting many wells in the Waskada field, this well yields marginal or semi-marginal production, then we propose to temporarily plug off the lower zone and complete the upper horizon. Once again the upper horizon would be tested for several months to establish the production profile. Following this test both zones would be opened-up and the production would be commingled into a single wellbore.

If the results of the pilot project are successful, a program could be expanded across the Waskada field and could add approximately 100 m^3/d of oil that exists or will exist behind casing, oil which Omega believes would never be recovered and ultimately lost, contributing immeasurably to poor conservation of energy resources.

In the event a successful program of commingling is established, Omega could then initiate secondary recovery programs involving vertically enlarging existing units and establishing new units in those areas where vertical zone prospects exist.

We sincerely believe that a program of the kind we are proposing would not only result in good conservation measures but would be of significant economic benefit to both operating companies and the Province of Manitoba and this incentive, together with economic incentives provided in recent legislation, would add to the attractiveness of operating in the Province of Manitoba.

Accordingly, we are at present preparing and will very shortly be filing a formal application pursuant to Section 120 of the Petroleum Drilling and Production Regulations, 1984 for approval to commingle production.

We appreciate your interest and advice and look forward to working with you to bring this proposal to fruition.

Yours truly,

OMEGA HYDROCARBONS LTD.

T. J. Hall
President

TJH/js
Encl.

1. Consideration of the degree and effect of cross flow that might result where one zone is being waterflooded or operated at a higher pressure than the other zone.

- Suggest that this could best be evaluated by computer model work comparing depletion of isolated zones with a commingled approach

2. What are the implications of commingling in a tract ~~where~~ which is part of two units (one Mississippian & one Lower Amaranth) as far as royalty & working interest income distribution

3. What are proposed productivity guidelines below which commingling would occur and presumabley ~~and~~ above which commingling would not occur.

4. How would you propose that production accounting should be done (Estimate each zone separately) or treat entire pools as Commingled Would there be any method of testing the wells separately

5. If zone A produces x and zone B produces Y would you expect the commingled well to produce x+y or l

6. ~~7~~ Discussion of how general reservoir management would be maintained (e.g. replacements, pressure levels.)

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261 0743
FAX (403) 264-5691

July 31, 1990

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

Attention: Mr. John Fox
Chief Petroleum Engineer

Dear Sir:

RE: Waskada Production Commingling
Progres Report March, April, May and June

Enclosed is the summary of events for the months of March, April, May and June 1990. This includes production data, fluids levels and workover operations.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

Kurt Thomas
Production Technologist

KT/ns
c.c.: Warren Sharp
Dan Boyko
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION
FLUID LEVELS

WELL	DATE	FLUID LEVEL (jts)	CASING PRESSURE (kPa)
5-6-1-25 WPM	Mar 20	88	55
	April 23	91	110
	May 23	90	151
	June 25	87	317
10-6-1-25 WPM	Mar 20	90	165
	April 23	91	55
	May 23	88	151
	June 25	86	137
10-30-1-25 WPM	Mar 9	73	399
	Mar 13	89	317
	April 23	89	330
	April 23	94	27
	May 23	91	372
	June 28	83	510
8-32-1-25 WPM	Mar 27	92	275
	April 23	94	27
	May	N/A (Tubing Repair)	
	June	N/A (BHP Repair)	
9-32-1-25 WPM	Mar 27	96	13
	April 23	88	13
	May	N/A (BHP Repair)	
	June	N/A	
9-33-1-25 WPM	Mar 27	91	241
	April 23	93	344
	May 23	91	330
	June 25	87	365
1-23-1-26 WPM	Mar 26	90	193
	April 30	89	255
	May 28	75	103
	June 25	91	124
9-24-1-26 WPM	Mar 26	96	124
	April 30	96	151
	May 28	95	158
	June 25	94	110
12-24-1-26 WPM	Mar 26	90	137
	April 30	94	206
	May 28	91	144
	June 26	93	165

WELL	DATE	FLUID LEVEL (jts)	CASING PRESSURE (kPa)
4-25-1-26 WPM	Mar 26	94	455
	April 30	94	524
	May 29	94	565
	June 25	45	0
1-26-1-26 WPM	Mar 26	92	124
	April 24	91	151
	May 28	94	151
	June 25	97	137
2-26-1-26 WPM	Mar 26	95	131
	April 30	91	158
	May 28	94	151
	June	N/A (Tubing Repair)	
11-34-1-26 WPM	Mar 26	97	248
	April 24	96	282
	May 28	94	296
	June 25	97	310
14-34-1-26 WPM	Mar 26	91	262
	April 24	91	262
	May 28	92	641
	June 25	68	0
7-35-1-26 WPM	Mar 26	96	110
	April 23	94	165
	May 28	96	158
	June 25	91	172
8-35-1-26 WPM	Mar 26	96	275
	April 24	96	179
	May 29	95	186
	June 25	94	241
9-35-1-26 WPM	Mar 26	96	172
	April 24	93	165
	May 29	95	158
	June 25	90	179
10-35-1-26 WPM	Mar 26	93	131
	April 23	91	165
	May 28	96	165
	June 25	96	144
11-35-1-26 WPM	Mar 26	96	137
	April 23	95	172
	May 28	89	206
	June 25	91	165

WELL	DATE	FLUID LEVEL (jts)	CASING PRESSURE (kPa)
12-36-1-26 WPM	Mar 15	79	234
	April 24	71	0
	May 29	77	220
	June 25	90	241
8-8-2-25 WPM	Mar 27	96	468
	April 24	96	496
	May 23	92	386
	June 25	89	317
5-3-2-26 WPM	Mar 26	89	262
	April 23	90	324
	May 28	86	344
	June 25	87	344
6-3-2-26 WPM	Mar 23	92	289
	April 23	95	434
	May 28	96	317
	June 25	90	317
8-4-2-26 WPM	Mar 26	94	393
	April 23	94	413
	May 23	95	461
	June 25	89	420

WASKADA COMMINGLED PRODUCTION
WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM	90-06-11	Rod Repair
10-6-1-25 WPM		No Operations
10-30-1-25 WPM	90-06-22	Tubing Repair
8-32-1-25 WPM	90-05-26	Tubing Repair
	90-06-26	BHP Repair
9-32-1-25 WPM	90-05-28	BHP Repair
9-33-1-25 WPM		No Operations
1-23-1-26 WPM	90-03-01	Tubing Repair
	90-05-23	Well Clean Out
	90-06-06	Rod Repair
9-24-1-26 WPM	90-05-18	Hot Oil
12-24-1-26 WPM		No Operations
4-25-1-26 WPM	90-06-24	Tubing Repair
1-26-1-26 WPM	90-04-16	Rod Repair
2-26-1-26 WPM	90-06-26	Tubing Repair
11-34-1-26 WPM		No Operations
14-34-1-26 WPM	90-03-16	Tubing Repair
7-35-1-26 WPM		No Operations
8-35-1-26 WPM		No Operations
9-35-1-26 WPM		No Operations
10-35-1-26 WPM		No Operations
11-35-1-26 WPM	90-03-27	Install Tubing Check Valve
	90-06-14	Condensate Soak
12-36-1-26 WPM	90-03-10	BHP Repair
	90-05-11	BHP Repair
8-8-2-25 WPM		No Operations
5-4-2-26 WPM		No Operations
6-3-2-26 WPM	90-03-26	Install Tubing Check Valve
8-4-2-26 WPM	90-06-14	Condensate Soak

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-03

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	744	0.0	129.3	0.0	0.0	#####	100.00	0.00
LAM	(00)05-06-001-25W1M(2)	1	99	744	84.2	61.0	12.9	2.7	0.72	42.00	153.00
L.AL	(00)10-06-001-25W1M(0)	3	99	738	82.4	27.4	12.7	2.7	0.33	25.00	154.00
LAM	(00)10-06-001-25W1M(2)	1	99	738	3.9	40.5	0.6	0.1	10.38	91.20	154.00
L.AL	(00)10-30-001-25W1M(0)	3	99	744	75.8	262.0	42.7	2.4	3.46	77.60	563.00
LAM	(00)10-30-001-25W1M(2)	1	99	744	0.7	97.4	0.0	0.0	139.10	99.30	0.00
L.AL	(00)08-32-001-25W1M(0)	3	99	744	0.0	0.0	0.8	0.0	0.00	0.00	#####
LAM	(00)08-32-001-25W1M(2)	1	14	744	47.2	40.8	1.4	1.5	0.86	46.40	30.00
LAM	(00)09-32-001-25W1M(0)	1	99	616	26.4	40.9	4.1	0.9	1.55	60.80	155.00
L.AL	(00)09-32-001-25W1M(2)	3	99	616	20.7	36.8	3.2	0.7	1.78	64.00	155.00
TIL	(00)09-33-001-25W1M(0)	4	99	744	0.0	92.0	0.0	0.0	#####	100.00	0.00
LAM	(00)09-33-001-25W1M(2)	1	99	744	32.4	27.3	5.0	1.0	0.84	45.70	154.00
TIL	(00)08-08-002-25W1M(0)	4	99	744	85.1	208.2	0.4	2.7	2.45	71.00	5.00
LAM	(00)08-08-002-25W1M(2)	1	8	744	4.4	6.8	0.8	0.1	1.55	60.70	182.00
LAM	(00)01-23-001-26W1M(0)	1	4	640	71.8	25.5	8.3	2.3	0.36	26.20	116.00
L.AL	(00)01-23-001-26W1M(2)	3	12	640	29.1	6.2	0.0	0.9	0.21	17.60	0.00
L.AL	(00)09-24-001-26W1M(0)	3	12	744	57.1	27.4	0.4	1.8	0.48	32.40	7.00
LAM	(00)09-24-001-26W1M(2)	1	1	744	52.7	18.8	3.9	1.7	0.36	26.30	74.00
L.AL	(00)12-24-001-26W1M(0)	3	12	744	0.0	40.8	10.4	0.0	#####	100.00	#####
LAM	(00)12-24-001-26W1M(2)	1	1	744	110.7	25.0	9.1	3.6	0.23	18.40	82.00
L.AL	(00)04-25-001-26W1M(0)	3	12	744	8.8	0.0	2.7	0.3	0.00	0.00	307.00
LAM	(00)04-25-001-26W1M(2)	1	1	744	154.1	37.6	3.5	5.0	0.24	19.60	23.00
LAM	(00)01-26-001-26W1M(0)	1	1	744	179.8	142.3	2.2	5.8	0.79	44.20	12.00
L.AL	(00)01-26-001-26W1M(2)	3	12	744	8.5	5.8	0.0	0.3	0.68	40.60	0.00
LAM	(00)02-26-001-26W1M(0)	1	1	744	119.9	84.0	1.8	3.9	0.70	41.20	15.00
L.AL	(00)02-26-001-26W1M(2)	3	12	744	0.0	15.8	0.0	0.0	#####	100.00	0.00
U.AL	(00)11-34-001-26W1M(0)	2	99	744	44.1	2.3	0.4	1.4	0.05	5.00	9.00
LAM	(00)11-34-001-26W1M(2)	1	99	744	0.0	1.4	0.0	0.0	#####	100.00	0.00
LAM	(00)14-34-001-26W1M(0)	1	5	309	0.0	62.8	0.2	0.0	#####	100.00	#####
U.AL	(00)14-34-001-26W1M(2)	2	99	309	0.0	0.0	0.0	0.0	0.00	0.00	0.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-03

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)07-35-001-26W1M(0)	3	99	744	48.5	5.4	1.8	1.6	0.11	10.00	37.00
LAM	(00)07-35-001-26W1M(2)	1	99	744	1.1	0.0	0.4	0.0	0.00	0.00	364.00
LAM	(00)08-35-001-26W1M(0)	1	99	744	31.9	1.4	2.2	1.0	0.04	4.20	69.00
L.AL	(00)08-35-001-26W1M(2)	3	99	744	74.8	7.7	0.0	2.4	0.10	9.30	0.00
L.AL	(00)09-35-001-26W1M(0)	3	99	744	58.8	14.9	1.8	1.9	0.25	20.20	31.00
LAM	(00)09-35-001-26W1M(2)	1	99	744	2.1	0.0	0.4	0.1	0.00	0.00	190.00
L.AL	(00)10-35-001-26W1M(0)	3	99	744	0.0	0.0	1.4	0.0	0.00	0.00	#####
LAM	(00)10-35-001-26W1M(2)	1	99	744	46.5	4.9	1.4	1.5	0.11	9.50	30.00
L.AL	(00)11-35-001-26W1M(0)	3	99	643	10.6	9.0	0.7	0.3	0.85	45.90	66.00
LAM	(00)11-35-001-26W1M(2)	1	99	643	14.4	2.3	2.2	0.5	0.16	13.80	153.00
L.AL	(00)12-36-001-26W1M(0)	3	99	0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
LAM	(00)12-36-001-26W1M(2)	1	99	0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
U.AL	(00)05-03-002-26W1M(0)	2	99	744	157.5	12.2	4.8	5.1	0.08	7.20	30.00
LAM	(00)05-03-002-26W1M(2)	1	99	744	3.4	16.2	0.0	0.1	4.76	82.70	0.00
U.AL	(00)06-03-002-26W1M(0)	2	99	744	16.8	0.0	1.4	0.5	0.00	0.00	83.00
LAM	(00)06-03-002-26W1M(2)	1	99	744	62.6	26.1	1.8	2.0	0.42	29.40	29.00
U.AL	(00)08-04-002-26W1M(0)	2	99	744	54.7	215.0	0.8	1.8	3.93	79.70	15.00
LAM	(00)08-04-002-26W1M(2)	1	99	744	333.6	0.0	0.0	10.8	0.00	0.00	0.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-04

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	697	17.1	56.3	2.5	0.6	3.29	76.70	146.00
LAM	(00)05-06-001-25W1M(2)	1	99	697	111.5	80.7	16.4	3.7	0.72	42.00	147.00
L.AL	(00)10-06-001-25W1M(0)	3	99	689	55.3	18.4	8.1	1.8	0.33	25.00	146.00
LAM	(00)10-06-001-25W1M(2)	1	99	689	0.0	86.8	0.0	0.0	#####	100.00	0.00
L.AL	(00)10-30-001-25W1M(0)	3	99	720	53.8	167.9	37.7	1.8	3.12	75.70	701.00
LAM	(00)10-30-001-25W1M(2)	1	99	720	0.0	116.0	18.4	0.0	#####	100.00	#####
L.AL	(00)08-32-001-25W1M(0)	3	99	720	0.0	0.0	0.5	0.0	0.00	0.00	#####
LAM	(00)08-32-001-25W1M(2)	1	14	720	37.5	39.5	0.9	1.2	1.05	51.30	24.00
LAM	(00)09-32-001-25W1M(0)	1	99	696	29.9	46.2	4.4	1.0	1.55	60.70	147.00
L.AL	(00)09-32-001-25W1M(2)	3	99	696	1.6	48.2	0.2	0.1	30.12	96.80	125.00
TIL	(00)09-33-001-25W1M(0)	4	99	720	0.0	92.4	0.0	0.0	#####	100.00	0.00
LAM	(00)09-33-001-25W1M(2)	1	99	720	25.0	21.1	3.7	0.8	0.84	45.80	148.00
TIL	(00)08-08-002-25W1M(0)	4	99	720	84.0	182.3	0.5	2.8	2.17	68.50	6.00
LAM	(00)08-08-002-25W1M(2)	1	8	720	4.5	6.2	0.9	0.2	1.38	57.90	200.00
LAM	(00)01-23-001-26W1M(0)	1	4	554	10.2	3.2	1.4	0.3	0.31	23.90	137.00
L.AL	(00)01-23-001-26W1M(2)	3	12	554	0.0	7.5	0.3	0.0	#####	100.00	#####
L.AL	(00)09-24-001-26W1M(0)	3	12	720	0.0	23.9	0.5	0.0	#####	100.00	#####
LAM	(00)09-24-001-26W1M(2)	1	1	720	49.3	16.0	3.8	1.6	0.32	24.50	77.00
L.AL	(00)12-24-001-26W1M(0)	3	12	720	0.0	47.3	6.6	0.0	#####	100.00	#####
LAM	(00)12-24-001-26W1M(2)	1	1	720	97.5	20.2	9.0	3.2	0.21	17.20	92.00
L.AL	(00)04-25-001-26W1M(0)	3	12	720	4.9	0.0	1.9	0.2	0.00	0.00	388.00
LAM	(00)04-25-001-26W1M(2)	1	1	720	156.5	10.7	3.8	5.2	0.07	6.40	24.00
LAM	(00)01-26-001-26W1M(0)	1	1	638	131.0	93.7	2.0	4.4	0.72	41.70	15.00
L.AL	(00)01-26-001-26W1M(2)	3	12	638	0.0	28.1	0.0	0.0	#####	100.00	0.00
LAM	(00)02-26-001-26W1M(0)	1	1	660	48.0	30.2	1.4	1.6	0.63	38.60	29.00
L.AL	(00)02-26-001-26W1M(2)	3	12	660	0.0	18.1	0.0	0.0	#####	100.00	0.00
U.AL	(00)11-34-001-26W1M(0)	2	99	720	86.8	3.7	0.9	2.9	0.04	4.10	10.00
LAM	(00)11-34-001-26W1M(2)	1	99	720	0.0	16.5	0.0	0.0	#####	100.00	0.00
LAM	(00)14-34-001-26W1M(0)	1	5	657	4.7	26.6	0.5	0.2	5.66	85.00	106.00
U.AL	(00)14-34-001-26W1M(2)	2	99	720	23.0	75.2	0.0	0.8	3.27	76.60	0.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-04

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)07-35-001-26W1M(0)	3	99	720	48.9	4.5	1.9	1.6	0.09	8.40	39.00
LAM	(00)07-35-001-26W1M(2)	1	99	720	0.0	0.0	0.5	0.0	0.00	0.00	*****
LAM	(00)08-35-001-26W1M(0)	1	99	720	32.3	1.2	2.4	1.1	0.04	3.60	74.00
L.AL	(00)08-35-001-26W1M(2)	3	99	720	73.6	7.8	0.0	2.5	0.11	9.60	0.00
L.AL	(00)09-35-001-26W1M(0)	3	99	720	25.7	11.1	0.0	0.9	0.43	30.20	0.00
LAM	(00)09-35-001-26W1M(2)	1	99	720	35.4	2.1	1.9	1.2	0.06	5.60	54.00
L.AL	(00)10-35-001-26W1M(0)	3	99	720	0.0	0.0	0.5	0.0	0.00	0.00	*****
LAM	(00)10-35-001-26W1M(2)	1	99	720	46.9	4.5	1.9	1.6	0.10	8.80	41.00
L.AL	(00)11-35-001-26W1M(0)	3	99	615	53.1	31.3	0.3	1.8	0.59	37.10	6.00
LAM	(00)11-35-001-26W1M(2)	1	99	615	14.5	2.1	2.4	0.5	0.14	12.70	166.00
L.AL	(00)12-36-001-26W1M(0)	3	99	0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
LAM	(00)12-36-001-26W1M(2)	1	99	0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
U.AL	(00)05-03-002-26W1M(0)	2	99	720	160.0	11.1	5.7	5.3	0.07	6.50	36.00
LAM	(00)05-03-002-26W1M(2)	1	99	720	34.0	14.4	0.0	1.1	0.42	29.80	0.00
U.AL	(00)06-03-002-26W1M(0)	2	99	720	17.4	0.0	1.4	0.6	0.00	0.00	80.00
LAM	(00)06-03-002-26W1M(2)	1	99	720	63.5	22.2	1.9	2.1	0.35	25.90	30.00
U.AL	(00)08-04-002-26W1M(0)	2	99	720	55.5	168.7	0.5	1.9	3.04	75.20	9.00
LAM	(00)08-04-002-26W1M(2)	1	99	720	364.0	0.0	0.0	12.1	0.00	0.00	0.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-05

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR m3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	710	28.3	56.3	4.3	0.9	1.99	66.50	152.00
LAM	(00)05-06-001-25W1M(2)	1	99	710	113.6	82.2	17.1	3.7	0.72	42.00	151.00
L.AL	(00)10-06-001-25W1M(0)	3	99	723	65.4	21.7	9.9	2.1	0.33	24.90	151.00
LAM	(00)10-06-001-25W1M(2)	1	99	723	0.0	70.2	0.0	0.0	#####	100.00	0.00
L.AL	(00)10-30-001-25W1M(0)	3	99	744	29.5	155.9	22.0	1.0	5.28	84.10	746.00
LAM	(00)10-30-001-25W1M(2)	1	99	744	48.4	154.6	34.3	1.6	3.19	76.20	709.00
L.AL	(00)08-32-001-25W1M(0)	3	99	526	0.0	0.0	0.3	0.0	0.00	0.00	#####
LAM	(00)08-32-001-25W1M(2)	1	14	430	26.0	19.5	0.5	0.8	0.75	42.90	19.00
LAM	(00)09-32-001-25W1M(0)	1	99	177	7.6	11.8	1.1	0.2	1.55	60.80	145.00
L.AL	(00)09-32-001-25W1M(2)	3	99	177	0.3	3.5	0.0	0.0	11.67	92.10	0.00
TIL	(00)09-33-001-25W1M(0)	4	99	744	0.0	100.0	0.0	0.0	#####	100.00	0.00
LAM	(00)09-33-001-25W1M(2)	1	99	744	0.0	18.3	0.0	0.0	#####	100.00	0.00
TIL	(00)08-08-002-25W1M(0)	4	99	744	89.3	204.1	0.0	2.9	2.29	69.60	0.00
LAM	(00)08-08-002-25W1M(2)	1	8	744	4.8	6.8	0.5	0.2	1.42	58.60	104.00
LAM	(00)01-23-001-26W1M(0)	1	4	216	13.3	4.5	0.9	0.4	0.34	25.30	68.00
L.AL	(00)01-23-001-26W1M(2)	3	12	216	0.0	15.7	0.0	0.0	#####	100.00	0.00
L.AL	(00)09-24-001-26W1M(0)	3	12	555	0.0	26.4	0.0	0.0	#####	100.00	0.00
LAM	(00)09-24-001-26W1M(2)	1	1	507	46.3	15.6	3.3	1.5	0.34	25.00	0.07
L.AL	(00)12-24-001-26W1M(0)	3	12	744	0.0	50.0	12.7	0.0	#####	100.00	#####
LAM	(00)12-24-001-26W1M(2)	1	1	744	80.2	17.0	7.4	2.6	0.21	17.50	92.00
L.AL	(00)04-25-001-26W1M(0)	3	12	744	1.0	0.0	0.3	0.0	0.00	0.00	300.00
LAM	(00)04-25-001-26W1M(2)	1	1	744	155.4	10.7	3.8	5.0	0.07	6.40	24.00
LAM	(00)01-26-001-26W1M(0)	1	1	744	105.3	77.0	2.8	3.4	0.73	42.20	27.00
L.AL	(00)01-26-001-26W1M(2)	3	12	744	0.0	72.5	0.0	0.0	#####	100.00	0.00
LAM	(00)02-26-001-26W1M(0)	1	1	744	43.2	28.0	1.5	1.4	0.65	39.30	35.00
L.AL	(00)02-26-001-26W1M(2)	3	12	744	0.0	12.6	0.0	0.0	#####	100.00	0.00
U.AL	(00)11-34-001-26W1M(0)	2	99	744	66.3	2.9	1.0	2.1	0.04	4.20	15.00
LAM	(00)11-34-001-26W1M(2)	1	99	744	0.0	4.5	0.0	0.0	#####	100.00	0.00
LAM	(00)14-34-001-26W1M(0)	1	5	744	5.6	31.9	0.5	0.2	5.70	85.10	89.00
U.AL	(00)14-34-001-26W1M(2)	2	99	744	14.8	6.8	1.0	0.5	0.46	31.50	68.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-05

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR m3/m3
L.AL	(00)07-35-001-26W1M(0)	3	99	744	52.4	5.3	0.7	1.7	0.10	9.20	13.00
LAM	(00)07-35-001-26W1M(2)	1	99	744	1.5	0.0	0.0	0.0	0.00	0.00	0.00
LAM	(00)08-35-001-26W1M(0)	1	99	744	34.4	1.4	0.9	1.1	0.04	3.90	26.00
L.AL	(00)08-35-001-26W1M(2)	3	99	744	78.3	9.4	0.0	2.5	0.12	10.70	0.00
L.AL	(00)09-35-001-26W1M(0)	3	99	744	27.0	11.7	0.0	0.9	0.43	30.20	0.00
LAM	(00)09-35-001-26W1M(2)	1	99	744	37.6	2.3	0.5	1.2	0.06	5.80	13.00
L.AL	(00)10-35-001-26W1M(0)	3	99	744	0.0	0.0	0.0	0.0	0.00	0.00	0.00
LAM	(00)10-35-001-26W1M(2)	1	99	744	57.7	5.3	1.0	1.9	0.09	8.40	17.00
L.AL	(00)11-35-001-26W1M(0)	3	99	744	91.1	32.2	0.3	2.9	0.35	26.10	3.00
LAM	(00)11-35-001-26W1M(2)	1	99	744	18.1	2.7	2.2	0.6	0.15	13.00	122.00
L.AL	(00)12-36-001-26W1M(0)	3	99	510	123.0	70.1	0.0	4.0	0.57	36.30	0.00
LAM	(00)12-36-001-26W1M(2)	1	99	510	4.5	2.7	2.9	0.1	0.60	37.50	644.00
U.AL	(00)05-03-002-26W1M(0)	2	99	744	151.5	10.8	4.3	4.9	0.07	6.70	28.00
LAM	(00)05-03-002-26W1M(2)	1	99	744	0.0	5.3	0.0	0.0	#####	100.00	0.00
U.AL	(00)06-03-002-26W1M(0)	2	99	744	3.1	0.0	0.3	0.1	0.00	0.00	97.00
LAM	(00)06-03-002-26W1M(2)	1	99	744	67.7	19.2	1.7	2.2	0.28	22.10	25.00
U.AL	(00)08-04-002-26W1M(0)	2	99	744	59.1	140.3	0.5	1.9	2.37	70.40	8.00
LAM	(00)08-04-002-26W1M(2)	1	99	744	326.4	0.0	0.0	10.5	0.00	0.00	0.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-06

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	559	20.1	55.5	2.9	0.7	2.76	73.40	144.00
LAM	(00)05-06-001-25W1M(2)	1	99	559	89.4	64.8	13.0	3.0	0.72	42.00	145.00
L.AL	(00)10-06-001-25W1M(0)	3	99	661	57.3	19.0	8.3	1.9	0.33	24.90	145.00
LAM	(00)10-06-001-25W1M(2)	1	99	661	0.0	71.4	0.0	0.0	#####	100.00	0.00
L.AL	(00)10-30-001-25W1M(0)	3	99	334	0.0	49.8	0.0	0.0	#####	100.00	0.00
LAM	(00)10-30-001-25W1M(2)	1	99	334	0.0	0.0	0.0	0.0	N/A	N/A	N/A
L.AL	(00)08-32-001-25W1M(0)	3	99	560	0.0	6.8	0.7	0.0	#####	100.00	#####
LAM	(00)08-32-001-25W1M(2)	1	14	560	38.0	38.2	1.3	1.3	1.01	50.10	34.00
LAM	(00)09-32-001-25W1M(0)	1	99	504	21.6	27.2	3.1	0.7	1.26	55.70	144.00
L.AL	(00)09-32-001-25W1M(2)	3	99	504	61.8	0.0	9.0	2.1	0.00	0.00	146.00
TIL	(00)09-33-001-25W1M(0)	4	99	720	0.0	90.9	0.0	0.0	#####	100.00	0.00
LAM	(00)09-33-001-25W1M(2)	1	99	720	20.7	17.5	3.0	0.7	0.85	45.80	145.00
TIL	(00)08-08-002-25W1M(0)	4	99	720	165.9	84.4	0.0	5.5	0.51	33.70	0.00
LAM	(00)08-08-002-25W1M(2)	1	8	720	4.6	5.7	0.9	0.2	1.24	55.30	196.00
LAM	(00)01-23-001-26W1M(0)	1	4	523	62.8	18.1	6.4	2.1	0.29	22.40	102.00
L.AL	(00)01-23-001-26W1M(2)	3	12	720	65.6	27.1	0.0	2.2	0.41	29.20	0.00
L.AL	(00)09-24-001-26W1M(0)	3	12	720	0.0	24.4	0.0	0.0	#####	100.00	0.00
LAM	(00)09-24-001-26W1M(2)	1	1	720	61.9	18.1	4.4	2.1	0.29	22.60	71.00
L.AL	(00)12-24-001-26W1M(0)	3	12	720	0.0	34.3	15.8	0.0	#####	100.00	#####
LAM	(00)12-24-001-26W1M(2)	1	1	720	68.7	12.6	7.1	2.3	0.18	15.50	103.00
L.AL	(00)04-25-001-26W1M(0)	3	12	560	3.4	0.0	0.7	0.1	0.00	0.00	206.00
LAM	(00)04-25-001-26W1M(2)	1	1	720	156.9	17.1	4.2	5.2	0.11	9.80	27.00
LAM	(00)01-26-001-26W1M(0)	1	1	720	91.0	58.6	2.2	3.0	0.64	39.20	24.00
L.AL	(00)01-26-001-26W1M(2)	3	12	720	0.0	53.6	0.0	0.0	#####	100.00	0.00
LAM	(00)02-26-001-26W1M(0)	1	1	504	22.9	13.0	1.3	0.8	0.57	36.20	57.00
L.AL	(00)02-26-001-26W1M(2)	3	12	720	0.0	10.5	0.0	0.0	#####	100.00	0.00
U.AL	(00)11-34-001-26W1M(0)	2	99	720	73.4	2.9	1.6	2.4	0.04	3.80	22.00
LAM	(00)11-34-001-26W1M(2)	1	99	720	0.0	3.0	0.0	0.0	#####	100.00	0.00
LAM	(00)14-34-001-26W1M(0)	1	5	360	2.7	11.1	0.3	0.1	4.11	80.40	111.00
U.AL	(00)14-34-001-26W1M(2)	2	99	528	6.5	2.1	0.5	0.2	0.32	24.40	77.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-06

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)07-35-001-26W1M(0)	3	99	720	48.5	4.9	1.1	1.6	0.10	9.20	23.00
LAM	(00)07-35-001-26W1M(2)	1	99	720	0.0	0.0	0.0	0.0	0.00	0.00	0.00
LAM	(00)08-35-001-26W1M(0)	1	99	720	32.9	1.1	1.6	1.1	0.03	3.20	49.00
L.AL	(00)08-35-001-26W1M(2)	3	99	720	80.8	7.9	0.0	2.7	0.10	8.90	0.00
L.AL	(00)09-35-001-26W1M(0)	3	99	720	28.2	10.6	0.0	0.9	0.38	27.30	0.00
LAM	(00)09-35-001-26W1M(2)	1	99	720	36.1	2.0	1.1	1.2	0.06	5.20	30.00
L.AL	(00)10-35-001-26W1M(0)	3	99	720	0.0	0.0	0.0	0.0	0.00	0.00	0.00
LAM	(00)10-35-001-26W1M(2)	1	99	720	50.1	3.8	2.2	1.7	0.08	7.10	44.00
L.AL	(00)11-35-001-26W1M(0)	3	99	720	87.0	31.9	0.0	2.9	0.37	26.80	0.00
LAM	(00)11-35-001-26W1M(2)	1	99	720	17.3	2.3	1.8	0.6	0.13	11.70	104.00
L.AL	(00)12-36-001-26W1M(0)	3	99	720	139.6	75.2	0.5	4.7	0.54	35.00	4.00
LAM	(00)12-36-001-26W1M(2)	1	99	720	6.4	3.4	2.9	0.2	0.53	34.70	453.00
U.AL	(00)05-03-002-26W1M(0)	2	99	720	120.1	7.6	3.8	4.0	0.06	6.00	32.00
LAM	(00)05-03-002-26W1M(2)	1	99	720	0.0	16.6	0.0	0.0	#####	100.00	0.00
U.AL	(00)06-03-002-26W1M(0)	2	99	720	10.4	0.0	0.0	0.3	0.00	0.00	0.00
LAM	(00)06-03-002-26W1M(2)	1	99	720	64.8	14.9	0.7	2.2	0.23	18.70	11.00
U.AL	(00)08-04-002-26W1M(0)	2	99	720	56.6	120.8	0.5	1.9	2.13	68.10	9.00
LAM	(00)08-04-002-26W1M(2)	1	99	720	314.6	0.0	0.0	10.5	0.00	0.00	0.00

2196 m3

3.04 m3/d/well

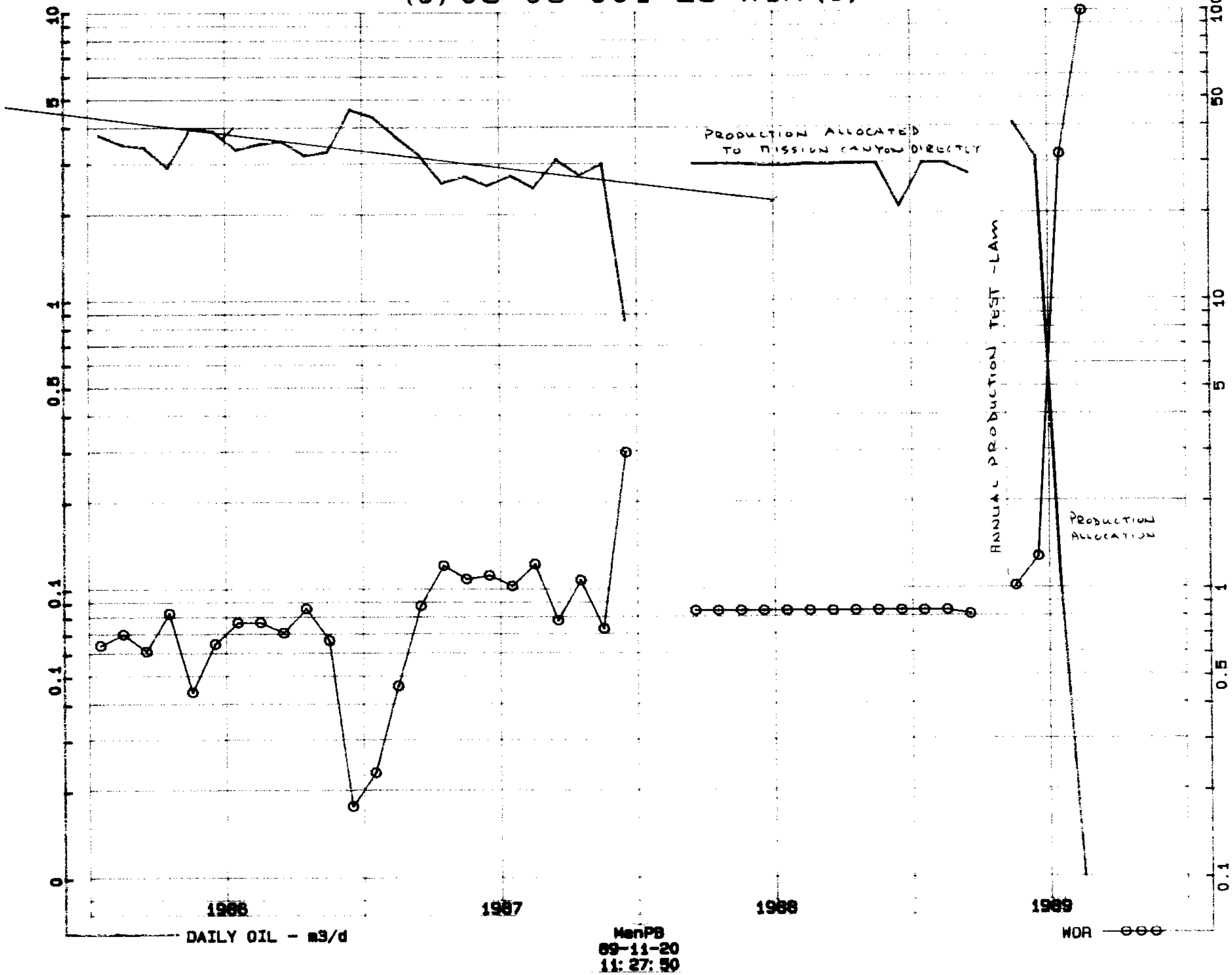
Well	Actual Production (m³OPD)	Actual Production Allocation MC (fraction)	Actual Production Allocation LAM (fraction)	DOIP Allocation MC (fraction)	DOIP Allocation LAM (fraction)	Original Production Test Results MC (m³OPD)	Original Production Test Results LAM (m³OPD)	Original Production Test Results MC (fraction)	Original Production Test Results LAM (fraction)
5-6-1-25	3.54	0	1.00 c	0.5	0.5	3.0	2.5	.36 0.54	.64* 0.46
10-6 1-25	2.91	0.08	0.92 c	0.07	0.93	2.8	4.3	0.39	0.61
16-30-1-25	3.72 **	0.29	0.71 c	0.36	0.64	2.2	0.5	0.81	0.19
8-32-1-25	2.08	0.08 c	0.92	0.28	0.72	1.6	1.6	0.5	0.5
9-32-1-25	1.16	0 c	1.00	0.25	0.75	0.8	3.6	0.18	0.82
[illegible]-33-1-25	1.09	0 c	1.00	0.27	0.73	0.7	2.0	(.31 0.26	.59* 0.74
8 8-2 25	2.33	0.5 c	0.5	0.29	0.71	1.4	0.8	.97 0.64	.03* 0.36
[illegible]-23-1-26	2.46	0 c	1.00	0.29	0.71	8.2	2.4	0.7[illegible]	0.22
[illegible] 24-1 26	3.09	0.06 c	0.94	0.06	0.94	2.9	2.4	0.55	0.45
12-24-1-26	5.0	0 c	1.00	0.37	0.63	6.0	6.3	0.49	0.51
4-29-1-26	3.94	0 c	1.00	0.33	0.67	4.3	4.5	0.49	0.51
1-26-1-26	6.12	0 c	1.00	0.21	0.79	10.6	5.3	0.67	0.33
2-26-1-26	6.02	0.30 c	0.70	0.32	0.68	2.5	5.6	0.31	0.69
1-34-1-26	3.29	1.0	0 c	0.21	0.79	3.0	2.6	0.54	0.46
4-34-1-26	1.32	0.86 c	0.14	0.32	0.68	0.7	0.2	0.78	0.22
7-35-1-26	3.17	0.55	0.45 c	0.47	0.53	1.4	4.7	0.23	0.77
8-3[illegible]-1-26	5.29	0.79 c	0.21	0.42	0.58	6.0	0.9	0.87	0.13
9-35 1-26	3.13	1.0	0 c	0.47	0.53	2.4	1.0	(.65 0.71	.35* 0.29
10-3[illegible]-1-26	3.04	0	1.0 c	0.57	0.43	2.0	1.6	(0 0.56	1.0)* 0.44
[illegible]-3[illegible]-1-26	2.51	1.0	0 c	0.53	0.47	2.2	1.0	(.82 0.69	.18* 0.31
12-36-1-26	3.22	1.0	0 c	0.11	0.89	3.0	8.2	0.27	0.73
[illegible]-3-2-26	3.05	1.0	0 c	0.44	0.56	4.6	3.6	0.56	0.44
[illegible]-2-26	1.05	0	1.0 c	0.09	0.91	1.6	4.0	(.40 0.29	.60)* .71
3-4-[illegible]-26	8.13	.24	.76 c	0.29	0.71	1.6	6.2	0.21	.79

* annual production test

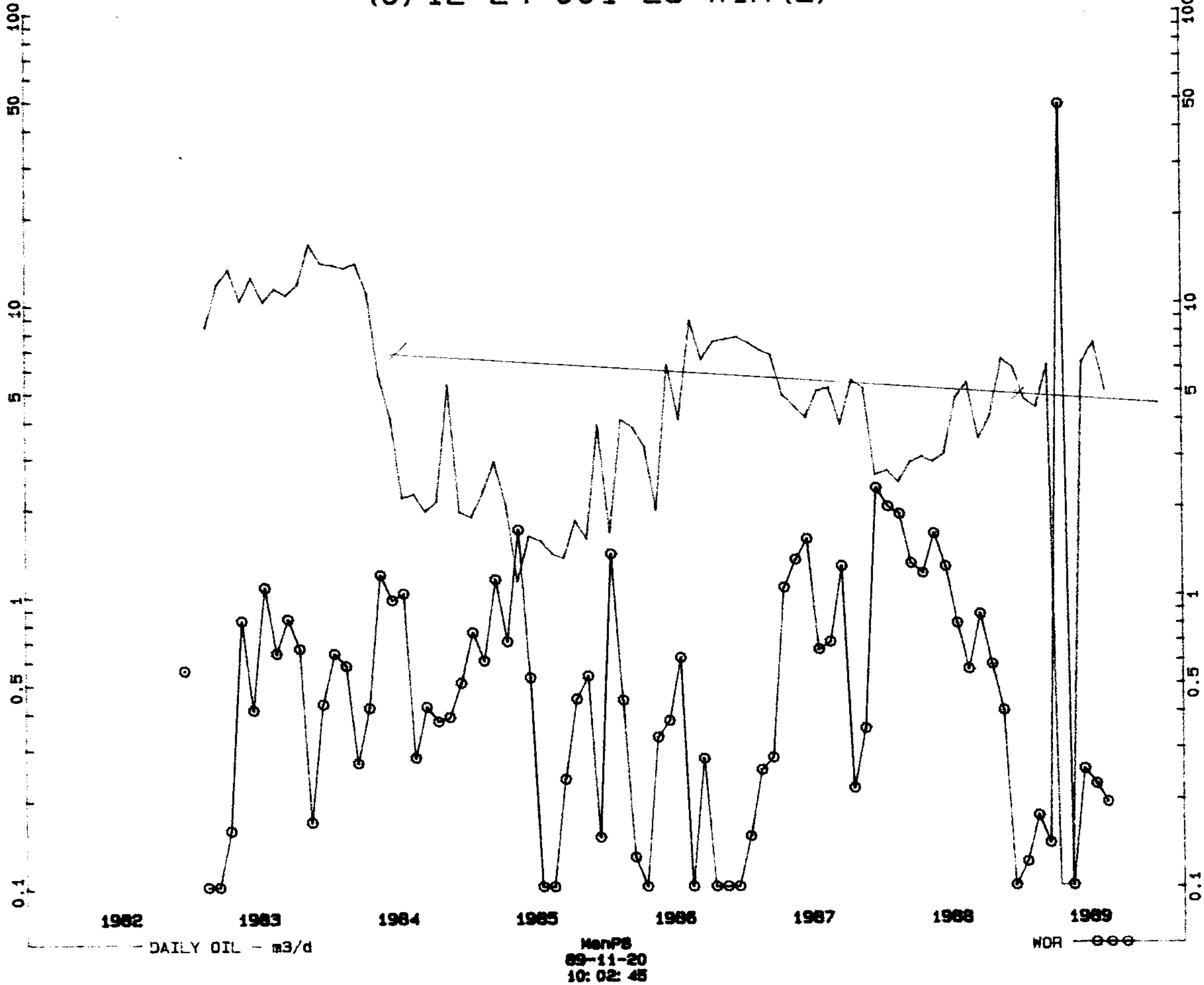
** October production

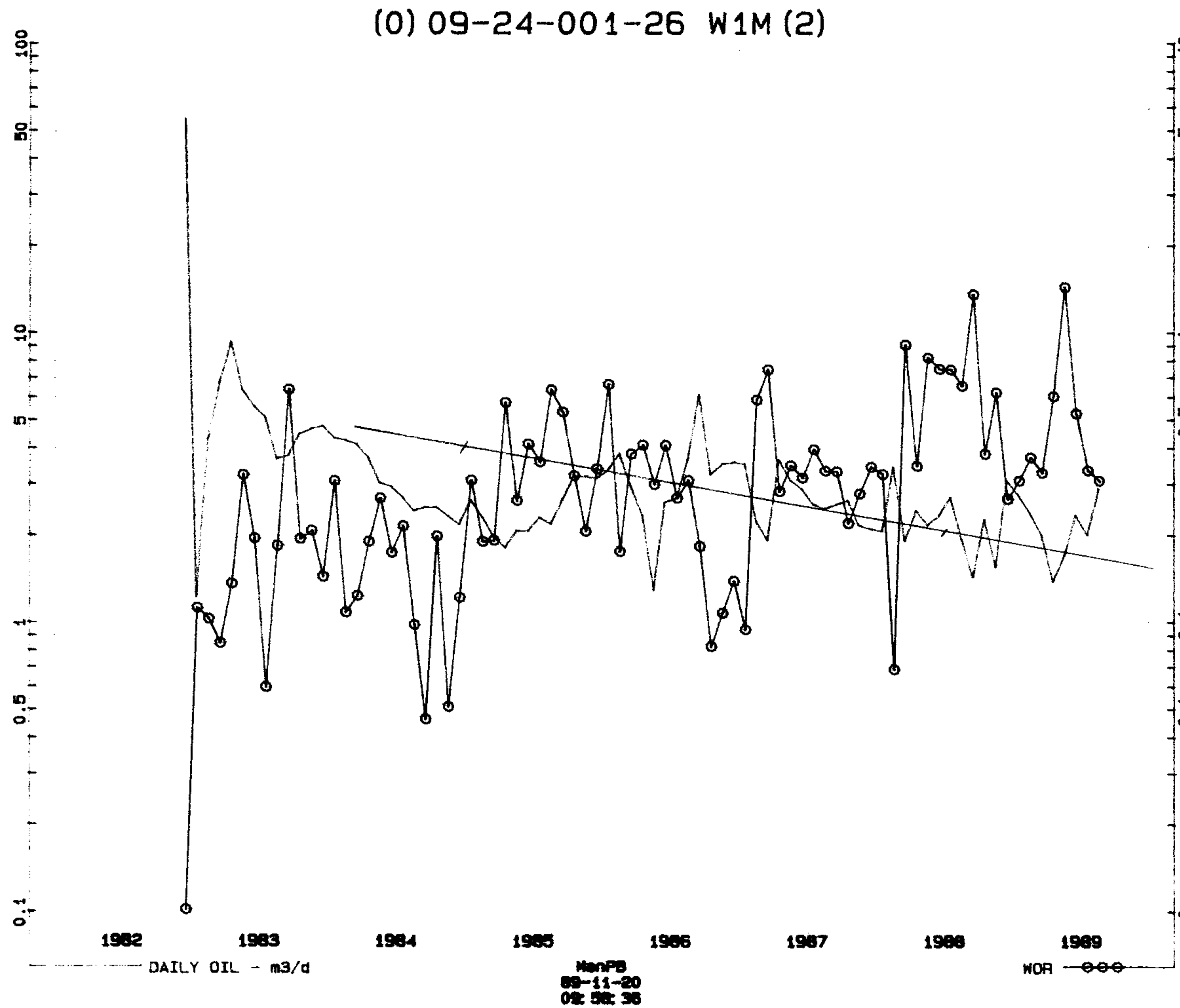
c commingled zone

(0) 05-06-001-25 W1M (0)



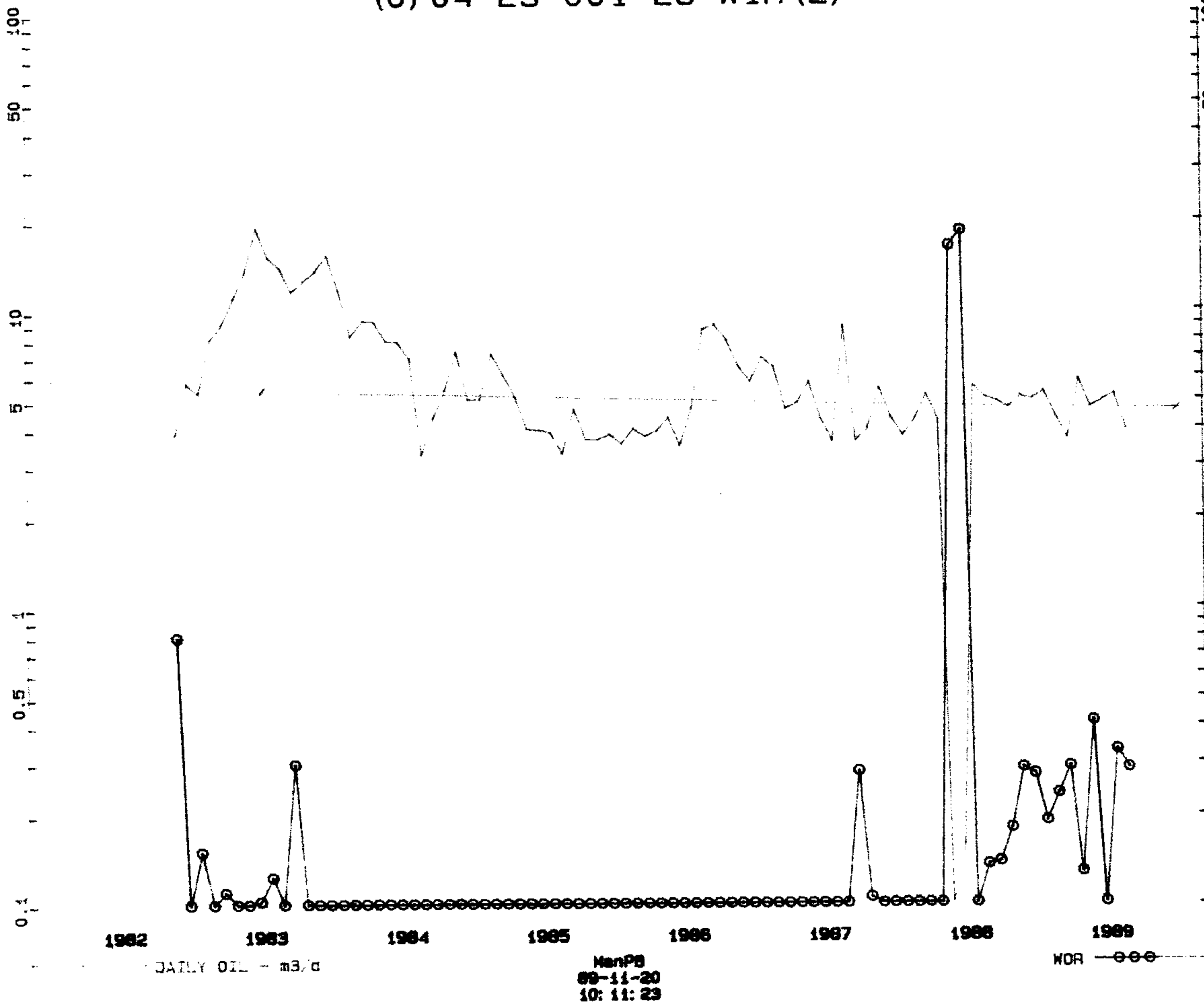
(0) 12-24-001-26 W1M (2)





(0) 09-24-001-26 W1M (2)
100
50
10
5
1
0.5
0.1
10
5
1
0.5
0.1
0.1
0
1982
1983
1984
1985
1986
1987
1988
1989
DAILY OIL - m3/d
WOR
ManPB
89-11-20
09:58:36

(0) 04-25-001-26 W1M (2)



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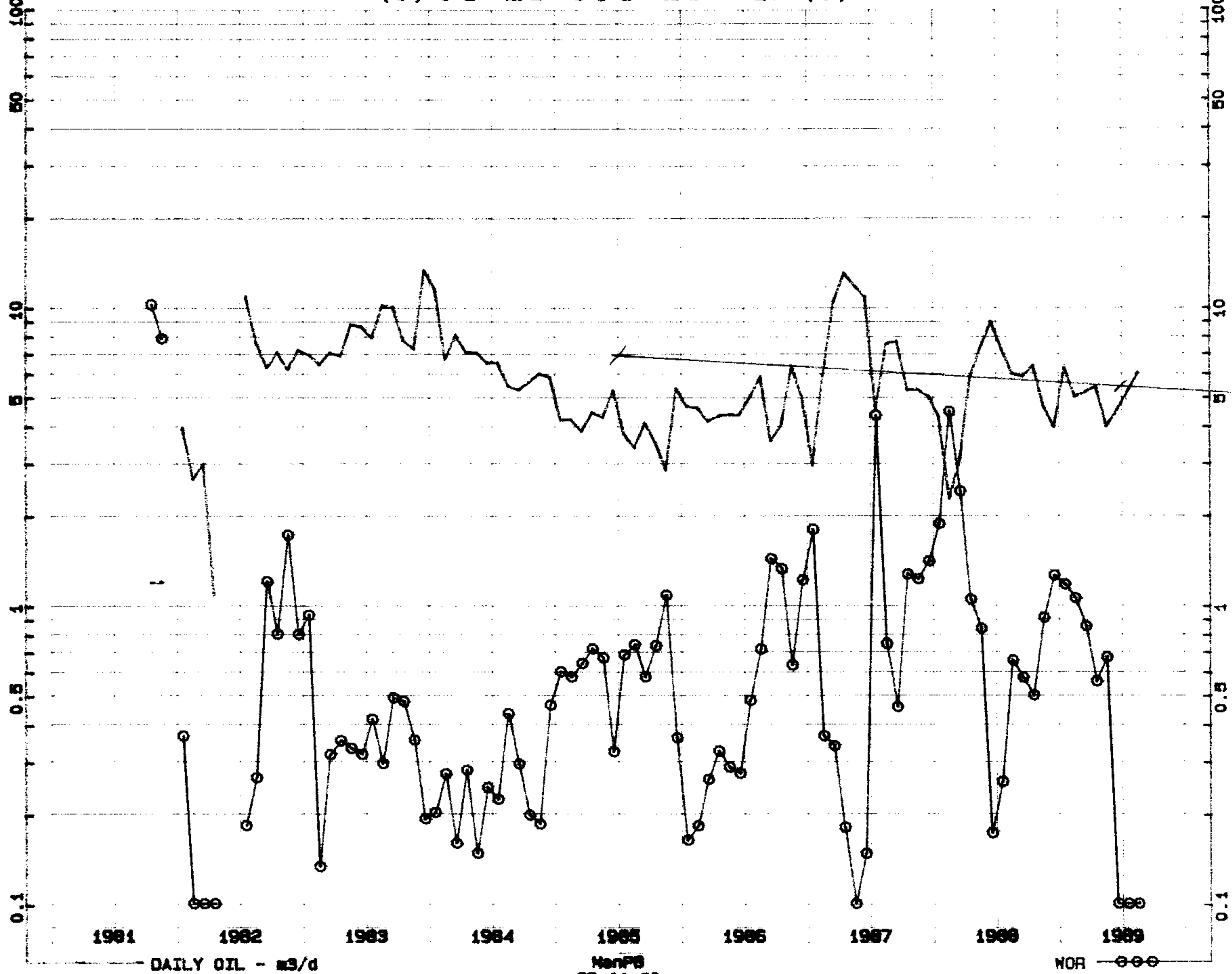
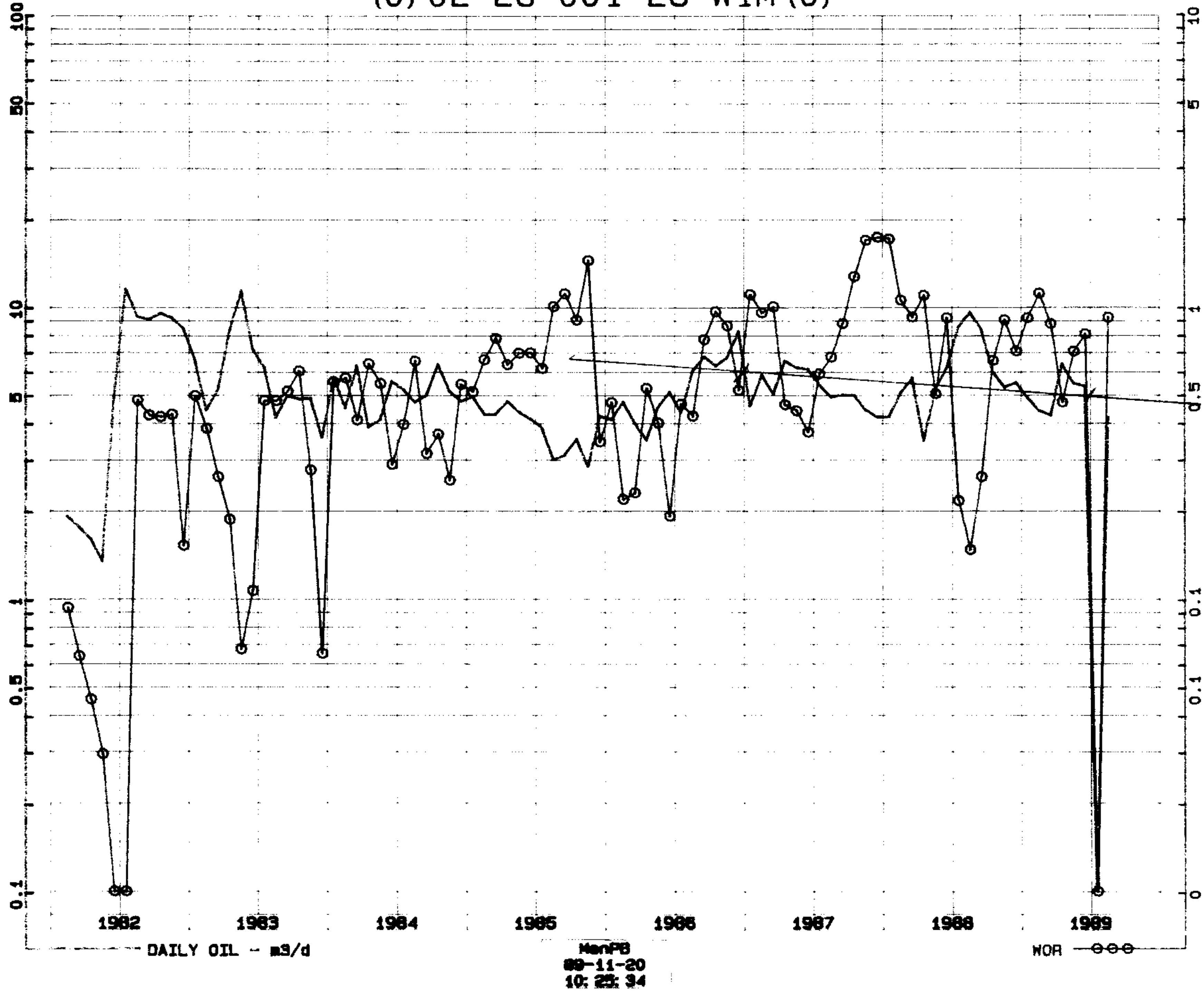
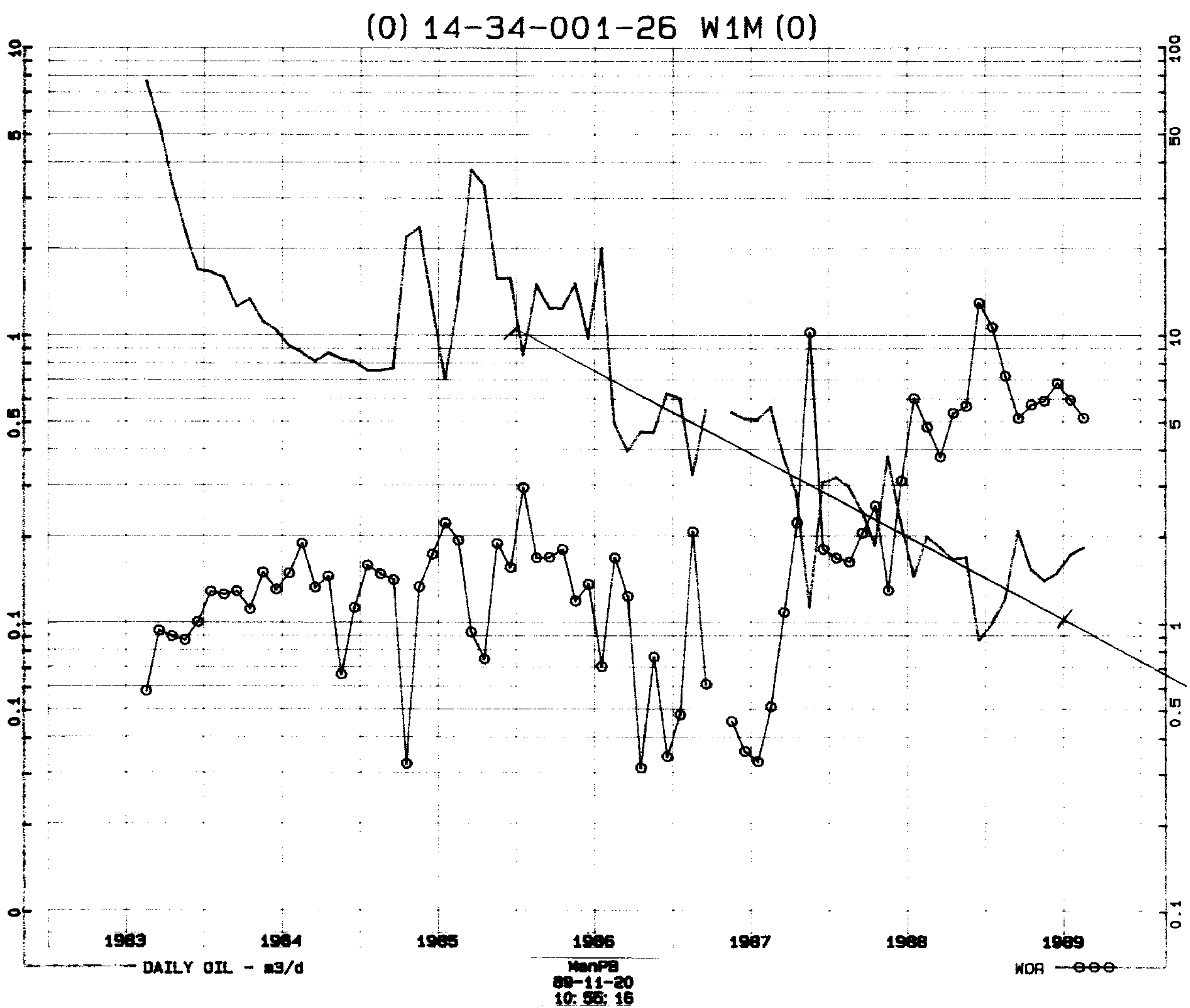


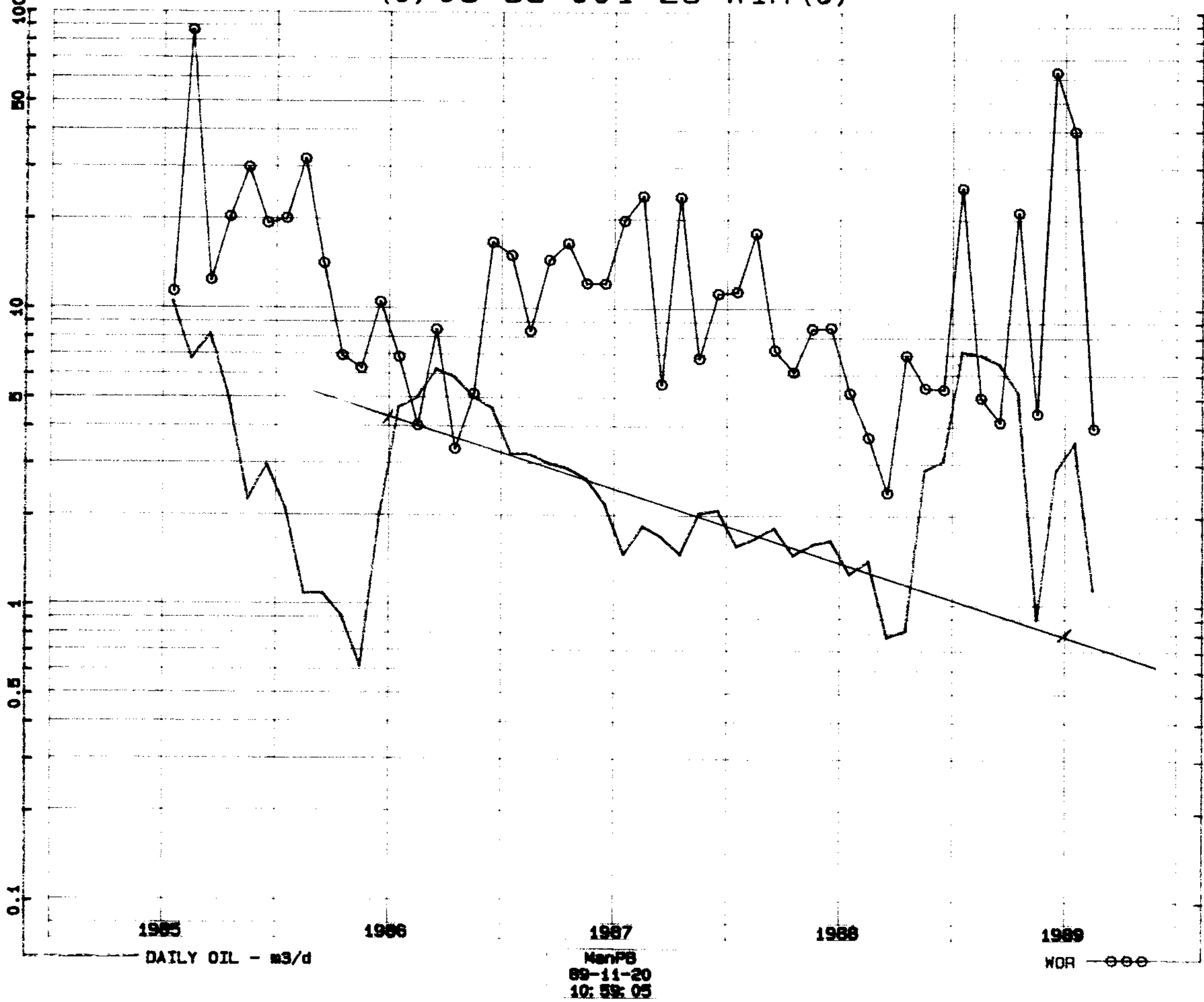
ManPB
89-11-20
10:19:41

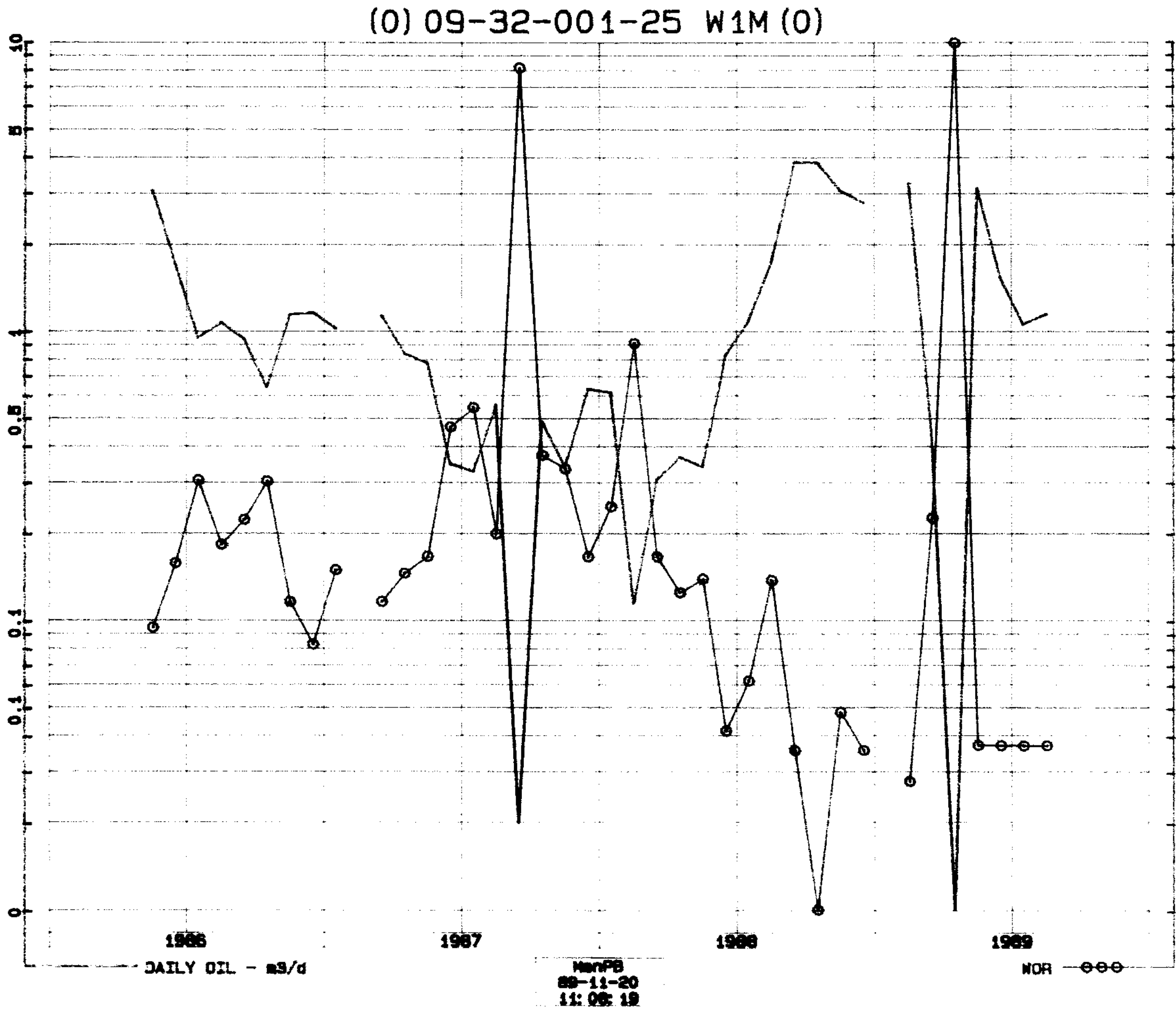
(0) 02-26-001-26 W1M (0)



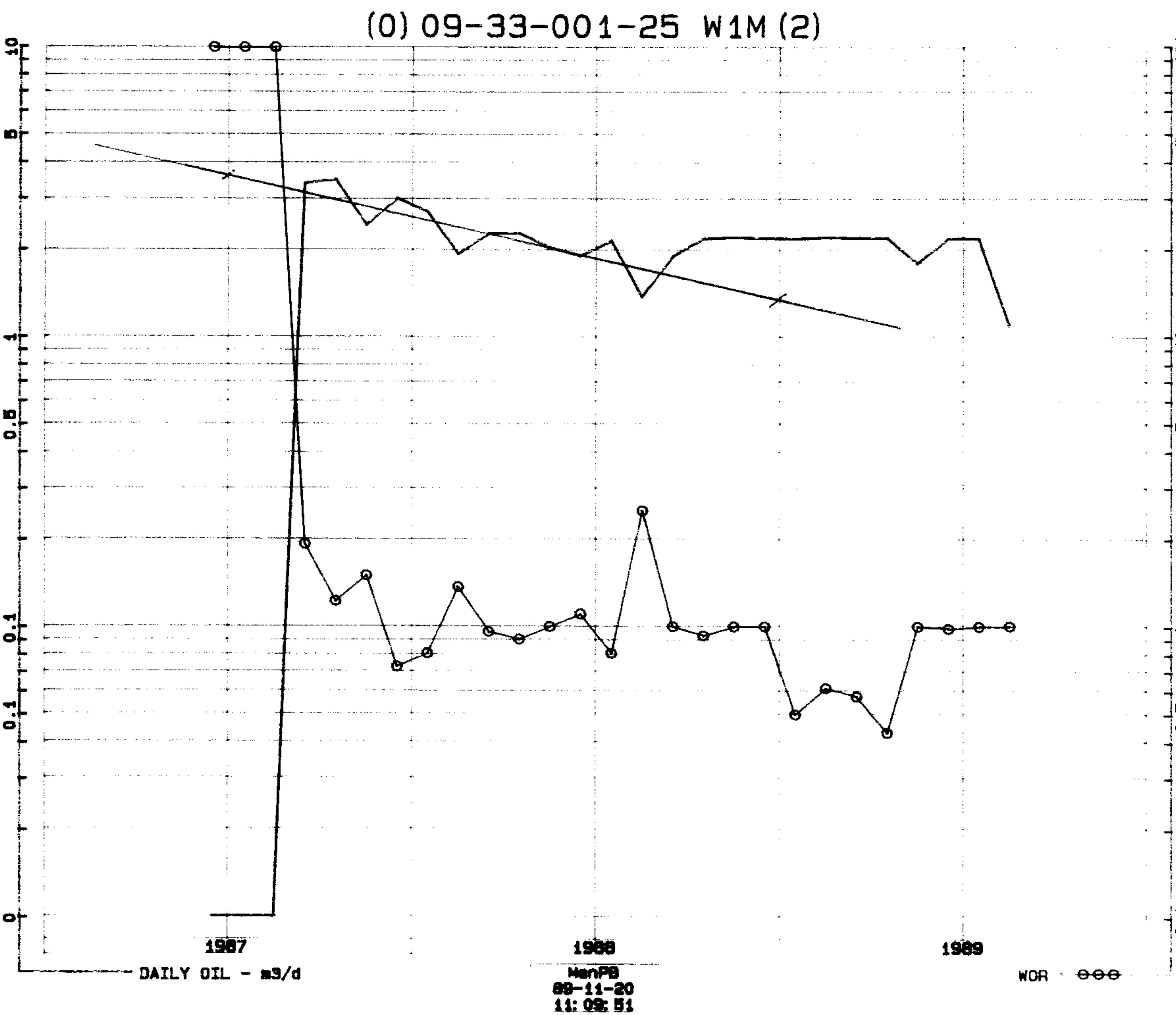

(0) 14-34-001-26 W1M (0)
DAILY OIL - m3/d
WOR
MenPB
89-11-20
10:55:16
1983
1984
1985
1986
1987
1988
1989

(0) 08-35-001-26 W1M (0)

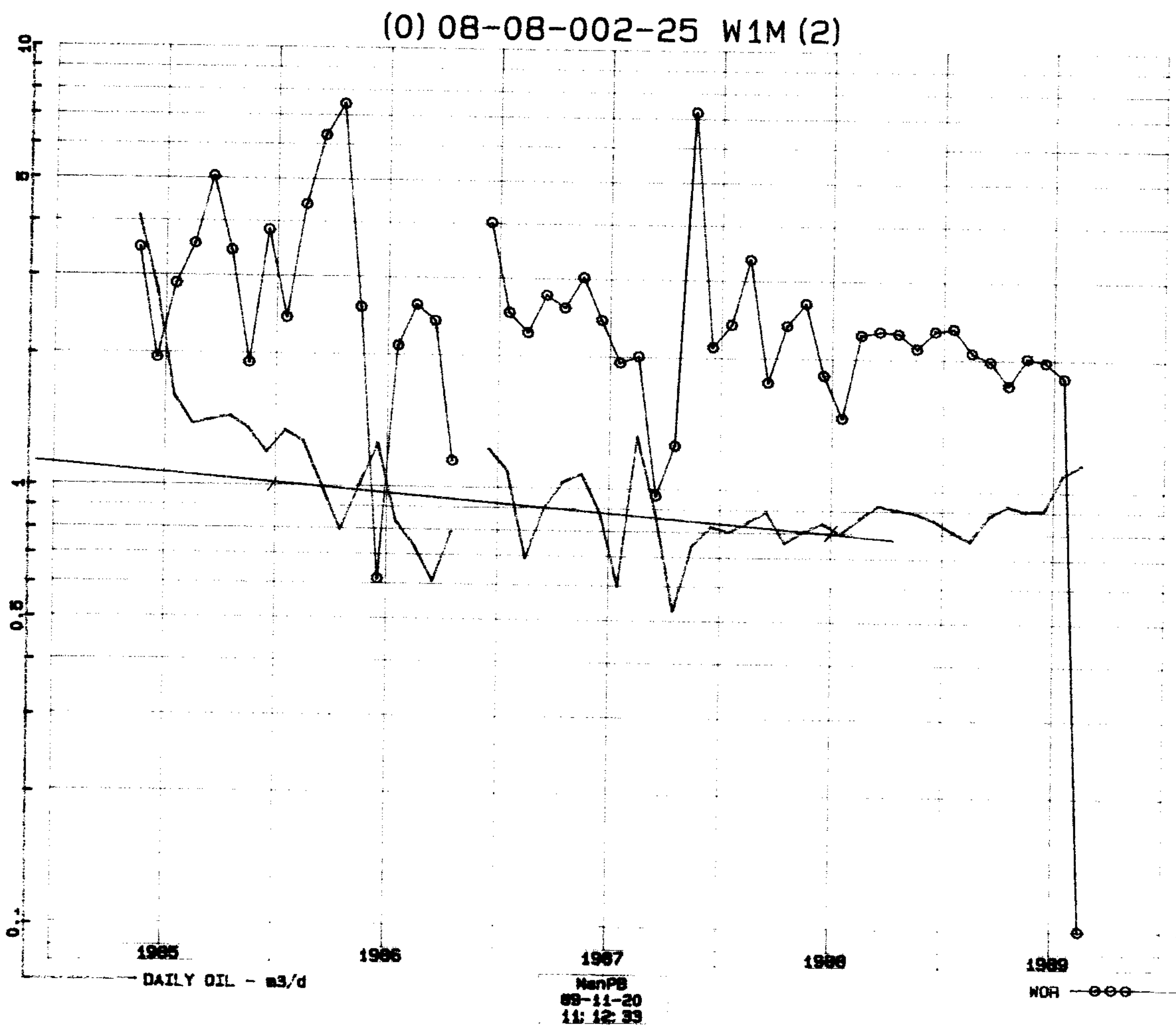




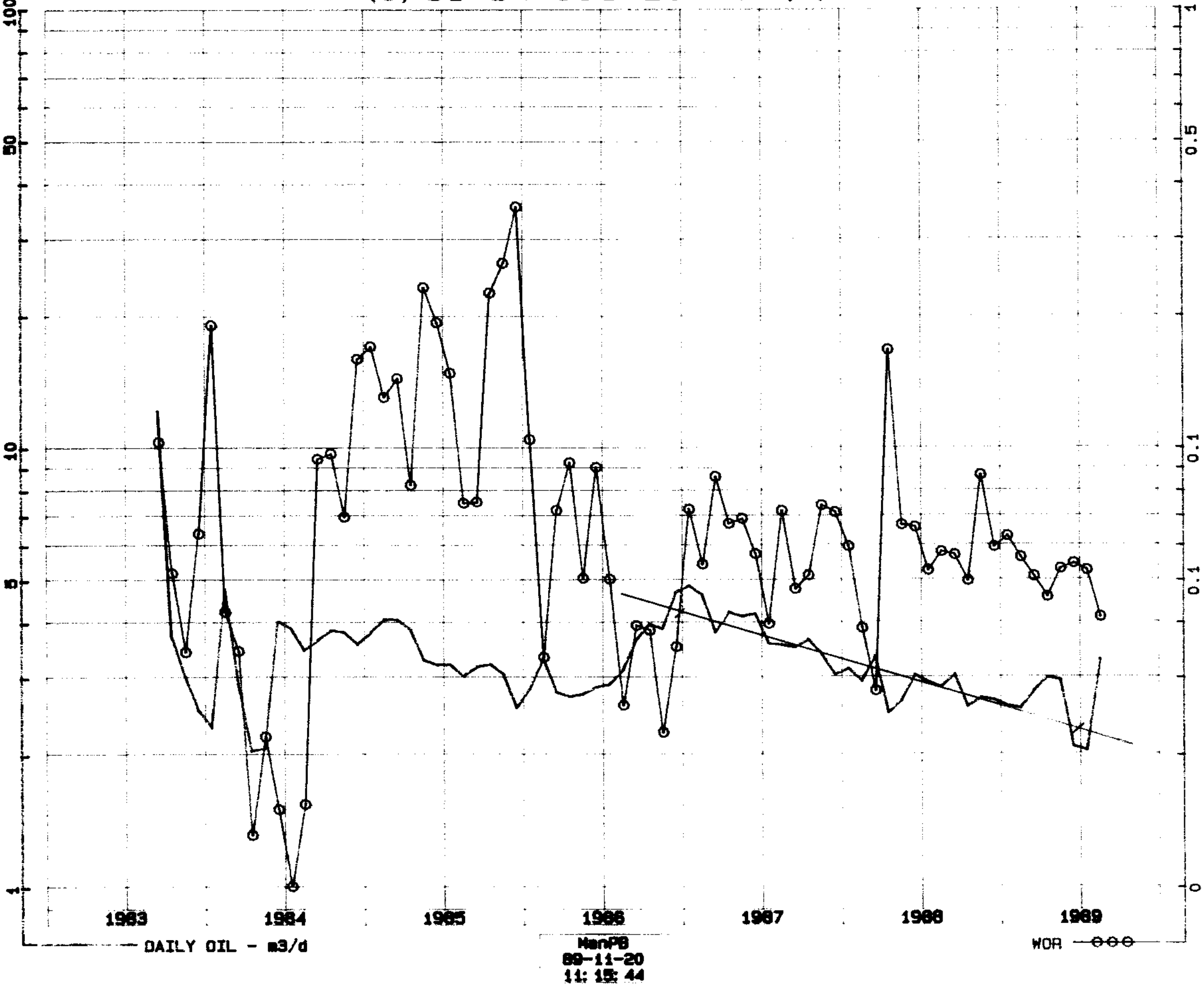
(0) 09-32-001-25 W1M (0)
10
5
1
0.5
0.1
0.1
0
100
50
10
5
1
0.5
0.1
1986
1987
1988
1989
DAILY OIL - m3/d
WOR
MenPB
89-11-20
11:08:19



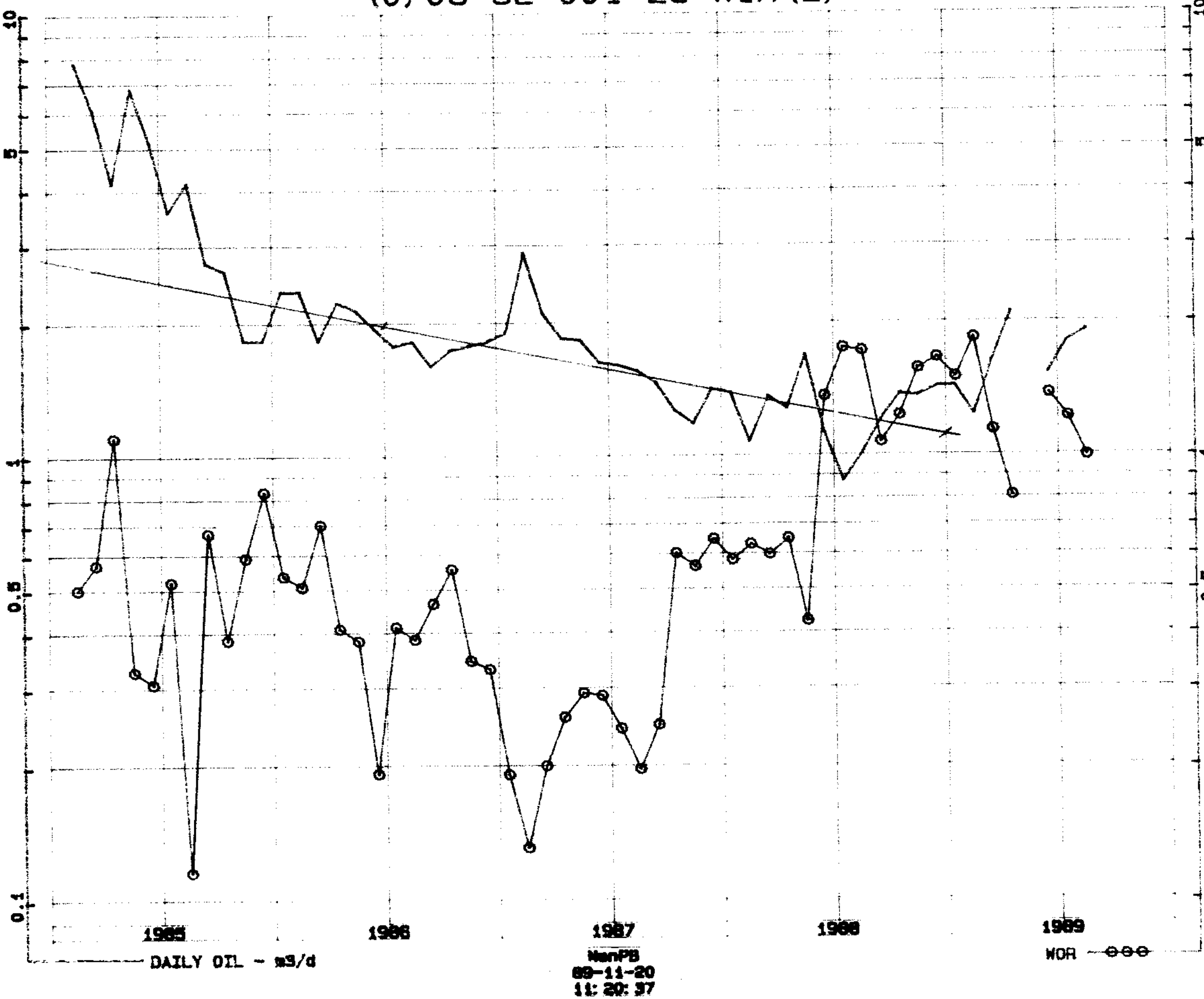
(0) 09-33-001-25 W1M (2)
10
5
1
0.5
0.1
0.1
0
100
50
10
5
1
0.5
0.1
1987
1988
1989
DAILY OIL - m3/d
WenPB
89-11-20
11:09:51
WOR

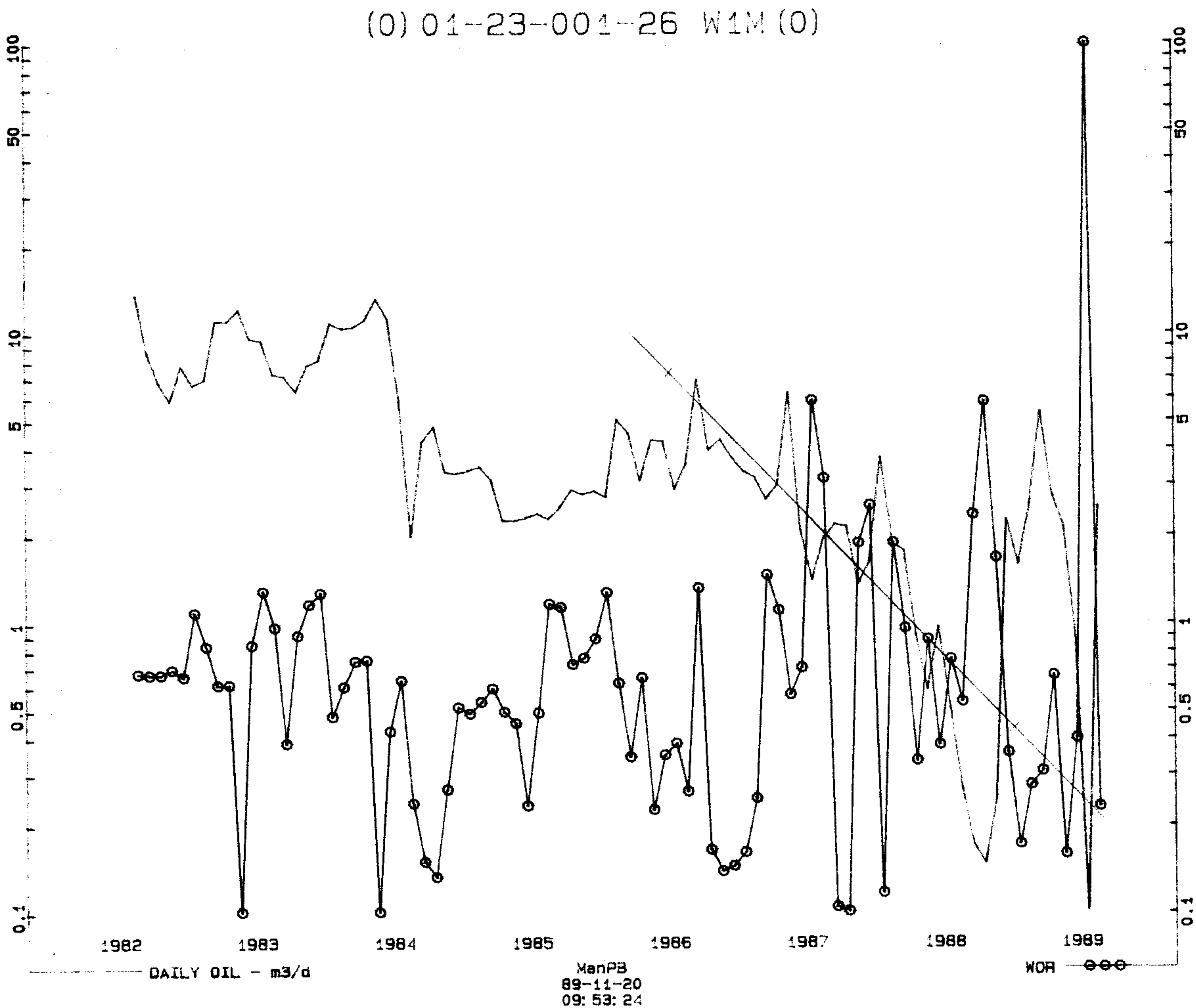

(0) 08-08-002-25 W1M (2)
10
5
1
0.5
0.1
0.4
0.2
0
0
0
1985
1986
1987
1988
1989
DAILY OIL - m3/d
NenPB
89-11-20
11:12:33
WOR

(0) 11-34-001-26 W1M (0)

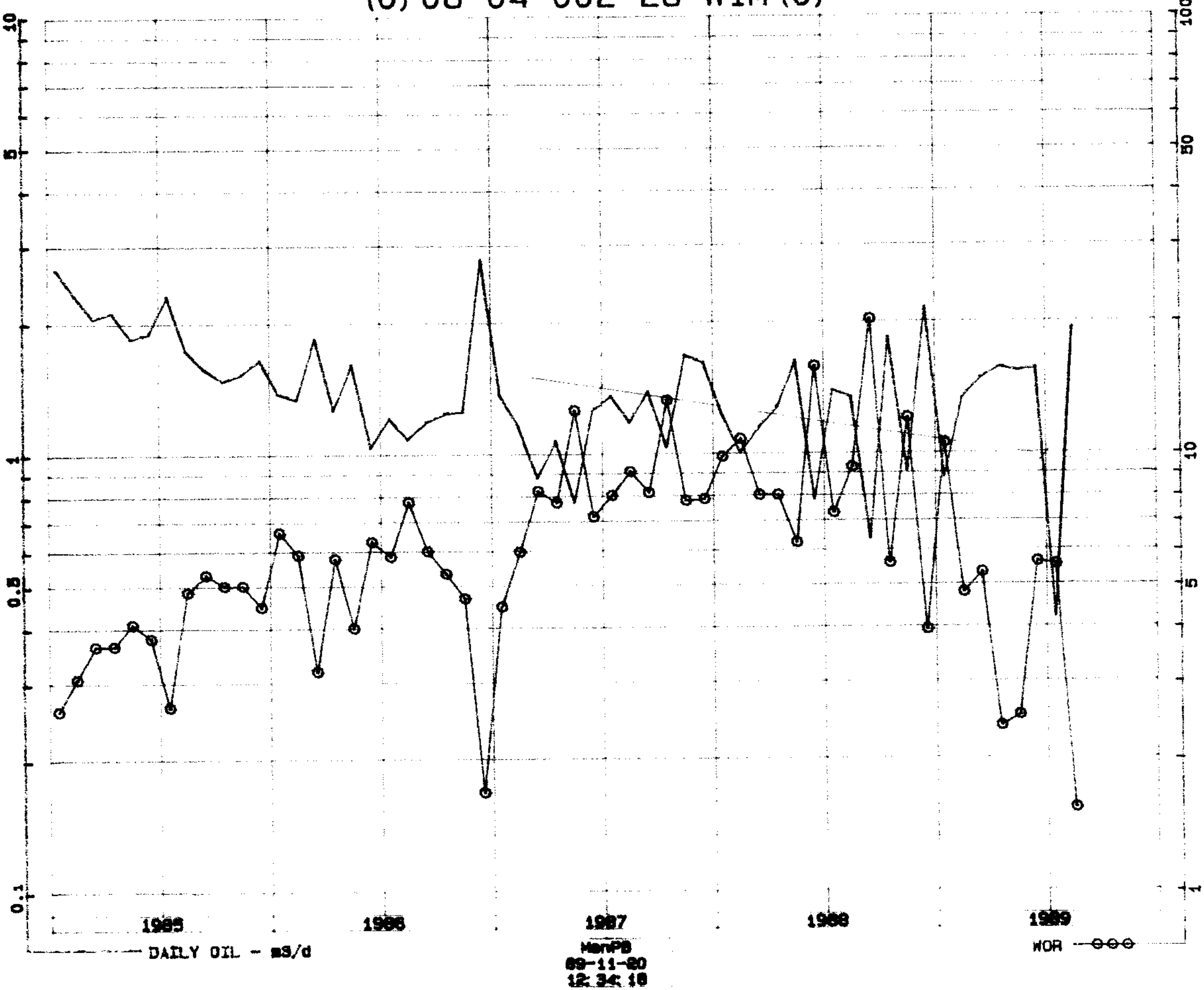


(0) 08-32-001-25 W1M (2)




(0) 01-23-001-26 W1M (0)
100
50
10
5
1
0.5
0.1
1982
1983
1984
1985
1986
1987
1988
1989
DAILY OIL - m3/d
ManPB
89-11-20
09: 53: 24
WOR

(0) 08-04-002-26 W1M (0)



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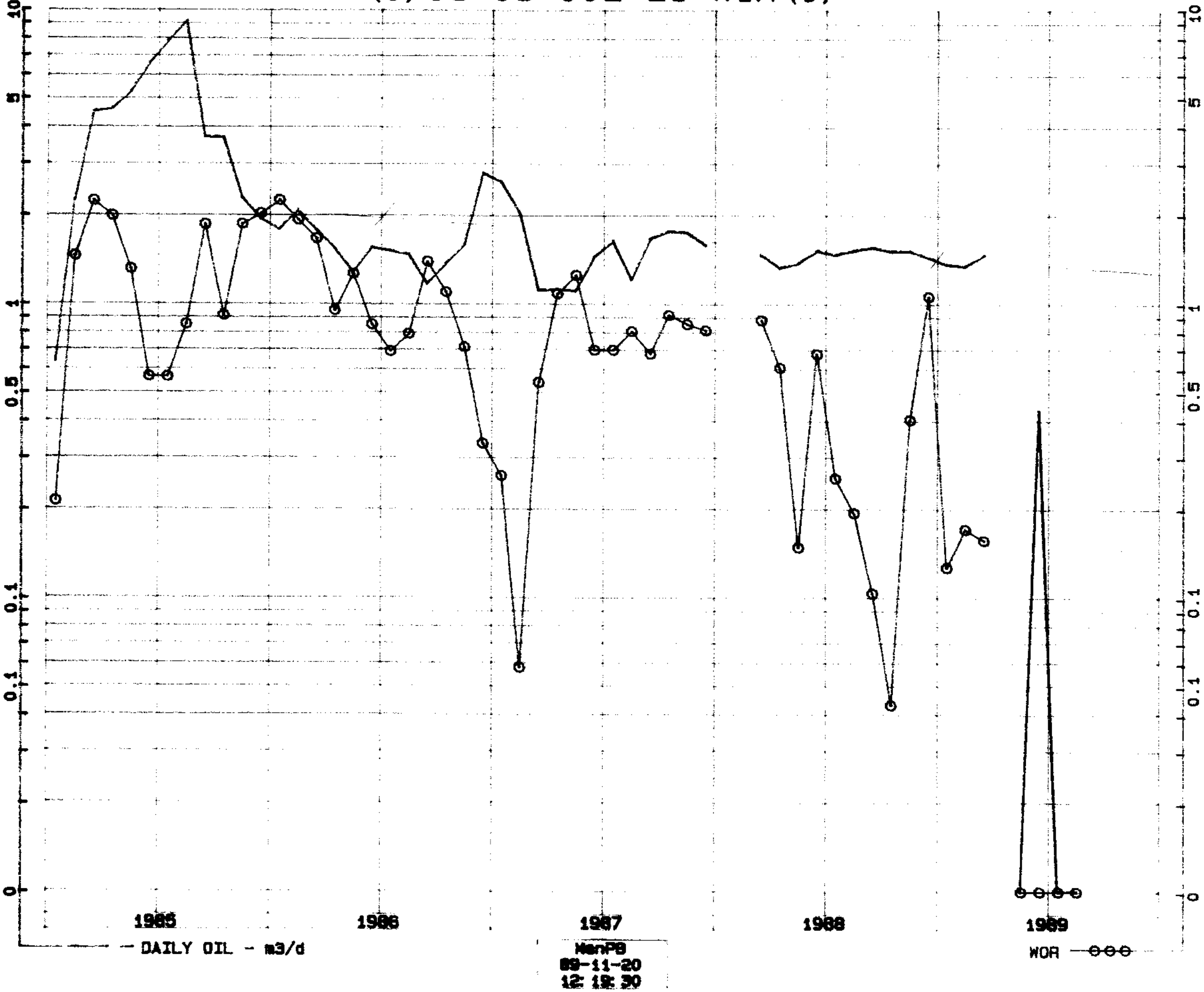
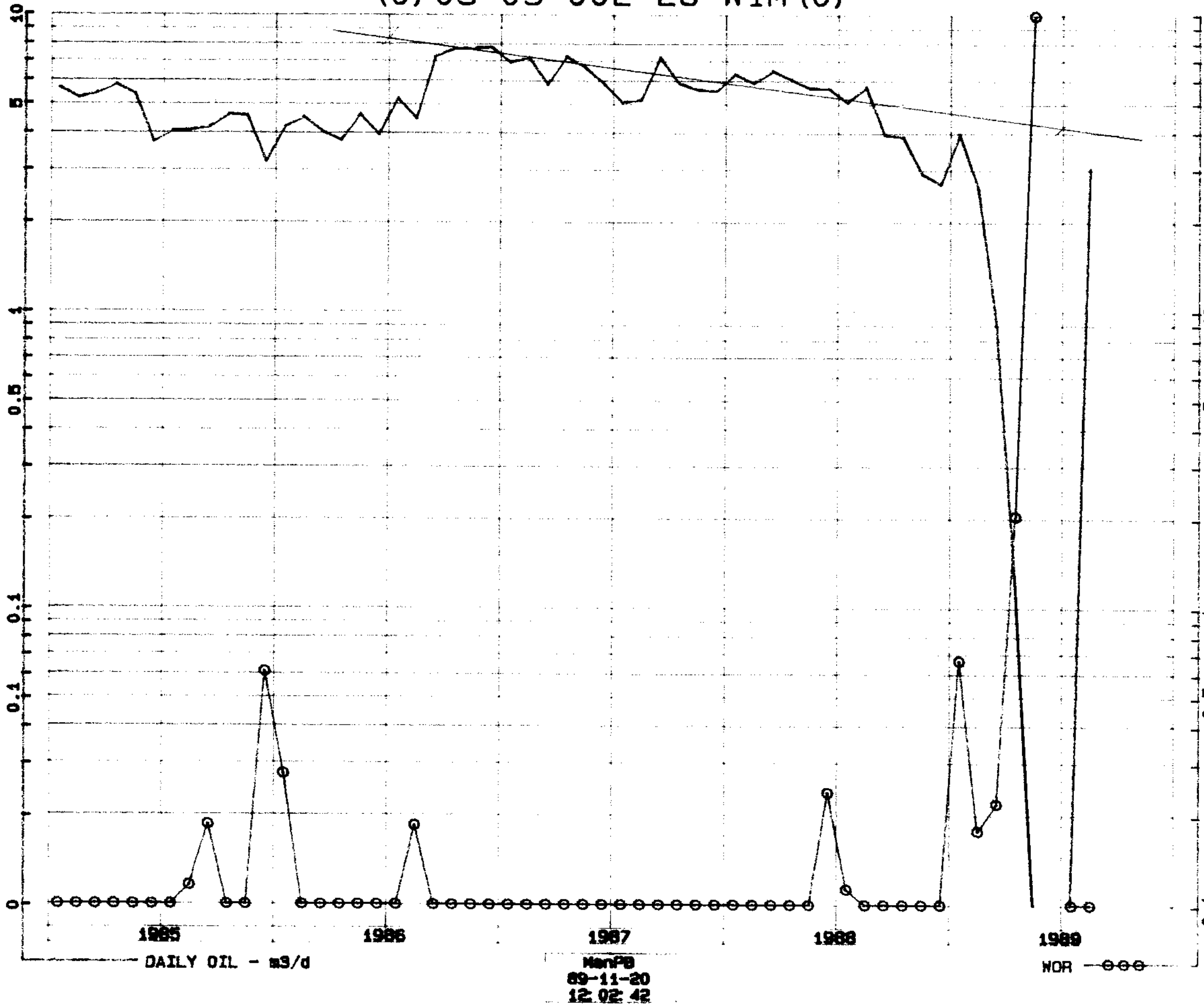
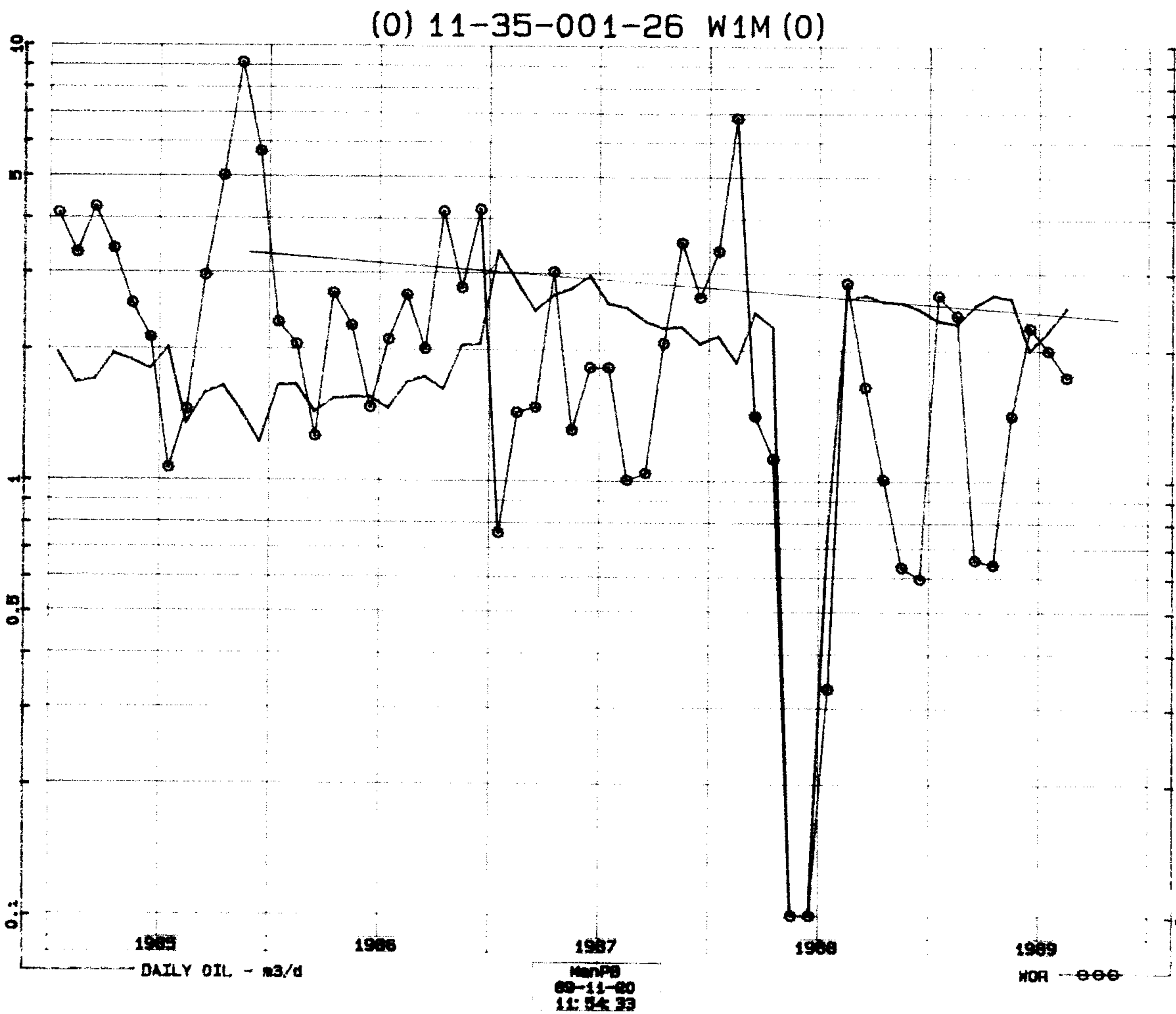


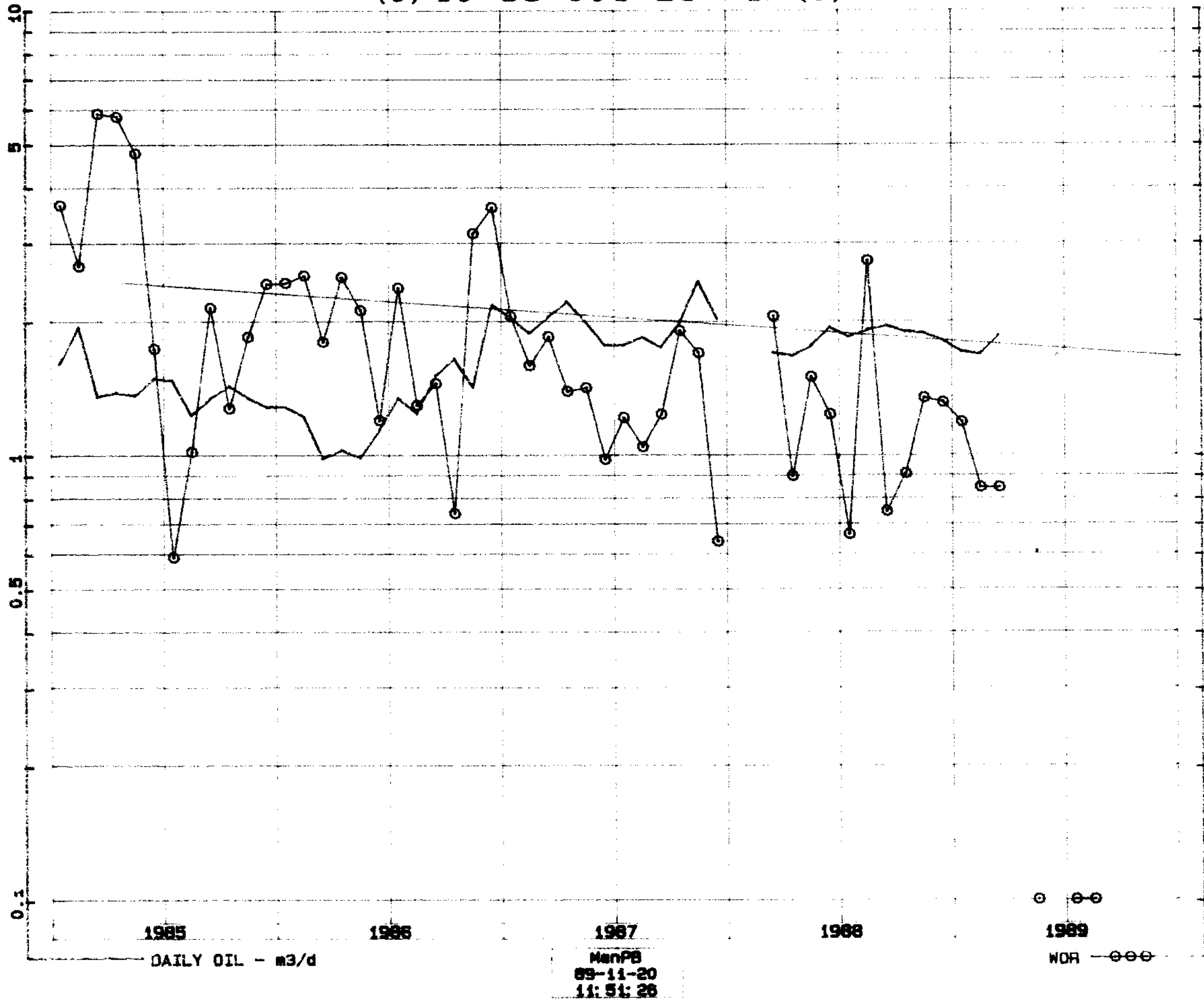
(0) 05-03-002-26 W1M (0)



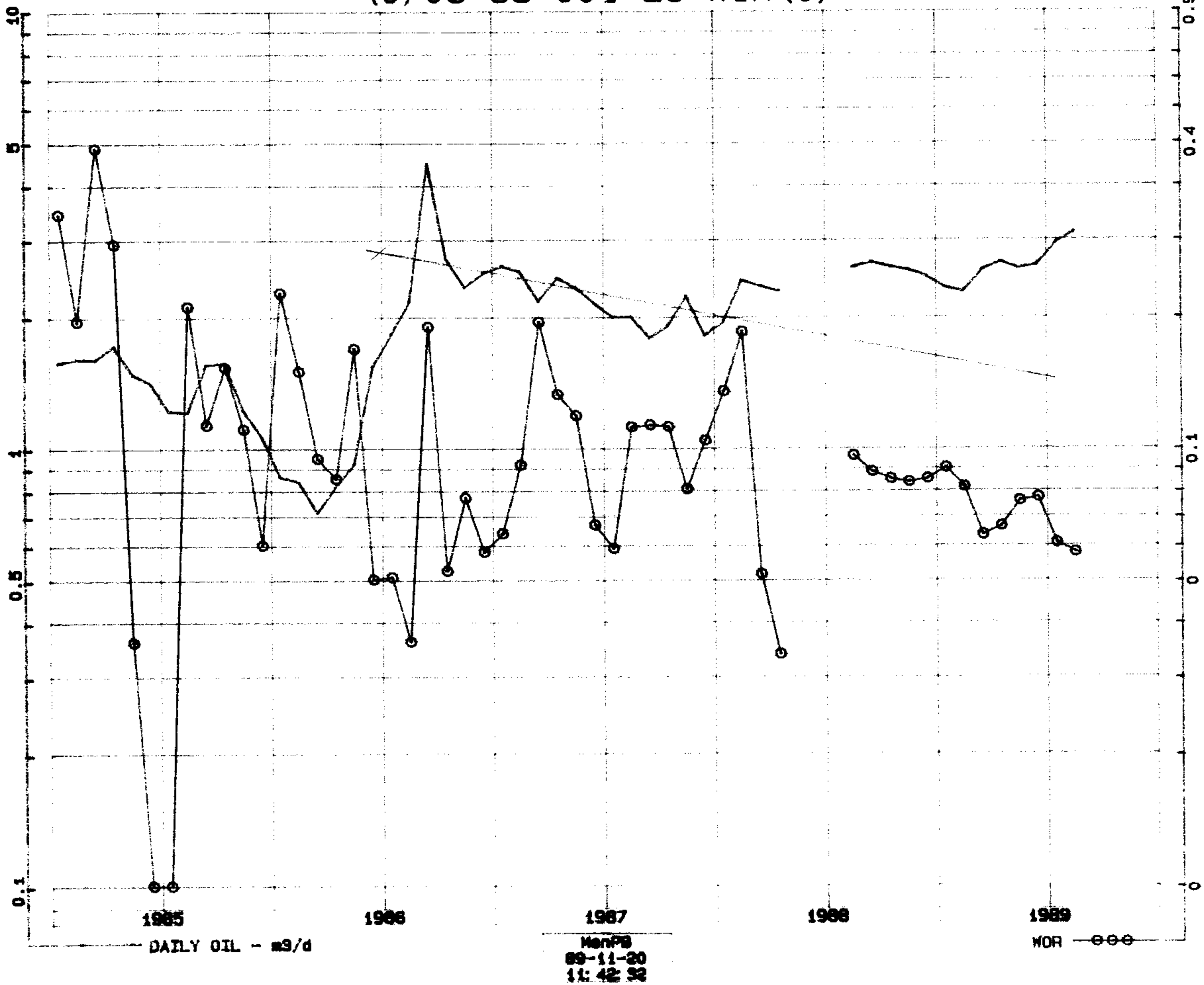


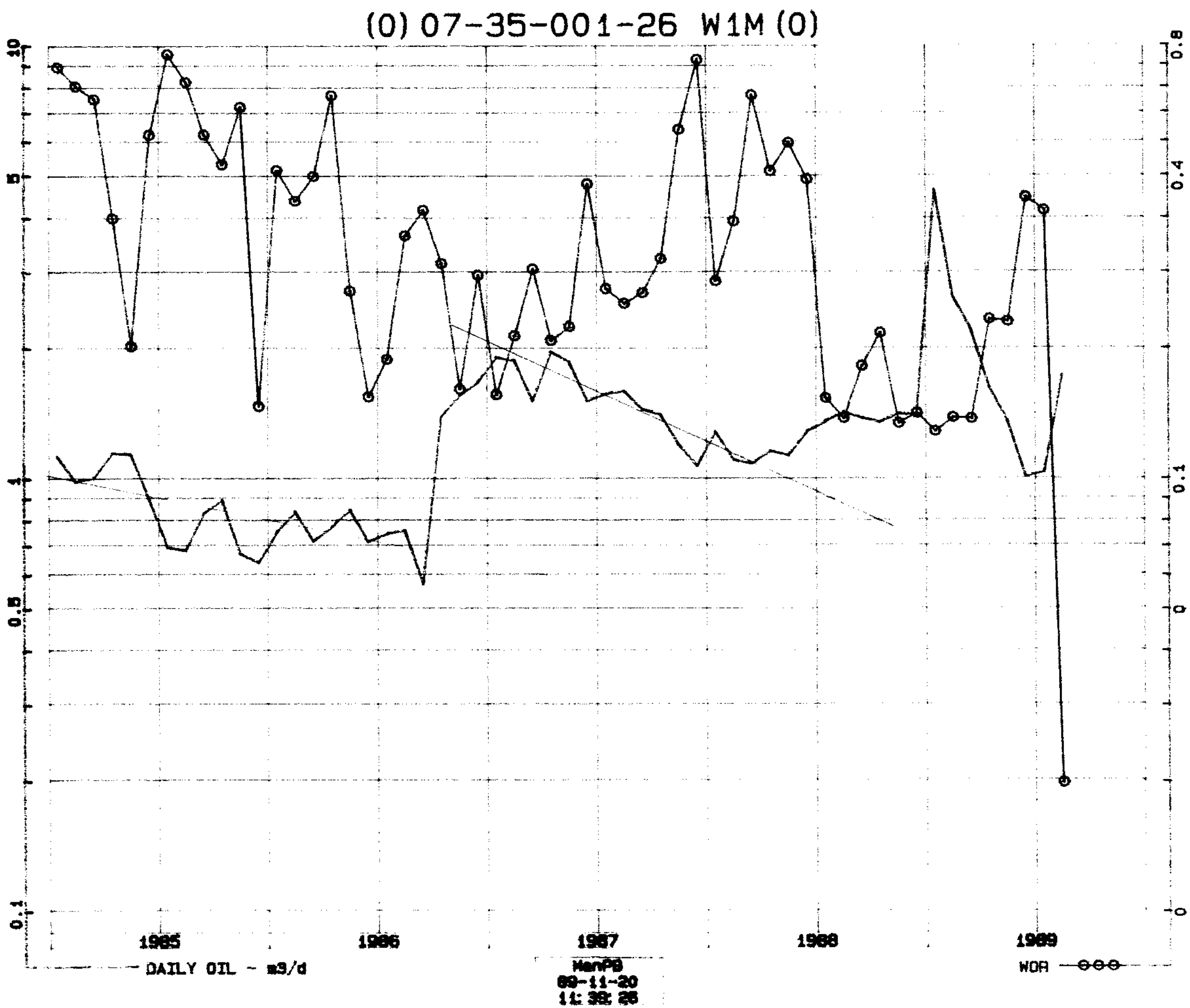
(0) 11-35-001-26 W1M (0)
10
5
1
0.5
0.1
1
0.5
0.1
0.1
0
1985
1986
1987
1988
1989
DAILY OIL - m3/d
WOR
MenPB
89-11-20
11:54:33

(0) 10-35-001-26 W1M (0)



(0) 09-35-001-26 W1M (0)

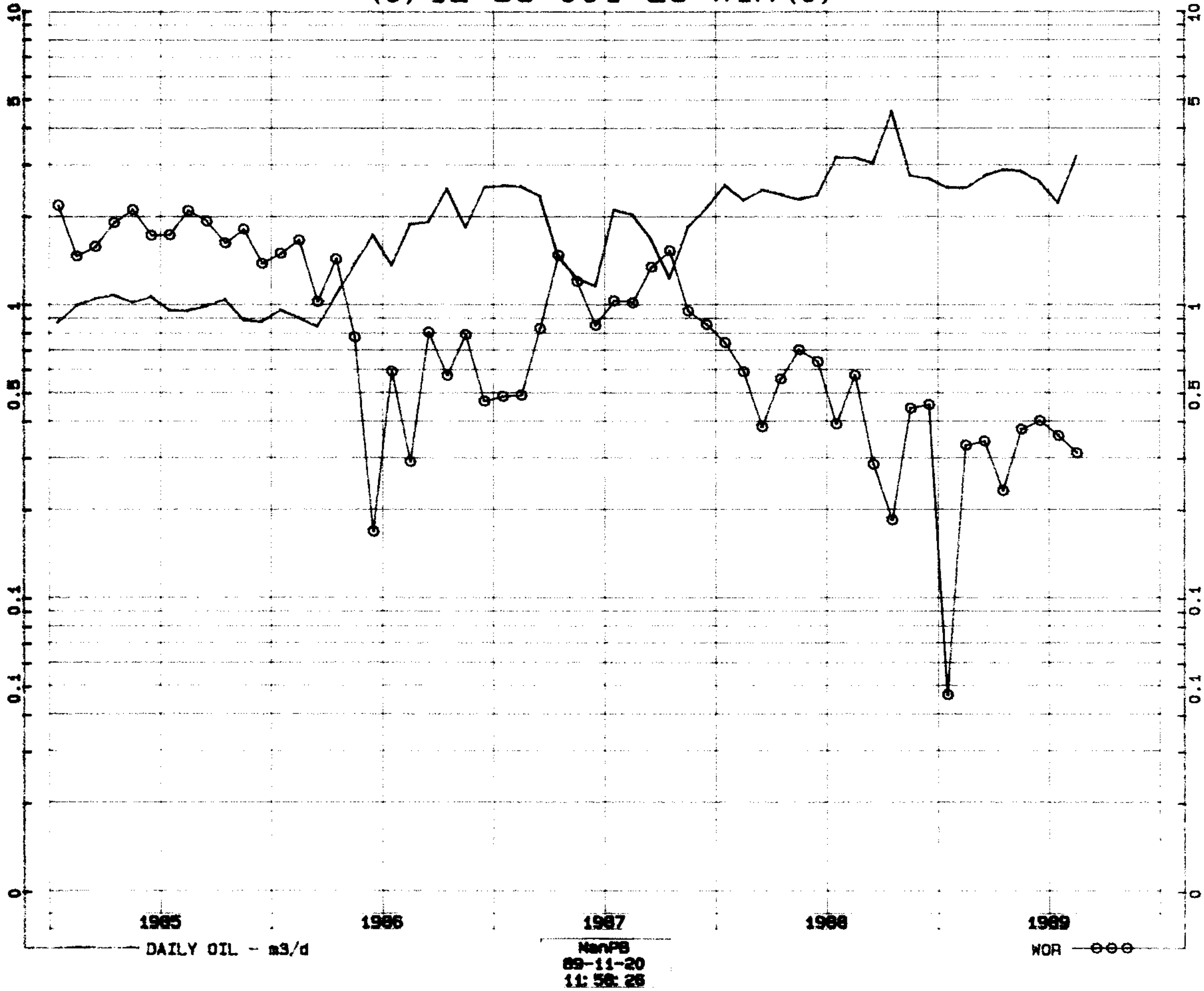




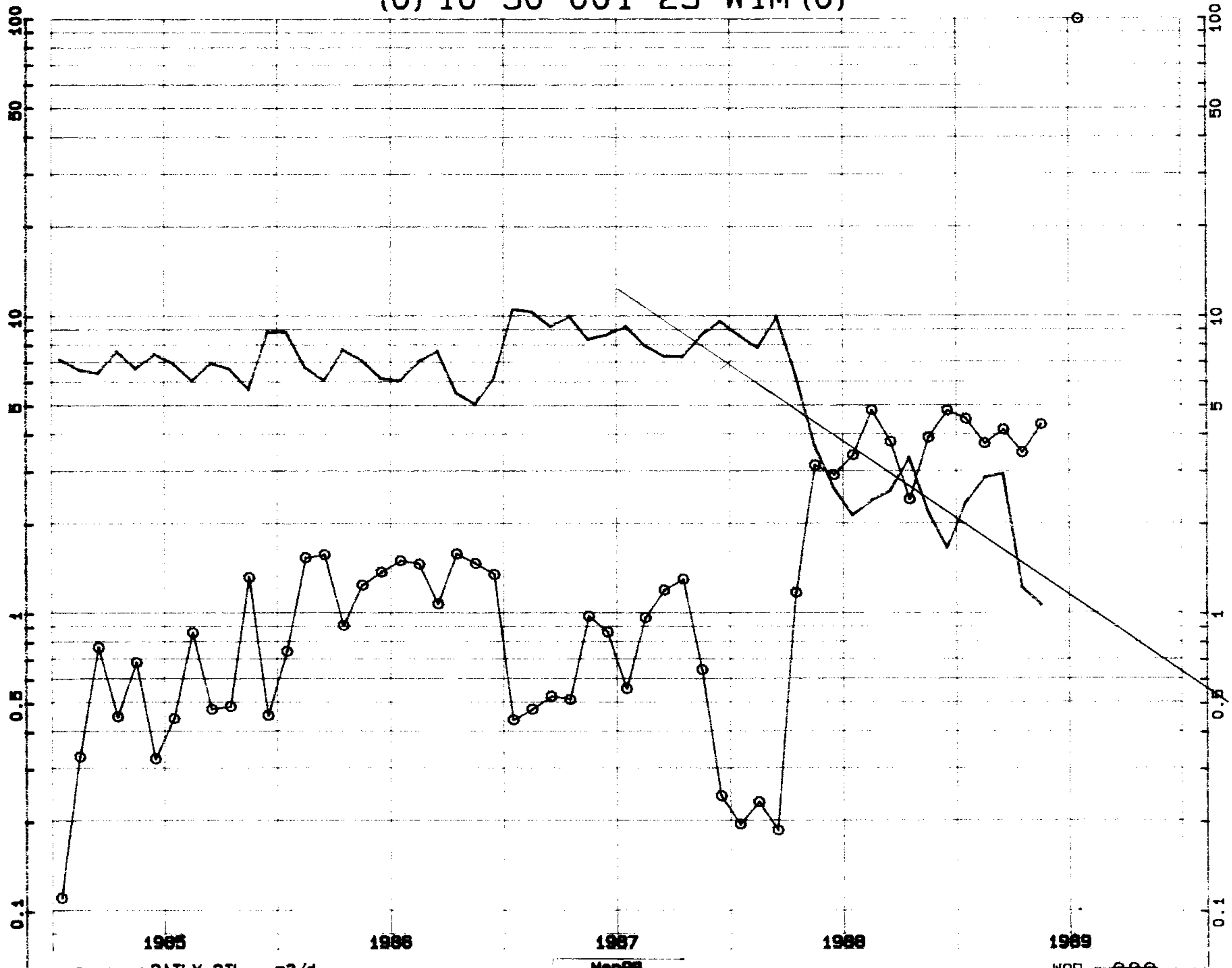
(0) 07-35-001-26 W1M (0)
10
5
1
0.5
0.1
0.8
0.4
0.1
0
0
1985
1986
1987
1988
1989
DAILY OIL - m3/d
WOR
ManPB
89-11-20
11:39:26

No Decline

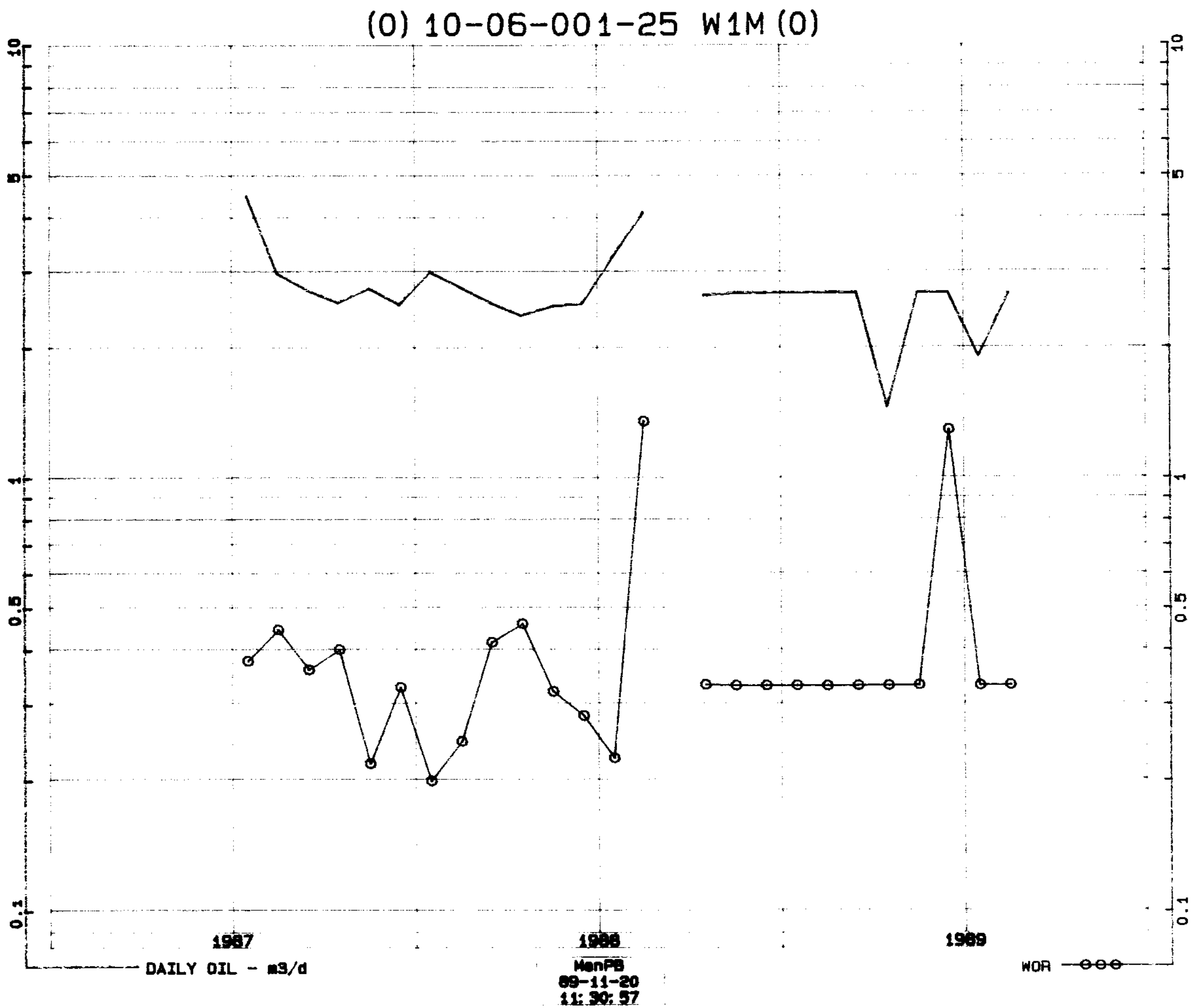
(0) 12-36-001-26 W1M (0)



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



MenPB
89-11-20
11:35:58



(0) 10-06-001-25 W1M (0)
10
5
1
0.5
0.1
1987
1988
1989
DAILY OIL - m3/d
MenPB
89-11-20
11:30:57
WOR

In the 24 commingled wells the total OOIP is 2.3 $10^6 m^3$, split 34% in the Mn and 66% in the Lh. This compares favourably with cumulative production of $0.16 \times 10^6 m^3$ ([illegible] split 40% Mc and 60% Lh.

Figure * shows ~~however~~ that though there is a relatively good correlation between OOIP/zone and cumulative prod from that zone there is no correlation between OOIP/zone & productivity of that zone at the time of [illegible]. It would [illegible] a good correlation [illegible] because of the complex degree of depletion in the [illegible] [illegible] [illegible] their [illegible] [illegible] [illegible] ~~pro~~ wet been produced!

However ~~this [illegible]~~ the fact that the recompleted zones & recompletions have no production history makes it impossible to accurately assign ~~an~~ recoverable unless ~~in~~ a ~~[illegible]~~ [illegible] well while if original oil in place is calculated using a consistent set of ϕ, Sw, K cut-off & consistent log analysis tools (such as Oregon's ~~shaly sand~~ computed model) then the calculated value is consistent between wells & zones

It should also be noted in a waterflood ~~scheme~~ that oil underlying a given ~~tract~~ ~~may~~ be swept toward & recovered by an offsetting well

Figure * is a plot of the production allocation for each commingled well. Pl is the ~~present~~ analyzed production allocation (fraction of total production to the LA) for Aug/84 using Oregon's present method of allocating production. Pl. 2 is the fraction of production allocated to the LA using [illegible] OOIP to allocate the product ($\frac{LA\ OOIP}{LA\ OOIP + TC\ OOIP}$).

Pl. 3 is the theoretical production allocation based on the average production for the original producing for the 6 mon period preceding the recompleted and the average productivity of the recompleted zone determined by the 14 day production test conducted after the zone was recompleted & before the zones were commingled

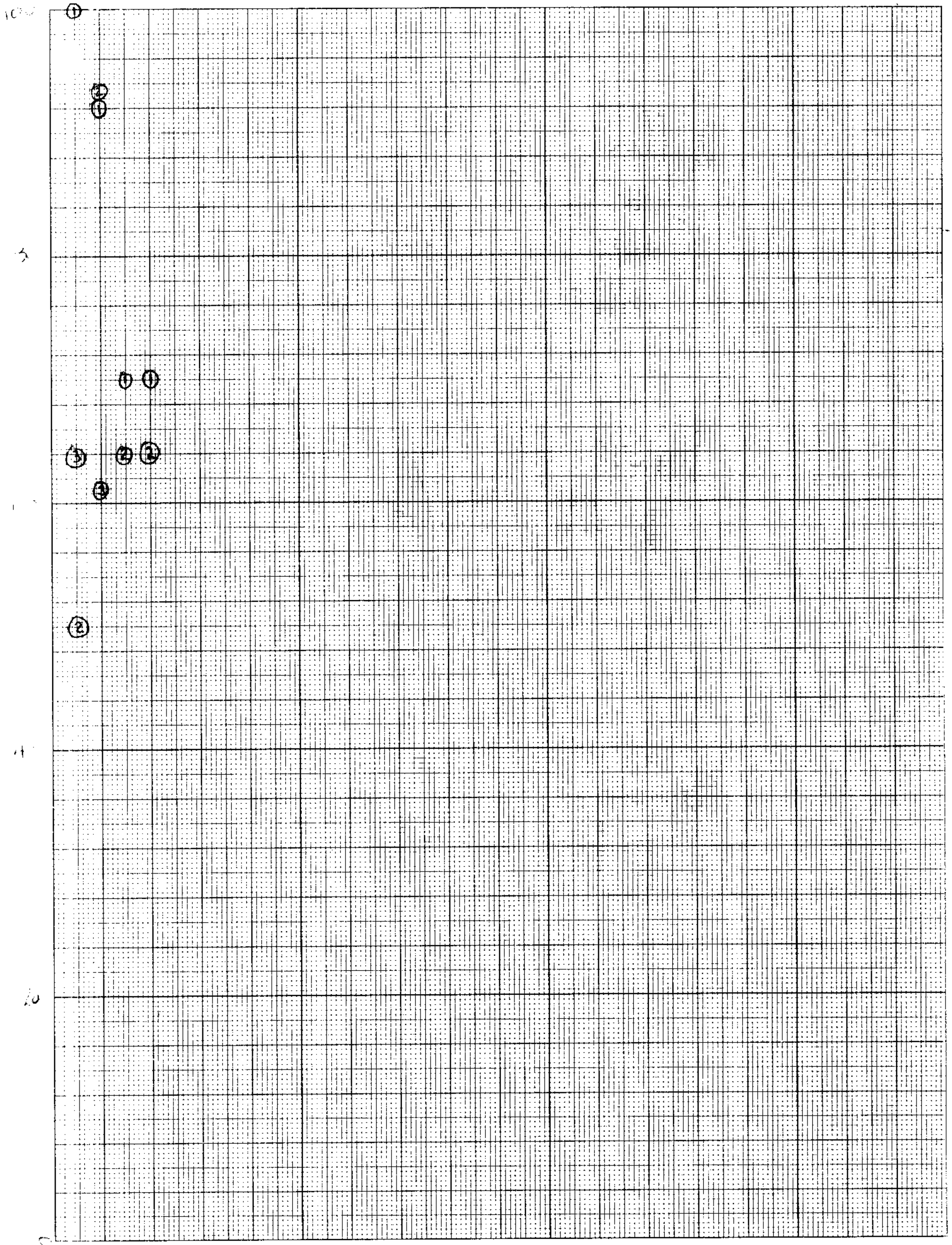
For 16 of the 24 commingled wells ~~using the~~ allocating production using zonal OOIP resulted

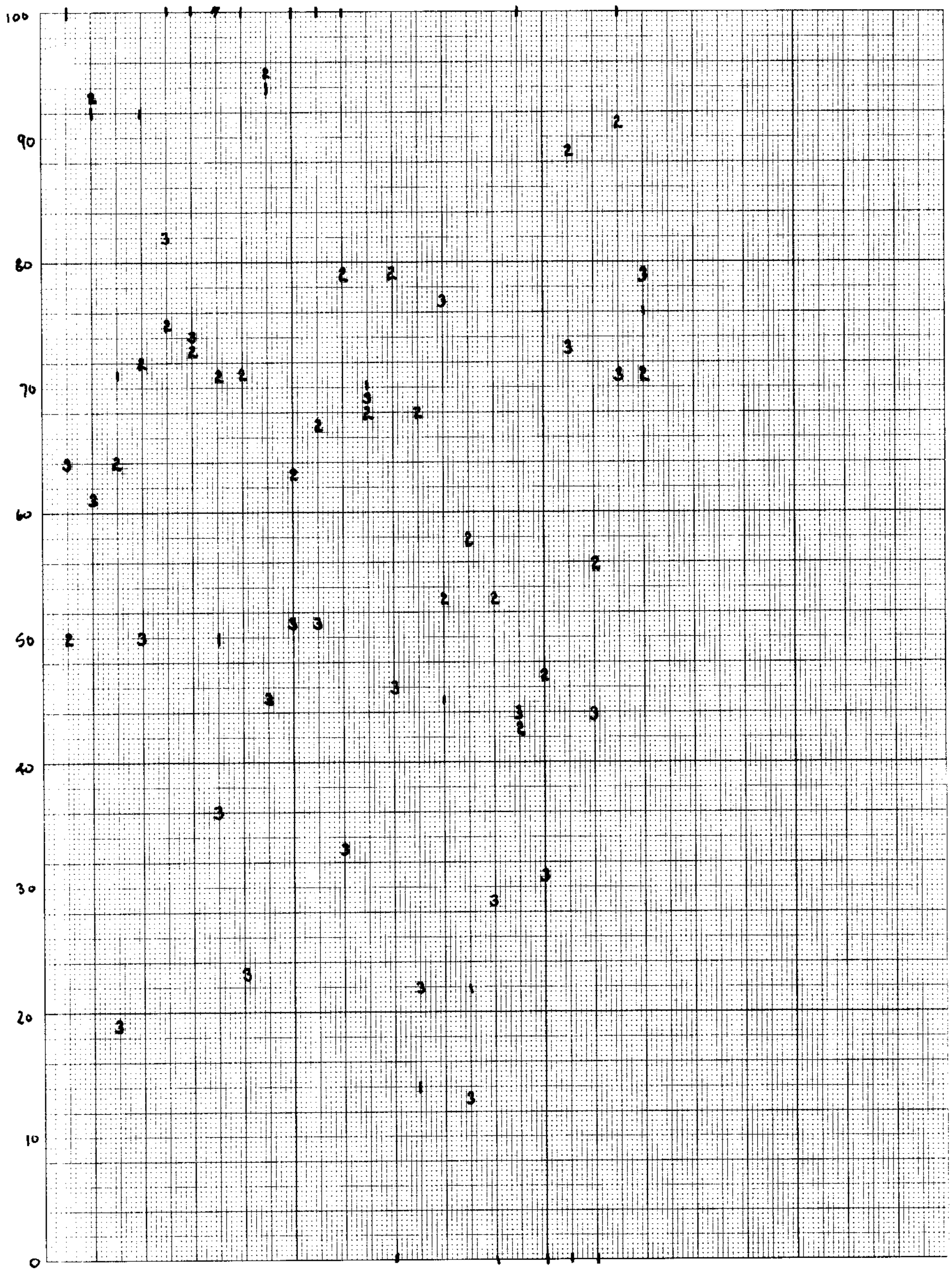
Assuming Pt. 3 is ~~the~~ most representative ~~accur~~ ~~allocation~~ of the actual zonal production. A comparison was made of the proximity of Pt. 1 & Pt 2 to Pt. 3 for

(16)

In ~~20~~ 16 of the 24 commingled wells Pt. 2 was closer to Pt. 3 than Pt. 1. Which means in those 16 wells allocating prod. using zonal OOIP was more ~~able~~ accurate than the present method of allocating ~~reserves~~ production. In 4 wells, ~~Pt. 2 and~~ there was no difference between the 2 methods of production distribution and in only 4 cases ~~did~~ was allocation by OOIP less accurate than the present method.

LAm




100
90
80
70
60
50
40
30
20
10
0

Well	Zone	Pool / Unit	OOIP	RF*	Rec. Res	Cum PROD	Rem. Rec. Res
2-26-1-26	LAm	LAL A / Unit #1	72561	25	18140	13872	4268
	MC	MC3a A / Unit #12	33391	10	3339	47	3292
4-25-1-26	LAm	LAL A / Unit #1	72561	25	18140	15256	2884
	MC	MC3a A / Unit # 12	35478	10	3548	135	3413
9-24 -26	LAm	LAL A / Unit #1	72561	25	18140	7042	11098
	MC	MC3a A / Unit #12	4383	10	438	76	362
14-34-1-26	LAm	LAL A / Unit #5	55356	10	5536	1489	4047
	MC	MC3b	25739	23	5920	117	5803
1-26-1-26	LAm	LAL A / Unit #1	72561	25	18140	15464	2646
	MC	MC3a A / Unit #12	19478	10	1948	203	1745
8-32-1-25	LAL	LAL A / Unit #14	56852	10	5685	3216	2469
	MC	MC3a L	21565	5	1078	114	964
1-23-1-26	LAL	LAL A / Unit #4	55356	20	11071	10070	1001
	MC	MC3a A / Unit #12	22957	10	2296	170	2126
12-24-1-26	LAL	LAL A / Unit #1	72561	25	18140	12713	5427
	MC	MC3a A / Unit #12	43130	10	4313	346	3967
8-4-2-26	LAm	LAm A	67325	5	3366	754	2612
	MC	MC3b D	27130	23	6240	3964	2276
9-32-1-25	LAL	LAL A	79169	5	3958	1055	2903
	MC	MC3a L	26643	5	1332	368	964
7-35-1-26	LAm	LAm A	68571	5	3429	493	2936
	MC	MC3a I	60522	11.5	6960	2234	4726
8-35-1-26	LAm	LAL A	74182	5	3709	3290	419
	MC	MC3a I	52870	11.5	6080	574	5506
5-3-2-26	LAm	LAL A	54234	5	2711	830	1881
	MC	MC3b D	42435	23	9760	9176	584

* RF Unit or Pool average individual well production [illegible]

A) ALLOCATE PRODUCTION BASED ON INDIVIDUAL ZONE [illegible] OOIP/ROIP OR REMAINING [illegible]

[illegible] that with [illegible] production [illegible] /zone [illegible] zonal production [illegible]

- in cases where mineral owners rights unaffected by prod allocation - zone due wells/low productivity - [illegible] [illegible] ~~of~~ [illegible]

[illegible]

- group wells into MC pools ~~by~~ MC
  correlation between reserves & productivity

- difficulty determining OOIP individual well
- difficulties determining Rec. Res. no e.od. dcl.
- requires some assumptions on universal application of pool wide RF

this is case with [illegible] zone

- allocation reviewed annually

[illegible] level of sophistication

plot
daily
WOR

Directory	Well Name	Pool	
R	(0) 01-23-001-26-WIN-01	LAM	P
R	(0) 02-26-001-26-WIN-(0)	LAM	P
R	(0) 01-26-001-26 WIN (0)	LAM	P
T	(0) 01-23-001-26-WIN-(2)	MC	
T	(0) 02-26-001-26-WIN (2)	MC	
T	(0) 01-26-001-26-WIN (2)	MC	
R	(0) 14-34-001-26-WIN (0)	LAM	P
T	(0) 14-34-001-26 WIN (2)	MC	
R	(0) 08-35-001-26-WIN (0)	LAM	P
T	(0) 08-35-001-26-WIN (2)	MC	
R	(0) 12-24-001-26-WIN (2)	LAM	P
S	(0) 12-24-001-26 WIN (0)	MC	
[illegible]	(0) 01-25-001-26-WIN (2)	LAM	P
[illegible]	(0) 04-2[illegible]	MC	
[illegible]	(0) 09-[illegible]	LAM	P
	(0) [illegible]	MC	
S	(0) 11-34-001-26 WIN 0)	MC	P
S	(0) 11-34-001-26 WIN (2	LAM	
T	(0) 11-35-001-26 WIN (0)	MC	P
T	(0) 11-35-001-26 WIN (2)	LAM	
T	(0) 12-36-001-26 WIN 0	MC	P
T	(0) 12-36-001-26 WIN 2	LAM	
T	(0) 16-35-001-26 WIN 0	MC	P
R	(0) 16-35-001-26 WIN 2	LAM	
T	0 9-[illegible]-26 WIN 0	MC	P
T	0 9-35-001-26 WIN (2)	LAM	
T	0 [illegible]	MC	
[illegible]	[illegible]	[illegible]	P

Sub-Directory		Well Name	Pool	
T		(0) 06-03-002-26 win (0)	MC	P
R	*	(0) 06-03-002-26 win (2)	LAM	
T		(0) 05-03-002-26 win (0)	MC	P
T		(0) 05-03-002-26 win (2)	LAL	
T		(0) 08-04-002-26 win (0)	MC	P
T		(0) 08-04-002-26 win (2)	LAM	
T		(0) 05-06-001-25 win (0)	MC	P
S		(0) 05-06-001-25 win (2)	LAM	
T		(0) 10-06-001-25 win (0)	MC	P
T		(0) 10-06-001-25 win (2)	LAM	
T		(0) 10-30-001-25 win (0)	MC	P
[illegible]		(0) [illegible]-30-001-25 win (2)	LAM	
T		(0) 05-32-001-25 win (0)	MC	
S		(0) 05-32-001-25 win (2)	LAM	P
S		(0) 07-32-001-25 win (0)	LAM	P
T		07-32-001-25 win (2)	MC	
T		(0) 09-33-001-25 win (0)	MC	
S		(0) [illegible]-33-001-25 win (2)	LAM	P
T		07-35-001-26 win (0)	[illegible]	P
T		(0) 07-35-001-26 win (2)	LAM	

WELL	ZONE	POOL / UNIT	OOIP	RF	Rec. Res	CUM PROD	Rem Rec. Res.
11-34-1-26	LAm	LAm A	83534	5	4177	329	3848
	MC	MC3b B	22261	23	5120	6925	(-1805)
12-36-1-26	LAm	LAm A	44197	5	2210	714	1496
	MC	MC3a I	5496	11.5	632	3857	(-3225)
10-[illegible]-25	LAm	LAm A	60156	5	3008	487	2521
	MC	MC3a E	4870	6.8	331	1817	(-1486)
1-33-1-25	LAm	LAm A	79169	5	3958	1576	2382
	MC	MC1 E	29217			766	
3-9-[illegible]-25	LAm	LAm A/Unit #8	47314	20	9463	1511	7952
	MC	MC1 D	19061			1916	
9-30-1-26	LAm	LAm A	48810	5	2441	1056	1385
	MC	MC3a I	43130	11.5	4960	4222	738
11-35-[illegible]-26	LAm	LAm A	66078	5	3304	511	2793
	MC	MC3a I	75130	11.5	8640	4771	3869
5-6-[illegible]-25	LAm	LAm A	57039	5	2852	1734	1118
	MC	MC3a E	56765	6.8	3860	3341	519
[illegible]-1-26	LAm	LAm A	48623	5	2431	1467	964
	MC	MC3a I	64696	11.5	7440	3799	3641
6-3-2-26	LAm	LAm A	[illegible]7563	5	2878	[illegible]	[illegible]
	MC	MC3b D	5913	23	1360	[illegible]	(-2229)
[illegible]-25	LAm	LAm A	51616	5	2581	-0-	2581
	MC	MC3a D	29217	45.8	13372	11354	2018

MC3bD Pool Ult Rec Res 22949 LJ

MC3a A Pool Ult. Rec. Res 41702

MC3a D Ult. Rec. Res. 13372 . 10:30

MC3a E Ult Rec. Res. 23247

MC3a I " " " 29773

OOIP 212652

RF sec = 25 ?

RF pri = 8.05 ?

MC3a I OOIP 341494.6
Cum Prod 175222
RF to date . 50 %

MC3a D Pool OOIP 37943.3 Cum prod 11218
10-30-1-25
RF to date 30 %

MC3a E Pool OOIP = 553404
Cum prod. 37771
RF = 6.8 %

$\frac{23247}{553404}$

MC3a L Pool OOIP - 68511.3
RF - 0.7 %

part of
MC3b B+D Pool
OOIP 224618.1
RF 10.2 %

remainder of
E pool OOIP 31470 RF = 19.8 %
+ 220783 RF 20.7 %

OOIP B+D = 476871 ult Rec B+D 107898
RF = 23

MC3b B ult Rec. 84949

UNIT #9 OOIP 217478

RF_{MAH} = 22.9 % RF_{wt} - 35

Rem. Res. Ult. Res

LAu X Pool 1724693 ~~3008697~~

LAu ~~recoveries~~ RF.

25% unit 1, 2, 3
20% 4, part of 5 8
10% part of 5 13
5% primary

	OOIP	RF	Rec Res.
Unit* 8	5,433,785 bbl	RF = 0.2	~~Ult Res~~ 1,086,757 bbl
* 1	11,015,285	.25	2,753,281
* 4	9,836,207	20	1,405,398
* 5	6,350,407	10	635040

#12 3069925 HC 3a A
680870 m³
RF primary = 3.2%
RF wf 10%
WFa appl
Rec Res. 68087

no clear decline.

COMMINGLED WELL PRODUCTION

WELL	MISSISSIPPIAN	L. Amarcutt
10-35-1-26	NON-UNIT	NON-UNIT
6-3-2-26	NON-UNIT	NON-UNIT
[illegible]-25	NON-UNIT	NON-UNIT
11-35-1-26	NON-UNIT	NON-UNIT
9-[illegible]-26	NON-UNIT	NON-UNIT
8-5-2-25	NON-UNIT	UNIT #8 100% Omega
[illegible]-32-1-25	NON-UNIT	NON-UNIT
12-36-1-26	NON-UNIT	NON-UNIT
10-6-1-25 PROV	NON-UNIT	NON-UNIT
[illegible]-35-1-26	NON-UNIT	NON-UNIT
[illegible]-26	NON-UNIT	NON-UNIT
[illegible]-26	NON-UNIT	NON-UNIT
[illegible]-2-[illegible]-25 PROV	NON-UNIT	NON-UNIT
[illegible]-2-26	NON-UNIT	NON-UNIT
[illegible]-25-1-26	UNIT #12 100% Omega	UNIT #1 100% Omega
12-26-1-26	UNIT #12	UNIT #1
22-1-26	UNIT #12	UNIT #4 Omega 95.[illegible]
10-[illegible]-1-26	NON-UNIT	UNIT #5 Omega 76.3[illegible]
[illegible]-32-1-25	NON-UNIT	UNIT #4 Omega all [illegible]
1-[illegible]-1-26	UNIT #12	UNIT #1
[illegible]-1-26	UNIT #12	UNIT #1
[illegible]-26-1-26	UNIT #12	UNIT #1
[illegible]-30-1-25	NON-UNIT	NON-UNIT
[illegible]-26	NON-UNIT	NON-UNIT

CORRELATIVE RIGHTS INCLUDING CROWN

1. Commingled well producing from 2 non-unitized [illegible]

- assuming [illegible] Crown [illegible] royalty [illegible] [illegible] from each zone (i.e. [illegible] [illegible] [illegible] [illegible] no correlative [illegible] [illegible]

2. [illegible] [illegible] [illegible] both [illegible] unitized [illegible] [illegible] [illegible]

[illegible] [illegible] Unit #5, #8, #14

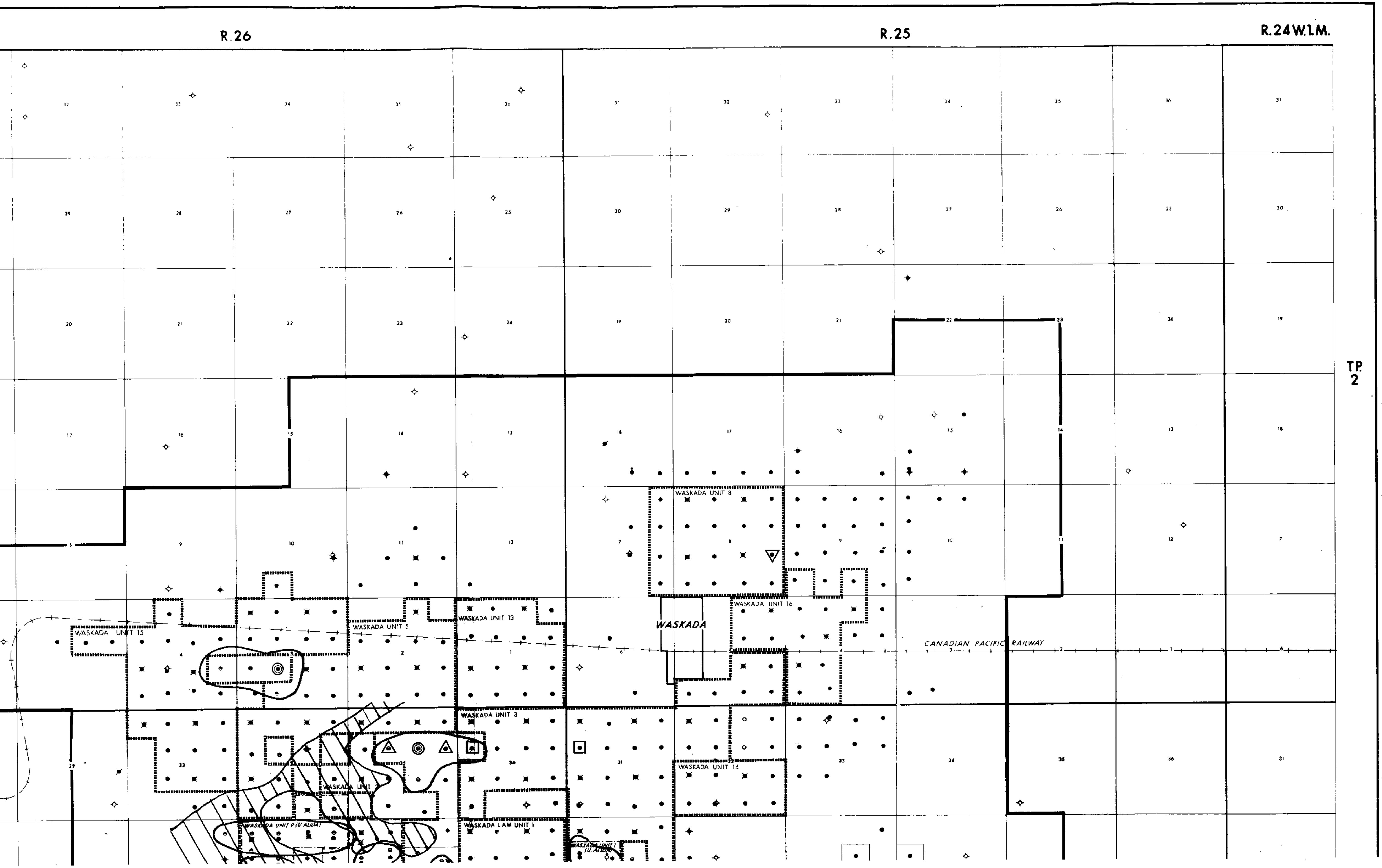
			Aug '89 Prod
Unit #5	[illegible]	[illegible]	229.9 = 1.5 m³OPD
Unit #8	[illegible]	[illegible]	1070 = 35.7 m³OPD
Unit #14	[illegible]	[illegible]	201.7 = 6.7 m³OPD

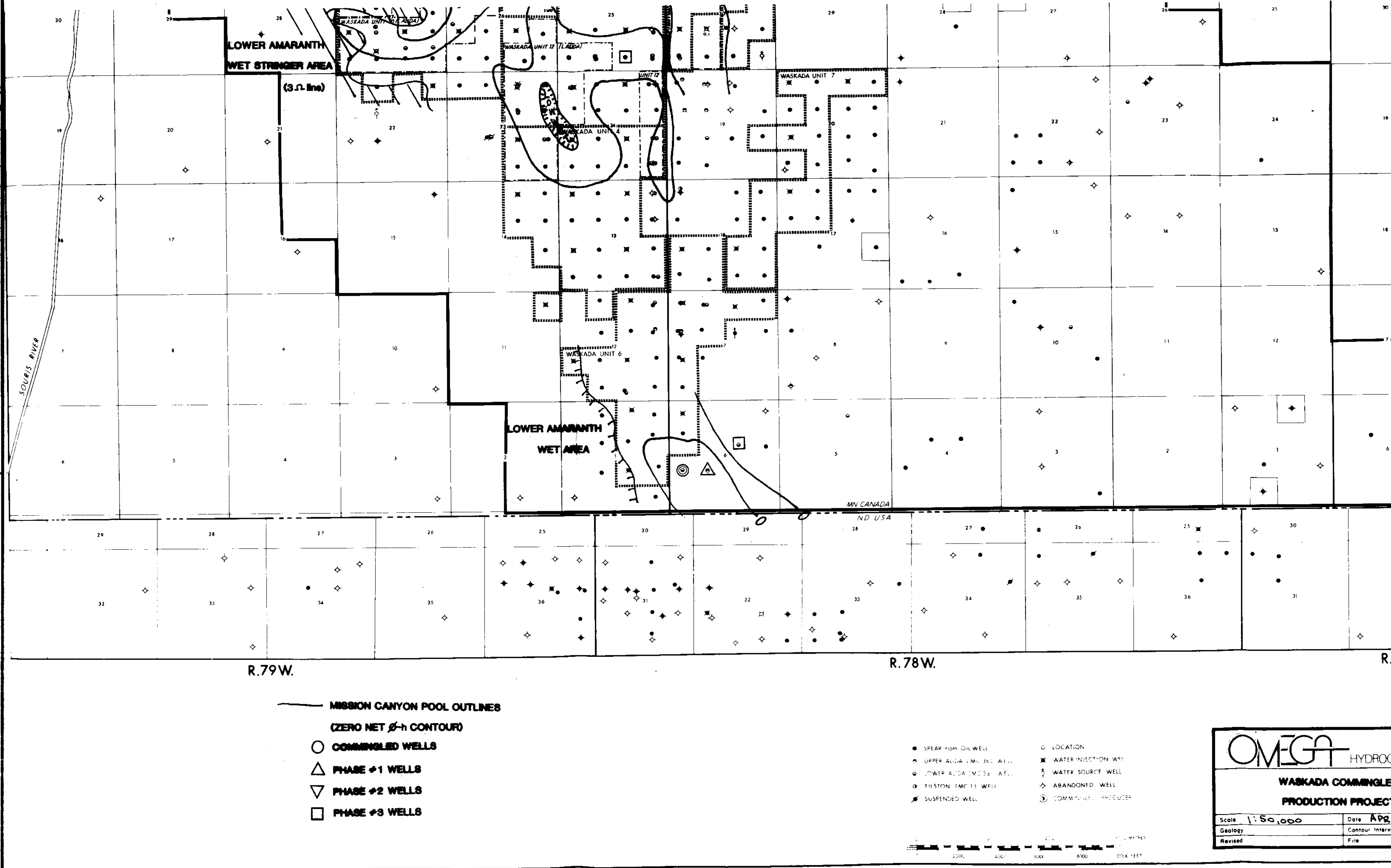
- if the commingled production [illegible] [illegible] allocated to the unitized zone [illegible] [illegible] [illegible] [illegible] zone, the working interest & royalty owners of the [illegible] [illegible] receives only a fraction of the [illegible] allocated production, that fraction being equal to the tract factor assigned [illegible] location

If the commingled production is wrongly allocated to the nonunitized zone from the unitized zone, the WIO & RO of the nonunitized zone benefit at the expense of all the unit participants, though the lost revenue per WIO & RO is less significant than the loss sustained by the nonunitized zone WIO & RO in the reverse situation.

3. Commingled well producing from two unitized zones

If the production is wrongly allocated to either of the unitized zones, the WIO & RO in [illegible] benefit at the expense of [illegible] [illegible] among the various WIO & RO in accordance with their interest [illegible]


R.26
R.25
R.24 W.1 M.
TP. 2
WASKADA
CANADIAN PACIFIC RAILWAY
WASKADA UNIT 8
WASKADA UNIT 16
WASKADA UNIT 13
WASKADA UNIT 5
WASKADA UNIT 15
WASKADA UNIT 3
WASKADA UNIT 14
WASKADA LAM UNIT 1
WASKADA UNIT 9 (U. ALIDA)


SOURIS RIVER
LOWER AMARANTH WET STRINGER AREA
(3 Ω line)
WASKADA UNIT 12 (L.AUDA)
WASKADA UNIT 4
UNIT 12
WASKADA UNIT 7
WASKADA UNIT 6
LOWER AMARANTH WET AREA
MN CANADA
ND USA
R.79W.
R.78W.
MISSION CANYON POOL OUTLINES
(ZERO NET Ø-h CONTOUR)
COMMINGLED WELLS
PHASE #1 WELLS
PHASE #2 WELLS
PHASE #3 WELLS
SPEARFISH OIL WELL
LOCATION
WATER INJECTION WELL
WATER SOURCE WELL
ABANDONED WELL
SUSPENDED WELL
OMEGA HYDROCA
WASKADA COMMINGLED
PRODUCTION PROJECT
Scale 1:50,000
Date APR.
Geology
Contour Interval
Revised
File

1 19 19 19

19	19	19	19	19

19 19 19 19 19

19	19	19	19	19

11-35
12-36 7-35
7-35
10-35

INITIAL PRODUCING ZONE

MC3a E Pool (2 well)				MC3a D Po (1 well)				MC3a I Pool (5 wells)		
1987-01	130.6	30.2	720	1987-01	285.3	124.8	648	389	71.5	3720
1987-02	104.4	48.3	672	1987-02	269.4	127.9	624	328	69.3	3360
1987-03	96.7	84.9	720	1987-03	249.4	130.9	648	327.3	106.4	3720
1987-04	72	87	672	1987-04	301.7	154.3	720	324.3	116.9	3600
1987-05	84.4	91.6	744	1987-05	242.5	236.9	696	316.9	83.8	3720
1987-06	73	81.6	696	1987-06	226.3	195.2	624	285.7	70.9	3576
1987-07	134.2	105.6	1008	1987-07	260.4	145	672	310.7	102.4	3720
1987-08	169	134.8	1488	1987-08	199.3	192.5	600	309.9	93.7	3720
1987-09	174.9	102.1	1440	1987-09	197.9	236.7	648	269.9	95.7	3600
1987-10	147.9	110.9	1344	1987-10	204.3	266	672	272.6	101.4	3720
1987-11	173	83.9	1440	1987-11	224.7	144.8	624	300.8	111.9	3600
1987-12	91.6	66.3	1128	1987-12	260.6	63.2	648	240.5	104	3216
1988-01	90.1	17.9	720	1988-01	250.1	48.7	696	247.3	98	2976
1988-02	74.6	18.3	648	1988-02	203.1	47	624	223	97.6	2784
1988-03	108.8	58	984	1988-03	279.7	52	672	307	72.9	3648
1988-04	161.1	108.2	1440	1988-04	158.9	186.5	600	247.7	64.5	3120
1988-05	140.5	77.7	1248	1988-05	110.3	347	720	160.5	73.9	2233
1988-06	164.6	95.7	1440	1988-06	73.9	215.9	672	168.3	67.4	2161
1988-07	163.6	87.5	1272	1988-07	51.1	173.8	576	193.4	44.9	2256
1988-08	143.2	147.5	1032	1988-08	62.2	299.9	624	361.7	106.4	3696
1988-09	83.3	69.9	672	1988-09	69.7	263.1	648	352.4	55.9	3600
1988-10	124.7	88.6	1032	1988-10	93.5	226	672	251.3	26.3	2808
1988-11	170.4	102.1	1440	1988-11	61.4	239.6	672	299.9	43.5	3288
1988-12	142.5	77.3	1416	1988-12	47.9	230.4	696	299.1	56.7	3072
1989-01	164.1	95.4	1392	1989-01	58.8	264.8	600	401	45.3	3528
1989-02	159	95.3	1344	1989-02	40	149.1	336	305.7	53.1	3216
1989-03	99.6	40.8	888	1989-03	82.8	343.6	672	334.4	48.4	3312
1989-04	36.4	12	600	1989-04	36.6	127	720	292.3	37.9	2832
1989-05	191.9	145.5	1344	1989-05	14.9	64.3	336	298.8	55.9	3504
1989-06	161.1	207.4	1344	1989-06	0	0	0	248.3	61.1	2880
1989-07	61.9	109.1	1344	1989-07	0	94.7	648	261.4	53.6	3720
1989-08	74.7	90.3	1248	1989-08	0	0	0	313.2	49.5	3600

INITIAL PRODUCING ZONE SUMMARY

MC3a Pools					MC3b Pools					MC Pools				
1987-01	804.9	226.5	7	5088	1987-01	336.1	222.2	4	2904	1987-01	1141	448.7	7992	11
1987-02	701.8	245.5		4656	1987-02	300.8	218.7		2688	1987-02	1002.6	464.2	7344	
1987-03	673.4	322.2		5088	1987-03	259.6	260.3		2960	1987-03	933	582.5	8048	
1987-04	698	358.2		4992	1987-04	160.7	289.8		1752	1987-04	858.7	648	6744	
1987-05	643.8	412.3		5160	1987-05	278.2	358.3		2808	1987-05	922	770.6	7968	
1987-06	585	347.7		4896	1987-06	265	298.5		2808	1987-06	850	646.2	7704	
1987-07	705.3	353	8	5400	1987-07	261.6	383.9		2952	1987-07	966.9	736.9	8352	12
1987-08	678.2	421		5808	1987-08	253.4	380.8		2976	1987-08	931.6	801.8	8784	
1987-09	642.7	434.5		5688	1987-09	311.7	391.9		2832	1987-09	954.4	826.4	8520	
1987-10	624.8	478.3		5736	1987-10	269.4	501.4		2904	1987-10	894.2	979.7	8640	
1987-11	698.5	340.6		5664	1987-11	275	486.9		2880	1987-11	973.5	827.5	8544	
1987-12	592.7	233.5		4992	1987-12	242.4	437.2		2448	1987-12	835.1	670.7	7440	
1988-01	587.5	164.6		4392	1988-01	232.9	401.7		2184	1988-01	820.4	566.3	6576	
1988-02	500.7	162.9		4056	1988-02	203.2	338.7		2064	1988-02	703.9	501.6	6120	
1988-03	695.5	182.9		5304	1988-03	265.6	345.3		2808	1988-03	961.1	528.2	8112	
1988-04	567.7	359.2		5160	1988-04	266.3	359.2		2880	1988-04	834	718.4	8040	
1988-05	411.3	498.6		4201	1988-05	251.4	348.2		2832	1988-05	662.7	846.8	7033	
1988-06	406.8	379		4273	1988-06	241.2	464.4		2856	1988-06	648	843.4	7129	
1988-07	408.1	306.2		4104	1988-07	251.3	373.5		2976	1988-07	659.4	679.7	7080	
1988-08	567.1	553.8		5352	1988-08	228	433.3		2784	1988-08	795.1	987.1	8136	

1988-09	505.4	388.9	4920	1988-09	186.5	424.3	2856	1988-09	691.9	813.2	7776
1988-10	469.5	340.9	4512	1988-10	214.6	332.5	2736	1988-10	684.1	673.4	7248
1988-11	531.7	385.2	5400	1988-11	147.8	379	2688	1988-11	679.5	764.2	8088
1988-12	489.5	364.4	5184	1988-12	125.5	348.9	2328	1988-12	615	713.3	7512
1989-01	623.9	405.5	5520	1989-01	146.6	315.2	2544	1989-01	770.5	720.7	8064
1989-02	504.7	297.5	4896	1989-02	151	217.4	2664	1989-02	655.7	514.9	7560
1989-03	516.8	432.8	4872	1989-03	110.9	289.7	2712	1989-03	627.7	722.5	7584
1989-04	365.3	176.9	4152	1989-04	55.3	144.4	2112	1989-04	420.6	321.3	6264
1989-05	505.6	265.7	5184	1989-05	47.5	143.6	2208	1989-05	553.1	409.3	7392
1989-06	409.4	268.5	4224	1989-06	63.1	284.8	1920	1989-06	472.5	553.3	6144
1989-07	323.3	257.4	5712	1989-07	17.1	96.8	2640	1989-07	340.4	354.2	8352
1989-08	387.9	139.8	4848	1989-08	126.7	94.4	2520	1989-08	514.6	234.2	7368

INITIAL PRODUCING ZONE ~~SUMMARY~~

MC3b B Pool (1 well)			MC3b D Pool (3 wells)			LAm A Pool (11 wells)		
18.8	9	744	317.3	213.2	2160	1016.1	405.3	6880
9.2	19.1	672	291.6	199.6	2016	997.4	372.5	6313
16.8	10.3	728	242.8	250	2232	1143.1	548.9	7356
0	0	0	160.7	289.8	1752	1167.5	482.6	6252
13	5.9	576	265.2	352.4	2232	1310	487.4	7196
15.4	5.5	720	249.6	293	2088	1036.7	499.1	7852
15.8	5.2	744	245.8	378.7	2208	793.3	1161.5	8035
17.6	9	744	235.8	371.8	2232	1083.1	745.3	8109
11.3	12.3	720	300.4	379.6	2112	959.7	674.2	7824
8.7	19.4	744	260.7	482	2160	960.1	679.7	8160
3.4	34.9	720	271.6	452	2160	884.1	778.3	8040
9.6	17.3	744	232.8	419.9	1704	807	868.9	7872
10	16.8	744	222.9	384.9	1440	847.5	818.8	8208
8.6	14	696	194.6	324.7	1368	669	788.1	7584
7.6	15.6	744	258	329.7	2064	793.6	676.1	8424
5.6	14.3	720	260.7	344.9	2160	767.1	556.6	8352
11.8	15.3	744	239.6	332.9	2088	765.3	623.9	8148
6.7	20.9	720	234.5	443.5	2136	806.7	551.2	7290
4.5	27.2	744	246.8	346.3	2232	1046.3	450.3	7752
6.2	29.8	744	221.8	403.5	2040	1049.9	572.5	8280
5.5	20.8	720	181	403.5	2136	925.6	472	8040
4.5	24.2	648	210.1	308.3	2088	1007.1	514.3	8400
5.1	29	720	142.7	350	1968	946.2	623.4	7944
2.7	35.1	744	122.8	313.8	1584	941.4	542.9	7488
3.1	33.2	744	143.5	282	1800	1125.9	632.8	7992
3.4	24.6	672	147.6	192.8	1992	943.1	494.9	7272
6.5	33.5	744	104.4	256.2	1968	1093.3	535.7	8424
4.3	24.7	672	51	119.7	1440	882.7	410	7497
1.4	8.3	240	46.1	135.3	1968	574.4	336.4	5305
3	20.5	480	60.1	264.3	1440	773	381	6768
4.5	26.9	624	12.6	69.9	2016	799.1	324.6	7201
5.7	29.5	744	121	64.9	1776	904.4	361.1	8352

Init. Prod. Zone Summary

MC + LAm Pools

1987-01	2157.1	854	14872
1987-02	2000	836.7	13657
1987-03	2076.1	1131.4	15404
1987-04	2026.2	1130.6	12996
1987-05	2232	1258	15164
1987-06	1886.7	1145.3	15556
1987-07	1760.2	1898.4	16387
1987-08	2014.7	1547.1	16893
1987-09	1914.1	1500.6	16344
1987-10	1854.3	1659.4	16800
1987-11	1857.6	1605.8	16584
1987-12	1642.1	1539.6	15312
1988-01	1667.9	1385.1	14784
1988-02	1372.9	1289.7	13704
1988-03	1754.7	1204.3	16536
1988-04	1601.1	1275	16392
1988-05	1428	1470.7	15181
1988-06	1454.7	1394.6	14419
1988-07	1705.7	1130	14832
1988-08	1845	1559.6	16416

Commingled Zone Production

11+11 Summary

HERE

12+11

+1

MC3a Pools

1987-01
1987-02
1987-03
1987-04
1987-05
1987-06
1987-07
1987-08
1987-09
1987-10
1987-11
1987-12
1988-01
1988-02
1988-03
1988-04
1988-05
1988-06
1988-07
1988-08

1988-09	1617.5	1285.2	15816
1988-10	1691.2	1187.7	15648
1988-11	1625.7	1387.6	16032
1988-12	1556.4	1256.2	15000
1989-01	1896.4	1353.5	16056
1989-02	1598.8	1009.8	14832
1989-03	1721	1258.2	16008
1989-04	1303.3	731.3	13761
1989-05	1127.5	745.7	12697
1989-06	1245.5	934.3	12912
1989-07	1139.5	678.8	15553
1989-08	1419	595.3	15720

1988-09				
1988-10				
1988-11				
1988-12	190.8	226	1272	1+1+2
1989-01	60.8	120.3	1392	2
1989-02	99.7	66.8	1320	2
1989-03	137.7	42.7	1464	2
1989-04	129.6	39	1440	2
1989-05	650.3	457.8	3600	4+1+2
1989-06	322.3	736.7	4728	5+1+2
1989-07	280.8	570.1	6384	6+1+2
1989-08	159.7	381.7	5664	6+1+2

~~Commingled Zone Production MC3a A Pool MC3a I Pool~~

Commingled Zone Production MC3a A Pool (8 wells) ✓	# of wells				MC3a I Pool (1 well)	# of wells				~~MC3a L P~~ ✓
1987-01					1987-01					~~1987-01~~
1987-02					1987-02					~~1987-02~~
1987-03					1987-03					~~1987-03~~
1987-04					1987-04					~~1987-04~~
1987-05					1987-05					~~1987-05~~
1987-06					1987-06					~~1987-06~~
1987-07					1987-07					~~1987-07~~
1987-08					1987-08					~~1987-08~~
1987-09					1987-09					~~1987-09~~
1987-10					1987-10					~~1987-10~~
1987-11					1987-11					~~1987-11~~
1987-12					1987-12					~~1987-12~~
1988-01					1988-01					~~1988-01~~
1988-02					1988-02					~~1988-02~~
1988-03					1988-03					~~1988-03~~
1988-04					1988-04					~~1988-04~~
1988-05					1988-05					~~1988-05~~
1988-06					1988-06					~~1988-06~~
1988-07					1988-07					~~1988-07~~
1988-08					1988-08					~~1988-08~~
1988-09					1988-09					~~1988-09~~
1988-10					1988-10					~~1988-10~~
1988-11					1988-11					~~1988-11~~
1988-12					1988-12	1	154.7	110.9	576	~~1988-12~~
1989-01					1989-01		21.1	1.2	648	~~1989-01~~
1989-02					1989-02		22	1.2	672	~~1989-02~~
1989-03					1989-03		25.8	1.2	720	~~1989-03~~
1989-04					1989-04		27.4	1.1	720	~~1989-04~~
1989-05	4	429.9	332.4	1608	1989-05		133	8.8	720	~~1989-05~~
1989-06	5	281.2	571.3	2712	1989-06		27.3	12.7	720	~~1989-06~~
1989-07	6	239.7	431.6	4152	1989-07		33.3	1.5	744	~~1989-07~~

1989-08	25.9	227.9	3432	1989-08	128.9	49.8	744	1989-08

Commingled Prod. Zone Summary

MC3b Pools				MC1 Pools				MC Pools			# of well	
1987-01				1987-01				1987-01				
1987-02				1987-02				1987-02				
1987-03				1987-03				1987-03				
1987-04				1987-04				1987-04				
1987-05				1987-05				1987-05				
1987-06				1987-06				1987-06				
1987-07				1987-07				1987-07				
1987-08				1987-08				1987-08				
1987-09				1987-09				1987-09				
1987-10				1987-10				1987-10				
1987-11				1987-11				1987-11				
1987-12				1987-12				1987-12				
1988-01				1988-01				1988-01				
1988-02				1988-02				1988-02				
1988-03				1988-03				1988-03				
1988-04				1988-04				1988-04				
1988-05				1988-05				1988-05				
1988-06				1988-06				1988-06				
1988-07				1988-07				1988-07				
1988-08				1988-08	40.7	87.9	384	1988-08	40.7	87.9	2	384
1988-09				1988-09	106.2	173.5	1416	1988-09	106.2	173.5	2	1416
1988-10				1988-10	160.5	122.7	1488	1988-10	160.5	122.7	2	1488
1988-11				1988-11	108.4	140.1	1416	1988-11	108.4	140.1	2	1416
1988-12				1988-12	106.4	128.1	1488	1988-12	297.2	354.1	4	2760
1989-01				1989-01	144.6	123.9	1488	1989-01	205.4	244.2	4	2880
1989-02				1989-02	120.9	105.7	1272	1989-02	220.6	172.5	4	2592
1989-03				1989-03	147.7	89.9	1488	1989-03	285.4	132.6	4	2952
1989-04				1989-04	176.7	69.8	1344	1989-04	306.3	108.8	4	2784
1989-05	27.7	44.1	336	1989-05	119.1	126.9	1488	1989-05	797.1	628.8	10	5424
1989-06	47.6	37.6	648	1989-06	128.9	87.2	1440	1989-06	498.8	861.5	11	6816
1989-07	6.6	10.4	624	1989-07	51.1	216.4	1488	1989-07	338.5	796.9	12	8496
1989-08	35.2	0	744	1989-08	36.3	232	1344	1989-08	231.2	613.7	12	7752

Commingled Production

MC3a L Pool	MC3b B Pool	MC1 D Poo
1987-01	1987-01	1987-01
1987-02	1987-02	1987-02
1987-03	1987-03	1987-03
1987-04	1987-04	1987-04
1987-05	1987-05	1987-05
1987-06	1987-06	1987-06
1987-07	1987-07	1987-07
1987-08	1987-08	1987-08
1987-09	1987-09	1987-09
1987-10	1987-10	1987-10
1987-11	1987-11	1987-11
1987-12	1987-12	1987-12

1988-01					1988-01				1988-01			
1988-02					1988-02				1988-02			
1988-03					1988-03				1988-03			
1988-04					1988-04				1988-04			
1988-05					1988-05				1988-05			
1988-06					1988-06				1988-06			
1988-07					1988-07				1988-07	1 well		
1988-08					1988-08				1988-08	40.7	77.7	312
1988-09					1988-09				1988-09	106.2	120.2	720
1988-10	# of wells				1988-10				1988-10	125.8	122.7	744
1988-11					1988-11				1988-11	91	130	720
1988-12	1	36.1	115.1	696	1988-12				1988-12	85.2	120.8	744
1989-01	1	39.7	119.1	744	1989-01				1989-01	90.4	123.9	744
1989-02	1	77.7	65.6	648	1989-02				1989-02	75.5	105.7	672
1989-03	1	111.9	41.5	744	1989-03	(1 well)			1989-03	106	89.9	744
1989-04	1	102.2	37.9	720	1989-04				1989-04	123	69.8	720
1989-05	2	87.4	116.6	1272	1989-05	27.7	44.1	336	1989-05	119.1	80.6	744
1989-06	2	13.8	152.7	1296	1989-06	47.6	37.6	648	1989-06	116.8	87.2	720
1989-07	2	7.8	137	1488	1989-07	6.6	10.4	624	1989-07	50	210.6	744
1989-08	2	4.9	104	1488	1989-08	35.2	0	744	1989-08	36.3	188.7	744

Commingled Med. Zone Summary

MC + LAm Pools

	1987-01				
	1987-02				
	1987-03				
	1987-04				
	1987-05				
	1987-06				
	1987-07				
	1987-08				
	1987-09				
	1987-10				
	1987-11				
	1987-12	13.6	10.1	120	3
	1988-01	304.1	178.9	2208	
	1988-02	224.6	91.3	2064	
	1988-03	328.8	97.4	1872	
	1988-04	363	165.4	2400	4
	1988-05	263.8	92.1	2616	5
	1988-06	324.5	122.3	3048	
	1988-07	323.7	172	3600	
384	1988-08	437.9	278.5	4080	6+2
1416	1988-09	688.4	212.1	4968	6+2
1488	1988-10	740.2	379.3	6264	7+2
1416	1988-11	668.9	524.4	6768	8+2
2760	1988-12	1156.6	799.2	9648	10+4
2880	1989-01	805.8	475.2	9576	11+4
2592	1989-02	793.6	277.5	9840	11+4
2952	1989-03	992.9	195.7	10440	11+4
2784	1989-04	1027.7	351.3	10440	11+4
5424	1989-05	1457.3	835.9	13032	12+10
6816	1989-06	872.8	1091.5	15336	12+11
8496	1989-07	699	1120.9	16248	12+12
7752	1989-08	643.2	1003.8	15624	12+12

Commingled Production

1 well

MC1 E Pool				LAm A Pool	# of wells			
1987-01				1987-01				
1987-02				1987-02				
1987-03				1987-03				
1987-04				1987-04				
1987-05				1987-05				
1987-06				1987-06				
1987-07				1987-07				
1987-08				1987-08				
1987-09				1987-09				
1987-10				1987-10				
1987-11				1987-11				
1987-12				1987-12	3	13.6	10.1	120
1988-01				1988-01		304.1	178.9	2208
1988-02				1988-02		224.6	91.3	2064
1988-03				1988-03		328.8	97.4	1872
1988-04				1988-04	4	363	165.4	2400
1988-05				1988-05	5	263.8	92.1	2616
1988-06				1988-06		324.5	122.3	3048
1988-07				1988-07		323.7	172	3600
1988-08	0	10.2	72	1988-08	6	397.2	190.6	3696
1988-09	0	53.3	696	1988-09		582.2	38.6	3552
1988-10	34.7	0	744	1988-10	7	579.7	256.6	4776
1988-11	17.4	10.1	696	1988-11	8	560.5	384.3	5352
1988-12	21.2	7.3	744	1988-12	10	859.4	445.1	6888
1989-01	54.2	0	744	1989-01	11	600.4	231	6696
1989-02	45.4	0	600	1989-02		573	105	7248
1989-03	41.7	0	744	1989-03		707.5	63.1	7488
1989-04	53.7	0	624	1989-04		721.4	242.5	7656
1989-05	0	46.3	744	1989-05	12	660.2	207.1	7608
1989-06	12.1	0	720	1989-06		374	230	8520
1989-07	1.1	5.8	744	1989-07		360.5	324	7752
1989-08	0	43.3	600	1989-08		412	390.1	7872

COMMINGLED ZONE PRODUCTION BY POOL

MC3a A Pool						MC3a I Pool					
1987-01						1987-01					
1987-02						1987-02					
1987-03						1987-03					
1987-04						1987-04					
1987-05						1987-05					
1987-06						1987-06					
1987-07						1987-07					
1987-08						1987-08					
1987-09						1987-09					
1987-10						1987-10					
1987-11						1987-11					
1987-12						1987-12					
1988-01						1988-01					
1988-02						1988-02					
1988-03						1988-03					
1988-04						1988-04					
1988-05						1988-05					
1988-06						1988-06					
1988-07						1988-07					
1988-08						1988-08					
1988-09						1988-09					
1988-10						1988-10					
1988-11						1988-11					
1988-12						1988-12	154.7	110.9	576	0.716871	6.445833
1989-01						1989-01	21.1	1.2	648	0.056872	0.781481
1989-02						1989-02	22	1.2	672	0.054545	0.785714
1989-03						1989-03	25.8	1.2	720	0.046511	0.86
1989-04						1989-04	27.4	1.1	720	0.040145	0.913333
1989-05	429.9	332.4	1608	0.773203	25.66567	1989-05	133	8.8	720	0.066165	4.433333
1989-06	281.2	571.3	2712	2.031650	12.44247	1989-06	27.3	12.7	720	0.465201	0.91
1989-07	239.7	431.6	4152	1.800584	8.313294	1989-07	33.3	1.5	744	0.045045	1.074193
1989-08	25.9	227.9	3432	8.799227	1.086713	1989-08	128.9	49.8	744	0.386346	4.158064

MC3a L Pool						MC3b B Pool					
1987-01						1987-01					
1987-02						1987-02					
1987-03						1987-03					
1987-04						1987-04					
1987-05						1987-05					
1987-06						1987-06					
1987-07						1987-07					
1987-08						1987-08					
1987-09						1987-09					
1987-10						1987-10					
1987-11						1987-11					
1987-12						1987-12					
1988-01						1988-01					
1988-02						1988-02					
1988-03						1988-03					
1988-04						1988-04					
1988-05						1988-05					
1988-06						1988-06					
1988-07						1988-07					
1988-08						1988-08					
1988-09						1988-09					
1988-10						1988-10					
1988-11						1988-11					
1988-12	36.1	115.1	696	3.188365	1.244827	1988-12					
1989-01	39.7	119.1	744	3	1.280645	1989-01					
1989-02	77.7	65.6	648	0.844272	2.877777	1989-02					
1989-03	111.9	41.5	744	0.370866	3.609677	1989-03					
1989-04	102.2	37.9	720	0.370841	3.406666	1989-04					
1989-05	87.4	116.6	1272	1.334096	3.298113	1989-05	27.7	44.1	336	1.592057	1.978571
1989-06	13.8	152.7	1296	11.06521	0.511111	1989-06	47.6	37.6	648	0.789915	1.762962
1989-07	7.8	137	1488	17.56410	0.251612	1989-07	6.6	10.4	624	1.575757	0.253846
1989-08	4.9	104	1488	21.22448	0.158064	1989-08	35.2	0	744	0	1.135483

MC1 D Poo					
1987-01					
1987-02					
1987-03					
1987-04					
1987-05					
1987-06					
1987-07					
1987-08					
1987-09					
1987-10					
1987-11					
1987-12					
1988-01					
1988-02					
1988-03					
1988-04					
1988-05					
1988-06					
1988-07					
1988-08	40.7	77.7	312	1.909090	3.130769
1988-09	106.2	120.2	720	1.131826	3.54
1988-10	125.8	122.7	744	0.975357	4.058064
1988-11	91	130	720	1.428571	3.033333
1988-12	85.2	120.8	744	1.417840	2.748387
1989-01	90.4	123.9	744	1.370575	2.916129
1989-02	75.5	105.7	672	1.4	2.696428
1989-03	106	89.9	744	0.848113	3.419354
1989-04	123	69.8	720	0.567479	4.1
1989-05	119.1	80.6	744	0.676742	3.841935
1989-06	116.8	87.2	720	0.746575	3.893333
1989-07	50	210.6	744	4.212	1.612903
1989-08	36.3	188.7	744	5.198347	1.170967

MC1 E Pool					
1987-01					
1987-02					
1987-03					
1987-04					
1987-05					
1987-06					
1987-07					
1987-08					
1987-09					
1987-10					
1987-11					
1987-12					
1988-01					
1988-02					
1988-03					
1988-04					
1988-05					
1988-06					
1988-07					
1988-08	0	10.2	72	ERR	0
1988-09	0	53.3	696	ERR	0
1988-10	34.7	0	744	0	1.119354
1988-11	17.4	10.1	696	0.580459	0.6
1988-12	21.2	7.3	744	0.344339	0.683870
1989-01	54.2	0	744	0	1.748387
1989-02	45.4	0	600	0	1.816
1989-03	41.7	0	744	0	1.345161
1989-04	53.7	0	624	0	2.065384
1989-05	0	46.3	744	ERR	0
1989-06	12.1	0	720	0	0.403333
1989-07	1.1	5.8	744	5.272727	0.035483
1989-08	0	43.3	600	ERR	0

LAm A Pool

1987-01					
1987-02					
1987-03					
1987-04					
1987-05					
1987-06					
1987-07					
1987-08					
1987-09					
1987-10					
1987-11					
1987-12	13.6	10.1	120	0.742647	8.16
1988-01	304.1	178.9	2208	0.588293	9.916304
1988-02	224.6	91.3	2064	0.406500	7.834883
1988-03	328.8	97.4	1872	0.296228	12.64615
1988-04	363	165.4	2400	0.455647	14.52
1988-05	263.8	92.1	2616	0.349128	12.10091
1988-06	324.5	122.3	3048	0.376887	12.77559
1988-07	323.7	172	3600	0.531356	10.79
1988-08	397.2	190.6	3696	0.479859	15.47532
1988-09	582.2	38.6	3552	0.066300	23.60270
1988-10	579.7	256.6	4776	0.442642	20.39145
1988-11	560.5	384.3	5352	0.685637	20.10762
1988-12	859.4	445.1	6888	0.517919	29.94425
1989-01	600.4	231	6696	0.384743	23.67168
1989-02	573	105	7248	0.183246	20.87086
1989-03	707.5	63.1	7488	0.089187	24.94391
1989-04	721.4	242.5	7656	0.336151	24.87586
1989-05	660.2	207.1	7608	0.313692	24.99179
1989-06	374	230	8520	0.614973	12.64225
1989-07	360.5	324	7752	0.898751	13.39318
1989-08	412	390.1	7872	0.946844	15.07317

INITIAL ZONE PRODUCTION

SUMMARY BY POOL

MC3a Pools						MC3b Pools				ERR	ERR
1987-01	804.9	226.5	5088	0.281401	26.57688	1987-01	467.9	224.1	2904	0.478948	15.46776
1987-02	701.8	245.5	4656	0.349814	25.32268	1987-02	420.8	206.6	2688	0.490969	15.02857
1987-03	673.4	322.2	5088	0.478467	22.23490	1987-03	360.3	260.1	2976	0.721898	11.62258
1987-04	698	358.2	4992	0.513180	23.49038	1987-04	287.3	298.3	2471	1.038287	11.16179
1987-05	643.8	412.3	5160	0.640416	20.96093	1987-05	392.9	361.2	2976	0.919317	12.67419
1987-06	585	347.7	4896	0.594358	20.07352	1987-06	375.4	300.2	2808	0.799680	12.83418
1987-07	705.3	353	5400	0.500496	25.07733	1987-07	356.8	383.1	2952	1.073710	11.60325
1987-08	678.2	421	5808	0.620760	22.41983	1987-08	345.8	379.7	2976	1.098033	11.15483
1987-09	642.7	434.5	5688	0.676054	21.69451	1987-09	405.5	384.6	2832	0.948458	13.74576
1987-10	624.8	478.3	5736	0.765524	20.91380	1987-10	374.1	487.8	2904	1.303929	12.36694
1987-11	698.5	340.6	5664	0.487616	23.67796	1987-11	373	459.5	2880	1.231903	12.43333
1987-12	592.7	233.5	4992	0.393959	22.79615	1987-12	326.8	426.6	2448	1.305385	12.81568
1988-01	587.5	164.6	4392	0.280170	25.68306	1988-01	320.3	390.7	2184	1.219793	14.07912
1988-02	500.7	162.9	4056	0.325344	23.70177	1988-02	279.7	328	2064	1.172685	13.00930
1988-03	695.5	182.9	5304	0.262976	25.17647	1988-03	361.9	332.6	2808	0.919038	12.37264
1988-04	567.7	359.2	5160	0.632728	21.12372	1988-04	335.2	357.4	2880	1.066229	11.17333
1988-05	411.3	498.6	4201	1.212253	18.79781	1988-05	322	338.4	2832	1.050931	10.91525
1988-06	406.8	379	4273	0.931661	18.27886	1988-06	325.5	449.5	2856	1.380952	10.94117
1988-07	408.1	306.2	4104	0.750306	19.09239	1988-07	334.4	350.9	2952	1.049342	10.87479
1988-08	567.1	553.8	5352	0.976547	20.34439	1988-08	309.9	408.6	2784	1.318489	10.68620
1988-09	505.4	388.9	4920	0.769489	19.72292	1988-09	272.3	408.7	2856	1.500918	9.152941
1988-10	469.5	340.9	4512	0.726091	19.97872	1988-10	284.5	312	2784	1.096660	9.810344
1988-11	531.7	385.2	5400	0.724468	18.90488	1988-11	166.9	352.1	2184	2.109646	7.336263
1988-12	489.5	364.4	5184	0.744433	18.12962	1988-12	173.3	316.8	2040	1.828043	8.155294
1989-01	623.9	405.5	5520	0.649943	21.70086	1989-01	218.2	286.7	2496	1.313932	8.392307
1989-02	504.7	297.5	4896	0.589459	19.79215	1989-02	218.7	196.8	2664	0.899862	7.881081
1989-03	516.8	432.8	4872	0.837461	20.36650	1989-03	190.8	260.6	2712	1.365828	6.753982
1989-04	365.3	176.9	4152	0.484259	16.89248	1989-04	132	123.4	2088	0.934848	6.068965
1989-05	505.6	265.7	5184	0.525514	18.72592	1989-05	129.2	139.7	2644	1.081269	4.691074
1989-06	409.4	268.5	4224	0.655837	18.60909	1989-06	122.5	267.7	2160	2.185306	5.444444
1989-07	323.3	257.4	5712	0.796164	10.86722	1989-07	69.7	72.9	2688	1.045911	2.489285
1989-08	387.9	139.8	4848	0.360402	15.36237	1989-08	223	69.1	2520	0.309865	8.495238

MC Pools						MC + LAm Pools					ERR	
1987-01	1272.8	450.6	7992	0.354022	42.04444	1987-01	2288.9	855.9	14872	0.373935	81.26272	
1987-02	1122.6	452.1	7344	0.402725	40.35490	1987-02	2120	824.6	13657	0.388962	81.96236	
1987-03	1033.7	582.3	8064	0.563316	33.84136	1987-03	2176.8	1131.2	15420	0.519661	74.53634	
1987-04	985.3	656.5	7463	0.666294	34.85450	1987-04	2152.8	1139.1	13715	0.529124	82.87848	
1987-05	1036.7	773.5	8136	0.746117	33.63923	1987-05	2346.7	1260.9	15332	0.537307	80.81513	
1987-06	960.4	647.9	7704	0.674614	32.91090	1987-06	1997.1	1147	15556	0.574332	70.86649	
1987-07	1062.1	736.1	8352	0.693060	36.62413	1987-07	1855.4	1897.6	16387	1.022744	65.21696	
1987-08	1024	800.7	8784	0.781933	33.57377	1987-08	2107.1	1546	16893	0.733709	71.84571	
1987-09	1048.2	819.1	8520	0.781434	35.43211	1987-09	2007.9	1493.3	16344	0.743712	70.76299	
1987-10	998.9	966.1	8640	0.967163	33.29666	1987-10	1959	1645.8	16800	0.840122	67.16571	
1987-11	1071.5	800.1	8544	0.746710	36.11797	1987-11	1955.6	1578.4	16584	0.807118	67.92243	
1987-12	919.5	660.1	7440	0.717890	35.59354	1987-12	1726.5	1529	15312	0.885606	64.94670	
1988-01	907.8	555.3	6576	0.611698	39.75766	1988-01	1755.3	1374.1	14784	0.782829	68.38831	
1988-02	780.4	490.9	6120	0.629036	36.72470	1988-02	1449.4	1279	13704	0.882434	60.92049	
1988-03	1057.4	515.5	8112	0.487516	37.54082	1988-03	1851	1191.6	16536	0.643760	64.47605	
1988-04	902.9	716.6	8040	0.793664	32.34268	1988-04	1670	1273.2	16392	0.762395	58.68228	
1988-05	733.3	837	7033	1.141415	30.02849	1988-05	1498.6	1460.9	15181	0.974843	56.86012	
1988-06	732.3	828.5	7129	1.131366	29.58372	1988-06	1539	1379.7	14419	0.896491	61.47888	
1988-07	742.5	657.1	7056	0.884983	30.30612	1988-07	1788.8	1107.4	14808	0.619074	69.58055	
1988-08	877	962.4	8136	1.097377	31.04424	1988-08	1926.9	1534.9	16416	0.796564	67.61052	
1988-09	777.7	797.6	7776	1.025588	28.80370	1988-09	1703.3	1269.6	15816	0.745376	62.03216	
1988-10	754	652.9	7296	0.865915	29.76315	1988-10	1761.1	1167.2	15696	0.662767	64.62752	
1988-11	698.6	737.3	7584	1.055396	26.52911	1988-11	1644.8	1360.7	15528	0.827273	61.01267	
1988-12	662.8	681.2	7224	1.027761	26.42392	1988-12	1604.2	1224.1	14712	0.763059	62.80717	
1989-01	842.1	692.2	8016	0.821992	30.25508	1989-01	1968	1325	16008	0.673272	70.81259	
1989-02	723.4	494.3	7560	0.683301	27.55809	1989-02	1666.5	989.2	14832	0.593579	64.71844	
1989-03	707.6	693.4	7584	0.979932	26.87088	1989-03	1800.9	1229.1	16008	0.682492	64.8	
1989-04	497.3	300.3	6240	0.603860	22.95230	1989-04	1380	710.3	13737	0.514710	57.86416	
1989-05	634.8	405.4	7828	0.638626	23.35493	1989-05	1209.2	741.8	13133	0.613463	53.03428	
1989-06	531.9	536.2	6384	1.008084	23.99548	1989-06	1304.9	917.2	13152	0.702889	57.14890	
1989-07	393	330.3	8400	0.840458	13.47428	1989-07	1192.1	654.9	15601	0.549366	44.01317	
1989-08	610.9	208.9	7368	0.341954	23.87882	1989-08	1515.3	570	15720	0.376163	55.52244	

Initial zone production
by pool

MC3a E Pool						MC3a D Po					
1987-01	130.6	30.2	720	0.231240	4.353333	1987-01	285.3	124.8	648	0.437434	10.56666
1987-02	104.4	48.3	672	0.462643	3.728571	1987-02	269.4	127.9	624	0.474758	10.36153
1987-03	96.7	84.9	720	0.877973	3.223333	1987-03	249.4	130.9	648	0.524859	9.237037
1987-04	72	87	672	1.208333	2.571428	1987-04	301.7	154.3	720	0.511435	10.05666
1987-05	84.4	91.6	744	1.085308	2.722580	1987-05	242.5	236.9	696	0.976907	8.362068
1987-06	73	81.6	696	1.117808	2.517241	1987-06	226.3	195.2	624	0.862571	8.703846
1987-07	134.2	105.6	1008	0.786885	6.390476	1987-07	260.4	145	672	0.556835	9.3
1987-08	169	134.8	1488	0.797633	5.451612	1987-08	199.3	192.5	600	0.965880	7.972
1987-09	174.9	102.1	1440	0.583762	5.83	1987-09	197.9	236.7	648	1.196058	7.329629
1987-10	147.9	110.9	1344	0.749830	5.282142	1987-10	204.3	266	672	1.302006	7.296428
1987-11	173	83.9	1440	0.484971	5.766666	1987-11	224.7	144.8	624	0.644414	8.642307
1987-12	91.6	66.3	1128	0.723799	3.897872	1987-12	260.6	63.2	648	0.242517	9.651851
1988-01	90.1	17.9	720	0.198668	6.006666	1988-01	250.1	48.7	696	0.194722	8.624137
1988-02	74.6	18.3	648	0.245308	5.525925	1988-02	203.1	47	624	0.231413	7.811538
1988-03	108.8	58	984	0.533088	5.307317	1988-03	279.7	52	672	0.185913	9.989285
1988-04	161.1	108.2	1440	0.671632	5.37	1988-04	158.9	186.5	600	1.173694	6.356
1988-05	140.5	77.7	1248	0.553024	5.403846	1988-05	110.3	347	720	3.145965	3.676666
1988-06	164.6	95.7	1440	0.581409	5.486666	1988-06	73.9	215.9	672	2.921515	2.639285
1988-07	163.6	87.5	1272	0.534841	6.173584	1988-07	51.1	173.8	576	3.401174	2.129166
1988-08	143.2	147.5	1032	1.030027	6.660465	1988-08	62.2	299.9	624	4.821543	2.392307
1988-09	83.3	69.9	672	0.839135	5.95	1988-09	69.7	263.1	648	3.774748	2.581481
1988-10	124.7	88.6	1032	0.710505	5.8	1988-10	93.5	226	672	2.417112	3.339285
1988-11	170.4	102.1	1440	0.599178	5.68	1988-11	61.4	239.6	672	3.902280	2.192857
1988-12	142.5	77.3	1416	0.542456	4.830508	1988-12	47.9	230.4	696	4.810020	1.651724
1989-01	164.1	95.4	1392	0.581352	5.658620	1989-01	58.8	264.8	600	4.503401	2.352
1989-02	159	95.3	1344	0.599371	5.678571	1989-02	40	149.1	336	3.7275	2.857142
1989-03	99.6	40.8	888	0.409638	5.383783	1989-03	82.8	343.6	672	4.149758	2.957142
1989-04	36.4	12	600	0.329670	2.912	1989-04	36.6	127	720	3.469945	1.22
1989-05	191.9	145.5	1344	0.758207	6.853571	1989-05	14.9	64.3	336	4.315436	1.064285
1989-06	161.1	207.4	1344	1.287399	5.753571	1989-06	0	0	0	ERR	ERR
1989-07	61.9	109.1	1344	1.762520	2.210714	1989-07	0	94.7	648	ERR	0
1989-08	74.7	90.3	1248	1.208835	2.873076	1989-08	0	0	0	ERR	ERR

MC3a I Pool						MC3b B Pool					
1987-01	389	71.5	3720	0.183804	12.54838	1987-01	150.6	10.9	744	0.072377	4.858064
1987-02	328	69.3	3360	0.211280	11.71428	1987-02	129.2	7	672	0.054179	4.614285
1987-03	327.3	106.4	3720	0.325084	10.55806	1987-03	117.5	10.1	744	0.085957	3.790322
1987-04	324.3	116.9	3600	0.360468	10.81	1987-04	126.6	8.5	719	0.067140	4.225869
1987-05	316.9	83.8	3720	0.264436	10.22258	1987-05	127.7	8.8	744	0.068911	4.119354
1987-06	285.7	70.9	3576	0.248162	9.587248	1987-06	125.8	7.2	720	0.057233	4.193333
1987-07	310.7	102.4	3720	0.329578	10.02258	1987-07	111	4.4	744	0.039639	3.580645
1987-08	309.9	93.7	3720	0.302355	9.996774	1987-08	110	7.9	744	0.071818	3.548387
1987-09	269.9	95.7	3600	0.354575	8.996666	1987-09	105.1	5	720	0.047573	3.503333
1987-10	272.6	101.4	3720	0.371973	8.793548	1987-10	113.4	5.8	744	0.051146	3.658064
1987-11	300.8	111.9	3600	0.372007	10.02666	1987-11	101.4	7.5	720	0.073964	3.38
1987-12	240.5	104	3216	0.432432	8.973880	1987-12	94	6.7	744	0.071276	3.032258
1988-01	247.3	98	2976	0.396279	9.971774	1988-01	97.4	5.8	744	0.059548	3.141935
1988-02	223	97.6	2784	0.437668	9.612068	1988-02	85.1	3.3	696	0.038777	2.934482
1988-03	307	72.9	3648	0.237459	10.09868	1988-03	103.9	2.9	744	0.027911	3.351612
1988-04	247.7	64.5	3120	0.260395	9.526923	1988-04	74.5	12.5	720	0.167785	2.483333
1988-05	160.5	73.9	2233	0.460436	8.625167	1988-05	82.4	5.5	744	0.066747	2.658064
1988-06	168.3	67.4	2161	0.400475	9.345673	1988-06	91	6	720	0.065934	3.033333
1988-07	193.4	44.9	2256	0.232161	10.28723	1988-07	87.6	4.6	720	0.052511	2.92
1988-08	361.7	106.4	3696	0.294166	11.74350	1988-08	88.1	5.1	744	0.057888	2.841935
1988-09	352.4	55.9	3600	0.158626	11.74666	1988-09	91.3	5.2	720	0.056955	3.043333
1988-10	251.3	26.3	2808	0.104655	10.73931	1988-10	74.4	3.7	696	0.049731	2.565517
1988-11	299.9	43.5	3288	0.145048	10.94525	1988-11	24.2	2.1	216	0.086776	2.688888
1988-12	299.1	56.7	3072	0.189568	11.68359	1988-12	50.5	3	456	0.059405	2.657894
1989-01	401	45.3	3528	0.112967	13.63945	1989-01	74.7	4.7	696	0.062918	2.575862
1989-02	305.7	53.1	3216	0.173699	11.40671	1989-02	71.1	4	672	0.056258	2.539285
1989-03	334.4	48.4	3312	0.144736	12.11594	1989-03	86.4	4.4	744	0.050925	2.787096
1989-04	292.3	37.9	2832	0.129661	12.38559	1989-04	81	3.7	648	0.045679	3
1989-05	298.8	55.9	3504	0.187081	10.23287	1989-05	83.1	4.4	676	0.052948	2.950295
1989-06	248.3	61.1	2880	0.246073	10.34583	1989-06	62.4	3.4	720	0.054487	2.08
1989-07	261.4	53.6	3720	0.205049	8.432258	1989-07	57.1	3	672	0.052539	2.039285
1989-08	313.2	49.5	3600	0.158045	10.44	1989-08	102	4.2	744	0.041176	3.290322

MC3b D Pool						LAm A Pool					
1987-01	317.3	213.2	2160	0.671919	10.57666	1987-01	1016.1	405.3	6880	0.398878	38.98988
1987-02	291.6	199.6	2016	0.684499	10.41428	1987-02	997.4	372.5	6313	0.373471	41.70974
1987-03	242.8	250	2232	1.029654	7.832258	1987-03	1143.1	548.9	7356	0.480185	41.02479
1987-04	160.7	289.8	1752	1.803360	6.604109	1987-04	1167.5	482.6	6252	0.413361	49.29942
1987-05	265.2	352.4	2232	1.328808	8.554838	1987-05	1310	487.4	7196	0.372061	48.06003
1987-06	249.6	293	2088	1.173878	8.606896	1987-06	1036.7	499.1	7852	0.481431	38.02465
1987-07	245.8	378.7	2208	1.540683	8.015217	1987-07	793.3	1161.5	8035	1.464137	28.43439
1987-08	235.8	371.8	2232	1.576759	7.606451	1987-08	1083.1	745.3	8109	0.688117	38.46748
1987-09	300.4	379.6	2112	1.263648	10.24090	1987-09	959.7	674.2	7824	0.702511	35.32638
1987-10	260.7	482	2160	1.848868	8.69	1987-10	960.1	679.7	8160	0.707947	33.88588
1987-11	271.6	452	2160	1.664212	9.053333	1987-11	884.1	778.3	8040	0.880330	31.66925
1987-12	232.8	419.9	1704	1.803694	9.836619	1987-12	807	868.9	7872	1.076703	29.52439
1988-01	222.9	384.9	1440	1.726783	11.145	1988-01	847.5	818.8	8208	0.966135	29.73684
1988-02	194.6	324.7	1368	1.668550	10.24210	1988-02	669	788.1	7584	1.178026	25.40506
1988-03	258	329.7	2064	1.277906	9	1988-03	793.6	676.1	8424	0.851940	27.13162
1988-04	260.7	344.9	2160	1.322976	8.69	1988-04	767.1	556.6	8352	0.725589	26.45172
1988-05	239.6	332.9	2088	1.389398	8.262068	1988-05	765.3	623.9	8148	0.815235	27.05036
1988-06	234.5	443.5	2136	1.891257	7.904494	1988-06	806.7	551.2	7290	0.683277	31.86962
1988-07	246.8	346.3	2232	1.403160	7.961290	1988-07	1046.3	450.3	7752	0.430373	38.87182
1988-08	221.8	403.5	2040	1.819206	7.828235	1988-08	1049.9	572.5	8280	0.545290	36.51826
1988-09	181	403.5	2136	2.229281	6.101123	1988-09	925.6	472	8040	0.509939	33.15582
1988-10	210.1	308.3	2088	1.467396	7.244827	1988-10	1007.1	514.3	8400	0.510674	34.52914
1988-11	142.7	350	1968	2.452697	5.220731	1988-11	946.2	623.4	7944	0.658845	34.30332
1988-12	122.8	313.8	1584	2.555374	5.581818	1988-12	941.4	542.9	7488	0.576694	36.20769
1989-01	143.5	282	1800	1.965156	5.74	1989-01	1125.9	632.8	7992	0.562039	40.57297
1989-02	147.6	192.8	1992	1.306233	5.334939	1989-02	943.1	494.9	7272	0.524758	37.35049
1989-03	104.4	256.2	1968	2.454022	3.819512	1989-03	1093.3	535.7	8424	0.489984	37.37777
1989-04	51	119.7	1440	2.347058	2.55	1989-04	882.7	410	7497	0.464483	33.90924
1989-05	46.1	135.3	1968	2.934924	1.686585	1989-05	574.4	336.4	5305	0.585654	31.18326
1989-06	60.1	264.3	1440	4.397670	3.005	1989-06	773	381	6768	0.492884	32.89361
1989-07	12.6	69.9	2016	5.547619	0.45	1989-07	799.1	324.6	7201	0.406206	31.95956
1989-08	121	64.9	1776	0.536363	4.905405	1989-08	904.4	361.1	8352	0.399270	31.18620

Commingled Zone Production

Summary by Pool

MC3a Pools				ERR	
1987-01				ERR	
1987-02				ERR	
1987-03				ERR	
1987-04				ERR	
1987-05				ERR	
1987-06				ERR	
1987-07				ERR	
1987-08				ERR	
1987-09				ERR	
1987-10				ERR	
1987-11				ERR	
1987-12				ERR	
1988-01				ERR	
1988-02				ERR	
1988-03				ERR	
1988-04				ERR	
1988-05				ERR	
1988-06				ERR	
1988-07				ERR	
1988-08				ERR	
1988-09				ERR	
1988-10				ERR	
1988-11				ERR	
1988-12	190.8	226	1272	1.184486	7.2
1989-01	60.8	120.3	1392	1.978618	2.096551
1989-02	99.7	66.8	1320	0.670010	3.625454
1989-03	137.7	42.7	1464	0.310094	4.514754
1989-04	129.6	39	1440	0.300925	4.32
1989-05	650.3	457.8	3600	0.703982	30.34733
1989-06	322.3	736.7	4728	2.285758	13.08832
1989-07	280.8	570.1	6384	2.030270	9.500751
1989-08	159.7	381.7	5664	2.390106	6.090254

MC3b Pools	MC1 Pools
1987-01	1987-01
1987-02	1987-02
1987-03	1987-03
1987-04	1987-04
1987-05	1987-05
1987-06	1987-06
1987-07	1987-07
1987-08	1987-08
1987-09	1987-09
1987-10	1987-10
1987-11	1987-11
1987-12	1987-12
1988-01	1988-01
1988-02	1988-02
1988-03	1988-03
1988-04	1988-04
1988-05	1988-05
1988-06	1988-06
1988-07	1988-07

1988-08						1988-08	40.7	87.9	384	2.159705	5.0875
1988-09						1988-09	106.2	173.5	1416	1.633709	3.6
1988-10						1988-10	160.5	122.7	1488	0.764485	5.177419
1988-11						1988-11	108.4	140.1	1416	1.292435	3.674576
1988-12						1988-12	106.4	128.1	1488	1.203947	3.432258
1989-01						1989-01	144.6	123.9	1488	0.856846	4.664516
1989-02						1989-02	120.9	105.7	1272	0.874276	4.562264
1989-03						1989-03	147.7	89.9	1488	0.608666	4.764516
1989-04						1989-04	176.7	69.8	1344	0.395019	6.310714
1989-05	27.7	44.1	336	1.592057	1.978571	1989-05	119.1	126.9	1488	1.065491	3.841935
1989-06	47.6	37.6	648	0.789915	1.762962	1989-06	128.9	87.2	1440	0.676493	4.296666
1989-07	6.6	10.4	624	1.575757	0.253846	1989-07	51.1	216.4	1488	4.234833	1.648387
1989-08	35.2	0	744	0	1.135483	1989-08	36.3	232	1344	6.391184	1.296428

MC Pools						MC + LAm Pools					
1987-01						1987-01					
1987-02						1987-02					
1987-03						1987-03					
1987-04						1987-04					
1987-05						1987-05					
1987-06						1987-06					
1987-07						1987-07					
1987-08						1987-08					
1987-09						1987-09					
1987-10						1987-10					
1987-11						1987-11					
1987-12						1987-12	13.6	10.1	120	0.742647	8.16
1988-01						1988-01	304.1	178.9	2208	0.588293	9.916304
1988-02						1988-02	224.6	91.3	2064	0.406500	7.834883
1988-03						1988-03	328.8	97.4	1872	0.296228	12.64615
1988-04						1988-04	363	165.4	2400	0.455647	14.52
1988-05						1988-05	263.8	92.1	2616	0.349128	12.10091
1988-06						1988-06	324.5	122.3	3048	0.376887	12.77559
1988-07						1988-07	323.7	172	3600	0.531356	10.79

1988-08	40.7	87.9	384	2.159705	5.0875	1988-08	437.9	278.5	4080	0.635989	20.60705
1988-09	106.2	173.5	1416	1.633709	3.6	1988-09	688.4	212.1	4968	0.308105	26.60483
1988-10	160.5	122.7	1488	0.764485	5.177419	1988-10	740.2	379.3	6264	0.512429	25.52413
1988-11	108.4	140.1	1416	1.292435	3.674576	1988-11	668.9	524.4	6768	0.783973	23.71985
1988-12	[illegible].2	354.1	2760	1.191453	10.33739	1988-12	1156.6	799.2	9648	0.690990	40.27960
1989-01	[illegible].4	244.2	2880	1.188899	6.846666	1989-01	805.8	475.2	9576	0.589724	30.29323
1989-02	220.6	172.5	2592	0.781958	8.170370	1989-02	793.6	277.5	9840	0.349672	29.03414
1989-03	285.4	132.6	2952	0.464611	9.281300	1989-03	992.9	195.7	10440	0.197099	34.23793
1989-04	306.3	108.8	2784	0.355207	10.56206	1989-04	1027.7	351.3	10440	0.341831	35.43793
1989-05	797.1	628.8	5424	0.788859	35.26991	1989-05	1457.3	835.9	13032	0.573595	59.04346
1989-06	498.8	861.5	6816	1.727145	19.31971	1989-06	872.8	1091.5	15336	1.250572	31.41533
1989-07	338.5	796.9	8496	2.354209	11.47457	1989-07	699	1120.9	16248	1.603576	24.77991
1989-08	231.2	613.7	7752	2.654411	8.589473	1989-08	643.2	1003.8	15624	1.560634	23.71244

2 (0)01-23-001-26 W1M(0)				(0)05-06-001-25 W1M(2)				(0)05-06-001-25 W1M(0) MC 3a E			
1987-01	100.9	16.3	724	1987-12	8.5	8.7	72	1987-01	130.6	30.2	720
1987-02	89.2	22	672	1988-01	60.8	130.3	744	1987-02	104.4	48.3	672
1987-03	82.8	120.9	744	1988-02	91.9	71.5	672	1987-03	96.7	84.9	720
1987-04	90.3	99.6	719	1988-03	65.7	80.1	504	1987-04	72	87	672
1987-05	194.8	109.9	744	1988-04	169.3	165.2	720	1987-05	84.4	91.6	744
1987-06	62.9	43.9	720	1988-05	53.8	73.1	504	1987-06	73	81.6	696
1987-07	42	245.8	720	1988-06	113.2	112.3	720	1987-07	84.8	87	744
1987-08	60.9	191.6	744	1988-07	68.7	152.1	672	1987-08	76.7	93.7	744
1987-09	65.7	6.8	720	1988-08	46.3	92.7	720	1987-09	93.4	72.8	720
1987-10	66.6	6	744	1988-09	149.6	29.7	672	1987-10	76.7	82.4	672
1987-11	40.6	76.4	720	1988-10	54.2	92.9	744	1987-11	90.4	65.9	720
1987-12	25.9	65.7	384	1988-11	44.8	46.8	720	1987-12	17.7	40.8	384
1988-01	115.7	13.4	744	1988-12	0	94.8	672	1988-01			
1988-02	42.9	80.8	552	1989-01	139.7	117.3	648	1988-02			
1988-03	54.7	52	744	1989-02	126.8	39.4	672	1988-03	30	25.2	240
1988-04	27.4	9.1	720	1989-03	45.4	17.4	336	1988-04	89.9	75.5	720
1988-05	18.1	15.8	744	1989-04	100	103.3	720	1988-05	63	52.9	504
1988-06	22.3	8.6	552	1989-05	116.1	86.2	720	1988-06	88.5	74.3	720
1988-07	13.7	10.2	648	1989-06	99.2	71.8	624	1988-07	82.5	69.3	672
1988-08	8.3	4.4	744	1989-07	97	70.2	600	1988-08	89.7	75.3	720
1988-09	5.1	12	720	1989-08	83.2	60.2	576	1988-09	83.3	69.9	672
1988-10	3.8	22	624	23 (0)08-32-001-25 W1M(2)				1988-10	93	78.1	744
1988-11	5.1	8.5	504	1987-01	59.1	11.3	742	1988-11	90	75.6	720
1988-12	70.8	25	744	1987-02	81.1	10.6	672	1988-12	59.4	49.9	672
1989-01	45.8	7.8	696	1987-03	65.4	13.1	744	1989-01	81	68	648
1989-02	53.4	14.6	504	1987-04	55.4	14.3	719	1989-02	84	70.6	672
1989-03	144.3	46	648	1987-05	56.8	16.6	744	1989-03	16.5	13.4	144
1989-04	82.1	53.6	720	1987-06	48.9	14.1	720	1989-04			
1989-05	19.1	3	216	1987-07	49.8	12.1	744	1989-05	119.3	121.5	696
1989-06	12.4	4.9	336	1987-08	48.3	9.5	744	1989-06	80.7	103.7	624
1989-07	0	4.9	432	1987-09	44	10.9	720	1989-07	2.8	89.6	600
1989-08	42.7	9.8	408	1987-10	39.3	23.7	744	1989-08	0	65.6	576
(0)09-24-001-26 W1M(2)				1987-11	35.5	20	720	24 (0)10-06-001-25 W1M(0) MC 3a E			
1987-01	109	10.2	744	1987-12	44.1	28.6	744	1987-07	49.4	18.6	264
1987-02	52.3	36.5	672	1988-01	43.1	25.1	744	1987-08	92.3	41.1	744
1987-03	59.4	44.3	744	1988-02	31.2	19.7	696	1987-09	81.5	29.3	720
1987-04	105	29.6	689	1988-03	42.4	25.4	744	1987-10	71.2	28.5	672
1987-05	95.7	33.2	744	1988-04	36.4	25	720	1987-11	32.6	18	720
1987-06	83.7	26.7	697	1988-05	52.6	22.3	744	1987-12	77.9	25.5	744
1987-07	78.9	31.1	744	1988-06	33.8	46.1	720	1988-01	90.1	17.9	720
1987-08	76.1	25.7	744	1988-07	21.9	38.4	600	1988-02	74.6	18.3	648
1987-09	75.5	25.3	720	1988-08	31.4	54.2	744	1988-03	75.8	32.8	744
1987-10	31.9	17.9	744	1988-09	36.1	38.7	720	1988-04	71.2	32.7	720
1987-11	64.6	17.9	720	1988-10	42.7	52.6	744	1988-05	77.5	24.8	744
1987-12	64.8	22.2	744	1988-11	40.9	64.4	720	1988-06	76.1	21.4	720
1988-01	63.7	20.3	744	1988-12	44.5	74.1	744	1988-07	81.1	18.2	600
1988-02	99.8	6.8	696	1989-01	44.6	67.1	744	1988-08	53.5	72.2	312
1988-03	58.9	53.5	744	1989-02	34.6	63.7	672	1988-09			
1988-04	73	25.0	720	1989-03	47.7	54.4	696	1988-10	31.7	10.5	288
1988-05	56.9	54.9	744	1989-04	12.6	10.2	144	1988-11	80.4	26.5	720
1988-06	65.2	48.8	672	1989-05				1988-12	83.1	27.4	744
1988-07	83.7	62.3	744	1989-06	33.7	46.4	528	1989-01	83.1	27.4	744
1988-08	60	39.3	744	1989-07	56.1	68.4	744	1989-02	75	24.7	672
1988-09	42.7	58	720	1989-08	59.4	59.1	744	1989-03	83.1	27.4	744
1988-10	70.3	26.7	744	(0)09-32-001-25 W1M(0)				1989-04	36.4	12	600

1988-11	46.4	28.8	720
1988-12	95.7	25.4	744
1989-01	82.1	25.2	720
1989-02	66.3	24.5	672
1989-03	58.1	19	696
1989-04	37	22.7	648
1989-05	23.7	34.1	336
1989-06	61	32	624
1989-07	61.9	20.3	744
1989-08	89.6	27.5	744
(0)12-24-001-26 W1M(2)			
1987-01	222.5	33.1	724
1987-02	194.8	49	672
1987-03	207.4	57.5	744
1987-04	145.6	154.7	719
1987-05	178.1	193	744
1987-06	121.9	190.1	720
1987-07	155.7	101.2	744
1987-08	159.9	110.4	744
1987-09	115.5	145.2	720
1987-10	169.4	36.7	744
1987-11	153.2	53.3	720
1987-12	80	185.8	744
1988-01	83	155.3	744
1988-02	76.6	133.3	696
1988-03	88	112.7	744
1988-04	89.5	106.1	720
1988-05	88.4	143.1	744
1988-06	91.8	114.6	720
1988-07	141.6	112.7	720
1988-08	165.6	91.7	744
1988-09	99.3	84.9	696
1988-10	127.2	73.2	744
1988-11	180	72	672
1988-12	185.7	12	744
1989-01	144.3	17.4	744
1989-02	109.2	19	600
1989-03	129.3	18.1	504
1989-04	9.7	14.4	489
1989-05	0	0	1
1989-06	118.7	29.8	456
1989-07	226.5	50.5	744
1989-08	155	29.9	744
[illegible]1-25-001-26 W1M(2)			
1987-01	200.9	12.4	692
1987-02	168.9	12.1	625
1987-03	139.3	5.3	714
1987-04	143.5	10.6	703
1987-05	171	4.6	709
1987-06	127.2	10.1	703
1987-07	139.6	10.5	727
1987-08	251.4	7.5	676
1987-09	108.9	30.4	720
1987-10	124.4	13	744
11	154	10.3	672
12	126.2	8.5	696
1987-01	0.6	0.9	14
1987-02			
1987-03	16.3	19	342
1987-04	12.6	18.4	359
1987-05	12.5	20.9	384
1987-06	4.9	23	336
1987-07	4.6	25.2	336
1987-08	7.3	14.6	312
1987-09	0.2	16.4	240
1987-10	6.9	25.8	336
1987-11	6.5	21.8	456
1987-12	10.2	17	384
1988-01	6.5	16.9	264
1988-02	2.3	21	480
1988-03	9.6	16	744
1988-04	11.1	13.9	720
1988-05	10.6	14.8	744
1988-06	25	10.4	720
1988-07	34	21.1	744
1988-08	47.3	65.4	648
1988-09	116.5	41.5	720
1988-10	119.7	0	744
1988-11	92.6	44.8	720
1988-12	2.8	1	24
1989-01			
1989-02	49.1	13.7	360
1989-03	13.7	31.1	744
1989-04	0	25.4	720
1989-05	97.9	36.3	744
1989-06	38.6	14.3	600
1989-07	33	12.2	744
1989-08	35.9	13.3	744
69 (0)09-33-001-25 W1M(2)			
1987-06	0	62	720
1987-07	0	76.2	744
1987-08	0	88.2	744
1987-09	95.5	183.5	672
1987-10	98.4	120.4	672
1987-11	73.1	109.6	720
1987-12	93.7	68.2	744
1988-01	83.9	67.8	744
1988-02	56.1	76.9	696
1988-03	71	68.1	744
1988-04	64	57.8	672
1988-05	63.3	63.3	744
1988-06	55.3	61.1	696
1988-07	60.5	48.9	672
1988-08	38.6	57	672
1988-09	55.3	55.3	696
1988-10	68.2	63.4	744
1988-11	64.5	64.5	696
1988-12	68.2	68.2	744
1989-01	67.8	33.7	744
1989-02	55.6	34.1	600
1989-03	68.2	39.1	744
1989-04	57.5	24.7	624
1989-05	72.6	24	648
1989-06	80.4	103.7	720
1989-07	59.1	19.5	744
1989-08	74.7	24.7	672
61 (0)10-06-001-25 W1M(2)			
1988-08	37.7	11.7	336
1988-09	123.6	91.6	720
1988-10	89	134	648
1988-11	19.8	66.4	720
1988-12	25.8	64.8	744
1989-01	39.2	36.1	744
1989-02	23.5	41.2	672
1989-03	37.6	11.5	744
1989-04	0	6.4	600
1989-05	72.6	65.9	648
1989-06	11.9	0	720
1989-07	0	99.4	744
1989-08	6.6	54.5	672
75 (0)10-30-001-25 W1M(0)			
1987-01	285.3	124.8	648
1987-02	269.4	127.9	624
1987-03	249.4	130.9	648
1987-04	301.7	154.3	720
1987-05	242.5	236.9	696
1987-06	226.3	195.2	624
1987-07	260.4	145	672
1987-08	195.3	192.5	600
1987-09	197.9	236.7	648
1987-10	204.3	266	672
1987-11	224.7	144.8	624
1987-12	260.6	63.2	648
1988-01	250.1	48.7	696
1988-02	203.1	47	624
1988-03	279.7	52	672
1988-04	158.9	186.5	600
1988-05	110.3	347	720
1988-06	73.9	215.9	672
1988-07	51.1	173.8	576
1988-08	62.2	299.9	624
1988-09	69.7	263.1	648
1988-10	93.5	226	672
1988-11	61.4	239.6	672
1988-12	47.9	230.4	696
1989-01	58.8	264.8	600
1989-02	40	149.1	336
1989-03	82.8	343.6	672
1989-04	36.6	127	720
1989-05	14.9	64.3	336
1989-06			
1989-07	0	94.7	648
113 (0)10-30-001-25 W1M(2)			
1989-05	0	1.4	24
1989-06	0	34.1	696
1989-07			
1989-08	1.8	180.6	504
112 (0)08-32-001-25 W1M(0)			

1988-01	117.1	5.5	744
1988-02	120.2	8.8	672
1988-03	161.8	4.4	744
1988-04	128.1	6	720
1988-05	0.8	13.2	204
1988-06	0.9	16.7	138
1988-07	161.9	11.7	696
1988-08	157.4	21.2	744
1988-09	147.4	20.3	720
1988-10	140.1	25	720
1988-11	148.5	42.4	696
1988-12	154.3	41.9	744
1989-01	154.1	29.1	696
1989-02	109.9	25.6	600
1989-03	106.4	30.6	696
1989-04	151.6	19.3	624
1989-05	102.7	42	528
1989-06	108.4	10.5	528
1989-07	41.6	13.6	192
1989-08	122	34.6	744
(0)01-26-001-26 W1M(0)			
1987-01	81.3	146.9	660
1987-02	163.1	59.6	654
1987-03	323.6	109.6	736
1987-04	374.9	67.6	683
1987-05	360.2	18.7	727
1987-06	327	48.2	716
1987-07	125.8	547.7	660
1987-08	233.7	173.9	737
1987-09	233.7	106.8	720
1987-10	164.6	210.2	744
1987-11	160.1	196.7	720
1987-12	156.4	220.9	744
1988-01	134.3	253.1	744
1988-02	66.5	298.1	696
1988-03	71.7	173.5	552
1988-04	171.3	179.5	696
1988-05	270.2	192.9	744
1988-06	271.1	46.3	720
1988-07	225.8	58	744
1988-08	186.1	122.3	744
1988-09	123.2	70.8	504
1988-10	199.1	99.8	744
1988-11	135.6	123.1	696
1988-12	115.4	145	696
1989-01	197.1	232	744
1989-02	135.9	144	648
1989-03	162.3	138.6	744
1989-04	158.4	88.2	696
1989-05	47.9	32.2	288
1989-06	104.6	9	552
1989-07	162.2	12.4	744
1989-08	169.1	11.3	672
(0)02-26-001-26 W1M(0)			
1987-01	138.9	154.4	720
1987-02	164.2	158.1	666

1989-05	55.7	55.7	744
1989-06	66	64.9	720
1989-07	68.2	68.2	744
1989-08	27.5	27.6	600
117 (0)08-08-002-25 W1M(2)			
1987-01	33.9	3.3	742
1987-02	19.4	1.7	672
1987-03	28.1	3	744
1987-04	30	3	695
1987-05	31.5	3.7	696
1987-06	26.6	2.5	720
1987-07	18.6	1.4	744
1987-08	41.1	3.2	744
1987-09	26.7	1	720
1987-10	16.4	0.8	744
1987-11	22.4	6.3	720
1987-12	25.6	2.1	744
1988-01	24.9	2.3	744
1988-02	24.6	3.2	696
1988-03	27.8	1.9	744
1988-04	22.8	2.1	720
1988-05	25.1	2.6	744
1988-06	16.9	1.2	480
1988-07	8.8	0.5	264
1988-08	18.2	1.6	504
1988-09	27.9	2.5	720
1988-10	28.2	2.5	744
1988-11	26.8	2.2	720
1988-12	26.7	2.4	744
1989-01	25.2	2.3	744
1989-02	22.4	1.8	696
1989-03	27.3	2.1	744
1989-04	28	1.9	720
1989-05	28.1	2.2	744
1989-06	27.4	2.1	720
1989-07	34	2.4	744
1989-08	36	0	744
150 (0)09-24-001-26 W1M(0)			
1989-05	0	0.4	24
1989-06	70.3	24.2	624
1989-07	0	0	744
1989-08	6.1	11.4	744
(0)12-24-001-26 W1M(0)			
1989-05	131	161.4	672
1989-06	127.8	219.2	648
1989-07	87.6	98.7	744
1989-08	0	52.8	744
160 (0)04-25-001-26 W1M(0)			
1989-06	16.5	60.1	192
1989-07	118	61	744
1989-08	0	43	744
164 (0)11-34-001-26 W1M(0)			
1987-01	150.6	10.9	744
1987-02	129.2	7	672
1987-03	117.5	10.1	744
1987-04	126.6	8.5	719

1989-05	87.4	85.7	528
1989-06	13.8	77.8	696
1989-07	7.8	5.9	744
1989-08	4.9	0	744
117 (0)09-32-001-25 W1M(2)			
1988-12	36.1	115.1	696
1989-01	39.7	119.1	744
1989-02	77.7	65.6	648
1989-03	111.9	41.5	744
1989-04	102.2	37.9	720
1989-05	0	30.9	744
1989-06	0	74.9	600
1989-07	0	131.1	744
1989-08	0	104	744
127 (0)09-33-001-25 W1M(0)			
1987-01	25.7	85.4	648
1987-02	16.7	76.2	552
1987-03	3.5	35.1	240
1987-04			
1987-05			
1987-06			
1987-07			
1987-08			
1987-09			
1987-10	Recompleted to LAm		
1987-11			
1987-12			
1988-01			
1988-02			
1988-03			
1988-04			
1988-05			
1988-06			
1988-07			
147 1988-08	0	10.2	72
1988-09	0	53.3	696
1988-10	34.7	0	744
1988-11	17.4	10.1	696
1988-12	21.2	7.3	744
1989-01	54.2	0	744
1989-02	45.4	0	600
1989-03	41.7	0	744
1989-04	53.7	0	624
1989-05	0	46.3	744
1989-06	12.1	0	720
1989-07	1.1	5.8	744
1989-08	0	43.3	600
160 (0)08-08-002-25 W1M(0)			
1988-08	40.7	77.7	312
1988-09	106.2	120.2	720
1988-10	125.8	122.7	744
1988-11	91	130	720
1988-12	95.2	120.8	744
1989-01	90.4	123.9	744
1989-02	75.5	105.7	672
1989-03	106	89.9	744

1987-03	157.4	159.1	744
1987-04	166.9	77.6	607
1987-05	193.7	85.8	744
1987-06	185.3	69.4	720
1987-07	168.8	100.4	744
1987-08	153.5	104.1	744
1987-09	151.5	133.9	720
1987-10	155.4	199.1	744
1987-11	133.9	228.6	720
1987-12	130.6	228.1	744
1988-01	131.8	227.2	744
1988-02	112.4	119.4	528
1988-03	161.6	150.2	672
1988-04	104.9	115.7	720
1988-05	153.7	83	744
1988-06	187.7	173.6	720
1988-07	266.9	58.1	744
1988-08	300.7	44.5	744
1988-09	254.1	66.9	720
1988-10	187.6	127.8	744
1988-11	154.7	140.7	696
1988-12	156	110.8	672
1989-01	137.7	127.4	672
1989-02	106.5	119.4	576
1989-03	132.7	117	744
1989-04	193.7	91.9	720
1989-05	171	121.4	744
1989-06	117	91.9	504
1989-07	0	0	1
1989-08	126.3	117.1	720
14-34-001-26 W1M(0)			
1987-01	18.8	9	744
1987-02	9.2	19.1	672
1987-03	16.8	10.3	728
1987-04			
1987-05	13	5.9	576
1987-06	15.4	5.5	720
1987-07	15.8	5.2	744
1987-08	17.6	9	744
1987-09	11.3	11.3	720
1987-10	5.7	19.4	744
1987-11	3.4	34.9	720
1987-12	9.6	17.3	744
1988-01	10	16.8	744
1988-02	8.6	14	696
1988-03	7.6	15.6	744
1988-04	5.6	14.3	720
1988-05	11.8	15.3	744
1988-06	5.7	20.9	720
1988-07	4.5	27.2	744
1988-08	6.2	29.8	744
1988-09	5.5	20.8	720
1988-10	4.5	24.2	648
1988-11	5.1	29	720
1988-12	1.7	35.1	744
1989-01	3.1	33.3	744

1987-05	127.7	8.8	744
1987-06	125.8	7.2	720
1987-07	111	4.4	744
1987-08	110	7.9	744
1987-09	105.1	5	720
1987-10	113.4	5.8	744
1987-11	101.4	7.5	720
1987-12	94	6.7	744
1988-01	97.4	5.8	744
1988-02	85.1	3.3	696
1988-03	103.9	2.9	744
1988-04	74.5	12.5	720
1988-05	82.4	5.5	744
1988-06	91	6	720
1988-07	87.6	4.6	720
1988-08	88.1	5.1	744
1988-09	91.3	5.2	720
1988-10	74.4	3.7	696
1988-11	24.2	2.1	216
1988-12	50.5	3	456
1989-01	74.7	4.7	696
1989-02	71.1	4	672
1989-03	86.4	4.4	744
1989-04	81	3.7	648
1989-05	83.1	4.4	676
1989-06	62.4	3.4	720
1989-07	57.1	3	672
1989-08	102	4.2	744
197 (0)11-34-001-26 W1M(2)			
1988-11	49.1	136.5	432
1988-12	122.7	75.3	600
1989-01	61.8	4.7	696
1989-02	30.9	1.8	672
1989-03	48.3	9.6	744
1989-04	8.4	5.8	648
1989-05	8	17.4	696
1989-06	0	14.4	720
1989-07	0	8.7	672
1989-08	0	17.7	744
(0)11-35-001-26 W1M(0)			
1987-01	105.4	8	744
1987-02	80.6	11.6	672
1987-03	76.3	11.3	744
1987-04	80.5	24.4	720
1987-05	86.2	11.3	744
1987-06	89.7	16.7	720
1987-07	79.4	14.5	744
1987-08	77.6	7.8	744
1987-09	70	7.3	720
1987-10	69.7	14.5	744
1987-11	66.1	24.1	720
1987-12	64.2	17	744
1988-01	67.1	22.7	744
1988-02	56.3	37.2	696
1988-03	75.3	10.7	744
1988-04	45.3	5.1	480

1989-04	123	69.8	720
1989-05	119.1	80.6	744
1989-06	116.8	87.2	720
1989-07	50	210.6	744
1989-08	36.3	188.7	744
176 (0)01-23-001-26 W1M(2)			
1989-05	135.7	77.3	480
1989-06	26.5	143.7	552
1989-07	7.3	2.7	432
1989-08	0	15.8	264
179 (0)01-26-001-26 W1M(2)			
1989-05	163.2	93.3	432
1989-06	40.1	124.1	696
1989-07	0	94.4	744
1989-08	0	104.9	672
184 (0)02-26-001-26 W1M(2)			
1989-07	26.8	174.8	744
1989-08	19.8	0	264
187 (0)14-34-001-26 W1M(2)			
1989-05	27.7	44.1	336
1989-06	47.6	37.6	648
1989-07	6.6	10.4	624
1989-08	35.2	0	744
192 (0)07-35-001-26 W1M(0)			
1987-01	59.2	7	744
1987-02	52.5	8.5	672
1987-03	46.8	10.8	744
1987-04	59	9.3	720
1987-05	57.7	9.6	744
1987-06	43.8	15.9	696
1987-07	48.7	10.1	744
1987-08	49.5	9.5	744
1987-09	43.3	8.8	720
1987-10	43.5	10.6	744
1987-11	35.9	17.4	720
1987-12	33.1	23.7	744
1988-01	39.8	8.6	744
1988-02	32	9.5	696
1988-03	33.5	19.5	744
1988-04	34.8	13.5	720
1988-05	35	15.8	744
1988-06	38.5	14.3	720
1988-07	40.6	4.7	720
1988-08	44.2	4.6	744
1988-09	41.4	5.7	720
1988-10	38	6.4	696
1988-11	42.4	4.3	720
1988-12	5.6	0.6	96
1989-01	144.1	14	744
1989-02	73.7	7.7	672
1989-03	68.3	7.1	744
1989-04	47	8.3	656
1989-05	40.7	7.1	720
1989-06	30.2	10.2	720
1989-07	32.1	10.1	744
1989-08	53.6	0.8	744

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[illegible]-02	3.4	24.6	672
[illegible]-03	6.5	33.5	744
[illegible]-04	4.3	24.7	672
[illegible]-05	1.4	8.7	240
[illegible]-06	3	20.5	480
[illegible]-07	4.5	26.9	[illegible]
[illegible]-08	5.7	29.5	744
232 [illegible]9-35-001-26 W1M[illegible]			
[illegible]-01	53.3	7.6	372
[illegible]-02	45.0	7.8	336
[illegible]-03	46.[illegible]	6.9	370
[illegible]-04	47.3	7.2	359
[illegible]-05	40.7	9.[illegible]	384
[illegible]-06	37.9	4	360
[illegible]-07	27.7	4.7	384
[illegible]-08	33.3	8	432
[illegible]-09	36.6	1.7	432
[illegible]-10	28.1	4.7	456
[illegible]-11	35.8	2.5	432
[illegible]-12	39.9	4.3	456
[illegible]-01	33.2	3.8	504
[illegible]-02	33.8	6.1	480
[illegible]-03	38.3	2.8	504
[illegible]-04	31	1.9	504
[illegible]-05	33.8	2.9	504
[illegible]-06	30	2.6	432
[illegible]-07	27	1.0	432
[illegible]-08	29.8	1.1	504
[illegible]-09	12.5	0.3	384
[illegible]-10	15.7	1.1	456
[illegible]-11	46	2.5	384
[illegible]-12	18.6	1	144
[illegible]-01	224.1	57.6	744
[illegible]-02	196.8	9.9	672
[illegible]-03	195.8	8.2	720
[illegible]-04	157.2	33.5	720
[illegible]-05	26.9	1.2	720
[illegible]-06	86.2	54.7	720
[illegible]-07	111.1	44.5	744
[illegible]-08	35.2	1.4	744
240 [illegible]-35-001-26 W1M(2)			
[illegible]-12	1	0.5	24
[illegible]-01	90.6	9.9	720
[illegible]-02	47.8	7.8	696
[illegible]-03	183.3	6.4	672
[illegible]-04	122.8	0	720
[illegible]-05	72.9	0	744
[illegible]-06	66.3	0	720
[illegible]-07	61.5	0	744
[illegible]-08	36	2.7	744
[illegible]-09	71.8	0	720
[illegible]-10	48.6	0	696
[illegible]-11	62.3	0	720
[illegible]-12	43.9	1	744
[illegible]-01	42.4	0	744
[illegible]-02	36.2	[illegible]	672

1988-05	0	0	1
1988-06	0	0	1
1988-07	3	0.1	96
1988-08	81.5	23.3	744
1988-09	80.6	13.3	720
1988-10	75.2	7.6	696
1988-11	77.2	4.9	720
1988-12	77	4.6	744
1989-01	55.6	15.7	600
1989-02	57.6	15.9	600
1989-03	78.8	5.2	744
1989-04	80.7	5.3	720
1989-05	79	11.2	720
1989-06	60.1	13.6	720
1989-07	68.9	13.8	744
1989-08	75.3	13.1	720
241 (0)11-35-001-26 W1M(2)			
1988-05	59.6	18.3	480
1988-06	23.7	4.1	240
1988-07	46.1	16.7	744
1988-08	95.1	77.7	744
1988-09	55.3	0	720
1988-10	38.2	0	696
1988-11	37.8	0	720
1988-12	26.5	0	744
1989-01	44.7	22.2	600
1989-02	36.7	12	600
1989-03	31	0	744
1989-04	14.1	0	720
1989-05	2.9	0	720
1989-06	0	21.6	720
1989-07	0	32.6	744
1989-08	31.4	0	720
2[illegible]6 (0)12-36-001-26 W1M(0)			
1987-01	79.6	38.8	744
1987-02	70.9	34.9	672
1987-03	72.9	60.6	744
1987-04	43.9	65	720
1987-05	38.3	46.1	744
1987-06	34.7	29.6	720
1987-07	65.5	67.8	744
1987-08	63	64.1	744
1987-09	50.2	67.6	720
1987-10	38.2	58.5	744
1987-11	55.4	32.9	720
1987-12	66.6	57.1	744
1988-01	79.7	59.3	744
1988-02	66	39.1	696
1988-03	76.9	29.5	744
1988-04	71.5	40	720
1988-05	70.7	49.9	744
1988-06	71.6	45.9	720
1988-07	92.6	36.3	696
1988-08	95.9	55.2	720
1988-09	91.3	26.1	720
1988-10	9.2	1.7	48

225 (0)07-35-001-26 W1M(2)			
1988-12	168.1	32.1	576
1989-01	32.4	0.7	648
1989-02	33.5	0.7	672
1989-03	40.4	0.8	744
1989-04	40.4	0.7	696
1989-05	41	0.8	720
1989-06	41.6	0.8	720
1989-07	50.7	0.8	744
1989-08	44.6	7.2	744
235 (0)08-35-001-26 W1M(2)			
1988-12	154.7	110.9	576
1989-01	21.1	1.2	648
1989-02	22	1.2	672
1989-03	25.8	1.2	720
1989-04	27.4	1.1	720
1989-05	133	8.8	720
1989-06	27.3	12.7	720
1989-07	33.3	1.5	744
1989-08	128.9	49.8	744
245 (0)09-35-001-26 W1M(0)			
1987-01	81.6	4.7	744
1987-02	71.3	5.9	672
1987-03	67.7	11.9	744
1987-04	74.2	8.9	720
1987-05	72.8	7.8	744
1987-06	64.8	3.9	720
1987-07	62.1	3.3	744
1987-08	62.4	6.3	744
1987-09	53.9	5.5	720
1987-10	59.4	6	744
1987-11	67.3	4.9	720
1987-12	56.3	5.3	744
1988-01	60.7	7.4	744
1988-02	70.7	11.8	696
1988-03	73.2	3.4	744
1988-04	46	1.4	480
1988-05			
1988-06			
1988-07			
1988-08	80.7	7	744
1988-09	80.3	6.4	720
1988-10	73	5.6	672
1988-11	76.9	5.8	720
1988-12	76.8	5.9	744
1989-01	72.5	5.9	744
1989-02	57.1	4.2	600
1989-03	66.6	3.8	624
1989-04	80.4	4.8	720
1989-05	77.6	5.3	720
1989-06	79.1	5.5	720
1989-07	91.5	5	744
1989-08	84.6	4.4	648
278 (0)09-35-001-26 W1M(2)			
1988-04	0.5	0.2	240
1988-05	7.3	0.7	168

1989-03	38.5	7.9	624
1989-04	88.5	20.2	696
1989-05	98.4	9.9	672
1989-06	74.5	5.1	720
1989-07	80	1.5	744
1989-08	94.1	2.6	744
267 (0)16-03-002-26 W1M(2)			
1987-12	4.1	0.9	24
1988-01	152.7	38.7	744
1988-02	84.9	12	696
1988-03	79.8	10.9	696
1988-04	70.4	0	720
1988-05	73.2	0	720
1988-06	52.8	0	720
1988-07	54.3	0	744
1988-08	50.8	0	744
1988-09	27.9	0	720
1988-10	28.5	0	696
1988-11	55	0	744
1988-12	66.9	75.1	744
1989-01	33.2	0	744
1989-02	28.6	0	696
1989-03	61.7	5.3	720
1989-04	64.4	95.4	720
1989-05	24.4	14.1	552
1989-06	53.6	56.8	720
1989-07	32.5	18.8	552
1989-08	27.9	11.2	648
(0)15-03-002-26 W1M(2)			
1988-12	92.6	79.4	576
1989-01	62.5	6.3	384
1989-02	108.8	9.9	672
1989-03	129.9	10.6	720
1989-04	135.7	10	720
1989-05	124.7	10.8	696
1989-06	75.6	5.9	720
1989-07	100.3	4.6	744
1989-08	0	18.4	648
(0)16-03-002-26 W1M(0)			
1987-01	80.7	21.1	744
1987-02	57	3.3	672
1987-03	34.6	18.8	744
1987-04	33.9	37	720
1987-05	34.4	43.3	744
1987-06	43.6	30.5	720
1987-07	51.1	35.8	744
1987-08	37.6	30.5	744
1987-09	48.7	33.1	696
1987-10	51.7	47.6	696
1987-11	52.7	45.2	720
1987-12	15.9	13	240
1988-01			
1988-02			
1988-03	39.8	35.3	648
1988-04	40	24.4	720
1988-05	41.6	6.2	720
1988-11	47	20.9	408
1988-12	83.5	38.2	744
1989-01	72.8	3.4	696
1989-02	70.1	23.3	672
1989-03	85.3	29.3	744
1989-04	84.2	19.6	696
1989-05	85.7	32.7	720
1989-06	78.9	31.8	720
1989-07	68.9	24.7	744
1989-08	99.7	31.2	744
291 (0)12-36-001-26 W1M(2)			
1988-10	185.7	25.4	624
1988-11	137.3	127.9	576
1988-12	116.3	16.2	744
1989-01	64.7	27.2	696
1989-02	40.5	0	672
1989-03	87.6	0	744
1989-04	57.3	0	696
1989-05	24.3	0	720
1989-06	0	18.7	720
1989-07	0	19.3	744
1989-08	0	30.8	744
303 (0)05-03-002-26 W1M(0)			
1987-01	194.3	2.4	672
1987-02	202.3	3	672
1987-03	180.9	6.3	744
1987-04	94.6	3.4	312
1987-05	206.8	6.9	744
1987-06	170.7	8.5	696
1987-07	152.6	4.4	720
1987-08	161.6	7.6	744
1987-09	210	6.1	696
1987-10	176.9	9	720
1987-11	168.5	13	720
1987-12	166.8	12.1	720
1988-01	184.7	8.7	696
1988-02	165.5	9.6	672
1988-03	182.7	8.7	672
1988-04	182.4	12.3	720
1988-05	147.5	10.6	624
1988-06	165.1	39.6	696
1988-07	157.8	17.8	744
1988-08	132.6	7.4	552
1988-09	114.8	10.5	696
1988-10	112.7	6.4	696
1988-11	75.9	5.2	624
1988-12	10.9	0.9	96
1989-01	80	53.4	480
1989-02	73.7	13.1	672
1989-03	27.3	6	720
1989-04	3.8	7.8	720
1989-05	0	19.4	696
1989-06			
1989-07	0	0	744
1989-08	32.4	5.6	648
336 (0)08-04-002-26 W1M(2)			
1988-06	68.9	5.9	648
1988-07	93.1	3.2	696
1988-08	131.3	17.9	744
1988-09	158	8.9	720
1988-10	135.5	4.3	672
1988-11	148.5	6.7	720
1988-12	196.6	7.4	744
1989-01	57.1	0.6	744
1989-02	26	0	600
1989-03	24.9	0	624
1989-04	8.3	0.7	720
1989-05	0	1.6	720
1989-06	0	0.8	720
1989-07	0	0	744
1989-08	0	6.9	648
296 (0)10-35-001-26 W1M(0)			
1987-01	63.2	13	744
1987-02	52.7	8.4	672
1987-03	63.7	11.8	744
1987-04	66.7	9.3	720
1987-05	61.9	8.8	744
1987-06	53.1	5.2	720
1987-07	55	6.7	744
1987-08	57.4	6	744
1987-09	52.5	6.5	720
1987-10	61.8	11.8	744
1987-11	74.1	12.6	720
1987-12	20.3	1.3	240
1988-01			
1988-02			
1988-03	47.6	9.8	672
1988-04	50.1	4.5	720
1988-05	54.6	8.2	744
1988-06	58.2	7.2	720
1988-07	57.2	3.8	744
1988-08	59.4	16.3	744
1988-09	58.8	4.4	720
1988-10	54.9	5	696
1988-11	56.4	7.6	720
1988-12	56.2	7.4	744
1989-01	53	6.3	744
1989-02	47.2	4	672
1989-03	35.4	3	456
1989-04			
1989-05	15.8	0	624
1989-06			
1989-07	0	0	744
1989-08	0	0	744
329 (0)08-04-002-26 W1M(0)			
1987-01	42.3	189.7	744
1987-02	32.3	193.3	672
1987-03	27.3	224.9	744
1987-04	32.2	249.4	720
1987-05	24	302.2	744
1987-06	35.3	254	672
1987-07	42.1	338.5	744

1988-06	45.9	31.2	720
1988-07	45.7	11.7	744
1988-08	47.6	9.3	744
1988-09	47.1	4.9	720
1988-10	43.9	1.9	696
1988-11	39.6	15.1	624
1988-12	44.9	47.9	744
1989-01	42.4	5.4	744
1989-02	37.8	6.5	672
1989-03	31.1	4.9	504
1989-04			
1989-05	0	0	552
1989-06	13.2	0	720
1989-07	0	0	552
1989-08	0	0	648

1989-01	17.7	15.9	48
1989-02	81.4	0	648
1989-03	162.2	0	744
1989-04	204.3	0	720
1989-05	147.9	0	720
1989-06	17.6	0	720
1989-07	0	68.1	720
1989-08	122.4	0	480

1987-08	36.6	333.7	744
1987-09	41.7	340.4	720
1987-10	32.1	426.4	744
1987-11	50.4	393.8	720
1987-12	50.1	394.8	744
1988-01	38.2	376.7	744
1988-02	29.1	315.1	696
1988-03	35.5	285.7	744
1988-04	38.3	308.2	720
1988-05	50.5	316.1	744
1988-06	23.5	372.7	720
1988-07	43.3	316.8	744
1988-08	41.6	386.8	744
1988-09	19.1	388.1	720
1988-10	53.5	300	696
1988-11	27.2	328.7	720
1988-12	67.1	265	744
1989-01	21.1	223.2	576
1989-02	36.1	173.2	648
1989-03	46	245.3	744
1989-04	47.2	111.9	720
1989-05	46.1	115.9	720
1989-06	46.9	264.2	720
1989-07	12.6	69.9	720
1989-08	38.6	59.3	480

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA CANADA T2P 0H3

TELEPHONE (403) 261-0743
FAX (403) 264 5691

DEPARTMENT OF ENERGY AND MINES
DEC 15
PETROLEUM BRANCH

Decmeber 11, 1989

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. John Fox
Chief Petroleum Engineer

Dear Sir:

Re: Waskada Production Commingling
Progress Report September/October 1989

Enclosed is the summary of events and for the months of September and October 1989. This includes production data, fluid levels and workover operations.

During these months, annual production testing was performed on wells 9-33-1-25, 8-8-2-25, 9-35-1-26 and 11-35-1-26 WPM. Also, well 10-30-1-25 WPM was commingled.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
R. A. Brekke
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

MONTH REPORT: 1989 - 05

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L.AL	(00)05-06-001-25W1M(0)	3	99	712	62.4	123.1	5.4	2.1	1.97	66.4	87
LAM	(00)05-06-001-25W1M(2)	1	99	712	113.9	82.5	9.9	3.8	0.72	42.0	87
L.AL	(00)10-06-001-25W1M(0)	3	99	696	72.7	24.0	6.3	2.5	0.33	24.8	87
LAM	(00)10-06-001-25W1M(2)	1	99	696	0.0	69.2	0.0	0.0	#####	100.0	0
L.AL	(00)10-30-001-25W1M(0)	3	99	0	0	0	0	0	N/A	N/A	N/A
LAM	(00)10-30-001-25W1M(2)	1	99	720	17.0	182.7	11.1	0.6	10.75	91.5	653
L.AL	(00)08-32-001-25W1M(0)	3	99	720	9.8	0.0	0.0	0.3	0.00	0.0	0
LAM	(00)08-32-001-25W1M(2)	1	14	720	55.1	52.4	0.8	1.8	0.95	48.7	15
LAM	(00)09-32-001-25W1M(0)	1	99	720	33.9	12.6	3.0	1.1	0.37	27.1	88
L.AL	(00)09-32-001-25W1M(2)	3	99	720	0.0	87.7	0.0	0.0	#####	100.0	0
TIL	(00)09-33-001-25W1M(0)	4	99	568	0.0	38.2	0.0	0.0	#####	100.0	0
LAM	(00)09-33-001-25W1M(2)	1	99	568	19.5	16.5	1.7	0.8	0.85	45.8	87
TIL	(00)08-08-002-25W1M(0)	4	99	120	0.0	0.0	0.0	0.0	0.00	0.0	0
LAM	(00)08-08-002-25W1M(2)	1	8	683	9.2	13.6	0.4	0.3	1.48	59.6	43
LAM	(00)01-23-001-26W1M(0)	1	4	718	48.9	24.3	6.7	1.6	0.50	33.2	137
L.AL	(00)01-23-001-26W1M(2)	3	12	120	0.0	0.0	0.5	0.0	0.00	0.0	#####
L.AL	(00)09-24-001-26W1M(0)	3	12	720	8.4	5.8	0.0	0.3	0.69	40.8	0
LAM	(00)09-24-001-26W1M(2)	1	1	720	83.2	23.7	5.5	2.8	0.28	22.2	66
L.AL	(00)12-24-001-26W1M(0)	3	12	720	0.0	45.2	5.9	0.0	#####	100.0	#####
LAM	(00)12-24-001-26W1M(2)	1	1	720	191.2	34.2	14.2	6.4	0.18	15.2	74
L.AL	(00)04-25-001-26W1M(0)	3	12	720	0.0	32.4	2.8	0.0	#####	100.0	#####
LAM	(00)04-25-001-26W1M(2)	1	1	720	140.3	37.2	2.8	4.7	0.27	21.0	20
LAM	(00)01-26-001-26W1M(0)	1	1	720	181.4	113.6	13.4	6.0	0.63	38.5	74
L.AL	(00)01-26-001-26W1M(2)	3	12	720	0.0	13.1	5.1	0.0	#####	100.0	#####
LAM	(00)02-26-001-26W1M(0)	1	1	720	195.4	108.5	11.1	6.5	0.56	35.7	57
L.AL	(00)02-26-001-26W1M(2)	3	12	720	57.2	4.0	0.0	1.9	0.07	6.5	0
L.AL	(00)11-34-001-26W1M(0)	2	99	681	75.7	2.7	1.6	2.7	0.04	3.4	21
LAM	(00)11-34-001-26W1M(2)	1	99	681	0.0	1.7	0.7	0.0	#####	100.0	#####

Prepared by K. Thomas

WASKADA COMMINGLED PRODUCTION

MONTH REPORT: 1989 - 09

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L4M	(00)14-34-001-26W1M(0)	1	5	720	5.3	25.9	0.4	0.2	4.89	83.0	75
L.AL	(00)14-34-001-26W1M(2)	2	99	720	25.6	1.8	0.8	0.9	0.07	6.6	31
L.AL	(00)07-35-001-26W1M(0)	3	99	720	49.8	5.8	1.6	1.7	0.12	10.4	32
L4M	(00)07-35-001-26W1M(2)	1	99	720	30.2	1.1	0.8	1.0	0.04	3.5	26
L4M	(00)08-35-001-26W1M(0)	1	99	720	32.6	1.1	2.4	1.1	0.03	3.3	74
L.AL	(00)08-35-001-26W1M(2)	3	99	720	123.9	26.2	4.7	4.1	0.21	17.5	38
L.AL	(00)09-35-001-26W1M(0)	3	99	144	0.0	0.2	0.1	0.0	*****	100.0	*****
L4M	(00)09-35-001-26W1M(2)	1	99	614	35.9	10.7	2.5	1.4	0.30	23.0	70
L.AL	(00)10-35-001-26W1M(0)	3	99	720	0.0	0.0	4.0	0.0	0.00	0.0	*****
L4M	(00)10-35-001-26W1M(2)	1	99	720	91.9	5.8	3.2	3.1	0.06	5.9	35
L.AL	(00)11-35-001-26W1M(0)	3	99	0	0	0	0	0	N/A	N/A	N/A
L4M	(00)11-35-001-26W1M(2)	1	99	447	9.4	1.0	1.4	0.5	0.11	9.6	149
L.AL	(00)12-36-001-26W1M(0)	3	99	720	71.9	20.8	0.4	2.4	0.29	22.4	6
L4M	(00)12-36-001-26W1M(2)	1	99	720	0.0	30.6	1.2	0.0	*****	100.0	*****
L.AL	(00)05-03-002-26W1M(0)	2	99	658	54.1	3.4	1.8	2.0	0.06	5.9	33
L4M	(00)05-03-002-26W1M(2)	1	99	658	0.0	7.4	1.8	0.0	*****	100.0	*****
L.AL	(00)06-03-002-26W1M(0)	2	99	453	0.0	0.0	0.5	0.0	0.00	0.0	*****
L4M	(00)06-03-002-26W1M(2)	1	99	453	22.9	4.6	0.5	1.2	0.20	16.7	22
L.AL	(00)08-04-002-26W1M(0)	2	99	720	56.1	253.9	1.6	1.9	4.53	81.9	29
L4M	(00)08-04-002-26W1M(2)	1	99	720	362.9	297.2	0.0	12.1	0.82	45.0	0

WASKADA COMMINGLED PRODUCTION

MONTH REPORT: 1989 - OCTOBER

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L.AL	(00)05-06-001-25W1M(0)	3	99	734	93.1	50.4	12.0	3.0	0.54	35.1	129
LAM	(00)05-06-001-25W1M(2)	1	99	734	117.4	85.0	15.1	3.8	0.72	42.0	129
L.AL	(00)10-06-001-25W1M(0)	3	99	704	78.5	26.1	10.1	2.7	0.33	25.0	129
LAM	(00)10-06-001-25W1M(2)	1	99	704	0.0	50.1	0.0	0.0	#####	100.0	0
L.AL	(00)10-30-001-25W1M(0)	3	99	157	17.3	52.1	5.4	2.6	3.01	75.1	312
LAM	(00)10-30-001-25W1M(2)	1	99	712	31.9	205.4	19.2	1.1	6.44	86.6	602
L.AL	(00)08-32-001-25W1M(0)	3	99	702	4.9	0.0	0.4	0.2	0.00	0.0	82
LAM	(00)08-32-001-25W1M(2)	1	14	702	54.8	53.5	1.2	1.9	0.98	49.4	22
LAM	(00)09-32-001-25W1M(0)	1	99	476	19.9	7.4	2.6	1.0	0.37	27.1	131
L.AL	(00)09-32-001-25W1M(2)	3	99	476	0.0	51.9	0.0	0.0	#####	100.0	0
TILL	(00)09-33-001-25W1M(0)	4	99	524	0.0	127.6	0.0	0.0	#####	100.0	0
LAM	(00)09-33-001-25W1M(2)	1	99	524	6.9	5.8	0.9	0.3	0.84	45.7	130
TILL	(00)08-08-002-25W1M(0)	4	99	744	62.5	148.0	1.3	2.0	2.37	70.3	[illegible]
LAM	(00)08-08-002-25W1M(2)	1	8	744	4.8	6.4	0.8	0.2	1.33	57.1	167
LAM	(00)01-23-001-26W1M(0)	1	4	408	15.6	2.6	1.7	0.9	0.17	14.3	109
L.AL	(00)01-23-001-26W1M(2)	3	12	408	0.0	0.0	1.7	0.0	0.00	0.0	#####
L.AL	(00)09-24-001-26W1M(0)	3	12	744	0.0	2.6	0.8	0.0	#####	100.0	#####
LAM	(00)09-24-001-26W1M(2)	1	1	744	72.9	22.8	5.0	2.4	0.31	23.8	69
L.AL	(00)12-24-001-26W1M(0)	3	12	729	0.0	55.5	1.2	0.0	#####	100.0	#####
LAM	(00)12-24-001-26W1M(2)	1	1	729	221.9	43.9	16.7	7.3	0.20	16.5	75
L.AL	(00)04-25-001-26W1M(0)	3	12	744	0.0	10.5	4.2	0.0	#####	100.0	#####
LAM	(00)04-25-001-26W1M(2)	1	1	744	122.4	35.5	2.5	3.9	0.29	22.5	20
LAM	(00)01-26-001-26W1M(0)	1	1	744	183.2	91.8	11.3	5.9	0.50	33.4	62
L.AL	(00)01-26-001-26W1M(2)	3	12	744	0.0	0.0	0.0	0.0	0.00	0.0	0
LAM	(00)02-26-001-26W1M(0)	1	1	744	193.1	93.4	10.7	6.2	0.48	32.6	55
L.AL	(00)02-26-001-26W1M(2)	3	12	744	0.0	0.0	0.4	0.0	0.00	0.0	#####
U.AL	(00)11-34-001-26W1M(0)	2	99	744	74.0	3.0	1.3	2.4	0.04	3.9	18
LAM	(00)11-34-001-26W1M(2)	1	99	744	0.0	0.0	0.4	0.0	0.00	0.0	#####

Prepared by K. Thomas

WASKADA COMMINGLED PRODUCTION

MONTH REPORT: 1989 - OCTOBER

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
LAM	(00)14-34-001-26W1M(0)	1	5	626	4.7	25.2	0.4	0.2	5.36	84.3	85
U.AL	(00)14-34-001-26W1M(2)	2	99	626	17.4	7.1	0.4	0.7	0.41	29.0	23
LA.L	(00)07-35-001-26W1M(0)	3	99	744	51.8	6.8	1.3	1.7	0.13	11.6	25
LAM	(00)07-35-001-26W1M(2)	1	99	744	0.0	2.6	0.0	0.0	#####	100.0	0
LAM	(00)08-35-001-26W1M(0)	1	99	744	34.5	1.4	2.5	1.1	0.04	3.9	72
L.AL	(00)06-35-001-26W1M(2)	3	99	744	109.1	15.7	4.6	3.5	0.14	12.6	42
L.AL	(00)09-35-001-26W1M(0)	3	99	744	71.4	30.4	0.0	2.3	0.43	29.9	0
LAM	(00)09-35-001-26W1M(2)	1	99	744	37.7	2.2	2.5	1.2	0.06	5.5	66
L.AL	(00)10-35-001-26W1M(0)	3	99	0	0	0	0	0	N/A	N/A	N/A
LAM	(00)10-35-001-26W1M(2)	1	99	744	81.0	5.0	2.5	2.6	0.06	5.8	31
L.AL	(00)12-36-001-26W1M(0)	3	99	744	69.6	22.0	0.4	2.2	0.32	24.0	6
LAM	(00)12-36-001-26W1M(2)	1	99	744	0.0	30.8	0.4	0.0	#####	100.0	#####
U.AL	(00)05-03-002-26W1M(0)	2	99	744	45.6	3.0	1.7	1.5	0.07	6.2	37
LAM	(00)05-03-002-26W1M(2)	1	99	744	0.0	3.0	2.1	0.0	#####	100.0	#####
U.AL	(00)06-03-002-26W1M(0)	2	99	0	0	0	0	0	N/A	N/A	N/A
LAM	(00)06-03-002-26W1M(2)	1	99	744	32.9	6.8	0.8	1.1	0.21	17.1	24
U.AL	(00)08-04-002-26W1M(0)	2	99	744	59.2	294.8	1.3	1.9	4.98	83.3	22
LAM	(00)08-04-002-26W1M(2)	1	99	744	281.4	324.8	0.0	9.1	1.15	53.6	0

WASKADA COMMINGLED PRODUCTION
FLUID LEVELS

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	89-09-27	93
	89-10-06	94
10-6-1-25 WPM	89-09-27	92
	89-10-06	95
10-30-1-25 WPM	89-10-31	69
8-32-1-25 WPM	89-09-12	96
	89-10-12	95
9-32-1-25 WPM	89-09-12	95
	89-10-12	96
9-33-1-25 WPM	89-09-21	92
	89-10-12	95
8-8-2-25 WPM	89-09-12	95
	89-10-19	95
1-23-1-26 WPM	89-09-15	96
	89-10-26	96
9-24-1-26 WPM	89-09-15	97
	89-10-26	96
12-24-1-26 WPM	89-09-15	96
	89-10-26	96
4-25-1-26 WPM	89-09-15	93
	89-10-26	94
1-26-1-26 WPM	89-09-18	96
	89-10-25	95
2-26-1-26 WPM	89-09-18	92
	89-10-25	96
11-34-1-26 WPM	89-09-18	97
	89-10-30	96
14-34-1-26 WPM	89-09-18	95
	89-10-30	95
7-35-1-26 WPM	89-09-22	96
	89-10-27	95

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
8-35-1-26 WPM	89-09-22	96
	89-10-23	96
9-35-1-26 WPM	89-09-12	90
	89-10-23	94
10-35-1-26 WPM	89-09-19	96
	89-10-04	94
11-35-1-26 WPM	89-09-19	95
	89-10-04	95
12-36-1-26 WPM	89-09-22	97
	89-10-23	95
5-3-2-26 WPM	89-09-19	95
	89-10-04	96
6-3-2-26 WPM	89-09-19	97
	89-10-04	96
8-4-2-26 WPM	89-09-19	96
	89-10-04	95

WASKADA COMMINGLED PRODUCTION

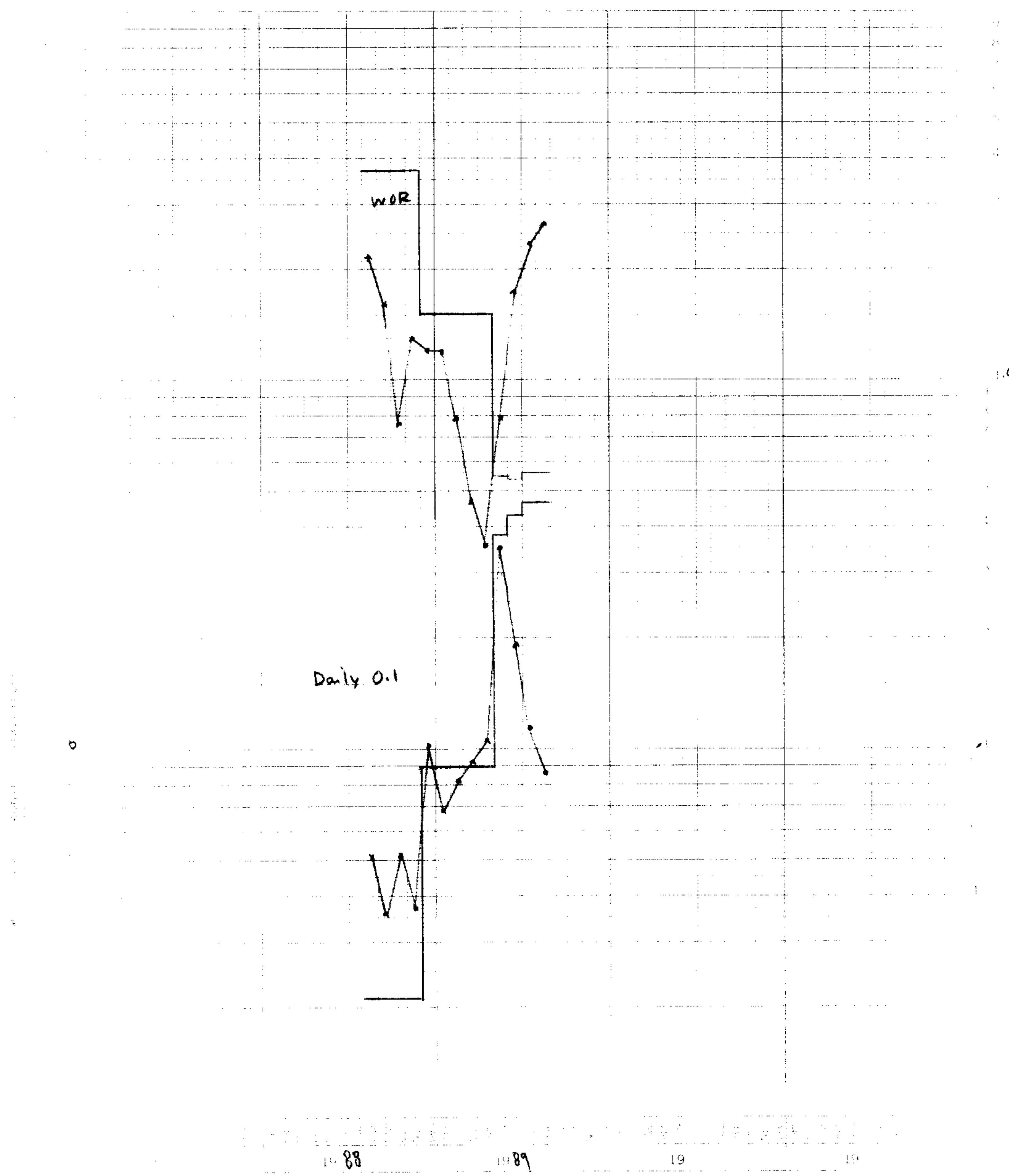
WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM		No Operations
10-6-1-25 WPM		No Operations
10-30-1-25 WPM	89-10-25	Commingle LAm and LAlida
8-32-1-25 WPM	89-10-06	Flush BHP
9-32-1-25 WPM	89-10-22	Flush BHP
	89-10-25	Refrac BHP and Flush
9-33-1-25 WPM	89-09-15	Flush BHP
	89-10-03	Return to Commingled after Annual Production Test
	89-10-06	Replace BHP
8-8-2-25 WPM	89-09-07	Recomplete for Annual Production Test (LAm)
	89-09-26	Return to Commingled after Annual Production Test
1-23-1-26 WPM	89-09-25	Return to Commingled Production
9-24-1-26 WPM		No Operations
12-24-1-26 WPM	89-11-30	Flush BHP
4-25-1-26 WPM		No Operations
1-26-1-26 WPM		No Operations
2-26-1-26 WPM		No Operations
11-34-1-26 WPM	89-09-09	Flush BHP
14-34-1-26 WPM	89-10-19	Flush BHP
7-35-1-26 WPM		No Operations
8-35-1-26 WPM		No Operations
9-35-1-26 WPM	89-09-26	Return to Commingled after Annual Production Test
10-35-1-26 WPM		No Operations

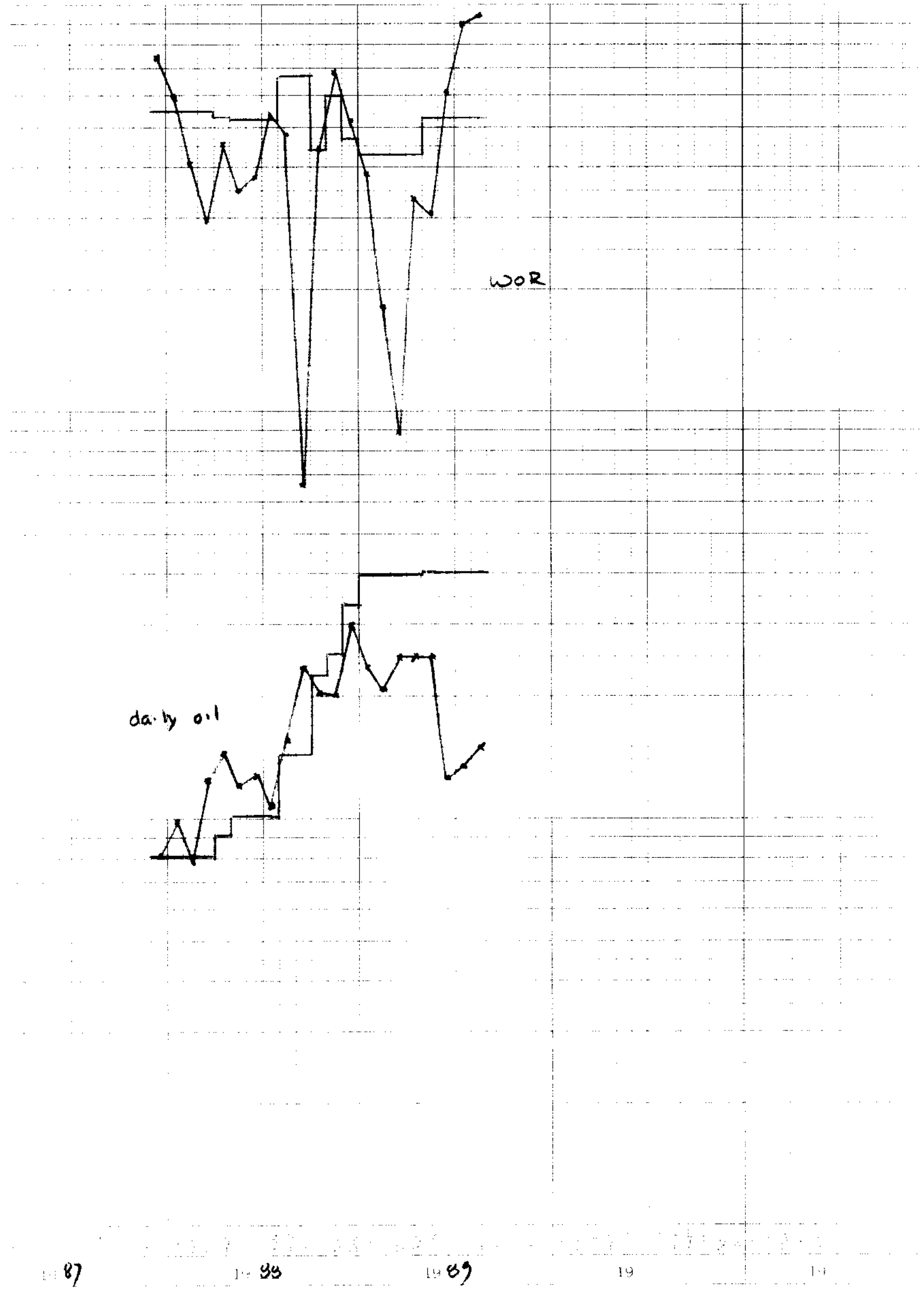
WELL	DATE	OPERATIONS
11-35-1-26 WPM	89-09-01	Recomplete for Annual Production Test (LAm)
	89-10-11	Flush BHP
	89-10-19	Return to Commingled after Annual Production Test
	89-10-24	Flush BHP
12-36-1-26 WPM		No Operations
5-3-2-26 WPM	89-09-13	Condensate Soak
6-3-2-26 WPM	89-09-13	Condensate Soak
8-4-2-26 WPM	89-09-30	Replace BHP

19	19	19	19	19

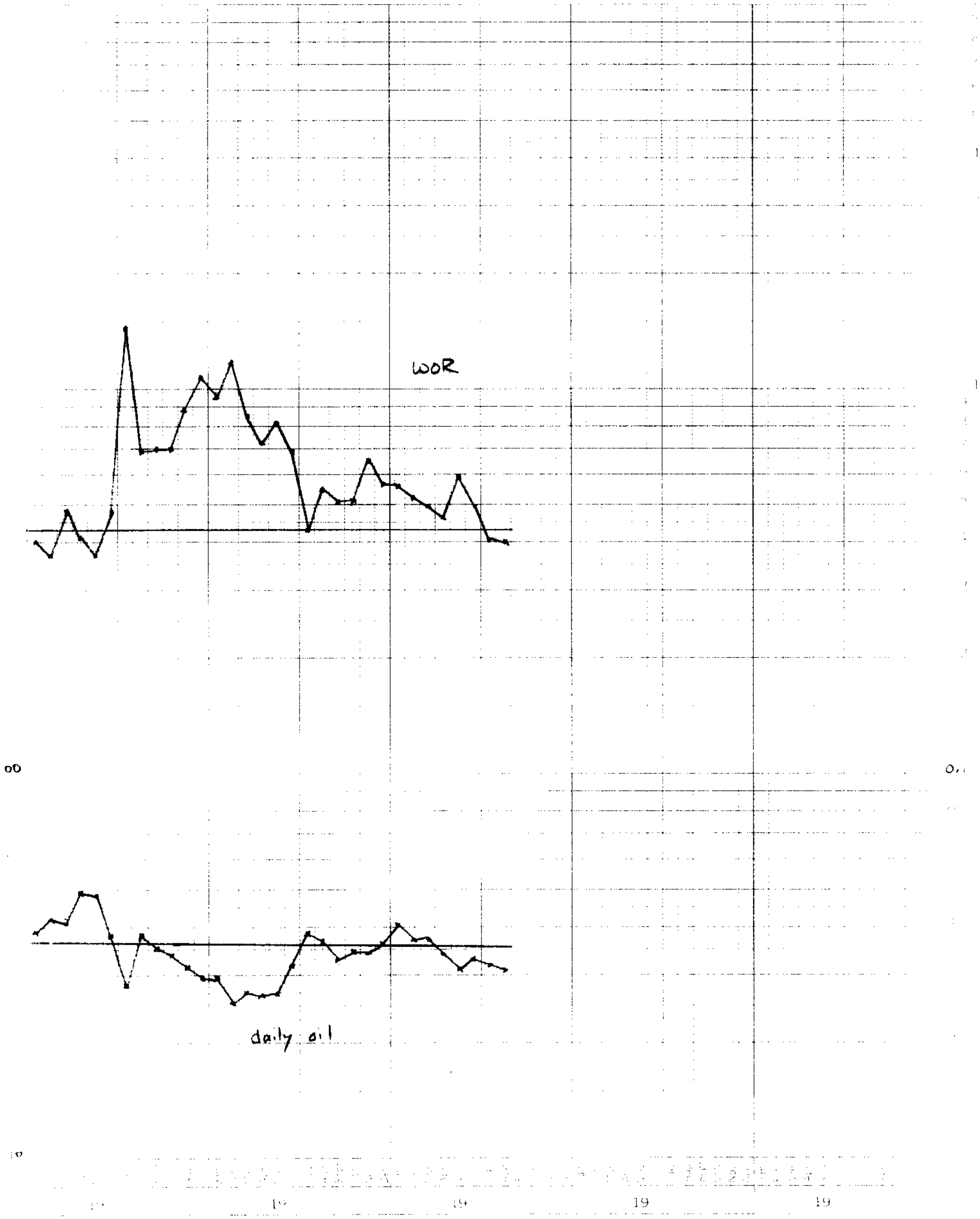
COMMINGLED PRODUCING ZONE - MC POOLS



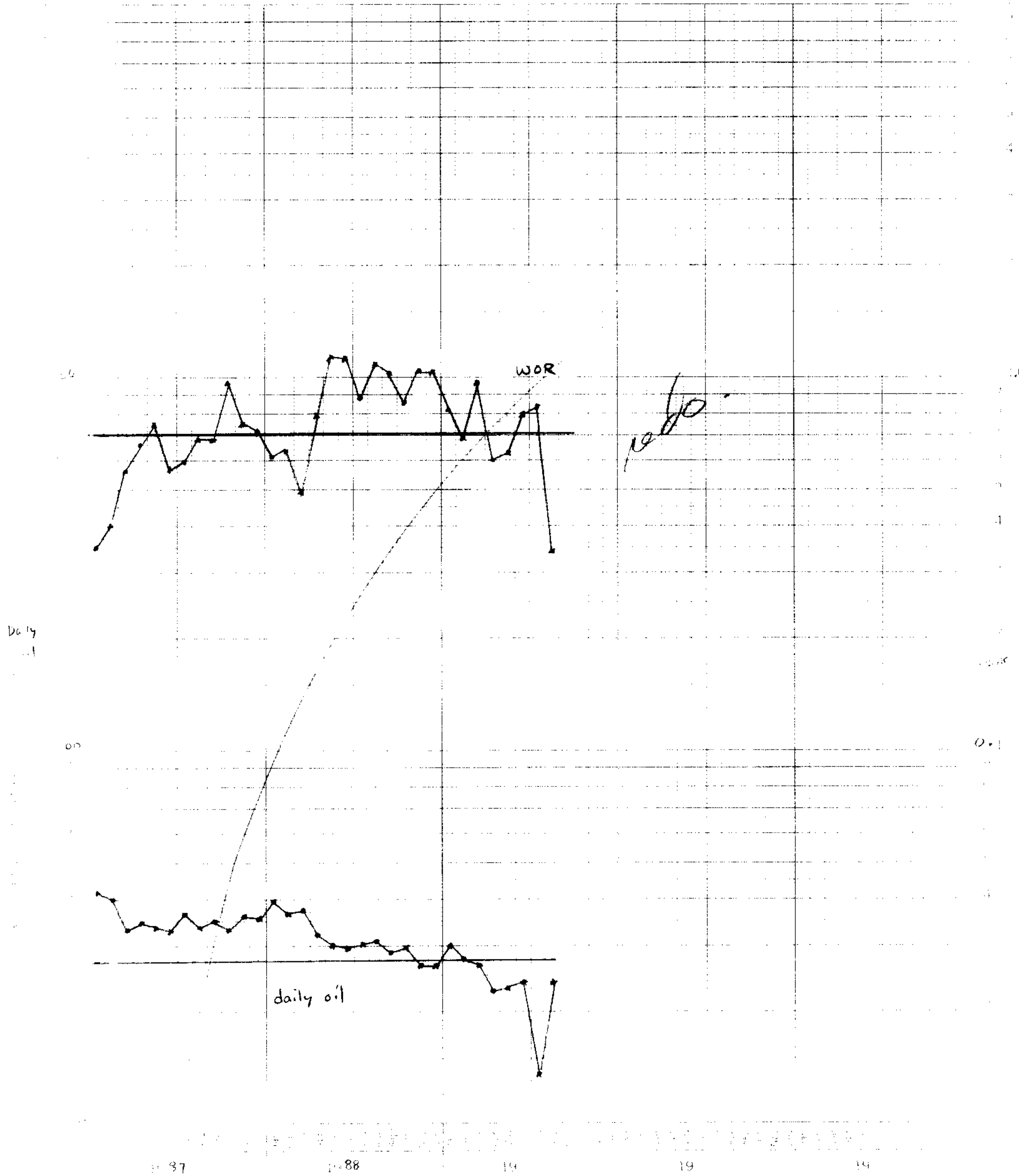
COMMINGLED PRODUCING ZONE – LAW A Pool



INITIAL PRODUCING ZONE - LAW A Pool



INITIAL PRODUCING ZONE - MC POOLS



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

NOTE: Present method of allocation stan #1200 data so prod. plots no good

excellent ex. 5-6

DECLINE CURVE ANALYSIS

WELL	q_i	q_t	t	D
1-3	7.4	.43	2.5	13%
8-4	1.5	.99	2	21
6-[illegible]	[illegible]	1.5	2.5	12
[illegible]	9.3	.42	3	23
11-5	3	2.5	2.5	7%
10-5	2.4	1.75	4	8
9-5	2.85	1.6	3	19
7-5	NO	DECLINE		
12-16	"	"		
16-20	7	.64	2	120 GAS BREAKTHROUGH
10-6	NO	DECLINE		
[illegible]	3.9	2.3	2	25
8-32	2	1.2	2.5	20
11-34	4.3	2.3	2.5	25
8-8	1	0.8	2.5	9
9-33	3.7	1.5	1.5	60
9-32	no	decline		
8-35	4.3	0.8	3.0	56
14-34	1.05	0.1	3.5	67
2-26	6	5	2.5	7
1-26	7	5.5	4	6
4-25	5.5	4.5	6.5	2
9-24	4	2.1	3.5	18
12-24	6.9	5	4.5	7

$$e^{-dt} = \frac{q_t}{q_i}$$

$$-dt = \ln \frac{q_t}{q_i}$$

$$d = -\frac{1}{t}\left(\ln\left(\frac{q_t}{q_i}\right)\right)$$

Well	Original Producing Zone		Recompleted Zone		Date of Commingling	Prorated Production oil/wtr (m3/d)	[illegible]
7-6-1-25	MC3a oil	E (Poor)	LAm		88-03-21	3.0/2.5	2.5/3.4
10-6-[illegible]-25	[illegible] 3a	E	LAm		88-10-20	2.8/0.7	4.3/4.3
10-20-1-25	MC3a oil		LAm		–	2.2/5.8	0.5/4.0
[illegible]	LAm	oil	MC3a	L	89-06-9	1.6/1.5	1.6/2.3
[illegible]	LAm	oil	MC3a	L	89-02-14	3.6/1.3	0.8/2.4
[illegible]	LAm	oil	MC1	E	[illegible]	2.0/2.0	0.7/3.4
9-5-[illegible]	LAm	oil	MC1	D	[illegible]	0.8/0.1	1.4/4.2
[illegible]-22	LAm	oil	MC3a	A	89-06-11	2.4/0.7	2.2/1.4
[illegible]	LAm	oil	MC3a	A	89-06-27	2.4/0.6	2.1/0.7
	MC3a	I	LAm		88-03-4	2.0/0.3	1.6/0.3
[illegible]	LAm	oil	MC3a	A	89-06-8	6.3/1.1	6.0/1.1
[illegible]	MC3a	I	LAm		~~88-05-1~~ 88-07-01	2.2/6.6	1.0/0.5
[illegible]-6	LAm	oil	MC3a	A	89-06-27	4.5/1.2	[illegible]
	MC3a	I	LAm		89-11-10	3.0/0.8	8.2/0.3
[illegible]	LAm	oil	MC3a	A	89-06-8	5.3/3.2	10.6/2.2
	MC3b	oil D	LAm		89-01-13	4.6/0.3	3.6/0.3
[illegible]	LAm	oil	MC3a	A	89-08-19	5.6/3.0	2.5/2.2
	MC3b	oil D	LAm		88-03-4	1.6/1.0	4.0/0.9
[illegible]	[illegible]	oil B	LAm		[illegible]	3.0/0.1	26/5.2
[illegible]	MC3b	oil D	LAm		89-02-19	1.6/7.0	6.2/1.3
[illegible]	LAm	oil	MC3b	B	89-06-11	0.2/0.7	0.7/0.4
	MC3a	I	LAm		~~89-05-1~~ 88-07-29	2.4/0.2	1.0/0.2
[illegible]	MC3a	I	LAm		[illegible]-1-5	1.4/0.2	4.7/0.2
	~~MC3a~~	I	~~LAm~~	A	[illegible]-5	0.9/0	6.0/3.2

Omega Commingled Wells

- check valve below packer

- no [illegible] nipple below the packer to isolate Mississippian to prod. [illegible] ~~[illegible] zone~~ [illegible].

[illegible] 1-23 [illegible]
6 [illegible] 25 [illegible]

[illegible] 2-1-25 [illegible] ~~Twt~~

[illegible] [illegible] [illegible]

5-6-1-26
5-3-2-26
12-24-1-26
2-26-1-26
[illegible]-26-1-26
4-[illegible]-1-26
[illegible]-[illegible]-1-25
6-3-2-26
[illegible]-26-1-26
[illegible]-1-26

13-36-10-26

Bob Lane [illegible] plugged well, lack of growth
complaint by land owner
[illegible] town area

Lusmo still responsible
[illegible] correspondence
[illegible] of lease surrender
[illegible] plan

WELL	ORIGINAL OIL - IN - PLACE			
	MISSION CANYON (m3)	Cum Prod 09-08-31	LOWER AMARANTH (m3)	CUM PROD 09-08-31
2-26-1-26 ✓	33391	47	72561	13872
4-25-1-26 ✓	35478	135	72561	15256
9-24-1-26 ✓	4383	76	72561	7042
14-34-1-26 ✓	25735	117	55356	1489
1-26-1-26 ✓	19478	203	72561	15494
8-32-1-25 ✓	21565	114	56852	3216
1-23-1-26 ✓	22957	170	55356	10670
12-24-1-26 ✓	43130	346	72561	12713
[illegible] 4-2-26 ✓	27130	3964	67325	754
9-32-1-25 ✓	26643	368	79169	1055
7-35-1-26 ✓	60522	2234	68571	493
8-35-1-26 ✓	52870	574	74182	3290
5-3-2-26 ✓	42435	9176	54234	830
11-34-1-26 ✓	22261	6925	83534	329
12-36-1-26 ✓	5496	3857	44197	714
10-6-1-25 ✓	4870 ✓	1817	60156 ✓	497
9-33-1-25 ✓	29217	766	79169	1576
8-8-2-25 ✓	19061	1916	47314	1511
7-35-1-26 ✓	43130	4222	48810	1056
1-35-1-26 ✓	75130	4771	66078	511
[illegible]-6-1-25 ✓	56765 ✓	3341	57039 ✓	1734
10-35-1-26 ✓	64696	3799	48623	1467
6-3-2-26 ✓	5913	3589	57563	1126
10-30-1-25 ✓	29217	11354 / 771477	51616	1,517,949

ANNUAL PRODUCTION TEST RESULTS

WELL		ORIGINAL PRODUCTION TEST RESULTS				ANNUAL PRODUCTION TEST RESULTS				
	DATE	[illegible] CANYON		L AMARANTH		DATE	AVERAGE WELL**		L. AMARANTH	
		OIL	WATER	OIL	WATER		OIL	WATER	OIL	WATER
[illegible]-6	88-08	0.7	3.4 *	2.0	2.0	89-09	2.6 (1.06	2.2 0.9)	1.54	[illegible]
[illegible]-26	88-07	2.4	0.2	1.0	0.2 *	89-09	2.9 (1.86	0.2 0.11)	1.02	0.09
11-35-1-26	88-07	2.2	0.6	1.0	0.5 *	89-09	2.7 (2.21	0.8 0.74)	0.49	0.66
[illegible]-26	88-05	1.4	4.3 *	0.8	0.[illegible]	89-09	4.0 (3.87	4.0 3.80)	[illegible]	[illegible]
10-35-1-26	88-03	2.0	0.3	1.6	0.3 *	89-08	3.6 (∅	0.2 ∅)	3.7	[illegible]
6-3-2-26	89-03	1.6	1.0	4.0	0.5 *	89-08	3.0 (1.2	1.6 [illegible])	1.8	2.[illegible]
[illegible]-6	89-03	3.0	2.5	4.3	4.3 *	89-08	[illegible] (2.1	4.9 2.[illegible])	3.8	[illegible]

9-[illegible] 11-35 [illegible] testing

[illegible] 16.69

8-[illegible] 2[illegible]

( ) based on MC [illegible]

* commingled zone

** [illegible] last 6 [illegible] preceding the test

	9-33			9-35			11-35			8-8		
	oil	wtr	hrs	oil	wtr	hrs	oil	wtr	hrs	oil	wtr	hrs
AUG	2 5	70.9	604	84.6	11.3	648	75.3	43.5	720	72.3	190.9	744
JULY	69.3	74	744	91.5	5.0	744	68.9	46.4	744	84	213	744
MAY	55.7	102	738	77.6	6.9	726	81.9	11.2	726	147.2	82.7	744
JUNE	78.1	64.9	720	79.1	6.3	720	60.1	35.2	720	144.2	89.3	708
APR	1 2	24.7	62[illegible]	88.7	5.5	719	94.8	5.4	719	151	71.7	719
MAR	109.9	29.[illegible]	744	91.5	3.8	632	109.8	5.2	744	133.3	92	744
	[illegible]	370.6	[illegible]	512	38.8	174.5	490.8	146.7	182.2	732	739.7	183.4
Avg. Prod	2.6	2.2		2.9	0.2		2.7	0.8		4.0	4.0	

	5-6			6-3			10-35		
	oil	wtr	hrs	oil	wtr	hrs	oil	wtr	hrs
1969									
FEB	210.6	110	672	66.4	6.5	672	83.4	4.0	672
JAN 69	220.7	195.3	648	111.8	123.0	744	95.4	6.3	744
DEC	57.4	144.7	672	111.8	12.3	744	99.6	7.4	744
NOV	134.6	122.4	720	94.6	16.1	632	124.6	7.6	720
OCT	147.2	171	744	72.4	19	690	103.5	5.0	650
SEPT	222.9	99.6	666	71	4.9	718	120.6	4.4	718
	1005.6	853	171.9	528	273.4	175	637.1	34.7	178.7
Avg Prod	5.9	4.9		3.0	1.6		3.6	0.2	

ANNUAL PRODUCTION TEST SUMMARY

WELL	TEST DURATION	REMARKS
[illegible]-1-25	APR 1 - 5	workover commenced Mar 21 returned to comm[illegible] prod. May 2
6-[illegible]-2-26	Mar 31 - Apr 2	returned to commingled prod. May 1
[illegible] 2 26	Sept 15 - 17	workover commenced Sept. 7 returned to commingled prod. Sept 26
9-35-1-26	Sept 15-18 + Sept 25	workover commenced Aug 29 acidized all perfs Aug 30 returned to commingled prod Sept 26
10-35-[illegible]-26	Mar 27 - Apr 9	workover commenced Mar 21 acidized MC May 3
11 35-1-26	Sept 3 - Oct. 11	workover commenced Aug 31 acidized all perfs Sept 1 hot oiled well Sept 21, 29, Oct 11 returned to commingled prod. Oct 1[illegible]
9 [illegible]-25	Sept [illegible] 25	workover commenced Aug 27 returned to commingled prod Oct 3

METHODS OF PRORATING PRODUCTION

(1) PRODUCTION TEST ONE ZONE USE TEST RATE TO PRORATE PRODUCTION — TEST RATE ASSIGNED TEST ZONE REMAINING PRODUCTION TO OTHER ZONE

WEAKNESSES

(1) Assumes production rate of test zone constant & accurate

(2) [illegible] of method [illegible] depend on frequency of production [illegible]

(3) [illegible] test rate [illegible] , other zone assigned ~~[illegible]~~ production

[illegible] [illegible] [illegible] BASED [illegible] PRODUCTION HISTORY
OF ORIGINAL PRODUCING ZONE

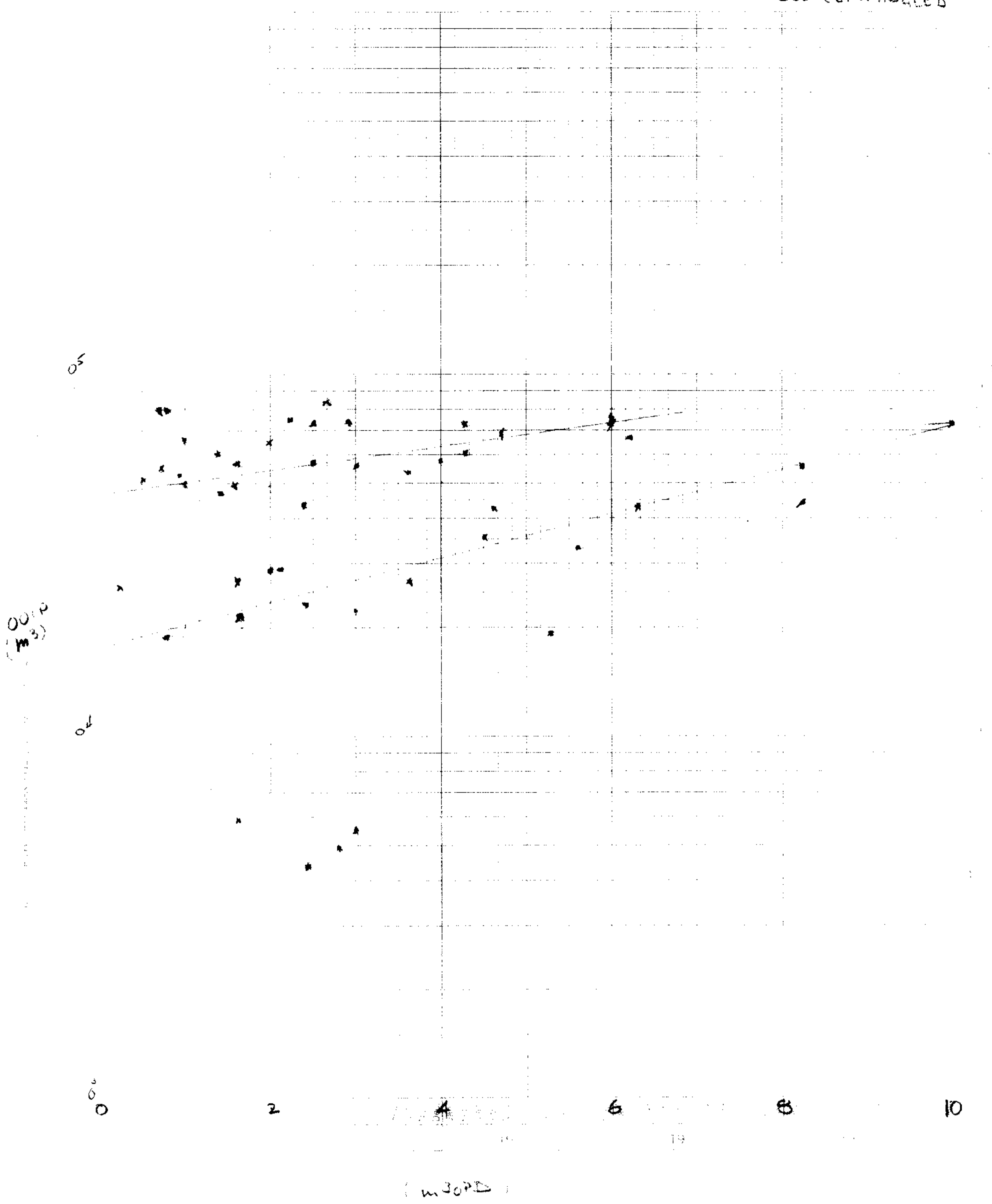
[illegible] [illegible] [illegible] established production decline –
[illegible] [illegible] decline [illegible] [illegible] fall back
to [illegible] producing rate [illegible] [illegible] 6 months
[illegible] [illegible] [illegible] to [illegible] [illegible]
[illegible] [illegible] [illegible] effective [illegible]

[illegible] [illegible] [illegible] individual well's prod. history can
use pool [illegible] history [illegible] decline [illegible]
[illegible] +

4. [illegible] when [illegible] [illegible] [illegible] [illegible]
threshold [illegible] [illegible] (commingled [illegible] assigned
zone [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] BHP [illegible] wax problems [illegible] [illegible]

(3) PRODUCTION TEST BOTH ZONES AND ALLOCATE PRODUCTION BASED ON A RATIO OF THE INDIVIDUAL ZONE [illegible] [illegible]

PLOT OF ZONAL ORIGINAL OIL IN PLACE VS. INITIAL ZONAL PRODUCTION WHEN WELL COMMINGLED



(Cum prod.)

WELL	INITIAL PRODUCING ZONE RESERVES MC	LAM	COMMINGLED PRODUCING ZONE RESERVES MC	LAM
2-26-1-26		72561 13[illegible]	33391 [illegible]	
4-25-1-26		72561 [illegible]	35478 [illegible]	
[illegible]-24-1-26		72561 [illegible]	4383 [illegible]	
[illegible]-26		[illegible]356 [illegible]	25739 [illegible]	
[illegible]-26		72561 [illegible]	19478 [illegible]	
[illegible]-25		56852 [illegible]	21567 [illegible]	
[illegible]-26		[illegible]	22477 [illegible]	
[illegible]-26		72561 12[illegible]	45127 [illegible]	
[illegible]-26	27120 [illegible]			67325 [illegible]
[illegible]-25		79169 [illegible]	26643 [illegible]	
[illegible]-26	60522 [illegible]			[illegible]
[illegible]		74182	72820 [illegible]	
[illegible]	42835			[illegible]
[illegible]-26	[illegible]			33[illegible]
12-36-1-26	5496			44197 [illegible]
[illegible]-25	4870 [illegible]			60156 [illegible]
[illegible]-25		79169 [illegible]	29217 [illegible]	
[illegible]-8-2-25		47314 [illegible]	19061 [illegible]	
1-35-1-26	43130 [illegible]			48[illegible]
1-35-1-26	[illegible]			60[illegible]
[illegible]-25	51265 [illegible]			[illegible]
[illegible]-1-26	64[illegible]			4[illegible]
[illegible]-26	[illegible]			[illegible]
[illegible]-1-25	29217 [illegible]			51516 [illegible]
	437557	810203 m^3	333912	707746

TOTAL IP ZONE 1247768 m^3 (145633)

TOTAL CUM ZONE 1041658 (114325)

are non-unitized the error in allocation is truly insignificant.

Under reserve based production allocation a company could still be required to production test or selectively swab individual zones, conduct zonal pressure surveys and gather such other well or pool data needed to ensure that the recovery from individual zones is being optimized.

ORIGINAL OIL IN PLACE

production testing and is administratively simpler.

The average productivity of a commingled well in the Wasleada Field is 3.2 m3OPD and therefore the average zonal productivity is 1.6 m3OPD. Assuming there is a 50% error in determining zonal oil in place, recoverable reserves or remaining recoverable reserves for use in reserve based production allocation, the average result would be 0.8 m3OPD, 292 m3 oil/year or 2920 m3 oil over the 10 year producing life of the well that would be allocated to the wrong zone. From a reservoir management perspective this volume is relatively insignificant. If there are no correlative rights concerns such as the case when both commingled zones the accuracy of and confidence in using reserves based production allocation is increased. For example participation formulas for unitization in the Weskanda field typically involve reserve and production elements indicating from a correlative rights perspective that a reserve based method of allocation is quite fair and reasonable.

. With reserve

based production allocation the allocation to each zone is fixed at the time the well is completed and does change annually based on the results of the annual production test. This eliminates the need for and costs associated with annual

Reserve based production allocation could be based on original oil in place, recoverable reserves or remaining recoverable reserves. Production is allocated between producing zones based on the ratio of zonal oil in place, recoverable reserves or remaining recoverable reserves.

The accuracy of reserve based production allocation depends on the degree of accuracy with which oil in place and recoverable reserves can be estimated for individual zones. If oil in place and recoverable reserves can be determined accurately or at least consistently reserve based production allocation is a fair and equitable way to allocate production. If there exists a correlation between oil in place and productivity on a zonal basis then uncertainties in interpreting reservoir properties and reserves (in log evaluation — accurate determination of shale volume, effective porosity, and water saturation) and completion problems resulting in accidental communication between the Lower Amaranth and Mission Canyon further complicate any attempt to develop a single comprehensive depletion strategy for the commingled pools.

PRODUCTION ALLOCATION BASED ON RESERVES

single unit.

From a depletion strategy perspective it is difficult to imagine a single depletion strategy that could encompass the number of different situations present in the commingled wells. In some cases both the Lower Amsden and Mission Canyon are on primary, in other cases both zones are under waterflood and in other cases one or other of the zones is under waterflood while the other is on primary. Also certain areas of the field are influenced differently by their proximity to underlying or down dip water or the presence of a wet stringer at the base of the Lower Amsden. If the above problems are enough means that in order for each working interest and royalty owner to receive his fair share of production from a commingled well, production must be allocated to individual producing zones in the well.

This situation does not occur where both zones are unitized as in the case of 15 of the commingled wells. Where one or both of the commingled zones is unitized the only way to ensure each working interest and royalty owner receives his fair share of production from the commingled wells is to either vertically enlarge the unit to include the non-unitized zone or to combine the two separate units into a [illegible] reported as the production for the commingled pool (i.e. King River A and Granite Wash N Pool. Original oil-in-place and recoverable reserves are not listed for each pool but rather for the commingled pool. In [illegible] an overall depletion strategy [illegible] separately for each pool [illegible] a single optimum [illegible] strategy designed to maximize [illegible] the recovery from the commingled pools.

[illegible]

[illegible] in [illegible] [illegible]

[illegible] for commingled wells in [illegible]

[illegible] of [illegible]

[illegible] prospective because the combination of non-unitized and unitized zones, and diverse mineral ownership, in the commingled wells [illegible]

ALTERNATIVE PRODUCTION ALLOCATION METHODS

[illegible]

[illegible]

[illegible]

[illegible]

No production allocation [illegible]

NO PRODUCTION ALLOCATION

In [illegible] the [illegible] approach

two or more pools in a field [illegible]

[illegible] can be [illegible] without

[illegible] the pools are

treated as a single entity, No individual zone production ~~[illegible]~~ is required

[illegible] allocated to the individual [illegible] but for the 23 [illegible] wells plus test production from the [illegible] in 2010. The incremental production from the [illegible] wells is averaging .07 [illegible], one-half the rate Orange originally estimated. The incremental annual revenue per well after royalties (15%) and production tax is $35,760. Therefore the annual production ~~test~~ costs are equivalent to 14% of the incremental annual revenue and this percentage will continue to increase with declining productivity from the [illegible] wells. At some point probably in the next [illegible] it will become uneconomic from [illegible] perspective to continue annual production testing.

Other potential problems which could occur, but have not been encountered, in the [illegible] [illegible] [illegible], are:

1. Fluid production from the [illegible] outside of a zone just prior to the [illegible] ~~test~~ – Omega has [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible],

2. Accidental communication between individual zones either in the wellbore or behind casing and

3. Inconsistent test results because of wellbore or surface facility problems.

One of the [illegible] [illegible] concerns is the cost of conducting annual production tests. Omega [illegible] though they originally agreed to a production test each [illegible] [illegible] well annually are starting to complain about the cost of conducting the [illegible] [illegible] at $2000 [illegible] or [illegible] [illegible] [illegible]

Test was conducted in April, 1989, the test rate for the Lower Amsden was 3.7 BOPD which was equal to the average total production from the well over the previous 6 months.

Omega's conclusion was that the Mission Canyon perfs were plugged off and all the production out of the Mission Canyon was reallocated.

In June through August, 1989 no production has been allocated to the Mission Canyon which leads me to believe that during the production test either the packer was leaking or there is communication behind casing between the Lower Amsden and Mission Canyon formations.

ANNUAL PRODUCTION TEST INACCURACIES & CONCERNS

Ideally, a production test should be of such duration that a stabilized production rate can be determined. Our past practice has been to produce the [illegible] month and start testing the well 1-2 weeks later. The wells have been tested for 3-5 days though not always consecutively and the individual test results have been fairly consistent.

The only concern has been the test results from 10-35-1-26. The 10-35 well was completed [illegible] in June 82. At that time the average production rate from the [illegible] was 2.0 BOPD. When the annual production [illegible]

[illegible]. By backing out this value you can determine the annual production decline experienced by the [illegible] Canyon over the [illegible] year. By [illegible] [illegible] wells ~~[illegible]~~ the production from the [illegible] has declined 20% which is within the range of 10-30% /yr. experienced by the [illegible] pools in the [illegible] field.

The calculated overall cumulative decline rate [illegible] 12% /yr.

It appears from analysis of the annual production test results that the production rates obtained are accurate and representative of the actual productivities.

average the Lower Amaranth production has declined at a rate of 13%/yr. Though one we [illegible] experience a [illegible] drop in production and [illegible] that an 100% increase in [illegible], the overall decline of 10%/yr is comparable to the was decline in the Waskada Lower Amaranth [illegible] pool.

Another measure of the volatility [illegible] [illegible] production that wells [illegible] to compare the average [illegible] (Mission Canyon) to find the original [illegible] [illegible] some wells [illegible] the well was recompleted [illegible] the Mission Canyon production afterwards by [illegible] the Lower Amaranth [illegible] [illegible] that rate from the average total production [illegible] a well for the last 6 wells are commingled.

Table 2 lists [illegible] production [illegible] wells [illegible] 7 wells [illegible] [illegible] wells with [illegible] in average production for the preceeding 6 months [illegible] and with the original [illegible] prior to the well being put in commingled production.

In [illegible] of [illegible] the Lower Amaranth was the [illegible] zone, [illegible] of the annual production test rate [illegible] [illegible] with the initial production rate determined for the Lower Amaranth when the well was completed (before commingling) [illegible] or

[illegible]

to the problem of [illegible]

[illegible]

zone

Annual Production Test Results

To [illegible] annual production tests on 7 commingled wells. In [illegible], the lower [illegible] was the zone [illegible]. In some cases it has produced the single zone for 4-6 weeks [illegible] during [illegible] (though not always consecutive days) [illegible] an [illegible] average [illegible]

[illegible] was an acceptable 22 %. It appears that [illegible] the time and effort to [illegible] the annual production test

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] not be found [illegible] a comparison of [illegible]

[illegible]

[illegible] well [illegible]

approximate.

For [illegible] communities [illegible]

[illegible] between [illegible] – 1114 m[illegible].

the largest [illegible]

[illegible] was only 70 2 [illegible] 3000.

Thus [illegible] analysis it [illegible]

[illegible] that the low productivity

production from the recompleted zone is reduced to zero by the deep ~~production~~ production attributed to the original producing zones.

Recompleted Zone Productivity

When [illegible] began their commingled [illegible] period [illegible] the average [illegible] zone productivity would be [illegible] m3OPD. In August, 1989 the total daily production [illegible] allocated [illegible] the [illegible] zones [illegible] 23 commingled wells was 23.7 m3OPD or 1.03 m3OPD/well, only 50% of the [illegible] [illegible] [illegible].

Because it has been demonstrated that [illegible] [illegible] [illegible] [illegible] [illegible] are plagued by a number of common production problems such as wax, scale and asphaltene build-up and plugging, rod failures, tubing leaks and bottomhole pump failures that cause a drop in the well's productivity. Typically this drop in production is only observed when the well is production tested (once a month) and then the well may be retested immediately or the next test may not be until the following month and then the decision is made to workover the well.

Using the present method of allocating production to the commingled zones, the drop in production is first attributed to the recompleted zone and only after the production rate for the original producing zone for the commingled wells, the expected production from the original producing zone would decline from 65.4 m3OPD to 59.2 m3OPD over a one year period. This means that 5.2 m3OPD that should be allocated to recompleted zones in the commingled wells is being wrongly allocated to the original producing zone.

Although the 5.2 m3OPD that is being wrongly allocated is only an example it illustrates that production decline plays a significant role in recompleted zones being allocated zero production.

Production Problems

Producing wells in the Waskada Field

the original producing zone using an extrapolation of the well's production trend. Omega successfully argued that it was difficult and in some cases impossible to accurately establish a production decline for individual wells in the field and this would be administratively difficult. There is no doubt, however, that production from the Waskada field is in decline. The Waskada Lower Amaranth A Pool is experiencing a decline of approximately 8.6 %/yr., while the various Mission Canyons Pools which have been commingled have production decline rates from less than 10%/yr. to more than 30%/yr. For example applying an average production decline rate of 10%/yr. to the average which had a 26 % variation (6 month production test range 3.09 - 3.89 m³OPD) and the worst well was 1-23-1-26 which had a 2519 % variation (6 month production test range 0.27 - 7.86 m³OPD).

The degree of inaccuracy build into the average production rate used to allocate production to the original producing combined with the inaccuracies of the 24 hour field production tests (Table 3 lists Omega's monthly production factors for 1989) obviously contribute to zero production being assigned the recompleted zone in some commingled wells

Production Decline

It was originally suggested by the Board that production be allocated to the well was commingled, the average production rate for the six month period preceding the recompletion was used. Though probably the only reasonable method of determining the expected production rate for the original producing zone, the less than rigorous 24 hr. field production test yields monthly production data that is quite variable. Table 2 shows the range of production rates for the commingled well for the 6 month period preceding the well's recompletion. On average for the 24 commingled wells, the variation between the minimum daily oil test production and the maximum daily oil test production was 103 %. The best well was 9-32-1-26

There are a number of reasons for the total production from the commingled wells dropping below the expected production rate for the original producing zone:

① production test inaccuracies,

② original producing zone production decline,

③ production problems,

④ poorer than expected productivity from the recompleted zone

Production Test Inaccuracies

To determine the average production rate for the original producing zone to be used in allocating production to the zone when (expected production) and the sum of the actual production allocated to the original producing zone (actual production). The ratio of actual vs. expected production for the original producing zone should be approximately 1.0. A ratio of 1.0 means the total production from the commingled "wells" exceeds the expected production from the original producing zone. When the ratio drops below 1.0 it indicates that the total production from the commingled wells has dropped below the expected production from the original producing zone. The natural consequence of this is that the recompleted zone in a number of wells is allocated zero production.

(2) ensure the depletion strategy of individual wells and pools is optimized and

(3) protect the rights of mineral owners and ensure they receive their fair share of production.

The method of allocating production used by Omega has resulted in some problems, the most serious of which is the recompleted zone being allocated zero production. For example, in August, 1989 14 of 23 commingled wells had zero production allocated to the recompleted zone.

The seriousness of this problem is illustrated in Table 1 which lists the sum of the average production rate for the original producing zone, (determined in step 1 of the production allocation procedure) for each commingled well

4. Production test the well monthly and allocate production to the zone ~~tested~~ in Step 3 at the rate established in Step 3. Allocate production to the other zone based on the difference between ~~total~~ production and the production allocated to the zone test in Step 3.

PRODUCTION ALLOCATION RESULTS

The objective of allocating production from a commingled well to the individual producing zones is to ensure that accurate production data is available for both producing zones.

Accurate individual zone and pool production data is need by both the company and the Petroleum Branch to

(1) make informed decisions regarding the workover, stimulation, suspension or abandonment of a well or individual zone in a well,

Evaluation of Commingled Production Allocation

METHOD OF PRODUCTION ALLOCATION

Omega presently allocates production to the Lower Amaranth and Mission Canyon Formations in it's commingled well's as follows:

1. Establish the performance of the original producing zone by calculating the average daily oil, gas and water production rates for the six month period prior to the recompletion of the new zone.

2. After production is commingled, production test the well monthly. Allocate production to the original producing zone at the rate established in step 1 and allocate production to the recompleted zone based on the difference between total production and the production allocated to the original producing zone.

3. Annually, isolate one zone and test the other zone to establish a production rate (typically, the Mission Canyon is isolated and the Lower Amaranth is production tested).

1. **Commingled well producing from two non-unitized zones.**

   - **The production from both zones is summed. This total is used for royalty/tax purposes.**

2. **Commingled well producing from both a unitized zone and a non-unitized zone.**

   - **The actual production from the non-unitized zone is added to the allocated production from the unitized zone. This total is used for royalty/tax purposes.**

3. **Commingled well producing from two unitized zones.**

   - **The allocated production to each zone is used for royalty/tax purposes and is paid separately.**

COMMINGLED PRODUCTION SUMMARY

During August, 1989 23 commingled wells were on production. The average daily production from the 23 wells was 79.2 m3OPD or an average of 3.44 m3 OPD / well. One additional has been recompleted for commingled production. Table 1 is a list the commingled wells.

The following combinations of zonal ownership have been encountered in the 24 commingled wells; 1) both zones are non-unit 15 wells, 2) one zone is unitized and the other is non-unit, 3 wells and 3) both zones are unitized, 6 wells. With respect to the methodology for the calculation of royalties and taxes owed the Crown, for commingled wells, the following applies:

about the cost of conducting the tests
at $5000 /well + lost production from the
estimated ~~@~~ $115,000 annually, which SF Zone can be significant

The incremental production from the commingled well is averaging 103 BOPD/well approximately half the rate Omega originally estimated. The incremental annual ~~revenue~~/well after royalties and taxes is

= 10% of gross increment revenue

The Branch's concern is whether the annual production tests are providing cost effective data. The cost effectiveness of the data is difficult to ~~measure~~ ~~can be measured~~ but

some of the benefits are
(1) accurate results
(1) proper decisions regarding well workovers, recompletions, stimulations
(2) equitable distribution of royalties among royalty ~~###~~ owners
(3) proper decisions pool depletion strategies

2871
2384

(5) Omega Concerns

(a) overpayment of royalties & taxes, especially when one zone is allocated all the production

(b) cost of annual production test

ORIGINAL ECONOMICS

commingled prod. 2 m^3 decline rate 30% 1st year & 15%/year thereafter

recoverable reserves 1st yr production $\left\{\frac{2 + 1.48}{2}\right\} \times 365 = 635\ m^3$

remain prod $Q = \frac{(1.48 - 0.3\ m^3/d) * 365}{0.15} = 2871$ (using eco. limit = 0.5 m^3/d) ROIP: 3019 m^3

ROIP = 635 + 2871 = 3506 m^3

operating cost \$1500/mo (\$18000/yr)
note: annual prod test costs \$5000

economic parameters Pay-out (AIT) 0.6 yrs
NPV (AIT) 36.7 \$K

@ $1^{.03}$ m^3OPD = $376m^3 * \$130/m^3$ = \$48873 / yr.

15% royalty 7331.0
(NEW OIL) incremental freehold prod tax 60 m^3/mo - 5.69% = 3.41 $m^3 * 130$ = 440
90 m^3/mo - 10.48% = 9.43 $m^3 * 130$ = 1226
incr. tax Δ \$782

net. incremental revenue (after royalties + annual prod test + prod ~~tax~~) - \$35 260
∴ \$5000 annual production ~~test~~ ≈ 10% of gross revenue

Well	Oil Producing Rate 6 mons Prior to Recompletion Range BOPD	Average BOPD	Zone	% variation $\left(\frac{max - min}{min}\right) * 100$
10-30-1-25	.96 - 3.99	2.22	MC	316
2-26-1-26	3.66 - 7.08	5.57	LAL	93
4-25-1-26	3.95 - 5.18	4.51	LAL	31
9-24-1-26	0.87 - 3.44	2.37	LAL	295
14-34-1-26	0.04 - 0.31	0.15	LAL	675
8-32-1-25	1.30 - 2.15	1.57	LAL	65
1-23-1-26	0.27 - 7.07	2.44	LAL	2519
12-24-1-26	4.57 - 8.43	6.34	LAL	84
1-26-1-26	3.34 - 7.86	5.26	LAL	135
8-4-2-26	0.6 - 2.94	1.60	MC	390
9-32-1-25	3.09 - 3.89	3.61	LAm	26
7-35-1-26	1.08 - 1.55	1.42	MC	44
8-35-1-26	0.2 - 2.13	0.93	LAm	965
5-3-2-26	2.1 - 6.06	4.61	MC	189
11-34-1-26	2.3 - 3.86	3.01	MC	68
12-36-1-26	2.31 - 3.64	2.97	MC	58
10-6-1-25	2.38 - 3.28	2.68	MC	38
9-33-1-25	1.91 - 2.71	2.2	LAm	42
3-9-1-25	.83 - 1.17	0.95	LAL	41
9-35-1-26	[illegible] - 3.62	2.73	MC	66
[illegible]-35-1-26	2.32 - 3.21	2.74	MC	38
5-6-1-25	2.5 - 4.3	3.0	MC	72
10-35-1-26	1.8 - 2.5	2.0	MC	39
6-3-2-26	1.3 - 2.5	1.6	MC	92
				103*

* $\frac{\Sigma min - \Sigma max}{\Sigma min}$, not average of last col.

IP

MC		LAM	
3.0	2.5	1.6	1.5
2.8	0.7	3.6	1.3
2.0	0.3	2.0	2.0
2.2	6.6	0.8	0.1
3.0	0.8	2.4	0.7
4.6	0.3	2.4	0.6
~~5.6~~	~~3.0~~	~~2.0~~	~~0.3~~
1.6	1.0	6.3	1.1
3.0	0.1	4.5	1.2
1.6	2.0	5.3	3.2
2.4	0.2	5.6	3.0
1.4	0.2	0.2	0.7
2.2	5.8 (10-30)	0.9	~~0~~
27.6	19.7	35.6	15.4
1.15 m³/hr.		1.48 m³/hr.	

WOR = 0.71

WOR = 0.43

27.6

m3/mon * 24 * # of wells / hrs

MC Commingled Production

Month	# of Wells	Daily Oil	Daily Water	WOR
1988	~~2~~	~~21~~	~~77~~	~~37~~
08	2	2.1	7.7	3.7
09	2	2.1	7.7	3.7
10	2	2.1	7.7	3.7
11	2	2.1	7.7	3.7
12	4	8.9	13.3	1.49
1989-01	4	8.9	13.3	1.49
02	4	8.9	13.3	1.49
03	4	8.9	13.3	1.49
04	4	8.9	13.3	1.49
05	10	38.9	21.4	0.55
06	11	43.2	23.3	0.54
07	12	45.7	25.5	6.56
08	12	45.7	25.5	0.56

LAm Commingled Production

Month	# of Wells	Daily Oil	Daily Water	WOR
87-12	3	8.1	4.6	0.57
88-01	3	8.1	4.6	"
02	3	8.1	4.6	"
03	3	8.1	4.6	0.57
04	4	9.1	4.8	0.53
05	5	10.1	5.3	0.52
06	5	10.1	5.3	"
07	5	10.1	5.3	"
08	6	14.4	9.6	0.67
09	6	14.4	9.6	"
10	7	22.6	9.9	0.44
11	8	25.2	15.1	0.60
12	10	33.5	15.6	0.47
89-01	11	39.7	16.9	0.43
02	11	39.7	16.9	"
03	11	39.7	16.9	"
04	11	39.7	16.9	"
05	12*	40.2	21.3	.53
06	12	40.2	21.3	"
07	12	40.2	21.3	"
08	12	40.2	21.3	"

* + 10-30

EVALUATION OF COMMINGLED PRODUCTION RESULTS

- Problem ① method allocating production is resulting in the non-allocated producing zone (commingled zone beginning assign zero production

- for example - 89-08 14/23 wells had zero production assigned to the commingled zone

example: 5-6-1-25 recompleted in LAW annual production test on LAW, now the original producing zone, MC3a assigned zero production

✓ (2) comparison of annual production test results

(3) Omega 1989 proration factors Jan - Aug

	OIL	WTR
rnge	0.86 - 1.22	1.21 - 1.48
aver	1.03	1.35

(4) Operational problems that result in decrease production from a well
BHP repair/replacement plugged
wax/scale build-up / wellbore clean out
rod failure
tbg leak.

Pool	Decline Rate	Comments
MC 3a E	30%	1987 waterflood response, resulting increase in prod
MC 3a D	18.4	water / gas breakthrough 19[illegible] prod. dec. increased significantly
MC 3a I	indeterminate	
MC 3b D	8.8	productivity decline linearly through 198[illegible]
MC 3b B	21%	relatively constant decline
LAm A	8.6	constant

The advantages of this method of allocating production are:

(1) actual production data from the original producing zone is used

(2) there is requirement ~~that~~ ~~a~~ for annual production test to ~~help~~ ensure the continuing accuracy of ~~allocate~~ prod. data

(3) administratively simple.

(4)

OMEGA PRORATION FACTORS

1989	OIL	WTR.
JAN	0.86	1.46
FEB		
MAR	0.93	1.30
APR	0.98	1.24
MAY	0.95	1.37
JUNE	0.98	1.41
JULY	1.15	1.48
AUG	1.22	1.36
SEPT	1.17	1.21

RATIOS TO INVESTIGATE

① Total Initial Zone Oil Production vs. Total Commingled Zone Oil Production comparing expected vs. actual for 1989 only

	Initial Zone Oil Production Expected	Initial Zone Oil Production Actual	Actual / Expected	Commingled Zone Oil Production Expect	Commingled Zone Oil Production Actual	Actual / Expected
1989 . 01	34.9	40.2	1.15	48.6	30.3	0.62
02	34.9	36.8	1.05	48.6	29.0	0.60
03	34.9	31.9	0.91	48.6	34.2	0.70
04	34.9	32.8	0.94	48.6	35.4	0.73
05	55.3	43.5	0.79	79.1	39.0	0.83
06	59.8	51.7	0.86	83.4	31.4	0.38
07	65.4	44.0	0.67	85.9	24.8	0.29
08	65.4	55.5	0.85	85.9	23.7	0.28

COMMINGLED ZONE OIL PROD. / INITIAL ZONE OIL PROD.

	(EXPECTED)	ACTUAL
1989 01	1.39	0.75
02	1.39	0.79
03	1.39	1.07
04	1.39	1.08
05	1.43	1.36
06	1.39	0.61
07	1.31	0.56
08	1.31	0.43

Omega's Expected Production

① original producing zone

② original producing zone decline 10%/yr.

③ recompleted zone 2 w 300D

④ recompleted zone 2 w 300D decline 30%/yr

min. ② + ④
max ① + ③

Well	Init. Prod Zone	Expected Prod [illegible]	Act Prod [illegible]	hrs	daily oil
1-26	LAL				
89-01		5.3	197.1	744	6.4
02		5.3	135.9	648	5.0
03		5.3	162.3	744	5.2
04		5.3	158.4	696	5.5
2-26	LAL				
89-01		5.6	137.7	672	4.9
02		5.6	106.5	576	4.4
03		5.6	132.7	744	4.2
04		5.6	193.7	720	6.5
05		5.6	171	744	5.5
06		5.6	113	504	5.4
14-34	LAL				
89-01		0.2	3.1	744	0.1
02		0.2	3.4	672	0.1
03		0.2	6.5	744	6.2
04		0.2	4.3	672	0.2
8-32	LAL				
89-01		1.6	44.6	744	1.4
02		1.6	34.6	672	1.2
03		1.6	43.7	696	1.6
04		1.6	[illegible]	744	2.1

Well	Initial Producing Zone	Expected Production w/d	Actual Production bbl/mo	hrs	daily oil
10-30	me				
month					
89.01		2.2	58.8	600	2.4
02		2.2	40	336	2.9
03		2.2	82.8	672	3.0
04		2.2	36.6	720	1.2
9-24	LAm				
89-01		2.4	82.1	720	2.7
02		2.4	66.3	672	2.4
03		2.4	58.1	696	2.0
04		2.4	37	648	1.4
12-24	LAm				
89.01		6.3	144.3	744	4.7
02		6.3	109.2	600	4.4
03		6.3	129.3	504	6.2
04		6.3	0.3	459	~~0~~
4-25	LAm				
89-01		4.5	197.1	744	6.4
02		4.5	135.9	648	5.0
03		4.5	162.3	744	5.2
04		4.5	158.4	696	5.5
05		4.5	47.9	288	4.0
1-23	LAm				
89-01		2.4	45.8	696	1.6
02		2.4	53.4	504	2.5
03		2.4	144.3	648	5.3
04		2.4	82.1	720	2.7

Expected Prod.

89-01	65.4	-2.2	-2.4	-6.3	-4.5	-2.4	-5.3	-5.6	-0.2	-1.6
02	65.4	-2.2	-2.4	-6.3	-4.5	-2.4	-5.3	-5.6	-0.2	-1.6
03	65.4	-2.2	-2.4	-6.3	-4.5	-2.4	-5.3	-5.6	-0.2	-1.6
04	65.4	-2.2	-2.4	-6.3	-4.5	-2.4	-5.3	-5.6	-0.2	-1.6
05	65.4	-4.5	-5.6							
06	65.4	-5.6								
07	65.4	-0								
08	65.4	-0								

89-01	70.8	-2.4	-2.7	-4.7	-6.4	-1.6	-[illegible].4	-4.9	-0.1	-1.4
02	64.7	-2.9	-2.4	-4.4	-5.0	-2.5	-5.[illegible]	-4.4	-0.1	-1.2
03	64.8	-3.0	-2.0	-6.2	-5.2	-5.3	-5.2	-4.2	-0.2	-1.6
04	57.9	-1.2	-1.4	-Ø	-5.5	-2.7	-5.7	-6.5	-0.2	-2.1
05	53.0	-4.0	-5.5							
06	57.1	-5.4								
07	44.0	-0								
08	55.5	-0								

OMEGA COMMINGLED WELLS AS OF NOVEMBER 27/89

	LICENCE	LOCATION	ON COMMINGLED PRODUCTION
1)	3089	10-35-1-26	MARCH 4/88
2)	3250	6-3-2-26	MARCH 4/88
3)	3783	5-6-1-25	MARCH 21/88
4)	3096	11-35-1-26	JULY 31/88
5)	3100	9-35-1-26	JULY 29/88
6)	3342	8-8-2-25	AUGUST 19/88
7)	3805	9-33-1-25	AUGUST 29/88
8)	2983	12-36-1-26	NOVEMBER 10/88
9)	3739	10-6-1-25	OCTOBER 28/88
10)	3114	11-34-1-26	DECEMBER 8/88
11)	3249	5-3-2-26	JANUARY 13/89
12)	3534	8-35-1-26	JANUARY 5/89
13)	3433	7-35-1-26	JANUARY 5/89
14)	3841	9-32-1-25	FEBRUARY 14/89
15)	3221	8-4-2-26	FEBRUARY 19/89
16)	2990	14-34-1-26	JUNE 11/89
17)	2718	12-24-1-26	JUNE 8/89
18)	2691	1-26-1-26	JUNE 8/89
19)	2795	1-23-1-26	JUNE 11/89
20)	3311	8-32-1-25	JUNE 9/89
21)	2726	9-24-1-26	JUNE 27/89
22)	2686	4-25-1-26	JULY 24/89
23)	2722	2-26-1-26	AUGUST 19/89
24)	3072	10-30-1-25	OCTOBER 25/89

no annual prod ~~test~~

commingle pools {example Judy Cs A + B [illegible]}

▷ depletion plan
(commingled pool)

- unit expansion (vertical)

▷ accidental - communication

- rigour method impossible

cost effective data

use the Mississippian pools as controlling entity

Omega Waskada 10-30-1-25

- 10-30 well is on the erosional edge of the MC3a in an area of limited porosity development. Omega estimates the pool to be < 160 acres in size

- 10-30 well produces from the MC3a D Pool sole producer – appears by rising GOR that there is communication between 10-30 & 6-30 gas inj. well which is completed in MC3b

10-30 MC3a production 6 mo aver. 2.22/5.82 (oil/wtr) range .96-3.99/2.89-10.46 (oil / wtr)

10-30 LAm production (11 day test, 8 days to recover load oil)

aver. final 4 days of ~~test~~ 0.61 m³OPD + 4.7 m³OPD

note offsetting production .43-.85 m³OPD low productivity

LAm non-unit

MC3a non-unit

① recompletion approved 89-05-26
10-30-1-25
complete LAm
MC prod 1988 aver. 4.46 m³OPD
Apr./89 1.3 m³OPD

Commingled Prod. · set up file on LOTUS

MC 3a prod. 1988 - 01 ⟶

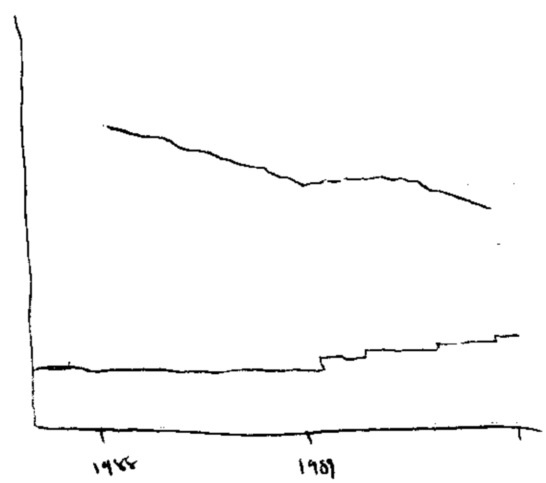
MC 3b prod 1988 - 01 ⟶

LAm prod 1988 - 01 ⟶

\# of prod. wells

daily oil

WOR



MC3a

5-6-1-25
10-6-1-25
10-30-1-25
8-32-1-25
9-32-1-25
1-23-1-26
9-24-1-26
10-35-1-26
12-24-1-26
11-35-1-26
4-25-1-26
12-36-1-26
1-26-1-26
7, 8 ∮ 9-35-1-26

MC3b

5-3-2-26
6-3-2-26
11-34-1-26
8-4-2-26
14-34-1-26

MC 1

9-33-1-25
8-8-2-25

LAm

5-6-1-25
10-6-1-25
10-30-1-25
8-32-1-25
9-32-1-25
9-33-1-25
1-23-1-26
9-24-1-26
8-8-2-25
7, 8 ∮ 9-35-1-26

10-35-1-26
12-24-1-26
11-35-1-26
4-25-1-26
12-36-1-26
1-26-1-26
5-3-2-26
6-3-2-26
11-34-1-26
8-4-2-26
14-34-1-26

					PRORATED PRODUCTION	PRORATED ZONE
Well	Original Producing Zone	Recompleted Zone	Date of Commingled Production	~~[illegible]~~		

ANNUAL PRODUCTION TEST RESULTS

DATE TESTED	TEST DURATION	ZONE	PRODUCTION OIL	PRODUCTION WTR

2-26-1-26 recompleted in L Alida

LAm Unit # 1 100% Omega

L.Alida Unit # 2 100% Omega

MC 2.5/2.2 [illegible] 5.6/3.0

Aves. 2.3/[illegible]

[illegible]

Ave. 1988 6.2/4.0

Jan-MAY/89 5.5/4.3

Age JAN-MAY 3.7-7.1 oil

1.9-4.2 wtr

[illegible]

14-34-1-26 structural high in MC3b recompleted zone
prod state oil/wtr
MC 0.7/0.4 LAm 0.2/0.7
Aver. 2.4/2.3 rge 6 months .04-.31 m3OPD
.53-1.03 m3WPD

LAm UNIT No. 5 4 WI. partners Aver 1988 prod .22 m3OPD
.73 m3OPD

- need approval of unit partners
- freehold

9-24-1-26 LAm producer
- erosional edge MC 3a

prod. rates MC 15 day test aver. 5.6 m3OPD final day 2.9/0.7
UNIT 12 MC 3a A pool 1.7 m3WPD
100% Omega

LAm last 6 mon. 2.4/0.6 UNIT 3 100% Omega

4-25-1-26 LAm producer UNIT # 1
- structurally highest well in MC 3a.

MC 4.3/1.9 LAm 4.5/1.2
Aver. 4.26/2.44 rge 6 months 3.95-5.18 m3OPD
(last 12 days of test) .45-3.76 m3WPD
Aver 1988 4.95 m3OPD
.68 m3WPD

UNIT #12 100% Omega UNIT #1 100% Omega

Well	1988 Prod. (m3/d)	Zone	Date Commingled	MARCH & APRIL /89 PROD. L.AM	MC
[illegible]-25	2.9 [illegible]	MC3aE	88-03-21	3.15	3.0
[illegible]-25	2.5	MC2aE	[illegible]	[illegible]	2.68
[illegible]	[illegible]	LAm		[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
[illegible]	.55	LAm	88-08-19	0.85	3.42
[illegible]-26	3.9	LAm		[illegible]	[illegible]
[illegible]-26	2.85	[illegible]	[illegible]	[illegible]	2.79
[illegible]-26	[illegible]	MC[illegible]		2.22	[illegible]
[illegible]	[illegible]	LAm		[illegible]	[illegible]
[illegible]	2.43	MC2.E	88-05-01	.28	2.03
[illegible]-26	[illegible]	[illegible]	88-05-04	1.86	1.09
[illegible]-26	2.29	MC[illegible]	88-[illegible]	0.47	2.69
[illegible]-26	[illegible]		[illegible]	[illegible]	[illegible]
[illegible]-26	[illegible]		[illegible]	0.9	[illegible]
[illegible]-26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]-26	[illegible]	[illegible]		[illegible]	[illegible]
TOTAL	[illegible]			26.2	47.1
L.AM	[illegible]			TOTAL 73.3	[illegible]
[illegible]					

COMPARISON OF ANNUAL PRODUCTION TEST RESULTS WITH REPORTED PRODUCTION

2 → 1 wk duration

WELL	PROD. TEST RESULTS oil/wtr m3/D		FEB	JAN	DEC	NOV	OCT	SEPT	~~AUG~~	~~JULY~~	~~JUNE~~	~~MAY~~
			PRODUCTION TEST RESULTS 1988-89 oil/water m3/d									
					Hog repair							
5-6-1-25'	3.8/2.8*	LAm	4.5/1.4	5.2/4.3	0/3.4	1.5/1.6	1.8/3.0	5.4/1.1				
		Well	7.5/3.9	8.2/6.8	2.1/5.1	4.5/4.1	4.8/5.5	8.4/3.6				
10-35-1-26'	3.7/.7*	LAm	1.2/0	1.4/0	1.4/0	2.3/0	1.7/0	2.4/0				
		Well	3.0/.1	3.1/.2	3.2/.2	4.2/.3	3.6/.2	4.4/.2				
6-3-2-26'	1.8/2.1*	LAm	1.0/0	2.1/2.4	2.1/2.4	2.1/0	2.0/0	.8/0				
		well	2.4/.2	3.6/4.0	3.6/4.0	3.6/.6	2.5/.1	2.4/.2				

5-6 - last 6 mon. prod. support 1989 LAm test & 1988 MC test

- problem when Hog. leak methodology does not provide for reducing prod. from both zones

10-35 - based on 1989 LAm test no problem from MC which had aver. 1987-88 prod. rate of 2.0 m3 OPD 0.3 m3 WPD
- MC tubing sealed off - reacidized after prod. test

6-3 last 6 mon. prod. test support 1989 LAm test & 1988 MC test

* LAm. Prod ~~test~~

' - LAm recompletion

2 - MC "

Review
- ~~[illegible]~~
- Proration factor
- Correlative rights
- Completion changes

Commingling appl'n

Note: All MC3a recompletions all on structural highs @ or near the eroded edge of the fm.

- typically LAm wellbore reserves are @ least twice the MC3a reserves

- LAm 50 - 80000 m^3
MC3a 20 - 40000 m^3

Comparison of Production Rates

Well	1988 Aver oil/wtr	Aver. last 6 mon. prod test oil/wtr	Rge of last 6 mon. prod test oil	Prod test MC3a recompletion aver. rate oil/wtr	Late prod test rate for MC3a	MC3a prod. rate if previ. completion in zone
8-32-1-25	1.3/1.4	1.6/1.5	1.3 - 2.2	5.1/2.9	6.6/2.3	1.5/.7
1-23-1-26	1.2/0.8	2.4/0.7	0.3 - 2.1	8.1/2.0	8.2/1.4	—
12-24-1-26	3.9/3.4	6.3/1.1	4.6 - 8.4	4.7/4.5	6.0/1.1	.3/3.3
1-26-1-26	5.6/5.1	5.3/3.2	3.3 - 7.9	10.1/3.5	10.6/2.2	2.3/[illegible]

1-26-1-26 LAm
[illegible]

1-23-1-26 LAm Unit #4 [illegible] [illegible] Omega [illegible]

[illegible] 100% Omega

8-32-1-25 LAm Unit #11 Omega 94.4[illegible] Chauvco [illegible]

[illegible] PRODUCTION

- [illegible] — TECHNICAL — PRODUCTION
  - RESERVES
- [illegible] — ECONOMIC — RECOMPLETIONS
  - ANNUAL TESTING

- TESTING [illegible] — ANNUAL TESTING ADEQUATE
  - TEST DURATION 1 WK
  - [illegible] + PACKER O/W SLIDING SLEEVE
  - RETESTING AFTER REMEDIAL WORK

- PRORATING PRODUCTION — TO REFLECT PRODUCTION ANOMALIES SUCH AS TBG LEAKS, WAX & SCALE PROBLEMS
  - IDENTIFY AND ADDRESS ZONAL INFLOW PROBLEMS

- FUTURE PLANS — OTHER CANDIDATES

- OTHER [illegible] [illegible]
  [illegible]
  [illegible]

COMMINGLED PRODUCTION

LAM - MC

- Feb/89 proposal Omega royalties/taxes be paid on individual zone prod.

  - response wells profitable no special royalty/tax treatment warranted

COMMINGLED WELLS 15 (see attached list; map

conditions of approval

① annual prod. Test - $5000
② monthly pumping fluid levels to check for crossflow - ensure wells pumped off
③ bi-monthly commingled well report
④ calculation royalties/tax on total prod. basis

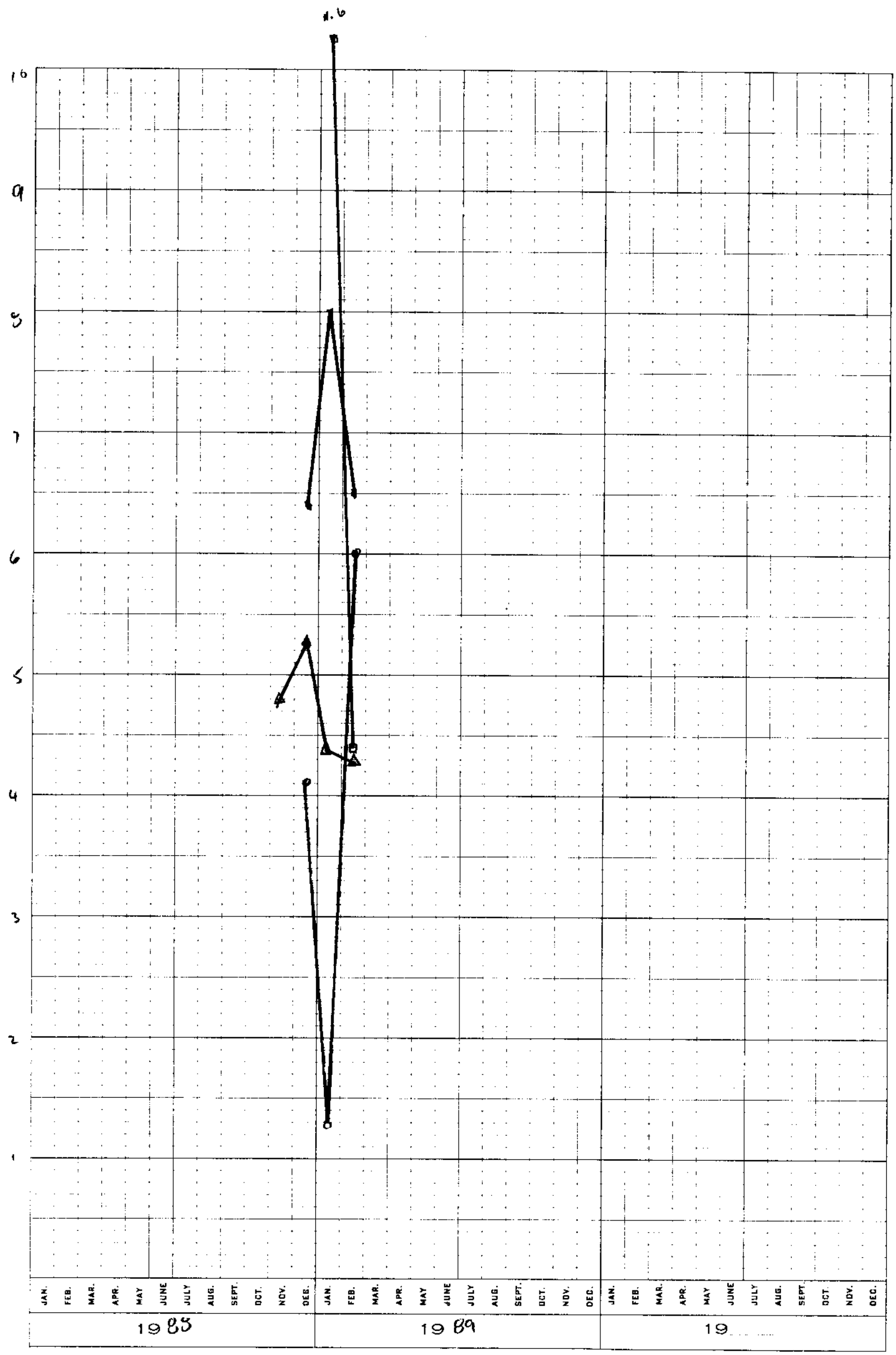
- Omega claims cost excess for cond. 1-3

- Omega estimates incr. recovery commingled prod. 2000 m^3
  NPV @ 18% $345 KPa - better than recompletion after 1st zone depleted

DIETZGEN CORPORATION
MADE IN U.S.A.

NO. 341-T30 DIETZGEN GRAPH PAPER
3 YEARS BY MONTHS

M3 OPD



• 5-3-2-26 —

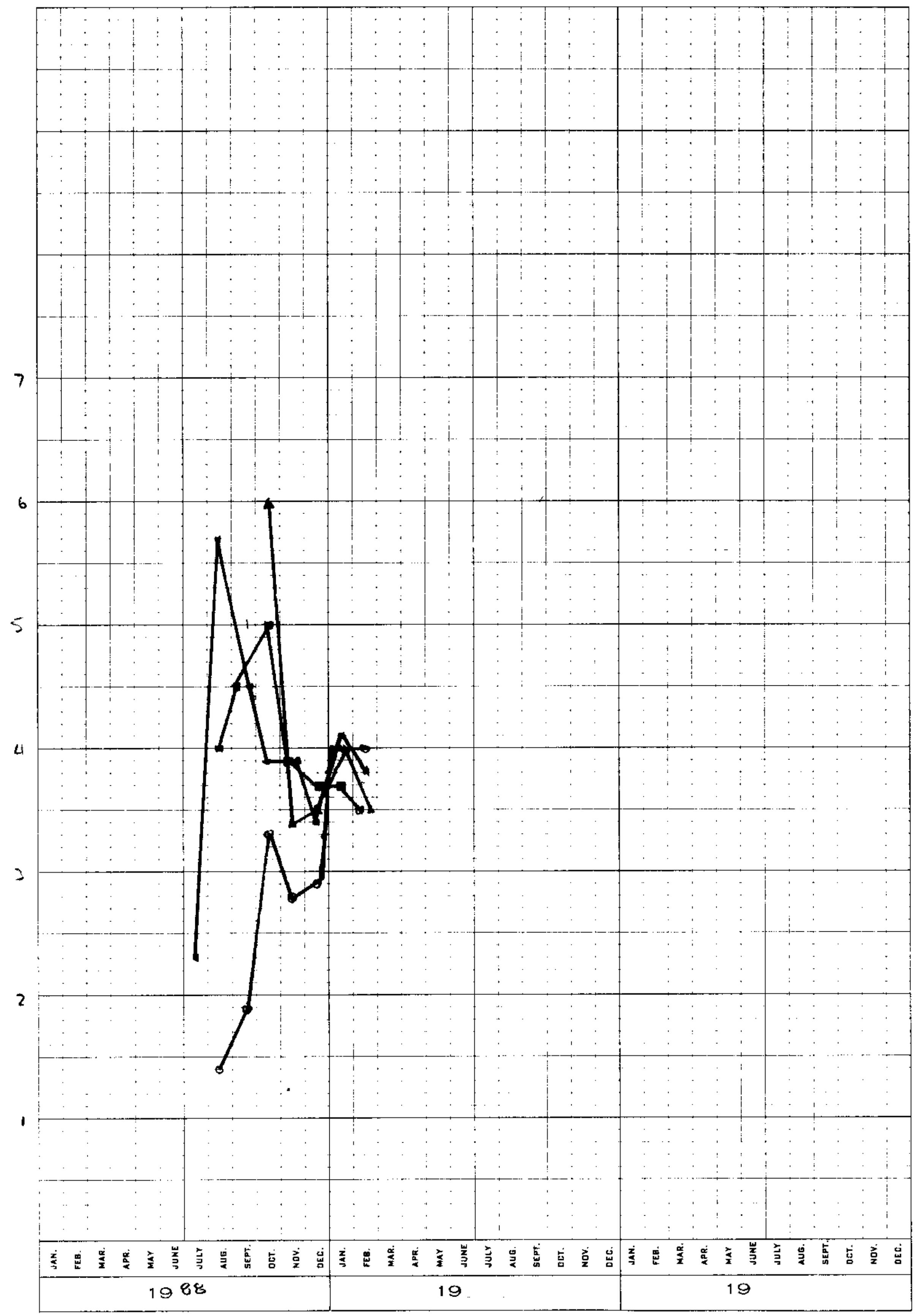
○ 9-32-1-25

□ 8-4-2-26 —

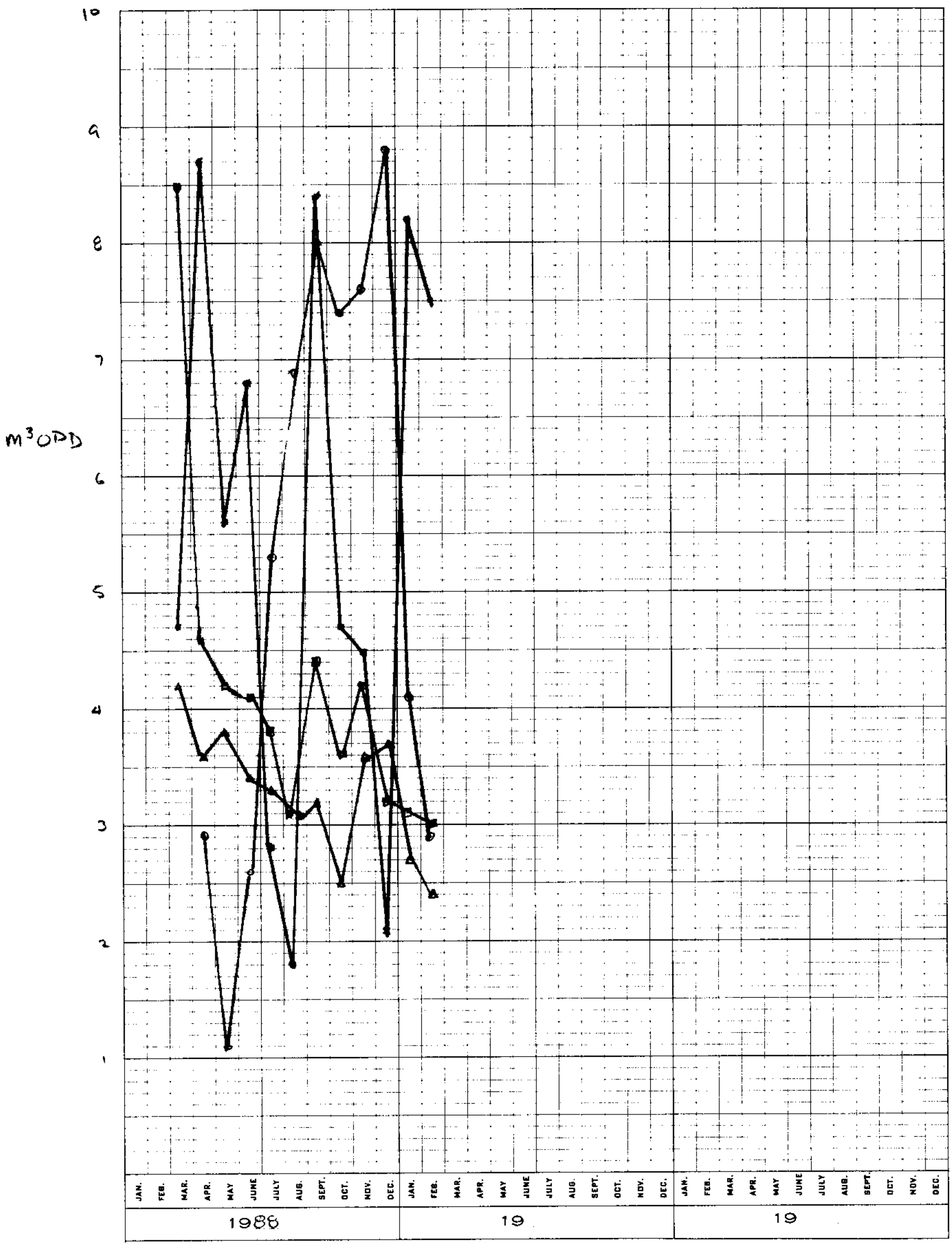
Δ AVER. DAILY PROD (ALL WELLS) —

DIETZGEN CORPORATION
MADE IN U.S.A.

NO. 341-T30 DIETZGEN GRAPH PAPER
3 YEARS BY MONTHS



* 11-35-1-26 –
o 9-33-1-25 –
□ 8-8-2-25 –
△ 10-6-1-25 –



* 5-6-1-25

o 9-35-1-26

□ 10-35-1-26

△ 6-3-2-26

DIETZGEN CORPORATION
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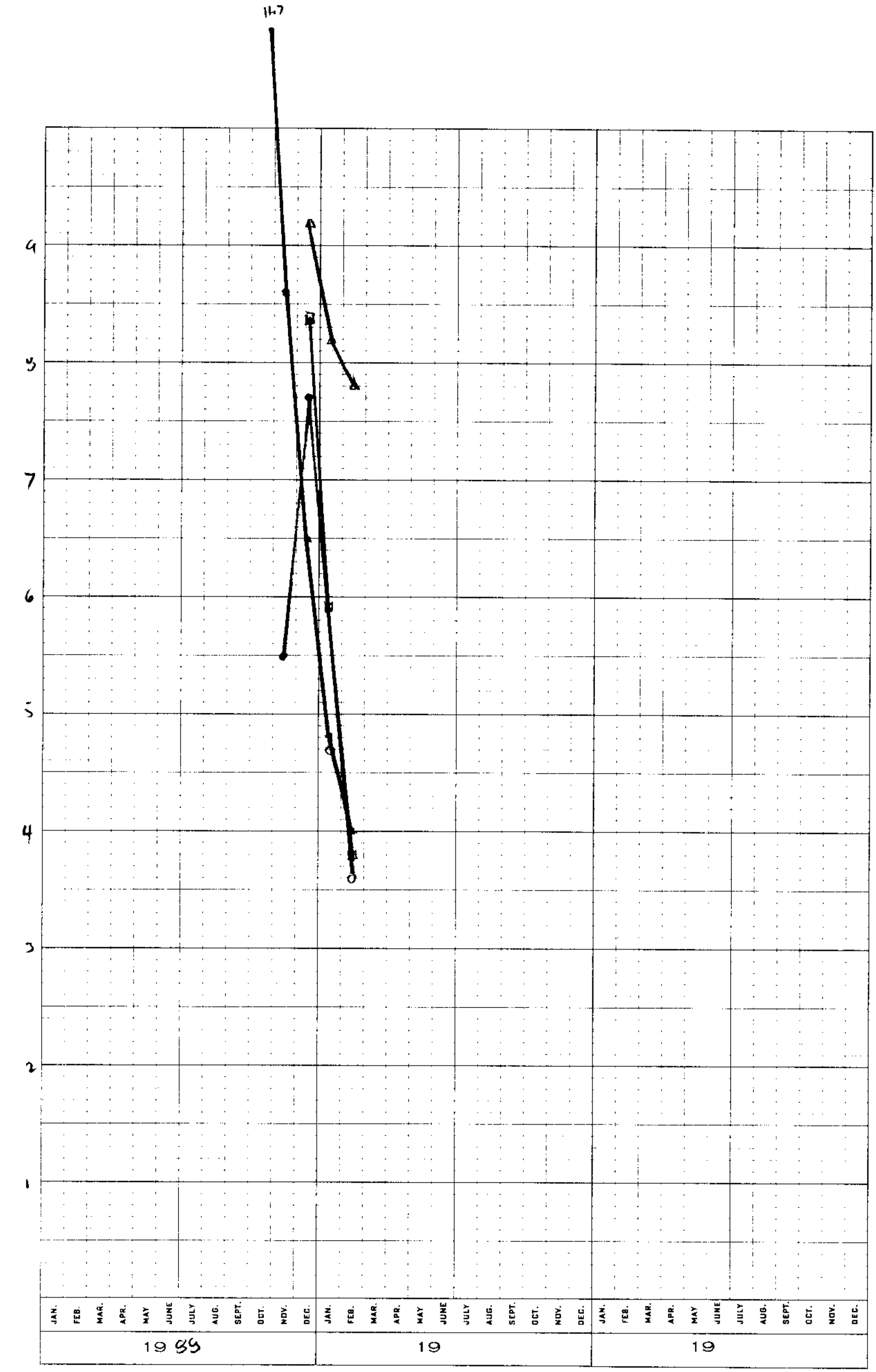
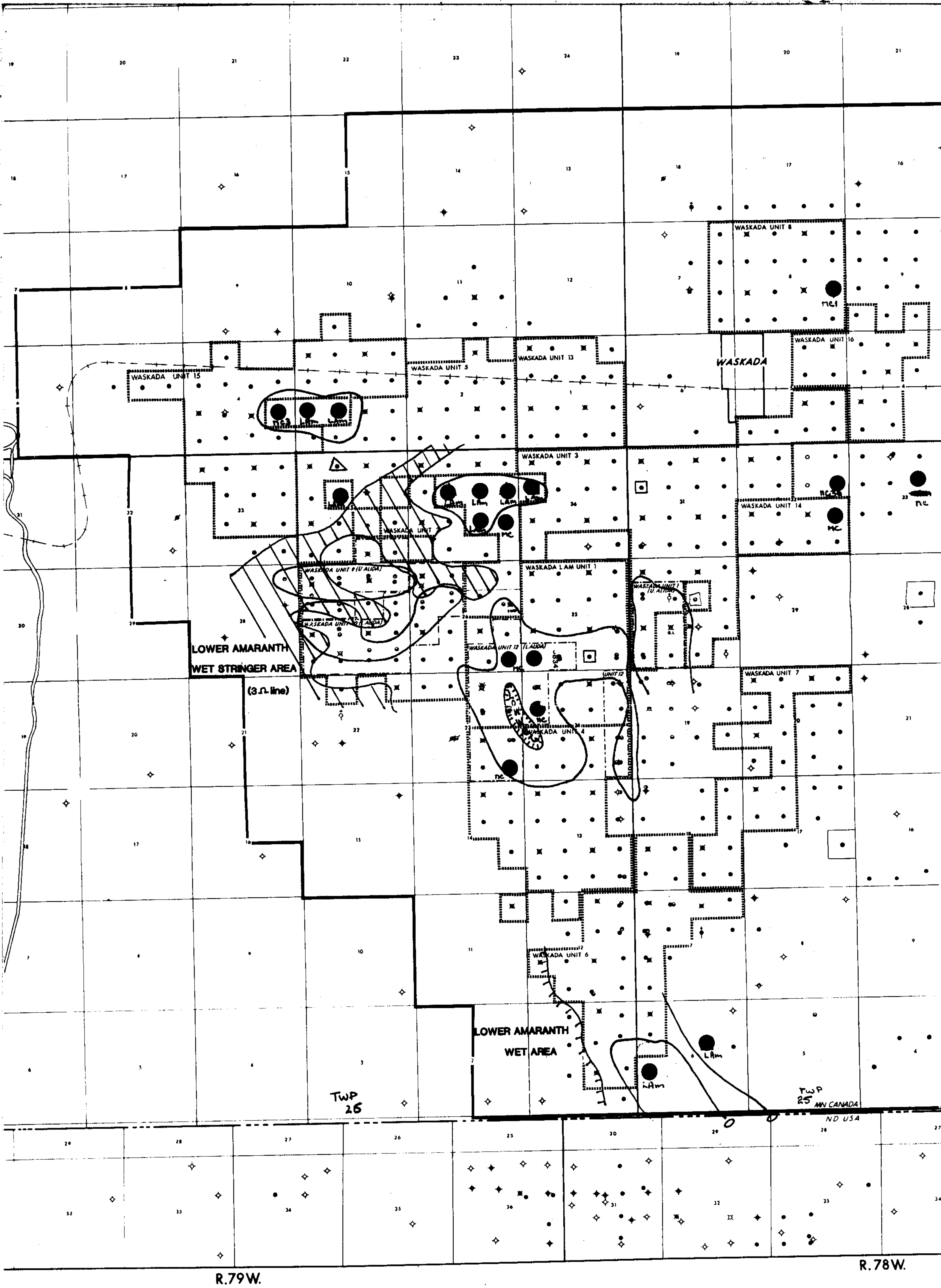
NO. 341-T30 DIETZGEN GRAPH PAPER
3 YEARS BY MONTHS



• 12-36-1-26 —
o 11-34-1-26 —
□ 7-35-1-26 —
Δ 8-35-1-26 —



MISSION CANYON POOL OUTLINES

(ZERO NET Ø-h CONTOUR)

○ COMMINGLED WELLS

△ PHASE #1 WELLS

▽ PHASE #2 WELLS

LAm - Lower Amaranth commingled

MC - Mission Canyon commingled

△ appl'n received

☐ Recompletion stage

- SPEAR FISH OIL
- UPPER ALIDA (M
- LOWER ALIDA (M
- TILSTON (MC
- SUSPENDED WEL

OMEGA
HYDROCARBONS LTD.
1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

May 10, 1990

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. John Fox
Chief Petroleum Engineer

Dear Sir:

**Re: Waskada Production Commingling
Progress Report January/February 1990**

Enclosed is the summary of events for the months of January and February 1990. This includes production data, fluids levels and workover operations.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

DB:jb

Enclosures

c.c.: Warren Sharp
Richard Brekke
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-01

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	616	0.0	160.9	0.0	0.0	#####	100.00	0.00
LAM	(00)05-06-001-25W1M(2)	1	99	616	71.7	51.9	9.6	2.3	0.72	42.00	134.00
L.AL	(00)10-06-001-25W1M(0)	3	99	724	78.6	26.1	10.6	2.5	0.33	24.90	135.00
LAM	(00)10-06-001-25W1M(2)	1	99	724	0.0	48.7	0.0	0.0	#####	100.00	0.00
L.AL	(00)10-30-001-25W1M(0)	3	99	712	41.8	140.7	24.8	1.3	3.37	77.10	593.00
LAM	(00)10-30-001-25W1M(2)	1	99	712	0.0	86.0	11.8	0.0	#####	100.00	#####
L.AL	(00)08-32-001-25W1M(0)	3	99	744	9.2	0.0	1.4	0.3	0.00	0.00	152.00
LAM	(00)08-32-001-25W1M(2)	1	14	744	60.2	56.1	1.4	1.9	0.93	48.20	23.00
LAM	(00)09-32-001-25W1M(0)	1	99	588	15.6	5.8	2.1	0.5	0.37	27.10	135.00
L.AL	(00)09-32-001-25W1M(2)	3	99	588	0.0	61.8	0.0	0.0	#####	100.00	0.00
TIL	(00)09-33-001-25W1M(0)	4	99	716	9.6	64.4	1.3	0.3	6.71	87.00	135.00
LAM	(00)09-33-001-25W1M(2)	1	99	716	45.9	38.8	6.2	1.5	0.85	45.80	135.00
TIL	(00)08-08-002-25W1M(0)	4	99	744	94.7	220.2	0.9	3.1	2.33	69.90	10.00
LAM	(00)08-08-002-25W1M(2)	1	8	744	4.9	7.4	0.9	0.2	1.51	60.20	184.00
LAM	(00)01-23-001-26W1M(0)	1	4	527	66.3	11.5	7.5	2.1	0.17	14.80	113.00
L.AL	(00)01-23-001-26W1M(2)	3	12	527	40.7	54.7	49.2	1.3	1.34	57.30	1209.00
L.AL	(00)09-24-001-26W1M(0)	3	12	744	0.0	23.5	2.3	0.0	#####	100.00	#####
LAM	(00)09-24-001-26W1M(2)	1	1	744	67.4	23.5	4.4	2.2	0.35	25.90	65.00
L.AL	(00)12-24-001-26W1M(0)	3	12	744	0.0	47.4	0.0	0.0	#####	100.00	0.00
LAM	(00)12-24-001-26W1M(2)	1	1	744	127.3	27.9	5.7	4.1	0.22	18.00	45.00
L.AL	(00)04-25-001-26W1M(0)	3	12	744	0.0	67.0	2.7	0.0	#####	100.00	#####
LAM	(00)04-25-001-26W1M(2)	1	1	744	113.9	37.2	2.3	3.7	0.33	24.60	20.00
LAM	(00)01-26-001-26W1M(0)	1	1	744	140.0	107.4	7.9	4.5	0.77	43.40	56.00
L.AL	(00)01-26-001-26W1M(2)	3	12	744	0.0	151.9	0.0	0.0	#####	100.00	0.00
LAM	(00)02-26-001-26W1M(0)	1	1	709	100.2	67.9	5.8	3.2	0.68	40.40	58.00
L.AL	(00)02-26-001-26W1M(2)	3	12	709	0.0	0.9	1.3	0.0	#####	100.00	#####
U.AL	(00)11-34-001-26W1M(0)	2	99	742	48.2	2.5	0.9	1.6	0.05	4.90	19.00
LAM	(00)11-34-001-26W1M(2)	1	99	742	0.0	1.6	0.4	0.0	#####	100.00	#####
LAM	(00)14-34-001-26W1M(0)	1	5	461	3.6	21.4	0.3	0.1	5.94	85.60	83.00
U.AL	(00)14-34-001-26W1M(2)	2	99	461	20.7	22.1	0.9	0.7	1.07	51.60	43.00
L.AL	(00)07-35-001-26W1M(0)	3	99	744	54.4	7.9	1.8	1.8	0.15	12.70	33.00
LAM	(00)07-35-001-26W1M(2)	1	99	744	23.0	1.6	1.8	0.7	0.07	6.50	78.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-01

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
LAM	(00)08-35-001-26W1M(0)	1	99	744	35.7	1.6	2.7	1.2	0.04	4.30	76.00
L.AL	(00)08-35-001-26W1M(2)	3	99	744	122.7	10.7	5.2	4.0	0.09	8.00	42.00
L.AL	(00)09-35-001-26W1M(0)	3	99	744	52.9	22.5	0.4	1.7	0.43	29.80	8.00
LAM	(00)09-35-001-26W1M(2)	1	99	744	39.1	2.5	4.0	1.3	0.06	6.00	102.00
L.AL	(00)10-35-001-26W1M(0)	3	99	744	0.0	0.0	2.3	0.0	0.00	0.00	*****
LAM	(00)10-35-001-26W1M(2)	1	99	744	78.2	8.3	2.7	2.5	0.11	9.60	35.00
L.AL	(00)11-35-001-26W1M(0)	3	99	744	111.6	63.0	0.0	3.6	0.56	36.10	0.00
LAM	(00)11-35-001-26W1M(2)	1	99	744	18.8	3.0	2.7	0.6	0.16	13.80	144.00
L.AL	(00)12-36-001-26W1M(0)	3	99	744	85.1	30.2	0.4	2.7	0.35	26.20	5.00
LAM	(00)12-36-001-26W1M(2)	1	99	744	0.0	40.5	0.9	0.0	*****	100.00	*****
U.AL	(00)05-03-002-26W1M(0)	2	99	684	123.8	9.5	3.7	4.0	0.08	7.10	30.00
LAM	(00)05-03-002-26W1M(2)	1	99	684	0.0	14.3	0.0	0.0	*****	100.00	0.00
U.AL	(00)06-03-002-26W1M(0)	2	99	644	12.2	0.0	0.4	0.4	0.00	0.00	33.00
LAM	(00)06-03-002-26W1M(2)	1	99	644	60.7	21.1	1.6	2.0	0.35	25.80	26.00
U.AL	(00)08-04-002-26W1M(0)	2	99	744	61.3	230.0	1.4	2.0	3.75	79.00	23.00
LAM	(00)08-04-002-26W1M(2)	1	99	744	335.7	0.0	0.0	10.8	0.00	0.00	0.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-02

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	636	6.8	74.1	1.1	0.2	10.90	91.60	162.00
LAM	(00)05-06-001-25W1M(2)	1	99	636	101.8	73.7	16.3	3.6	0.72	42.00	160.00
L.AL	(00)10-06-001-25W1M(0)	3	99	655	70.4	23.1	11.3	2.5	0.33	24.70	161.00
LAM	(00)10-06-001-25W1M(2)	1	99	655	0.0	55.0	0.0	0.0	#####	100.00	0.00
L.AL	(00)10-30-001-25W1M(0)	3	99	265	26.8	97.2	20.0	1.0	3.63	78.40	746.00
LAM	(00)10-30-001-25W1M(2)	1	99	265	12.9	44.9	0.0	0.5	3.48	77.70	0.00
L.AL	(00)08-32-001-25W1M(0)	3	99	538	10.5	0.0	1.8	0.4	0.00	0.00	171.00
LAM	(00)08-32-001-25W1M(2)	1	14	538	38.5	42.5	1.1	1.4	1.10	52.50	29.00
LAM	(00)09-32-001-25W1M(0)	1	99	672	28.8	44.6	4.6	1.0	1.55	60.80	160.00
L.AL	(00)09-32-001-25W1M(2)	3	99	672	22.8	25.6	3.7	0.8	1.12	52.90	162.00
TIL	(00)09-33-001-25W1M(0)	4	99	576	0.0	93.3	0.0	0.0	#####	100.00	0.00
LAM	(00)09-33-001-25W1M(2)	1	99	576	19.2	16.2	3.1	0.7	0.84	45.80	161.00
TIL	(00)08-08-002-25W1M(0)	4	99	669	74.7	195.4	0.8	2.7	2.62	72.30	11.00
LAM	(00)08-08-002-25W1M(2)	1	8	669	3.9	6.3	0.8	0.1	1.62	61.80	205.00
LAM	(00)01-23-001-26W1M(0)	1	4	552	61.4	22.9	3.4	2.2	0.37	27.20	55.00
L.AL	(00)01-23-001-26W1M(2)	3	12	552	0.4	31.2	0.0	0.0	78.00	98.70	0.00
L.AL	(00)09-24-001-26W1M(0)	3	12	672	0.0	30.7	2.3	0.0	#####	100.00	#####
LAM	(00)09-24-001-26W1M(2)	1	1	672	51.7	19.9	4.6	1.8	0.38	27.80	89.00
L.AL	(00)12-24-001-26W1M(0)	3	12	630	0.0	89.8	6.0	0.0	#####	100.00	#####
LAM	(00)12-24-001-26W1M(2)	1	1	630	92.8	22.1	9.0	3.3	0.24	19.20	97.00
L.AL	(00)04-25-001-26W1M(0)	3	12	596	0.0	8.6	2.1	0.0	#####	100.00	#####
LAM	(00)04-25-001-26W1M(2)	1	1	596	111.4	39.3	2.8	4.0	0.35	26.10	25.00
LAM	(00)01-26-001-26W1M(0)	1	1	489	103.4	86.0	1.6	3.7	0.83	45.40	15.00
L.AL	(00)01-26-001-26W1M(2)	3	12	489	0.0	101.2	0.0	0.0	#####	100.00	0.00
LAM	(00)02-26-001-26W1M(0)	1	1	412	54.0	39.9	2.3	1.9	0.74	42.50	43.00
L.AL	(00)02-26-001-26W1M(2)	3	12	412	0.0	5.4	0.0	0.0	#####	100.00	0.00
U.AL	(00)11-34-001-26W1M(0)	2	99	672	74.5	3.9	0.5	2.7	0.05	5.00	7.00
LAM	(00)11-34-001-26W1M(2)	1	99	672	0.0	3.3	0.0	0.0	#####	100.00	0.00
LAM	(00)14-34-001-26W1M(0)	1	5	603	4.2	26.8	0.3	0.1	6.38	86.50	71.00
U.AL	(00)14-34-001-26W1M(2)	2	99	603	4.9	20.0	0.0	0.2	4.08	80.30	0.00
L.AL	(00)07-35-001-26W1M(0)	3	99	672	43.5	6.8	1.8	1.6	0.16	13.50	41.00
LAM	(00)07-35-001-26W1M(2)	1	99	672	14.7	0.0	3.6	0.5	0.00	0.00	245.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1990-02

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
LAM	(00)08-35-001-26W1M(0)	1	99	672	28.5	1.4	2.8	1.0	0.05	4.70	98.00
L.AL	(00)08-35-001-26W1M(2)	3	99	672	92.9	10.5	2.3	3.3	0.11	10.20	25.00
L.AL	(00)09-35-001-26W1M(0)	3	99	672	49.3	19.0	0.0	1.8	0.39	27.80	0.00
LAM	(00)09-35-001-26W1M(2)	1	99	672	31.3	2.1	2.3	1.1	0.07	6.30	73.00
L.AL	(00)10-35-001-26W1M(0)	3	99	672	0.0	0.0	5.5	0.0	0.00	0.00	*****
LAM	(00)10-35-001-26W1M(2)	1	99	672	63.1	6.8	2.8	2.3	0.11	9.70	44.00
L.AL	(00)11-35-001-26W1M(0)	3	99	672	40.1	23.2	0.0	1.4	0.58	36.70	0.00
LAM	(00)11-35-001-26W1M(2)	1	99	672	15.0	2.6	2.3	0.5	0.17	14.80	153.00
L.AL	(00)12-36-001-26W1M(0)	3	99	549	36.9	14.2	0.3	1.3	0.38	27.80	8.00
LAM	(00)12-36-001-26W1M(2)	1	99	549	0.0	14.5	1.1	0.0	*****	100.00	*****
U.AL	(00)05-03-002-26W1M(0)	2	99	642	123.8	10.1	4.4	4.4	0.08	7.50	36.00
LAM	(00)05-03-002-26W1M(2)	1	99	642	0.0	9.3	0.0	0.0	*****	100.00	0.00
U.AL	(00)06-03-002-26W1M(0)	2	99	672	12.3	0.0	0.0	0.4	0.00	0.00	0.00
LAM	(00)06-03-002-26W1M(2)	1	99	672	56.1	23.2	1.8	2.0	0.41	29.30	32.00
U.AL	(00)08-04-002-26W1M(0)	2	99	672	49.0	225.2	1.5	1.7	4.60	82.10	31.00
LAM	(00)08-04-002-26W1M(2)	1	99	672	235.5	0.0	0.0	8.4	0.00	0.00	0.00

Waskada Commingled Production
Fluid Levels

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	90-01-29	91
	90-02-07	90
10-6-1-25 WPM	90-01-29	90
	90-02-27	89
10-30-1-25 WPM	90-01-26	96
	90-02-07	90
8-32-1-25 WPM	90-01-22	94
	90-02-28	96
9-32-1-25 WPM	90-01-22	86
	90-02-28	92
9-33-1-25 WPM	90-01-29	93
	90-02-28	94
1-23-1-26 WPM	90-01-29	88
	90-02-28	90
9-24-1-26 WPM	90-01-26	96
	90-02-28	96
12-24-1-26 WPM	90-01-26	95
	90-02-28	92
4-25-1-26 WPM	90-01-26	94
	90-02-28	96
1-26-1-26 WPM	90-01-26	96
	90-02-28	92
2-26-1-26 WPM	90-01-26	96
	90-02-28	90
11-34-1-26 WPM	90-01-29	96
	90-02-20	96
14-34-1-26 WPM	90-01-29	92
	90-02-20	95
7-35-1-26 WPM	90-01-26	95
	90-02-28	95
8-35-1-26 WPM	90-02-26	96
	90-02-28	96
9-35-1-26 WPM	90-01-26	96
	90-02-28	94
10-35-1-26 WPM	90-01-26	92
	90-02-28	94

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
11-35-1-26 WPM	90-01-26	94
	90-02-28	95
12-36-1-26 WPM	90-01-26	96
	90-02-20	96
8-8-2-25 WPM	90-01-18	97
	90-02-27	95
5-3-2-26 WPM	90-01-29	95
	90-02-27	89
6-3-2-26 WPM	90-01-29	97
	90-02-27	94
8-4-2-26 WPM	90-01-29	92
	90-02-27	91

Waskada Commingled Production
Workovers

WELL	DATE	OPERATIONS
5-6-1-25 WPM	90-01-08	Pressure Test Tubing
	90-02-16	Install Tubing Check Valve
10-6-1-25 WPM	90-01-05	Hot Oil
	90-01-08	Install Tubing Check Valve
	90-01-09	Pressure Test Tubing, Flush BHP
10-30-1-25 WPM	90-02-02	Pressure Test Tubing
	90-02-06	Tubing Repair & Install Tubing Check Valve
	90-02-09	Tubing Repair
	90-02-15	Hot Oil
8-32-1-25 WPM	90-02-15	Pressure Test Tubing
	90-02-16	Tubing Repair
9-32-1-25 WPM	90-01-25	Pressure Test Tubing & Flush BHP
	90-02-10	Commingle after Annual Production Test & Install Tubing Check Valve
9-33-1-25 WPM		No Operations
8-8-2-25 WPM		No Operations
1-23-1-26 WPM	90-01-04	Install Tubing Check Valve
9-24-1-26 WPM		No Operations
12-24-1-26 WPM	90-02-13	Install Tubing Check Valve
4-25-1-26 WPM	90-02-15	Install Tubing Check Valve
1-26-1-26 WPM	90-02-16	Install Tubing Check Valve
	90-02-20	BHP Repair
2-26-1-26 WPM	90-02-14	Install Tubing Check Valve
	90-02-19	BHP Repair
11-34-1-26 WPM		No Operations
14-34-1-26 WPM	90-01-15	Pressure Test Tubing & Flush BHP
7-35-1-26 WPM		No Operations
8-35-1-26 WPM		No Operations

WELL	DATE	OPERATIONS
9-35-1-26 WPM		No Operations
10-35-1-26 WPM		No Operations
11-35-1-26 WPM		No Operations
12-36-1-26 WPM	90-02-14	Recomplete for Annual Production Test (LAm)
5-3-2-26 WPM	90-01-02 90-02-12	Hot Oil Install Tubing Check Valve
6-3-2-26 WPM	90-01-04	Acidized
8-4-2-26 WPM		No Operations

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3

TELEPHONE (403) 261-0743
FAX (403) 264-5691

February 12, 1990

Donna
copy to Brad
assigned to
NEW

MANITOBA ENERGY & MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

Re: Commingled Well Production Test

Please find attached the results of the production test performed on well 9-32-1-25 WPM.

This test was performed in conjunction with a required workover on this well due to a tubing leak. These values will be assigned to the Lower Amaranth zone in order to determine the production rates from the Lower Alida zone. This involves subtracting the Lower Amaranth rate from the total production rate and allocating the difference to the Lower Alida zone. This new allocation rate will be used for the February production data.

Should you require additional information, please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D. Boyko, P. Eng.
Petroleum Engineer

c.c.: R.A. Brekke
K. Thomas
K. Hall
Waskada Special Projects - Commingled Production

WASKADA COMMINGLED WELLS
PRODUCTION ALLOCATION

Following are the results for the annual production tests for the specified zones.

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
9-32-1-25 WPM	L.Amaranth	90/02/06	24	1.3	1.9	-
		90/02/07	24	0.7	1.3	-
		90/02/08	24	1.1	1.6	-
	AVERAGE			1.03	1.60	N/A

AVERAGE WATER/OIL RATIO = 1.548 m^3/m^3
AVERAGE GAS/OIL RATIO = N/A

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

DEPARTMENT OF ENERGY AND MINES
MAY 9 1990
PETROLEUM BRANCH

May 7, 1990

MANITOBA ENERGY & MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

Re: Commingled Well Production Test

Please find attached the results of the production test performed on well 12-36-1-26 WPM.

These values will be used to allocate production between the Lower Alida and Lower Amaranth zones. The Lower Alida production will be determined by the difference of the total production and these Lower Amaranth test values. These new allocation rates will be effective for production after April 23, 1990.

Should you require additional information, please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D. Boyko, P. Eng.
Petroleum Engineer

c.c.: R. Brekke
K. Thomas
K. Hall
Waskada Special Projects - Commingled Production

WASKADA COMMINGLED WELLS
PRODUCTION ALLOCATION

Following are the results for the annual production tests for the specified zones.

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
12-36-1-26	L. Amaranth	90/02/20	24	0.17	0.09	0.05
		90/02/21	24	0.20	0.11	0.05
		90/02/22	24	0.18	0.08	0.05
	Average			0.18	0.09	0.05

AVERAGE WATER/OIL RATIO = 0.509 $m^3/^3$
AVERAGE GAS/OIL RATIO = 290.909 m^3/m^3

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

March 5, 1990

DEPARTMENT OF ENERGY AND MINES
MAR 12 1990
PETROLEUM BRANCH

MANITOBA ENERGY AND MINES
Petroleum Branch
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. John Fox
Chief Petroleum Engineer

Dear Sir:

Re: Waskada Production Commingling
Progress Report November/December 1989

Enclosed is the summary of events for the months of November and December 1989. This includes production data, fluids levels and workover operations.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

for Kurt Thomas
Production Technologist

KT:jb

Enclosures

c.c.: Warren Sharp
Richard Brekke
Dan Boyko
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

MONTH: 1989-11

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	598	11.4	66.4	1.4	0.5	5.82	85.30	123.00
LAM	(00)05-06-001-25W1M(2)	1	99	598	95.7	69.3	11.5	3.8	0.72	42.00	120.00
L.AL	(00)10-06-001-25W1M(0)	3	99	610	68.1	22.6	8.2	2.7	0.33	24.90	120.00
LAM	(00)10-06-001-25W1M(2)	1	99	610	15.1	57.3	1.8	0.6	3.79	79.10	119.00
L.AL	(00)10-30-001-25W1M(0)	3	99	720	72.3	249.9	43.7	2.4	3.46	77.60	604.00
LAM	(00)10-30-001-25W1M(2)	1	99	720	0.0	287.9	0.0	0.0	#####	100.00	0.00
L.AL	(00)08-32-001-25W1M(0)	3	99	581	27.3	6.1	1.2	1.1	0.22	18.30	44.00
LAM	(00)08-32-001-25W1M(2)	1	14	581	45.1	56.4	1.2	1.9	1.25	55.60	27.00
LAM	(00)09-32-001-25W1M(0)	1	99	714	104.1	38.3	12.5	3.5	0.37	26.90	120.00
L.AL	(00)09-32-001-25W1M(0)	3	99	714	0.0	0.0	0.0	0.0	N/A	N/A	N/A
TIL	(00)09-33-001-25W1M(0)	4	99	720	0.0	119.9	0.0	0.0	#####	100.00	0.00
LAM	(00)09-33-001-25W1M(2)	1	99	720	24.4	20.6	2.9	0.8	0.84	45.80	119.00
TIL	(00)08-08-002-25W1M(0)	4	99	720	83.4	207.7	1.4	2.8	2.49	71.40	17.00
LAM	(00)08-08-002-25W1M(2)	1	8	720	4.6	7.0	0.9	0.2	1.52	60.30	196.00
LAM	(00)01-23-001-26W1M(0)	1	4	120	4.6	0.9	0.6	0.9	0.20	16.40	130.00
L.AL	(00)01-23-001-26W1M(2)	3	12	120	0.0	0.0	0.6	0.0	0.00	0.00	#####
L.AL	(00)09-24-001-26W1M(0)	3	12	639	1.5	7.8	0.8	0.1	5.20	83.90	533.00
LAM	(00)09-24-001-26W1M(2)	1	1	639	75.0	27.0	5.6	2.8	0.36	26.50	75.00
L.AL	(00)12-24-001-26W1M(0)	3	12	697	0.0	43.1	3.5	0.0	#####	100.00	#####
LAM	(00)12-24-001-26W1M(2)	1	1	697	150.4	34.1	12.8	5.2	0.23	18.50	85.00
L.AL	(00)04-25-001-26W1M(0)	3	12	698	0.0	27.4	3.0	0.0	#####	100.00	#####
LAM	(00)04-25-001-26W1M(2)	1	1	698	119.9	40.0	2.6	4.1	0.33	25.00	22.00
LAM	(00)01-26-001-26W1M(0)	1	1	720	172.8	108.8	5.5	5.8	0.63	38.60	32.00
L.AL	(00)01-26-001-26W1M(2)	3	12	720	0.0	0.0	0.0	0.0	0.00	0.00	0.00
LAM	(00)02-26-001-26W1M(0)	1	1	556	120.0	81.6	7.7	5.2	0.68	40.50	64.00
L.AL	(00)02-26-001-26W1M(2)	3	12	556	0.0	0.0	0.6	0.0	0.00	0.00	#####
U.AL	(00)11-34-001-26W1M(0)	2	99	720	96.2	4.7	1.8	3.2	0.05	4.70	19.00
LAM	(00)11-34-001-26W1M(2)	1	99	720	0.0	1.4	1.4	0.0	#####	100.00	#####
LAM	(00)14-34-001-26W1M(0)	1	5	244	1.8	11.3	0.2	0.2	6.28	86.30	111.00
U.AL	(00)14-34-001-26W1M(2)	2	99	244	7.4	9.2	0.3	0.7	1.24	55.40	41.00
L.AL	(00)07-35-001-26W1M(0)	3	99	720	50.6	7.5	1.8	1.7	0.15	12.90	36.00
LAM	(00)07-35-001-26W1M(2)	1	99	720	21.7	5.2	2.3	0.7	0.24	19.30	106.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1989-11

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
LAM	(00)08-35-001-26W1M(0)	1	99	720	33.1	1.4	2.7	1.1	0.04	4.10	82.00
L.AL	(00)08-35-001-26W1M(2)	3	99	720	113.0	22.5	5.9	3.8	0.20	16.60	52.00
L.AL	(00)09-35-001-26W1M(0)	3	99	720	29.6	18.3	0.0	1.0	0.62	38.20	0.00
LAM	(00)09-35-001-26W1M(2)	1	99	720	36.4	2.3	2.3	1.2	0.06	5.90	63.00
L.AL	(00)10-35-001-26W1M(2)	3	99	720	0.0	0.0	0.0	0.0	N/A	N/A	N/A
LAM	(00)10-35-001-26W1M(2)	1	99	720	103.4	10.3	1.8	3.4	0.10	9.10	17.00
L.AL	(00)11-35-001-26W1M(0)	3	99	557	16.5	4.7	0.0	0.7	0.28	22.20	0.00
LAM	(00)11-35-001-26W1M(2)	1	99	557	13.5	2.2	2.1	0.6	0.16	14.00	156.00
L.AL	(00)12-36-001-26W1M(0)	3	99	720	76.3	28.1	0.5	2.5	0.37	26.90	7.00
LAM	(00)12-36-001-26W1M(2)	1	99	720	0.0	52.1	0.9	0.0	#####	100.00	#####
U.AL	(00)05-03-002-26W1M(0)	2	99	676	84.7	6.7	3.3	3.0	0.08	7.30	39.00
LAM	(00)05-03-002-26W1M(2)	1	99	676	0.0	10.2	1.7	0.0	#####	100.00	#####
U.AL	(00)06-03-002-26W1M(0)	2	99	635	0.0	0.0	1.2	0.0	0.00	0.00	#####
LAM	(00)06-03-002-26W1M(2)	1	99	635	23.6	7.5	0.8	0.9	0.32	24.10	34.00
U.AL	(00)08-04-002-26W1M(0)	2	99	720	57.0	326.9	1.4	1.9	5.74	85.20	25.00
LAM	(00)08-04-002-26W1M(2)	1	99	720	370.3	78.3	0.0	12.3	0.21	17.50	0.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1989-12

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
L.AL	(00)05-06-001-25W1M(0)	3	99	714	0.0	164.0	0.0	0.0	*****	100.00	0.00
LAM	(00)05-06-001-25W1M(2)	1	99	714	91.6	66.3	11.4	3.1	0.72	42.00	124.00
L.AL	(00)10-06-001-25W1M(0)	3	99	645	58.9	19.6	7.3	2.2	0.33	25.00	124.00
LAM	(00)10-06-001-25W1M(2)	1	99	645	0.0	79.4	0.0	0.0	*****	100.00	0.00
L.AL	(00)10-30-001-25W1M(0)	3	99	744	54.4	184.5	38.6	1.8	3.39	77.20	710.00
LAM	(00)10-30-001-25W1M(2)	1	99	744	0.0	112.5	1.0	0.0	*****	100.00	*****
L.AL	(00)08-32-001-25W1M(0)	3	99	744	10.0	0.0	2.1	0.3	0.00	0.00	210.00
LAM	(00)08-32-001-25W1M(2)	1	14	744	55.8	50.1	1.6	1.8	0.90	47.30	29.00
LAM	(00)09-32-001-25W1M(0)	1	99	744	31.9	11.8	4.0	1.0	0.37	27.00	125.00
L.AL	(00)09-32-001-25W1M(2)	3	99	744	0.0	89.4	0.0	0.0	*****	100.00	0.00
TIL	(00)09-33-001-25W1M(0)	4	99	744	0.0	129.5	0.0	0.0	*****	100.00	0.00
LAM	(00)09-33-001-25W1M(2)	1	99	744	25.2	21.3	3.1	0.8	0.85	45.80	123.00
TIL	(00)08-08-002-25W1M(0)	4	99	744	79.5	219.0	1.6	2.6	2.75	73.40	20.00
LAM	(00)08-08-002-25W1M(2)	1	8	744	4.6	7.0	1.0	0.1	1.52	60.30	217.00
LAM	(00)01-23-001-26W1M(0)	1	4	0	0.0	0.0	0.0	0.0	N/A	N/A	N/A
L.AL	(00)01-23-001-26W1M(2)	3	12	0	0.0	0.0	0.0	0.0	N/A	N/A	N/A
L.AL	(00)09-24-001-26W1M(0)	3	12	686	0.0	6.4	0.8	0.0	*****	100.00	*****
LAM	(00)09-24-001-26W1M(2)	1	1	686	72.4	25.8	5.9	2.5	0.36	26.30	81.00
L.AL	(00)12-24-001-26W1M(0)	3	12	744	0.0	38.5	8.0	0.0	*****	100.00	*****
LAM	(00)12-24-001-26W1M(2)	1	1	744	128.1	28.4	11.8	4.1	0.22	18.10	92.00
L.AL	(00)04-25-001-26W1M(0)	3	12	744	0.0	32.1	4.0	0.0	*****	100.00	*****
LAM	(00)04-25-001-26W1M(2)	1	1	744	139.6	45.9	3.5	4.5	0.33	24.70	25.00
LAM	(00)01-26-001-26W1M(0)	1	1	360	79.3	44.0	1.3	5.3	0.55	35.70	16.00
L.AL	(00)01-26-001-26W1M(2)	3	12	360	0.0	0.0	0.0	0.0	N/A	N/A	N/A
LAM	(00)02-26-001-26W1M(0)	1	1	730	194.0	133.9	9.7	6.4	0.69	40.80	50.00
L.AL	(00)02-26-001-26W1M(2)	3	12	730	10.4	36.0	0.0	0.3	3.46	77.60	0.00
U.AL	(00)11-34-001-26W1M(0)	2	99	744	106.8	2.4	5.4	3.4	0.02	2.20	51.00
LAM	(00)11-34-001-26W1M(2)	1	99	744	7.8	0.9	5.9	0.3	0.12	10.30	756.00
LAM	(00)14-34-001-26W1M(0)	1	5	744	5.4	32.6	0.5	0.2	6.04	85.80	93.00
U.AL	(00)14-34-001-26W1M(2)	2	99	744	7.8	18.8	1.6	0.3	2.41	70.70	205.00
L.AL	(00)07-35-001-26W1M(0)	3	99	744	50.4	7.4	3.0	1.6	0.15	12.80	60.00
LAM	(00)07-35-001-26W1M(2)	1	99	744	24.8	8.7	7.5	0.8	0.35	26.00	302.00

WASKADA COMMINGLED PRODUCTION

MONTH: 1989-12

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m3/M	WATER m3/M	GAS Km3/M	OIL m3/D	WOR m3/m3	WC %	GOR Km3/m3
LAM	(00)08-35-001-26W1M(0)	1	99	744	33.1	1.5	3.0	1.1	0.05	4.30	91.00
L.AL	(00)08-35-001-26W1M(2)	3	99	744	110.0	21.6	6.9	3.5	0.20	16.40	63.00
L.AL	(00)09-35-001-26W1M(0)	3	99	744	40.8	22.5	0.0	1.3	0.55	35.50	0.00
LAM	(00)09-35-001-26W1M(2)	1	99	744	36.2	2.4	2.1	1.2	0.07	6.20	58.00
L.AL	(00)10-35-001-26W1M(0)	3	99	744	0.0	1.9	0.0	0.0	*****	100.00	0.00
LAM	(00)10-35-001-26W1M(2)	1	99	744	87.4	9.6	4.0	2.8	0.11	9.90	46.00
L.AL	(00)11-35-001-26W1M(0)	3	99	744	116.1	91.8	4.0	3.7	0.79	44.20	34.00
LAM	(00)11-35-001-26W1M(2)	1	99	744	17.4	2.8	3.0	0.6	0.16	13.90	172.00
L.AL	(00)12-36-001-26W1M(0)	3	99	744	85.9	30.8	5.9	2.8	0.36	26.40	69.00
LAM	(00)12-36-001-26W1M(2)	1	99	744	0.0	50.1	2.1	0.0	*****	100.00	*****
U.AL	(00)05-03-002-26W1M(0)	2	99	744	99.7	7.8	4.5	3.2	0.08	7.30	45.00
LAM	(00)05-03-002-26W1M(2)	1	99	744	0.0	13.3	1.0	0.0	*****	100.00	*****
U.AL	(00)06-03-002-26W1M(0)	2	99	744	0.0	0.0	0.5	0.0	0.00	0.00	*****
LAM	(00)06-03-002-26W1M(2)	1	99	744	58.2	21.6	2.1	1.9	0.37	27.10	36.00
U.AL	(00)08-04-002-26W1M(0)	2	99	744	56.8	320.0	1.6	1.8	5.63	84.90	28.00
LAM	(00)08-04-002-26W1M(2)	1	99	744	378.7	50.9	0.0	12.2	0.13	11.80	0.00

Waskada Commingled Production
Fluid Levels

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	89-11-03	92
	89-12-29	94
10-6-1-25 WPM	89-11-23	95
	89-12-29	91
10-30-1-25 WPM	89-11-16	95
	89-12-12	97
8-32-1-25 WPM	89-11-23	95
	89-12-11	92
9-32-1-25 WPM	89-11-29	95
	89-12-11	96
9-33-1-25 WPM	89-11-29	96
	89-12-11	92
1-23-1-26 WPM	89-11-06	96
	89-11-17	92
	89-12	Not Producing
9-24-1-26 WPM	89-11-24	95
	89-12-12	93
12-24-1-26 WPM	89-11-06	94
	89-12-12	95
4-25-1-26 WPM	89-11-23	94
	89-12-12	95
1-26-1-26 WPM	89-11-06	94
	89-12-12	94
2-26-1-26 WPM	89-11-06	96
	89-12-12	96
	89-12-27	95
11-34-1-26 WPM	89-11-06	94
	89-12-08	97
14-34-1-26 WPM	89-11-29	95
	89-12-08	95
7-35-1-26 WPM	89-11-06	96
	89-12-08	94
8-35-1-26 WPM	89-11-06	93
	89-12-06	97
9-35-1-26 WPM	89-11-06	96
	89-12-08	93
10-35-1-26 WPM	89-11-06	97
	89-12-08	93

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
11-35-1-26 WPM	89-11-06	75
	89-11-16	96
	89-12-08	93
12-36-1-26 WPM	89-11-06	95
	89-12-27	95
8-8-2-25 WPM	89-11-20	94
	89-12-11	91
5-3-2-26 WPM	89-11-06	96
	89-12-27	93
6-3-2-26 WPM	89-11-06	95
	89-12-27	94
8-4-2-26 WPM	89-11-06	96
	89-12-27	92

Waskada Commingled Production
Workovers

WELL	DATE	OPERATIONS
5-6-1-25 WPM	89-11-07	Tubing Repair
10-6-1-25 WPM		No Operations
10-30-1-25 WPM		No Operations
8-32-1-25 WPM	89-11-09	Tubing Repair
9-32-1-25 WPM	89-11-01	Hot Oil
9-33-1-25 WPM		No Operations
1-23-1-26 WPM		No Operations
9-24-1-26 WPM	89-11-22 89-12-29	Hot Oil Pressure Test Tubing and Flush BHP
12-24-1-26 WPM	89-11-10	Pressure Test Tubing and Flush BHP
4-25-1-26 WPM	89-11-24	Pressure Test Tubing and Flush BHP
1-26-1-26 WPM	89-12-15 89-12-27	Pressure Test Tubing and Flush BHP Rod Repair
2-26-1-26 WPM	89-11-28	Rod Repair
11-34-1-26 WPM		No Operations
14-34-1-26 WPM	89-11-17	Tubing Repair
7-35-1-26 WPM		No Operations
8-35-1-26 WPM		No Operations
9-35-1-26 WPM		No Operations
10-35-1-26 WPM		No Operations
11-35-1-26 WPM	89-11-02	BHP Repair
12-35-1-26 WPM		No Operations
8-8-2-25 WPM		No Operations
5-4-2-26 WPM	89-11-07	Hot Oil
6-3-2-26 WPM		No Operations
8-4-2-26 WPM		No Operations

OMEGA
HYDROCARBONS LTD.

1300 SUN LIFE PLAZA III
112 - 4th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743
FAX (403) 264-5691

October 12, 1989

DEPARTMENT OF ENERGY AND MINES
OCT 18 1989
PETROLEUM BRANCH

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

Attention: Mr. J. Fox
Chief Petroleum Engineer

Dear Sir:

Re: Annual Commingled Well Production Tests

Please find attached the results of the annual production testing for the following commingled wells:

Omega Waskada 9-33-1-25 WPM
Omega Waskada 9-35-1-26 WPM
Omega Waskada 11-35-1-26 WPM
Omega Waskada 8-8-2-25 WPM

These values will be assigned to the Lower Amaranth zones in order to determine the production rates on the second zones. This will involve subtracting these rates from the total production rates from these wells and allocating the difference to the Mississippian zones. These new allocation rates will be implemented for the September and October production data as necessary.

This method of allocating production for the commingled wells is being reviewed and another method may be suggested for consideration. It is hoped that the new method will alleviate the occurrence of allocating zero production to one of the commingled zones as is the case with the present system.

Should you require additional information, please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Production Engineer

c.c.: R.A. Brekke
K. Hall
Waskada Special Project Commingled Production

WASKADA COMMINGLED WELLS
PRODUCTION ALLOCATION

Following are the results for the annual production tests for the specified zones.

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
9-33-1-25 WPM	L.Amaranth	89/09/21	24	1.6	1.4	-
		89/09/22	24	1.5	1.3	-
		89/09/23	24	1.4	1.1	-
		89/09/24	24	1.7	1.4	-
		89/09/25	24	1.5	1.3	-
	AVERAGE			1.54	1.30	N/A

21 l

AVERAGE WATER/OIL RATIO = 0.844 m^3/m^3
AVERAGE GAS/OIL RATIO = N/A

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
9-35-1-26 WPM	L.Amaranth	89/09/15	24	1.06	0.04	0.09
		89/09/16	24	1.09	0.05	0.09
		89/09/17	24	1.06	0.06	0.10
		89/09/25	24	0.86	0.05	0.09
	AVERAGE			1.02	0.05	0.09

AVERAGE WATER/OIL RATIO = 0.049 m^3/m^3
AVERAGE GAS/OIL RATIO = 90.909 m^3/m^3

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
11-35-1-26 WPM	L.Amaranth	89/09/03	24	0.49	0.05	0.01
		89/09/05	24	0.44	0.04	0.02
		89/09/09	24	0.75	0.12	0.09
		89/09/10	24	0.39	0.05	0.09
		89/10/11	24	0.39	0.02	0.08
	AVERAGE			0.49	0.06	0.06

92

AVERAGE WATER/OIL RATIO = 0.114 m^3/m^3
AVERAGE GAS/OIL RATIO = 117.886 m^3/m^3

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)
8-8-2-25 WPM	L.Amaranth	89/09/15	24	0.11	0.16	0.02
		89/09/16	24	0.16	0.18	0.02
		89/09/17	24	0.11	0.11	0.02
	AVERAGE			0.13	0.15	0.02

AS2

AVERAGE WATER/OIL RATIO = 1.184 m^3/m^3
AVERAGE GAS/OIL RATIO = 157.895 m^3/m^3

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HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
MAY 9 1989
PETROLEUM BRANCH

May 3, 1989

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

Attention: Mr. L.R. Dubreuil
Executive Director

Dear Sir:

Re: Annual Commingled Well Production Tests

Please find attached the results of the annual production testing for the following commingled wells:

Omega Waskada 5-6-1-25 WPM
Omega Waskada 10-35-1-26 WPM
Omega Waskada 6-3-2-26 WPM

These values will be assigned to the Lower Amaranth zones in order to determine the production rates on the second zones. This will involve subtracting these rates from the total production rates from these wells and allocating the difference to the Mississippian zones. These new allocation rates will be implemented for the May production data.

Should you require additional information, please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Production Engineer

c.c.: R.A. Brekke
K. Hall
Waskada Special Project Commingled Production

WASKADA COMMINGLED WELLS
PRODUCTION ALLOCATION

Following are the results for the annual production tests for the specified zones.

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)	% variation (max - min / min)
5-6-1-25 WPM	L.Amaranth	89/04/01	24	3.9	2.9	-	22%
		89/04/02	24	3.6	2.6	-	
		89/04/03	24	3.7	2.6	-	
		89/04/04	24	4.4	3.2	-	
		89/04/05	24	3.6	2.6	-	
	AVERAGE			3.84	2.78		

AVERAGE WATER/OIL RATIO = 0.724 m^3/m^3
AVERAGE GAS/OIL RATIO = N/A

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)	
10-35-1-26 WPM	L.Amaranth	89/03/27	24	3.42	1.14	0.12	17%
		89/03/31	24	3.99	0.30	0.11	
		89/04/01	24	3.53	0.88	0.11	
		89/04/09	24	3.72	0.65	0.11	
	AVERAGE			3.66	0.74	0.11	

AVERAGE WATER/OIL RATIO = 0.203 m^3/m^3
AVERAGE GAS/OIL RATIO = 30.696 m^3/m^3

Well	Zone	Test Date	Hours	Oil (m^3)	Water (m^3)	Gas (10^3m^3)	
6-3-2-26 WPM	L.Amaranth	89/03/31	24	1.92	1.92	0.03	10%
		89/04/01	24	1.83	2.24	0.04	
		89/04/02	24	1.74	2.20	0.05	
	AVERAGE			1.83	2.12	0.04	

AVERAGE WATER/OIL RATIO = 1.158 m^3/m^3
AVERAGE GAS/OIL RATIO = 21.858 m^3/m^3

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

August 11, 1989

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. John Fox
Chief Petroleum Engineer

Dear Sir:

Re: Waskada Production Commingling
Progress Report May/June 1989

Please find enclosed a summary of the events and data for the months of May and June, 1989. Included in this summary is production data, wellbore fluid levels and workover operations.

During the reported months there have been six additional wells commingled. They are wells 8-32-1-25, 1-23-1-26, 9-24-1-26, 12-24-1-26, 1-26-1-26 and 14-34-1-26 WPM. Wells 10-30-1-25, 4-25-1-26 and 2-26-1-25 WPM were production tested during May and June.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
R. A. Brekke
Waskada Special Projects File - Commingling

MONTH REPORT: 1989-05

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L.AL	(0)05-06-001-25 W1M(0)	3	99	704	119.3	121.5	10.8	4.07	1.02	50.5	90.5
LAM	(0)05-06-001-25 W1M(2)	1	99	728	116.1	86.2	10.5	3.83	0.74	42.6	90.4
L.AL	(0)10-06-001-25 W1M(0)	3	99	650	72.6	24.0	6.6	2.68	0.33	24.8	90.9
LAM	(0)10-06-001-25 W1M(2)	1	99	650	72.6	64.9	6.6	2.68	0.89	47.2	90.9
L.AL	(0)10-30-001-25 W1M(0)	3	99	336	14.9	64.3	29.7	1.06	4.32	81.2	1993.3
LAM	(0)10-30-001-25 W1M(2)	1	99	19	0.0	1.4	0.0	0.00	99.99	100.0	0.0
L.AL	(0)08-32-001-25 W1M(0)	3	99	525	87.4	85.7	0.0	4.00	0.98	49.5	0.0
LAM	(0)08-32-001-25 W1M(2)	1	14	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0
LAM	(0)09-32-001-25 W1M(0)	1	99	744	97.9	36.3	8.9	3.16	0.37	27.0	90.9
L.AL	(0)09-32-001-25 W1M(2)	3	99	744	0.0	30.9	0.0	0.00	99.99	100.0	0.0
TIL	(0)09-33-001-25 W1M(0)	4	99	738	0.0	46.3	0.0	0.00	99.99	100.0	0.0
LAM	(0)09-33-001-25 W1M(2)	1	99	738	55.7	55.7	5.0	1.81	1.00	50.0	89.8
TIL	(0)08-08-002-25 W1M(0)	4	99	744	119.1	80.6	0.0	3.84	0.68	40.4	0.0
LAM	(0)08-08-002-25 W1M(2)	1	8	744	28.1	2.2	0.9	0.91	0.08	7.3	32.0
LAM	(0)01-23-001-26 W1M(0)	1	4	216	19.1	3.0	2.5	2.12	0.16	13.6	130.9
L.AL	(0)01-23-001-26 W1M(2)	3	12	472	135.7	77.3	0.0	6.90	0.57	36.3	0.0
L.AL	(0)09-24-001-26 W1M(0)	3	12	18	0.0	0.4	0.0	0.00	99.99	100.0	0.0
LAM	(0)09-24-001-26 W1M(2)	1	1	342	23.7	34.1	4.2	1.66	1.44	59.0	177.2
L.AL	(0)12-24-001-26 W1M(0)	3	12	669	131.0	161.4	0.0	4.70	1.23	55.2	0.0
LAM	(0)12-24-001-26 W1M(2)	1	1	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0
LAM	(0)01-26-001-26 W1M(0)	1	1	277	47.9	32.2	5.3	4.15	0.67	40.2	110.6
L.AL	(0)01-26-001-26 W1M(2)	3	12	425	163.2	93.3	0.0	9.22	0.57	36.4	0.0
U.AL	(0)11-34-001-26 W1M(0)	2	99	695	83.1	4.4	1.4	2.87	0.05	5.0	16.8
LAM	(0)11-34-001-26 W1M(2)	1	99	695	8.0	17.4	0.0	0.28	2.18	68.5	0.0
LAM	(0)14-34-001-26 W1M(0)	1	5	246	1.4	8.3	0.0	0.14	5.93	85.6	0.0
U.AL	(0)14-34-001-26 W1M(2)	2	99	330	27.7	44.1	0.0	2.02	1.59	61.4	0.0
L.AL	(0)07-35-001-26 W1M(0)	3	99	726	41.0	0.8	1.9	1.36	0.02	1.9	46.3
LAM	(0)07-35-001-26 W1M(2)	1	99	726	40.7	7.1	3.7	1.35	0.17	14.9	90.9
LAM	(0)08-35-001-26 W1M(0)	1	99	726	133.0	8.8	3.7	4.40	0.07	6.2	27.8
L.AL	(0)08-35-001-26 W1M(2)	3	99	726	26.9	1.2	2.8	0.89	0.05	4.3	104.1
L.AL	(0)09-35-001-26 W1M(0)	3	99	726	77.6	5.3	1.9	2.57	0.07	6.4	24.5
LAM	(0)09-35-001-26 W1M(2)	1	99	726	0.0	1.6	2.3	0.00	99.99	100.0	99999.0
L.AL	(0)10-35-001-26 W1M(0)	3	99	630	15.8	0.0	2.0	0.60	0.00	0.0	126.6
LAM	(0)10-35-001-26 W1M(2)	1	99	678	98.4	9.9	5.0	3.48	0.10	9.1	50.8

MONTH REPORT: 1989-05

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L.AL	(0)11-35-001-26 W1M(0)	3	99	726	79.0	11.2	1.9	2.61	0.14	12.4	24.1
LAM	(0)11-35-001-26 W1M(2)	1	99	726	2.9	0.0	1.9	0.10	0.00	0.0	655.2
L.AL	(0)12-36-001-26 W1M(0)	3	99	726	85.7	32.3	0.9	2.83	0.38	27.4	10.5
LAM	(0)12-36-001-26 W1M(2)	1	99	726	24.2	0.0	0.5	0.80	0.00	0.0	20.7
U.AL	(0)05-03-002-26 W1M(0)	2	99	696	124.7	10.8	5.0	4.30	0.09	8.0	40.1
LAM	(0)05-03-002-26 W1M(2)	1	99	696	0.0	19.4	0.0	0.00	99.99	100.0	0.0
U.AL	(0)06-03-002-26 W1M(0)	2	99	563	0.0	0.0	0.3	0.00	0.00	0.0	99999.0
LAM	(0)06-03-002-26 W1M(2)	1	99	563	24.4	14.1	0.8	1.04	0.58	36.6	32.8
U.AL	(0)08-04-002-26 W1M(0)	2	99	726	46.1	115.9	1.9	1.52	2.51	71.5	41.2
LAM	(0)08-04-002-26 W1M(2)	1	99	726	147.9	0.0	1.9	4.89	0.00	0.0	12.8

77 m^3 OPD
35 m^3 OPD /well

9 zones no adequate
oil prod.

MONTH REPORT: 1989-06

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L.AL	(0)05-06-001-25 W1M(0)	3	99	620	80.7	103.7	7.1	3.12	1.29	56.2	88.0
LAM	(0)05-06-001-25 W1M(2)	1	99	620	99.2	71.8	8.7	3.84	0.72	42.0	87.7
L.AL	(0)10-06-001-25 W1M(0)	3	99	720	80.4	103.7	7.0	2.68	1.29	56.3	87.1
LAM	(0)10-06-001-25 W1M(2)	1	99	720	11.9	0.0	1.0	0.40	0.00	0.0	84.0
L.AL	(0)10-30-001-25 W1M(0)	3	99	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0
LAM	(0)10-30-001-25 W1M(2)	1	99	688	0.0	34.1	15.2	0.00	99.99	100.0	99999.0
L.AL	(0)08-32-001-25 W1M(0)	3	99	691	13.8	77.8	0.3	0.48	5.64	84.9	21.7
LAM	(0)08-32-001-25 W1M(2)	1	14	528	33.7	46.4	1.0	1.53	1.38	57.9	29.7
LAM	(0)09-32-001-25 W1M(0)	1	99	600	38.6	14.3	3.4	1.54	0.37	27.0	88.1
L.AL	(0)09-32-001-25 W1M(2)	3	99	600	0.0	74.9	0.0	0.00	99.99	100.0	0.0
TIL	(0)09-33-001-25 W1M(0)	4	99	720	12.1	0.0	1.1	0.40	0.00	0.0	90.9
LAM	(0)09-33-001-25 W1M(2)	1	99	720	66.0	64.9	5.8	2.20	0.98	49.6	87.9
TIL	(0)08-08-002-25 W1M(0)	4	99	708	116.8	87.2	0.0	3.96	0.75	42.7	0.0
LAM	(0)08-08-002-25 W1M(2)	1	8	708	27.4	2.1	0.9	0.93	0.08	7.1	32.8
LAM	(0)01-23-001-26 W1M(0)	1	4	332	12.4	4.9	0.2	0.90	0.40	28.3	16.1
L.AL	(0)01-23-001-26 W1M(2)	3	12	561	26.5	143.7	0.0	1.13	5.42	84.4	0.0
L.AL	(0)09-24-001-26 W1M(0)	3	12	632	70.3	24.2	0.0	2.67	0.34	25.6	0.0
LAM	(0)09-24-001-26 W1M(2)	1	1	632	61.0	32.0	0.0	2.32	0.53	34.4	0.0
L.AL	(0)12-24-001-26 W1M(0)	3	12	657	127.8	219.2	0.0	4.67	1.72	63.2	0.0
LAM	(0)12-24-001-26 W1M(2)	1	1	460	118.7	29.8	9.9	6.19	0.25	20.1	83.4
L.AL	(0)04-25-001-26 W1M(0)	3	12	192	16.5	60.1	0.0	2.06	3.64	78.5	0.0
LAM	(0)04-25-001-26 W1M(2)	1	1	528	108.4	10.5	2.2	4.93	0.10	8.8	20.3
LAM	(0)01-26-001-26 W1M(0)	1	1	545	104.6	9.0	10.4	4.61	0.09	7.9	99.4
L.AL	(0)01-26-001-26 W1M(2)	3	12	696	40.1	124.1	0.0	1.38	3.10	75.6	0.0
LAM	(0)02-26-001-26 W1M(0)	1	1	504	113.0	91.9	11.7	5.38	0.81	44.9	103.5
L.AL	(0)02-26-001-26 W1M(2)	3	12	192	0.0	82.2	0.0	0.00	99.99	100.0	0.0
U.AL	(0)11-34-001-26 W1M(0)	2	99	720	62.4	3.4	1.8	2.08	0.05	5.2	28.8
LAM	(0)11-34-001-26 W1M(2)	1	99	720	0.0	14.4	0.9	0.00	99.99	100.0	99999.0
LAM	(0)14-34-001-26 W1M(0)	1	5	490	3.0	20.5	0.3	0.15	6.83	87.2	100.0
U.AL	(0)14-34-001-26 W1M(2)	2	99	656	47.6	37.6	0.3	1.74	0.79	44.1	6.3
L.AL	(0)07-35-001-26 W1M(0)	3	99	720	41.6	0.8	1.8	1.39	0.02	1.9	43.3
LAM	(0)07-35-001-26 W1M(2)	1	99	720	30.2	10.2	4.0	1.01	0.34	25.2	132.5
LAM	(0)08-35-001-26 W1M(0)	1	99	720	27.3	12.7	2.7	0.91	0.47	31.8	98.9
L.AL	(0)08-35-001-26 W1M(2)	3	99	720	86.2	54.7	4.0	2.87	0.64	38.8	46.4

MONTH REPORT: 1989-06

ZONE	WELL NAME	POOL CODE	BLOCK CODE	HOURS ON	OIL m^3/M	WATER m^3/M	GAS km^3/M	OIL m^3/d	WOR	WC %	GOR m^3/m^3
L.AL	(0)09-35-001-26 W1M(0)	3	99	720	79.1	5.5	1.8	2.64	0.07	6.5	22.8
LAM	(0)09-35-001-26 W1M(2)	1	99	720	0.0	0.8	2.7	0.00	99.99	100.0	99999.0
L.AL	(0)10-35-001-26 W1M(0)	3	99	720	0.0	0.0	0.0	0.00	0.00	0.0	0.0
LAM	(0)10-35-001-26 W1M(2)	1	99	720	74.5	5.1	5.8	2.48	0.07	6.4	77.9
L.AL	(0)11-35-001-26 W1M(0)	3	99	720	60.1	13.6	1.3	2.00	0.23	18.5	21.6
LAM	(0)11-35-001-26 W1M(2)	1	99	720	0.0	21.6	1.8	0.00	99.99	100.0	99999.0
L.AL	(0)12-36-001-26 W1M(0)	3	99	720	78.9	31.8	0.9	2.63	0.40	28.7	11.4
LAM	(0)12-36-001-26 W1M(2)	1	99	720	0.0	18.7	1.3	0.00	99.99	100.0	99999.0
U.AL	(0)05-03-002-26 W1M(0)	2	99	720	75.6	5.9	3.1	2.52	0.08	7.2	41.0
LAM	(0)05-03-002-26 W1M(0)	1	99	720	0.0	0.0	0.0	0.00	0.00	0.0	0.0
U.AL	(0)06-03-002-26 W1M(0)	2	99	720	13.2	0.0	0.4	0.44	0.00	0.0	30.3
LAM	(0)06-03-002-26 W1M(2)	1	99	720	53.6	56.8	1.8	1.79	1.06	51.4	33.6
U.AL	(0)08-04-002-26 W1M(0)	2	99	720	46.9	264.3	1.8	1.56	5.64	84.9	38.4
LAM	(0)08-04-002-26 W1M(2)	1	99	720	17.6	0.0	0.4	0.59	0.00	0.0	22.7

72.7 → OPD

3.03 → OPD/well

10 zones with no assigned oil prod.

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM	89-05-02	Back to commingled after Annual Production Test
10-6-1-25 WPM	89-05-01	Replace BHP
10-30-1-25 WPM	89-05-29	Complete LAlida for testing
8-32-1-25 WPM	89-05-09	Complete LAlida for testing
	89-06-09	Commingled LAm and LAlida
9-32-1-25 WPM	89-06-19	Replace polish rod
	89-06-28	Replace BHP
9-33-1-25 WPM		No operations
8-8-2-25 WPM		No operations
1-23-1-26 WPM	89-05-11	Complete LAlida for testing
	89-06-09	Commingle LAm and LAlida
9-24-1-26 WPM	89-05-13	Complete LAlida for testing
	89-05-30	Reperf and re-acidize LAlida
	89-06-27	Commingle LAm and LAlida
12-24-1-26 WPM	89-05-03	Acidize LAlida for testing
	89-06-08	Commingle LAm and LAlida
4-25-1-26 WPM	89-06-22	Complete LAlida for testing
1-26-1-26 WPM	89-05-11	Complete LAlida for testing
	89-06-08	Commingle LAm and LAlida
2-26-1-26 WPM	89-06-22	Complete LAlida for testing
11-34-1-26 WPM		No operations

14-34-1-26 WPM	89-05-15	Recomplete LAlida for testing
	89-06-10	Commingle LAm and LAlida
7-35-1-26 WPM		No operations
8-35-1-26 WPM		No operations
9-35-1-26 WPM		No operations
10-35-1-26 WPM	89-05-04	Back to commingled after Annual Production Test
11-35-1-26 WPM		No operations
12-36-1-26 WPM		No operations
5-3-2-26 WPM		No operations
6-3-2-26 WPM	89-05-01	Back to commingled after Annual Production Test
8-4-2-26 WPM		No operations

WASKADA PRODUCTION COMMINGLING
FLUID LEVELS

WELL	DATE	FLUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	89-05-23	90
	89-06-20	94
10-6-1-25 WPM	89-05-23	93
	89-06-15	95
8-32-1-25 WPM	89-06-27	97
9-32-1-25 WPM	89-05-30	96
	89-06-27	79
9-33-1-25 WPM	89-05-30	92
	89-06-27	94
8-8-2-25 WPM	89-05-08	95
	89-06-27	92
1-23-1-26 WPM	89-06-15	95
12-24-1-26 WPM	89-06-15	87
1-26-1-26 WPM	89-06-15	94
11-34-1-26 WPM	89-05-15	90
	89-06-15	94
14-34-1-26 WPM	89-06-15	95
7-35-1-26 WPM	89-05-23	92
	89-06-28	93
8-35-1-26 WPM	89-05-23	96
	89-06-28	96
9-35-1-26 WPM	89-05-23	96
	89-06-28	95
10-35-1-26 WPM	89-05-23	95
	89-06-27	94
11-35-1-26 WPM	89-05-23	93
	89-06-27	95
12-36-1-26 WPM	89-05-18	93
	89-06-28	95

5-3-2-26 WPM	89-05-15	54
	89-05-23	90
	89-06-28	92
6-3-2-26 WPM	89-05-15	94
	89-06-28	96
8-4-2-26 WPM	89-05-23	91
	89-06-28	92

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

DEPARTMENT OF ENERGY AND MINES
JUN 13 1989
PETROLEUM BRANCH

June 5, 1989

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. John Fox
Chief Petroleum Engineer

Dear Sir:

Re: Waskada Production Commingling
Progress Report March/April 1989

Please find enclosed a summary of the events and data for the months of March and April, 1989. Included in this summary is production data, wellbore liquid levels and workover operations.

During the reported months there have been no additional wells commingled. Wells 5-6-1-25, 10-35-1-26 and 6-3-2-26 WPM were production tested for production allocation during March and April as required. The results have been forwarded.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
R. A. Brekke
Waskada Special Projects File - Commingling

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM	89-03-22	Recomplete for Annual Production Test (LAm)
10-6-1-25 WPM		No operations
9-32-1-25 WPM		No operations
9-33-1-25 WPM		No operations
12-24-1-26 WPM	89-03-22	Complete LAlida for testing
11-34-1-26 WPM		No operations
7-35-1-26 WPM		No operations
8-35-1-26 WPM		No operations
9-35-1-26 WPM		No operations
10-35-1-26 WPM	89-03-22	Recomplete for Annual Production Test (LAm)
11-35-1-26 WPM		No operations
12-36-1-26 WPM	89-04-18	Flushed pump
8-8-2-25 WPM		No operations
5-3-2-26 WPM		No operations
6-3-2-26 WPM	89-03-22	Recomplete for Annual Production Test (LAm)
8-4-2-26 WPM		No operations

WASKADA PRODUCTION COMMINGLING
LIQUID LEVELS

WELL	DATE	LIQUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	89-04-23	96
10-6-1-25 WPM	89-03-16	97
	89-04-11	95
9-32-1-25 WPM	89-03-30	96
	89-04-18	95
9-33-1-25 WPM	89-03-30	91
	89-04-25	82
	89-04-27	91
11-34-1-26 WPM	89-03-24	97
7-35-1-26 WPM	89-03-14	91
	89-04-19	84
	89-04-20	96
8-35-1-26 WPM	89-03-14	93
	89-04-19	94
9-35-1-26 WPM	89-03-14	95
	89-04-19	94
10-35-1-26 WPM	89-03-13	93
	89-04-19	89
11-35-1-26 WPM	89-03-13	93
	89-04-19	96
12-36-1-26 WPM	89-03-14	92
	89-04-20	92
8-8-2-25 WPM	89-03-13	93
	89-04-18	93
5-3-2-26 WPM	89-03-13	94
	89-04-18	93
6-3-2-26 WPM	89-03-13	96
	89-04-19	93
8-4-2-26 WPM	89-03-30	96
	89-04-19	93

WASKADA COMMINGLED PRODUCTION

Month March 1989

Formation	Unique Well Identifier	HRS.	OIL m^3	WATER m^3	GAS km^3	OIL/D m^3	WOR	WATER CUT %	GOR
L.Alida	5-6-1-25 W1M(0)	132	16.5	13.4	2.0	3.00	0.81	44.8	121.2
LAm	5-6-1-25 W1M(2)	346	45.4	17.4	5.4	3.15	0.38	27.7	118.9
L.Alida	10-6-1-25 W1M(0)	744	83.1	27.4	9.9	2.68	0.33	24.8	119.1
LAm	10-6-1-25 W1M(2)	744	37.6	11.5	4.5	1.21	0.31	23.4	119.7
LAm	9-32-1-25 W1M(0)	744	13.7	31.1	1.6	0.44	2.27	69.4	116.8
L.Alida	9-32-1-25 W1M(2)	744	111.9	41.5	13.3	3.61	0.37	27.1	118.9
Tilston	9-33-1-25 W1M(0)	744	41.7	0.0	4.9	1.35	0.00	0.0	117.5
LAm	9-33-1-25 W1M(2)	744	68.2	39.1	8.1	2.20	0.57	36.4	118.8
Tilston	8-8-2-25 W1M(0)	744	106.0	89.9	1.7	3.42	0.85	45.9	16.0
LAm	8-8-2-25 W1M(2)	744	27.3	2.1	1.0	0.88	0.08	7.1	36.6
L.Alida	12-24-1-26 WPM(0)	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0
LAm	12-24-1-26 WPM(2)	511	129.3	18.1	14.4	6.07	0.14	12.3	111.4
L.Alida	11-34-1-26 WPM(0)	744	86.4	4.4	2.7	2.79	0.05	4.8	3.13
LAm	11-34-1-26 WPM(2)	744	48.3	9.6	4.2	1.56	0.20	16.6	87.0
U.Alida	7-35-1-26 W1M(0)	737	40.4	0.8	11.4	1.32	0.02	1.9	282.2
LAm	7-35-1-26 W1M(2)	737	68.3	7.1	0.0	2.22	0.10	9.4	0.0
L.Alida	8-35-1-26 W1M(0)	720	25.8	1.2	3.0	0.86	0.05	4.4	116.3
LAm	8-35-1-26 W1M(2)	720	196.8	8.2	7.6	6.56	0.04	4.0	38.6
LAm	9-35-1-26 W1M(0)	632	66.6	3.8	1.8	2.53	0.06	5.4	27.0
L.Alida	9-35-1-26 W1M(2)	632	24.9	0.0	5.4	0.95	0.00	0.0	216.9
L.Alida	10-35-1-26 W1M(0)	458	35.4	3.0	1.3	1.86	0.09	7.8	36.7
LAm	10-35-1-26 W1M(2)	620	38.5	7.9	3.5	1.49	0.21	17.0	90.9
L.Alida	11-35-1-26 W1M(0)	744	78.8	5.2	2.2	2.54	0.07	6.2	27.9
LAm	11-35-1-26 W1M(2)	744	31.0	0.0	4.2	1.00	0.00	0.0	135.5
L.Alida	12-36-1-26 W1M(0)	744	85.3	29.5	1.0	2.75	0.34	25.6	11.7
LAm	12-36-1-26 W1M(2)	744	87.6	0.0	1.7	2.83	0.00	0.0	19.4
L.Alida	5-3-2-26 W1M(0)	730	129.9	10.6	4.0	4.27	0.08	7.5	30.8
LAm	5-3-2-26 W1M(2)	730	27.3	6.0	0.0	0.90	0.22	18.0	0.0
U.Alida	6-3-2-26 W1M(0)	504	31.1	4.9	2.2	1.48	0.16	13.6	70.7
LAm	6-3-2-26 W1M(2)	729	61.7	5.3	0.7	2.03	0.09	7.9	11.3
U.Alida	8-4-2-26 W1M(0)	744	46.0	245.3	5.2	1.48	5.33	84.2	113.0
LAm	8-4-2-26 W1M(2)	744	162.2	0.0	0.0	5.23	0.00	0.0	0.0

2053

4.14 m3OPD/well

WASKADA COMMINGLED PRODUCTION

Month: April 1989

Formation	Unique Well Identifier	HRS.	OIL m^3	WATER m^3	GAS km^3	OIL/D m^3	WOR	WATER CUT %	GOR
L.Alida	5-6-1-25 W1M(0) *	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0
LAm	5-6-1-25 W1M(2)	719	100.0	103.3	10.0	3.34	1.03	50.8	100.0
L.Alida	10-6-1-25 W1M(0)	599	36.4	12.0	3.7	1.46	0.33	24.8	101.6
LAm	10-6-1-25 W1M(2)	599	0.0	6.4	0.0	0.00	N/A	100.0	0.0
LAm	9-32-1-25 W1M(0)	719	0.0	25.4	0.0	0.00	N/A	100.0	0.0
L.Alida	9-32-1-25 W1M(2)	719	102.2	37.9	10.3	3.41	0.37	27.1	100.8
Tilston	9-33-1-25 W1M(0)	627	53.7	0.0	5.4	2.06	0.00	0.0	100.6
LAm	9-33-1-25 W1M(2)	627	57.5	24.7	5.8	2.20	0.43	30.0	100.9
Tilston	8-8-2-25 W1M(0)	719	123.0	69.8	0.0	4.11	0.57	36.2	0.0
LAm	8-8-2-25 W1M(2)	719	28.0	1.9	0.9	0.94	0.07	6.4	32.1
L.Alida	12-24-1-26 W1M(0)	42	9.3	14.4	0.0	5.31	1.55	60.8	0.0
LAm	12-24-1-26 W1M(2)	0	0.0	0.0	0.0	0.00	0.00	0.0	0.0
U.Alida	11-34-1-25 W1M(0)	657	81.0	3.7	2.2	2.96	0.05	4.4	27.2
LAm	11-34-1-25 W1M(2)	657	8.4	5.8	0.0	0.31	0.69	40.8	0.0
L.Alida	7-35-1-26 W1M(0)	695	40.4	0.7	6.8	1.40	0.02	1.7	168.3
LAm	7-35-1-26 W1M(2)	695	47.0	8.3	0.0	1.62	0.18	15.0	0.0
LAm	8-35-1-26 W1M(0)	719	27.4	1.1	2.8	0.92	0.04	3.9	102.2
L.Alida	8-35-1-26 W1M(2)	719	157.2	33.5	4.2	5.25	0.21	17.6	26.7
L.Alida	9-35-1-26 W1M(0)	719	80.4	4.8	1.9	2.68	0.06	5.6	23.6
LAm	9-35-1-26 W1M(2)	719	8.3	0.7	2.8	0.28	0.08	7.8	337.3
L.Alida	10-35-1-26 W1M(0)*	0	0.0	0.0	0.0	0.0	0.00	0.0	0.0
LAm	10-35-1-26 W1M(2)	705	88.5	20.2	4.3	3.01	0.23	18.6	48.6
L.Alida	11-35-1-26 W1M(0)	719	80.7	5.2	1.9	2.69	0.06	6.1	23.5
LAm	11-35-1-26 W1M(2)	719	14.1	0.0	4.2	0.47	0.00	0.0	297.9
L.Alida	12-36-1-26 W1M(0)	692	84.2	19.6	0.9	2.92	0.23	18.9	10.7
LAm	12-36-1-26 W1M(2)	692	57.3	0.0	0.9	1.99	0.00	0.0	15.7
U.Alida	5-3-2-26 W1M(0)	719	135.7	10.0	3.2	4.53	0.07	6.9	23.6
LAm	5-3-2-26 W1M(2)	719	3.8	7.8	0.0	0.13	2.05	67.2	0.0
U.Alida	6-3-2-26 W1M(0)*	0	0.0	0.0	0.0	0.0	0.00	0.0	0.0
LAm	6-3-2-26 W1M(2)	719	64.4	95.4	2.6	2.15	1.48	59.7	40.4
U.Alida	8-4-2-26 W1M(0)	719	47.2	111.9	8.8	1.58	2.37	70.3	186.4
LAm	8-4-2-26 W1M(2)	719	204.3	0.0	0.0	6.82	0.00	0.0	0.0

3.63 m3OPD/well

* annual segregation test

Manitoba

Action / Route Slip

Date: MAY 11/89

To: BOB

From: JOHN

Telephone:

- ☐ Take Action
- ☐ May We Discuss
- ☐ Per Your Request
- ☐ For Your Information
- ☐ Circulate, Initial and Return
- ☐ Return With Comments or Revisions
- ☐ For Approval and Signature
- ☐ Draft Reply for Signature
- ☐ Make ____ Copies
- ☐ Please File

Comments: COMPARISON OF LAM PRODUCTION TEST RATES (Commingled wells) (oil/wtr)

5-6-1-25	MAR/88	2.5/3.4	APR/89	3.8/2.8
10-35-1-26	MAR/88	1.6/0.3	APR/89	3.7/.7
6-3-2-26	MAR/88	4.0/0.9	APR/89	1.8/2.1

MG-1298 PS-f-182

JOHN

OMEGA
HYDROCARBONS LTD.

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

March 28, 1989

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Bob Dubreuil
Executive Director

Dear Sir:

Re: Waskada Production Commingling
Progress Report January/February 1989

Please find enclosed a summary of the events and data for the months of January and February, 1989. Included in this summary is production data, wellbore liquid levels and workover operations.

Since the last reporting period, five wells have been commingled. They are wells 9-32-1-25, 7-35-1-26, 8-35-1-26, 5-3-2-26 and 8-4-2-26 WPM. Wells 5-6-1-25, 10-35-1-26 and 6-3-2-26 WPM are scheduled to be production tested in March in order to fulfill the annual testing requirements for production allocation.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
R. A. Brekke
Waskada Special Projects File - Commingling

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM	89-01-31	Tubing repair
10-6-1-25 WPM		No operations
9-32-1-25 WPM	89-02-13	Workover to commingle
9-33-1-25 WPM		No operations
11-34-1-26 WPM		No operations
7-35-1-26 WPM	89-01-05	Workover to commingle
8-35-1-26 WPM	89-01-05	Workover to commingle
9-35-1-26 WPM		No operations
10-35-1-26 WPM		No operations
11-35-1-26 WPM	89-01-30	Tubing repair
12-36-1-26 WPM		No operations
8-8-2-25 WPM		No operations
5-3-2-26 WPM	89-01-05	Workover to commingle
6-3-2-26 WPM		No operations
8-4-2-26 WPM	89-01-28 89-02-18	Complete LAm for testing Workover to commingle

WASKADA PRODUCTION COMMINGLING
LIQUID LEVELS

WELL	DATE	LIQUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	89-01-13	91
	89-01-25	94
	89-02-21	92
10-6-1-25 WPM	89-01-03	97
	89-01-26	96
	89-02-27	96
9-33-1-25 WPM	89-01-03	90
	89-02-15	91
11-34-1-26 WPM	89-01-03	66
	89-01-25	95
	89-02-21	93
7-35-1-26 WPM	89-01-25	94
	89-02-13	92
8-35-1-26 WPM	89-01-25	88
	89-02-13	94
9-35-1-26 WPM	89-01-03	96
	89-01-25	95
	89-02-15	94
10-35-1-26 WPM	89-01-03	94
	89-01-26	96
	89-02-21	94
11-35-1-26 WPM	89-01-04	93
	89-01-26	75
	89-02-21	92
12-36-1-26 WPM	89-01-04	93
	89-02-21	91
8-8-2-25 WPM	89-01-03	95
	89-01-25	95
	89-02-27	94
5-3-2-26 WPM	89-01-25	87
	89-02-15	94
6-3-2-26 WPM	89-01-03	95
	89-01-25	96
	89-02-15	97

WASKADA COMMINGLED PRODUCTION

Month: Janaury 1989

Formation	Unique Well Identifier	HRS.	OIL m^3	WATER m^3	GAS km^3	OIL/D m^3	WOR	WATER CUT %	GOR	
L.Alida	5-6-1-25 W1M(0)	648	81.0	68.0	10.6	3.0	0.84	45.6	131	220.7
LAm	5-6-1-25 W1M(2)	648	139.7	117.3	18.2	5.2	0.84	45.6	130	
L.Alida	10-6-1-25 W1M(0)	744	83.1	27.4	10.9	2.7	0.33	24.8	131	122.3
LAm	10-6-1-25 W1M(2)	744	39.2	36.1	5.1	1.3	0.92	47.9	130	
LAm	9-32-1-25 W1M(0)	0	0.0	0.0	0.0	0.0	0.00	0.0	0	
L.Alida	9-32-1-25 W1M(2)	744	39.7	119.1	5.2	1.3	3.00	75.0	131	
Tilston	9-33-1-25 W1M(0)	740	54.2	0.0	7.1	1.8	0.00	0.0	131	122.0
LAm	9-33-1-25 W1M(2)	740	67.8	33.7	8.9	2.2	0.50	33.2	131	
Tilston	8-8-2-25 W1M(0)	744	90.4	123.9	0.0	2.9	1.37	57.8	0	115.6
LAm	8-8-2-25 W1M(2)	744	25.2	2.3	1.2	0.8	0.09	8.4	48	
U.Alida	11-34-1-26 W1M(0)	696	74.7	4.7	3.1	2.6	0.06	5.9	10	136.5
LAm	11-34-1-26 W1M(2)	696	61.8	4.7	0.6	2.1	0.08	7.1	600	
L.Alida	7-35-1-26 W1M(0)	640	32.4	0.7	12.6	1.2	0.02	2.1	389	176.5
LAm	7-35-1-26 W1M(2)	732	144.1	14.0	0.0	4.7	0.10	8.9	0	
LAm	8-35-1-26 W1M(0)	636	21.1	1.2	3.3	0.8	0.06	5.4	156	
L.Alida	8-35-1-26 W1M(2)	732	224.1	57.6	15.3	7.4	0.26	20.4	68	245.2
L.Alida	9-35-1-26 W1M(0)	744	72.5	5.9	2.7	2.3	0.08	7.5	37	129.6
LAm	9-35-1-26 W1M(2)	744	57.1	0.6	4.5	1.8	0.01	1.0	79	
L.Alida	10-35-1-26 W1M(0)	744	53.0	6.3	2.7	1.7	0.12	10.6	51	95.4
LAm	10-35-1-26 W1M(2)	744	42.4	0.0	8.9	1.4	0.00	0.0	210	
L.Alida	11-35-1-26 W1M(0)	600	58.6	15.7	2.1	2.3	0.27	21.1	36	103.3
LAm	11-35-1-26 W1M(2)	600	44.7	22.2	4.7	1.8	0.50	33.2	105	
L.Alida	12-36-1-26 W1M(0)	687	72.8	3.4	1.0	2.5	0.05	4.5	14	137.5
LAm	12-36-1-26 W1M(2)	687	64.7	27.2	1.9	2.3	0.42	29.6	29	
U.Alida	5-3-2-26 W1M(0)	380	62.5	6.3	2.9	4.0	0.10	9.2	46	142.5
LAm	5-3-2-26 W1M(2)	476	80.0	53.4	0.0	4.0	0.67	40.0	0	
U.Alida	6-3-2-26 W1M(0)	744	44.9	47.9	1.3	1.5	1.07	51.6	29	111.8
LAm	6-3-2-26 W1M(2)	744	66.9	75.1	0.0	2.2	1.12	52.9	0	
U.Alida	8-4-2-26 W1M(0)	576	21.1	223.2	2.7	0.9	10.58	91.4	128	38.8
LAm	8-4-2-26 W1M(2)	40	17.7	15.9	0.0	10.6	0.90	47.3	0	

Ave commingled rate = 135.6 m^3/m
4.37 m^3/d
27.5 BPD

WASKADA COMMINGLED PRODUCTION

Month: February 1989

Formation	Unique Well Identifier	HRS.	OIL m^3	WATER m^3	GAS km^3	OIL/D m^3	WOR	WATER CUT %	GOR	
L.Alida	5-6-1-25 W1M(0)	672	84.0	70.6	10.7	3.0	0.84	45.7	127	210.8
LAm	5-6-1-25 W1M(2)	672	126.8	39.4	16.1	4.5	0.31	23.7	127	
L.Alida	10-6-1-25 W1M(0)	672	75.0	24.7	9.5	2.7	0.33	24.8	127	98.5
LAm	10-6-1-25 W1M(2)	672	23.5	41.2	3.0	0.8	1.75	63.7	128	
LAm	9-32-1-25 W1M(0)	371	49.1	13.7	6.2	3.2	0.28	21.8	126	126.8
L.Alida	9-32-1-25 W1M(2)	659	77.7	65.6	9.9	2.8	0.84	45.8	127	
Tilston	9-33-1-25 W1M(0)	606	45.4	0.0	5.8	1.8	0.00	0.0	128	101.0
LAm	9-33-1-25 W1M(2)	606	55.6	34.1	7.1	2.2	0.61	38.0	128	
Tilston	8-8-2-25 W1M(0)	672	75.5	105.7	2.5	2.7	1.40	58.6	33	97.9
LAm	8-8-2-25 W1M(2)	672	22.4	1.8	0.9	0.8	0.08	7.4	40	
U.Alida	11-34-1-26 W1M(0)	672	71.1	4.0	2.5	2.5	0.06	5.3	35	102.0
LAm	11-34-1-26 W1M(2)	672	30.9	1.8	3.1	1.1	0.06	5.5	100	
L.Alida	7-35-1-26 W1M(0)	672	33.5	0.7	11.1	1.2	0.02	2.0	331	107.2
LAm	7-35-1-26 W1M(2)	672	73.7	7.7	0.0	2.6	0.10	9.5	0	
LAm	8-35-1-26 W1M(0)	672	22.0	1.2	3.1	0.8	0.06	5.2	141	218.8
L.Alida	8-35-1-26 W1M(2)	672	196.8	9.9	9.0	7.0	0.05	4.8	46	
L.Alida	9-35-1-26 W1M(0)	596	57.1	4.2	1.8	2.3	0.07	6.9	32	83.1
LAm	9-35-1-26 W1M(2)	596	26.0	0.0	2.7	1.1	0.00	0.0	104	
L.Alida	10-35-1-26 W1M(0)	672	47.2	4.0	2.0	1.7	0.09	7.8	42	83.4
LAm	10-35-1-26 W1M(2)	672	36.2	0.0	2.5	1.3	0.00	0.0	69	
L.Alida	11-35-1-26 W1M(0)	598	57.6	13.9	1.8	2.3	0.24	19.4	31	94.3
LAm	11-35-1-26 W1M(2)	598	36.7	12.0	2.3	1.5	0.33	24.6	63	
L.Alida	12-36-1-26 W1M(0)	672	70.1	23.3	0.9	2.5	0.33	24.9	13	110.7
LAm	12-36-1-26 W1M(2)	672	40.6	0.0	0.9	1.5	0.00	0.0	22	
U.Alida	5-3-2-26 W1M(0)	672	108.8	9.9	6.5	3.9	0.09	8.3	60	182.5
LAm	5-3-2-26 W1M(2)	672	73.7	13.1	0.0	2.6	0.18	15.1	0	
U.Alida	6-3-2-26 W1M(0)	672	37.8	6.5	2.5	1.4	0.17	14.7	66	66.4
LAm	6-3-2-26 W1M(2)	672	28.6	0.0	0.0	1.0	0.00	0.0	0	
U.Alida	8-4-2-26 W1M(0)	642	36.1	173.2	0.0	1.4	4.80	82.8	0	117.5
LAm	8-4-2-26 W1M(2)	642	81.4	0.0	0.0	3.0	0.00	0.0	0	

Feb. 1989

120.1 m^3/mon
4.28 m^3/d
27 BPD

File
- Omega Waskada
Commingled Prod.

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
1989
PETROLEUM BRANCH

February 1, 1989

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Bob Dubreuil
Executive Director

Dear Sir:

Re: Waskada Production Commingling
Progress Report November/December 1988

Please find enclosed a summary of the events and data for the months of November and December, 1988. Included in this summary is production data, wellbore liquid levels and workover operations.

To the end of December two wells have been completed for commingling. They are wells 12-36-1-26 and 11-34-1-26 WPM. Wells 9-32-1-25, 7-35-1-26, 8-35-1-26 and 5-3-2-26 WPM have been recompleted in order to production test prior to commingling. Well 9-35-1-26 WPM is now pumped off as indicated by the fluid level data. This well has been continually adjusted since October in order to lower the fluid level. However, since this well was experiencing sand problems these adjustments were cautious in order to prevent pump problems.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
R. A. Brekke
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

Month: November 1988

Formation	Unique Well Identifier	HRS.	OIL m^3	WATER m^3	GAS km^3	OIL/D m^3	WOR	WATER CUT %	GOR
L.Alida	5-6-1-25 W1M(0)	720	90.0	75.6	10.8	3.0	0.84	45.7	120
LAm	5-6-1-25 W1M(2)	720	44.8	46.8	5.4	1.5 / 4.5	1.05	51.1	120
L.Alida	10-6-1-25 W1M(0)	720	80.4	26.5	9.4	2.7	0.33	24.8	121
LAm	10-6-1-25 W1M(2)	720	19.8	66.4	2.4	0.7 / 3.4	3.35	77.0	121
Tilston	9-33-1-25 W1M(0)	704	17.4	10.1	2.1	0.6	0.58	36.7	121
LAm	9-33-1-25 W1M(2)	704	64.5	64.5	7.8	2.2 / 2.8	1.00	50.0	121
Tilston	8-8-2-25 W1M(0)	720	91.0	130.0	0.0	3.0	1.43	58.8	0
LAm	8-8-2-25 W1M(2)	720	26.8	2.2	1.2	0.9 / 3.9	0.08	7.6	45
U.Alida	11-34-1-26 W1M(0)	216	24.2	2.1	1.0	2.7	0.09	8.0	41
LAm	11-34-1-26 W1M(2)	424	49.1	136.5	0.0	2.8 / 5.5	2.78	73.5	0
L.Alida	9-35-1-26 W1M(0)	720	76.9	5.8	2.4	2.6	0.08	7.0	31
LAm	9-35-1-26 W1M(2)	720	148.5	6.7	14.4	5.0 / 7.6	0.05	4.3	97
L.Alida	10-35-1-26 W1M(0)	720	56.4	7.6	2.4	1.9	0.14	11.9	43
LAm	10-35-1-26 W1M(2)	720	68.2	0.0	8.4	2.3 / 4.2	0.00	0.0	123
L.Alida	11-35-1-26 W1M(0)	720	77.2	4.9	2.4	2.6	0.06	6.0	31
LAm	11-35-1-26 W1M(2)	720	37.8	0.0	6.0	1.3 / 3.9	0.00	0.0	159
L.Alida	12-36-1-26 W1M(0)	404	47.0	20.9	0.0	2.8	0.45	30.8	0
LAm	12-36-1-26 W1M(2)	568	137.3	127.9	0.0	5.8 / 8.6	0.93	48.2	0
U.Alida	6-3-2-26 W1M(0)	632	39.6	16.1	3.2	1.5	0.41	28.9	81
LAm	6-3-2-26 W1M(2)	632	55.0	0.0	2.6	2.1 / 3.6	0.00	0.0	47

ave 4.8 m^3/d /well

WASKADA COMMINGLED PRODUCTION

Month: December 1988

Formation	Unique Well Identifier	HRS.	OIL m^3	WATER m^3	GAS km^3	OIL/D m^3	WOR	WATER CUT %	GOR
L.Alida	5-6-1-25 W1M(0)	676	59.4	49.9	7.8	2.1	0.84	45.7	131
LAm	5-6-1-25 W1M(2)	676	0.0	94.8	0.0	0.0/2.1	99.99	100.0	0
L.Alida	10-6-1-25 W1M(0)	744	83.1	27.4	11.0	2.7	0.33	24.8	132
LAm	10-6-1-25 W1M(2)	744	25.8	64.8	3.4	0.8/3.5	2.51	71.5	132
LAm	9-32-1-25 W1M(0)	24	2.8	1.0	0.4	2.8	0.36	26.3	143
L.Alida	9-32-1-25 W1M(2)	686	36.1	115.1	4.8	1.3/4.1	3.19	76.1	133
Tilston	9-33-1-25 W1M(0)	744	21.2	7.3	2.8	0.7	0.34	25.6	132
LAm	9-33-1-25 W1M(2)	744	68.2	68.2	9.0	2.2/2.9	1.00	50.0	132
Tilston	8-8-2-25 W1M(0)	744	85.2	120.8	0.0	2.8	1.42	58.6	0
LAm	8-8-2-25 W1M(2)	744	26.7	2.4	1.3	0.9/3.7	0.09	8.2	49
U.Alida	11-34-1-26 W1M(0)	444	50.5	3.0	2.0	2.7	0.06	5.6	40
LAm	11-34-1-26 W1M(2)	588	122.7	75.3	2.0	5.0/7.7	0.61	38.0	16
L.Alida	7-35-1-26 W1M(0)	96	5.6	0.6	0.4	1.4	0.11	9.7	71
LAm	7-35-1-26 W1M(2)	576	168.1	32.1	0.0	7.0/8.4	0.19	16.0	0
LAm	8-35-1-26 W1M(0)	154	18.6	1.0	1.3	2.9	0.05	5.1	70
L.Alida	8-35-1-26 W1M(2)	587	154.7	110.9	0.0	6.3/9.2	0.72	41.8	0
L.Alida	9-35-1-26 W1M(0)	744	76.8	5.9	2.9	2.5	0.08	7.1	38
LAm	9-35-1-26 W1M(2)	744	196.8	7.4	20.8	6.3/8.8	0.04	3.6	106
L.Alida	10-35-1-26 W1M(0)	744	56.2	7.4	2.9	1.8	0.13	11.6	52
LAm	10-35-1-26 W1M(2)	744	43.4	0.0	8.9	1.4/3.2	0.00	0.0	203
L.Alida	11-35-1-26 W1M(0)	744	77.0	4.6	2.9	2.5	0.06	5.6	38
LAm	11-35-1-26 W1M(2)	744	26.5	0.0	2.2	0.9/3.4	0.00	0.0	83
L.Alida	12-36-1-26 W1M(0)	744	83.5	38.2	1.3	2.7	0.46	31.4	16
LAm	12-36-1-26 W1M(2)	744	116.3	16.2	0.7	3.8/6.5	0.14	12.2	6
U.Alida	5-3-2-26 W1M(0)	106	10.8	0.9	1.3	2.5	0.08	7.7	120
LAm	5-3-2-26 W1M(2)	565	92.6	79.4	0.0	3.9/6.4	0.86	46.2	0
U.Alida	6-3-2-26 W1M(0)	744	44.9	47.9	1.3	1.5	1.07	51.6	29
LAm	6-3-2-26 W1M(2)	744	66.9	75.1	0.0	2.2/3.7	1.12	52.9	0

5.3 m^3/d / well

WASKADA PRODUCTION COMMINGLING
LIQUID LEVELS

WELL	DATE	LIQUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	88-11-16	90
	88-12-12	90
10-6-1-25 WPM	88-11-01	97
	88-11-10	96
	88-11-28	95
	88-12-13	96
	88-12-30	97
9-33-1-25 WPM	88-11-02	91
	88-11-28	91
	88-12-16	90
	88-12-30	90
8-8-2-26 WPM	88-11-15	92
	88-11-28	93
	88-12-12	93
	88-12-30	95
11-34-1-26 WPM	88-12-12	75
	88-12-16	96
9-35-1-26 WPM	88-11-02	63
	88-11-25	69
	88-12-12	92
	88-12-29	95
10-35-1-26 WPM	88-11-02	97
	88-11-28	93
	88-12-12	95
	88-12-29	94
11-35-1-26 WPM	88-11-02	95
	88-11-28	97
	88-12-12	93
	88-12-29	95
12-36-1-26 WPM	88-11-02	56
	88-11-16	56
	88-11-25	86
	88-12-12	93
	88-12-29	95
6-3-2-26 WPM	88-11-17	96
	88-11-25	93
	88-12-12	95
	88-12-29	94

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM	88-12-30	Tubing repair
10-6-1-25 WPM		No operations
9-32-1-25 WPM	88-12-03	Complete L.Alida for testing
9-33-1-25 WPM		No operations
8-8-2-25 WPM		No Operations
11-34-1-26 WPM	88-11-10 88-12-08	Complete LAm Drill out bridge plug to commingle
7-35-1-26 WPM	88-12-08	Complete LAm for testing
8-35-1-26 WPM	88-12-08	Complete L.Alida for testing
9-35-1-26 WPM	88-11-20 88-12-10	Increase stroke length Lowered tubing
10-35-1-26 WPM		No operations
11-35-1-26 WPM		No operations
12-36-1-26 WPM	88-11-03 88-11-10	Lower tubing Drill out bridge plug to commingle
5-3-2-26 WPM	88-12-08	Complete LAm testing
6-3-2-26 WPM	88-11-03 88-11-10	Condensate job Acidized

WASKADA Commingled Wells
Fluid Levels

Well →	5-6-1-25	10-6-1-25	9-33-1-25	8-8-2-25	9-35-1-26	10-35-1-26	11-35-1-26	6-3-2-26	6-6-1-25	12-36-1-26	11-34-1-26
Date ↓	880321	88 10 20	88 08 29	88 08 19	88 08 18	88 03 04	88 07 31	88 03 04		88 11 10	
88 03	18 52					14 74		14 94			
	22 38					23 96		22 90			
	24 55										
88 04	04 53					20 97		20 95			
	19 84										
	22 90										
	29 90										
8805	28 15				29 15	28 88	29 45	28 99	29 61		
	29 39					29 97		29 98			
88 06	08 52				08 15	08 93		08 82	08 97		
					26 92	28 92		13 92			
88 07	04 96				21 90	21 91	04 95	21 91	04 95		
	21 75						21 94		21 97		
88 08				19 52	19 63	19 92	19 89	19 92			
88 09	07 78		06 84	06 74				02 65			
	22 78		14 91	22 75	02 43	02 93	02 97	23 93			
			22 87		22 65	22 94	22 95				
88 10	06 52	23 14	06 84	06 82	06 63	06 76	06 74	06 91		18 42	
	19 88		19 90	19 94	07 53	07 95	07 96	18 94			
					18 66	18 96	18 97				
88 11	16 90	1 97	2 91	15 92	2 63	2 97	2 95	17 96		2 56	
		10 96	28 91	28 93	28 69	28 93	28 97	25 93		16 56	
		28 95								25 86	
88 12	12 90	13 96	16 90	12 93	12 92	12 95	12 93	12 95		12 93	12 75
		30 97	30 90	30 95	29 95	29 94	29 95	29 94		29 95	16 96

	Initials / Initiales	Date
Prepared by / Préparé par		
Approved by / Approuvé par		

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
DEC 2 1988
PETROLEUM BRANCH

November 29, 1988

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Bob Dubreuil

Dear Sir:

Re: Waskada Production Commingling
Progress Report September/October 1988

Please find enclosed a summary of the events and data for the months of September and October, 1988. Included in this summary is production data, wellbore liquid levels and workover operations.

To the end of October one new well, 10-6-1-25 WPM has been completed for commingling. Well 12-36-1-26 WPM was recompleted in October in order to test the Lower Amaranth zone prior to commingling. There have been no major operational problems with this well or the wells that are already commingled.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
R. A. Brekke
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

Month: SEPTEMBER 1988

FORMATION	UNIQUE WELL IDENTIFIER	HRS	OIL m3		WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
L. Alida	5-6-1-25 W1M(0)	666	83.3	232.9	69.9	9.9	3.0	0.84	45.6	119
LAm	5-6-1-25 W1M(2)	666	149.6		29.7	17.7	5.4	0.20	16.6	118
L. Alida	10-6-1-25 W1M(0)									
LAm	10-6-1-25 W1M(2)	720	123.6		91.8	14.6	4.1	0.74	42.6	118
Tilston	9-33-1-25 W1M(0)	702	0.0		53.3	0.0	0.0	99.99	100.0	0
LAm	9-33-1-25 W1M(2)	702	55.3		55.3	6.5	1.9	1.00	50.0	118
Tilston	8-8-2-25 W1M(0)	718	106.2	134.1	120.2	0.0	3.5	1.13	53.1	0
LAm	8-8-2-25 W1M(2)	718	27.9		2.5	1.4	0.9	0.09	8.2	50
L. Alida	9-35-1-26 W1M(0)	718	80.3	238.3	6.4	2.8	2.7	0.08	7.4	35
LAm	9-35-1-26 W1M(2)	718	158.0		8.9	11.7	5.3	0.06	5.3	74
L. Alida	10-35-1-26 W1M(0)	718	58.8	130.6	4.4	2.8	2.0	0.07	7.0	48
LAm	10-35-1-26 W1M(2)	718	71.8		0.0	8.3	2.4	0.00	0.0	116
L. Alida	11-35-1-26 W1M(0)	718	80.6	136.9	13.3	2.8	2.7	0.17	14.2	35
LAm	11-35-1-26 W1M(2)	718	55.3		0.0	4.8	1.8	0.00	0.0	87
U. Alida	6-3-2-26 W1M(0)	718	47.1	71.0	4.9	4.1	1.6	0.10	9.4	87
LAm	6-3-2-26 W1M(2)	718	23.9		0.0	0.8	1.6	0.00	0.0	0

WASKADA COMMINGLED PRODUCTION

Month: OCTOBER 1988

FORMATION	UNIQUE WELL IDENTIFIER	HRS	OIL m3	WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
L. Alida	5-6-1-25 W1M(0)	744	93.0	78.1	10.0	3.0	0.84	45.6	108
LAm	5-6-1-25 W1M(2)	744	54.2	92.9	5.8	1.7	1.71	63.2	107
L. Alida	10-6-1-25 W1M(0)	284	31.7	10.5	3.4	2.7	0.33	24.9	107
LAm	10-6-1-25 W1M(2)	648	89.0	134.0	9.6	3.3	1.51	60.1	108
Tilston	9-33-1-25 W1M(0)	744	34.7	0.0	3.7	1.1	0.00	0.0	107
LAm	9-33-1-25 W1M(2)	744	68.2	63.4	7.3	2.2	0.93	48.2	108
Tilston	8-8-2-25 W1M(0)	744	125.8	122.7	0.6	4.1	0.98	49.4	5
LAm	8-8-2-25 W1M(2)	744	28.2	2.5	1.2	0.9	0.09	8.1	43
L. Alida	9-35-1-26 W1M(0)	672	73.0	5.6	2.1	2.6	0.08	7.1	29
LAm	9-35-1-26 W1M(2)	672	135.5	4.3	14.1	4.8	0.03	3.1	104
L. Alida	10-35-1-26 W1M(0)	690	54.9	5.0	2.3	1.9	0.09	8.3	42
LAm	10-35-1-26 W1M(2)	690	48.6	0.0	6.8	1.7	0.00	0.0	140
L. Alida	11-35-1-26 W1M(0)	690	75.2	7.6	2.3	2.6	0.10	9.2	31
LAm	11-35-1-26 W1M(2)	690	38.2	0.0	5.6	1.3	0.00	0.0	147
L. Alida	12-36-1-26 W1M(0)	48	9.2	1.7	0.2	4.6	0.18	15.6	22
LAm	12-36-1-26 W1M(2)	624	185.7	25.4	2.1	7.1	0.14	12.0	11
U. Alida	6-3-2-26 W1M(0)	690	43.9	1.9	2.3	1.5	0.43	4.1	52
LAm	6-3-2-26 W1M(2)	690	28.5	0.0	0.0	1.0	0.00	0.0	0

also 8-35-1-26
7-35-1-26
9-32-1-25
11-34-1-26
5-3-2-26
8-4-2-26

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM		No operations
10-6-1-25 WPM	88-10-20	Drill out bridge plug to commingle
9-33-1-25 WPM		No operations
9-35-1-26 WPM		No operations X
10-35-1-26 WPM		No operations
11-35-1-26 WPM		No operations
12-36-1-26 WPM	88-10-07	Complete LAm for testing
8-8-2-25 WPM		No operations
6-3-2-26 WPM		No operations

WASKADA PRODUCTION COMMINGLING

LIQUID LEVELS

WELL	DATE	LIQUID LEVEL JTS. FROM SURFACE
5-6-1-25 WPM	88-09-07	78 jts.
	88-09-22	78 jts.
	88-10-06	52 jts.
	88-10-19	88 jts.
10-6-1-25 WPM	88-10-23	14 jts.
9-33-1-25 WPM	88-09-06	84 jts.
	88-09-14	91 jts.
	88-09-22	87 jts.
	88-10-06	84 jts.
	88-10-19	90 jts.
9-35-1-26 WPM	88-09-02	43 jts.
	88-09-22	65 jts.
	88-10-06	63 jts.
	88-10-07	53 jts.
	88-10-18	66 jts.
10-35-1-26 WPM	88-09-02	93 jts.
	88-09-22	94 jts.
	88-10-06	76 jts.
	88-10-07	95 jts.
	88-10-18	96 jts.
11-35-1-26 WPM	88-09-02	97 jts.
	88-09-22	95 jts.
	88-10-06	74 jts.
	88-10-07	96 jts.
	88-10-18	97 jts.
12-36-1-26 WPM	88-10-18	42 jts.
8-8-2-25 WPM	88-09-06	74 jts.
	88-09-22	75 jts.
	88-10-06	82 jts.
	88-10-19	94 jts.
6-3-2-26 WPM	88-09-02	65 jts.
	88-09-23	93 jts.
	88-10-06	91 jts.
	88-10-18	94 jts.

OMEGA
HYDROCARBONS LTD.

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

DEPARTMENT OF ENERGY AND MINES
PETROLEUM BRANCH
OCT

October 13, 1988

MANITOBA ENERGY AND MINES
PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Bob Dubreuil

Dear Sir:

Re: Waskada Production Commingling
Progress Report July/August, 1988

Please find enclosed a summary of the events and data for the months of July and August, 1988. Included in this summary is production data, wellbore liquid levels, produced fluid salinities and workover operations.

To the end of August four new wells, 9-33-1-25, 8-8-2-25, 9-35 and 11-35-1-26 WPM have all been completed for commingling. There have been no major operational problems with these wells or the wells that are already commingled.

Also attached is the production test data from the Lower Amaranth zone for well 10-6-1-25 WPM. It indicates that this zone is indeed productive and hence it is now possible to commingle this well upon approval. The production from this well will be allocated based on production from the Lower Alida zone which was produced for a year before this well was recompleted.

Should you require additional information please contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c. Warren Sharp
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

Month: JULY 1988

FORMATION	UNIQUE WELL IDENTIFIER	HRS	OIL m3	WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
L. Alida	5-6-1-25 W1M(0)	660	82.5	69.3	7.2	3	0.84	45.7	87
LAm	5-6-1-25 W1M(2)	660	68.7	152.1	6	2.5	2.21	68.9	87
L. Alida	6-6-1-25 W1M(0)								
LAm	6-6-1-25 W1M(2)	684	0.7	27.2	0	0	38.8	97.5	0
Tilston	9-33-1-25 W1M(0)								
LAm	9-33-1-25 W1M(2)	680	60.5	48.9	5.3	2.1	0.81	44.7	88
Tilston	8-8-2-25 W1M(0)								
LAm	8-8-2-25 W1M(2)	275	8.8	0.5	0.8	0.8	0.06	5.4	91
L. Alida	9-35-1-26 W1M(0)	86	9	0.1	0.2	2.5	0.01	1.1	22
LAm	9-35-1-26 W1M(2)	692	84.1	3.1	9	2.9	0.04	3.6	107
L. Alida	10-35-1-26 W1M(0)	744	57.2	3.8	2.4	1.8	0.07	6.2	42
LAm	10-35-1-26 W1M(2)	744	61.5	0	8.1	2	0	0.0	132
L. Alida	11-35-1-26 W1M(0)	96	3	0.1	0.2	0.8	0.03	3.2	67
	11-35-1-26 W1M(2)	744	46.1	16.7	1.1	1.5	0.36	26.6	24
U. Alida	6-3-2-26 W1M(0)	744	45.7	11.7	3.6	1.5	0.26	20.4	79
LAm	6-3-2-26 W1M(2)	744	54.3	0	0	1.8	0	0.0	0

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WASKADA COMMINGLED PRODUCTION

Month: AUGUST 1988

FORMATION	UNIQUE WELL IDENTIFIER	HRS	OIL m3	WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
L. Alida	5-6-1-25 W1M(0)	718	89.7	75.3	8.2	3	0.84	45.6	91
LAm	5-6-1-25 W1M(2)	718	46.3	92.7	4.3	1.5	2	66.7	93
L. Alida	6-6-1-25 W1M(0)								
LAm	6-6-1-25 W1M(2)	738	9	33.1	0	0.3	3.68	78.6	0
L. Alida	10-6-1-25 W1M(0)								
LAm	10-6-1-25 W1M(2)	339	37.7	11.7	3.5	2.7	0.31	23.7	93
L. Alida	9-33-1-25 W1M(0)	72	0	10.2	0	0	99.9	100.0	0
LAm	9-33-1-25 W1M(2)	680	38.6	97	3.5	1.4	2.51	71.5	91
L. Alida	8-8-2-25 W1M(0)	312	40.7	77.7	0.2	3.1	1.91	65.6	5
LAm	8-8-2-25 W1M(2)	504	18.2	1.6	0.8	0.9	0.09	8.1	44
L. Alida	9-35-1-26 W1M(0)	740	80.7	7	2.5	2.6	0.09	8.0	31
LAm	9-35-1-26 W1M(2)	740	131.2	17.9	11.3	4.3	0.14	12.0	86
L. Alida	10-35-1-26 W1M(0)	744	59.4	16.3	2.5	1.9	0.27	21.5	42
LAm	10-35-1-26 W1M(2)	744	35.9	2.3	5.4	1.2	0.06	6.0	150
L. Alida	11-35-1-26 W1M(0)	744	81.5	23.3	2.5	2.6	0.29	22.2	31
LAm	11-35-1-26 W1M(2)	744	95.1	77.7	1.9	3.1	0.82	45.0	20
U. Alida	6-3-2-26 W1M(0)	744	47.5	9.3	3.1	1.5	0.2	16.4	65
LAm	6-3-2-26 W1M(2)	744	50.8	0	0	1.6	0	0.0	0

WASKADA PRODUCTION COMMINGLING

LIQUID LEVELS AND WATER SALINITIES

WELL	DATE	LIQUID LEVEL JTS. FROM SURFACE	SALINITY PPM
5-6-1-25 WPM	88-07-04	96	80,400
	88-07-21	75	66,000
6-6-1-25 WPM	88-07-04	95	80,400
	88-07-21	97	64,800
9-35-1-26 WPM	88-07-21	90	83,900
	88-08-19	63	82,100
10-35-1-26 WPM	88-07-21	91	82,100
	88-08-19	92	75,000
11-35-1-26 WPM	88-07-04	95	73,200
	88-07-21	94	73,200
	88-08-19	89	82,100
8-8-2-25 WPM	88-08-19	52	100,000
6-3-2-26 WPM	88-07-21	91	83,900
	88-08-19	92	82,100

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATIONS
5-6-1-25 WPM	88-07-20	Changed pump
	88-08-15	Flushed sand from pump
	88-08-24	Flushed sand from pump
6-6-1-25 WPM	88-08-16	No operations
10-6-1-25 WPM	88-08-16	Complete LAm for testing
9-33-1-25 WPM	88-08-19	Drill out bridge plug to commingle
9-35-1-26 WPM	88-07-26	Drill out brdige plug to commingle
	88-07-31	Flushed sand from pump
	88-08-04	Flushed sand from pump
	88-08-05	Raised tubing
10-35-1-26 WPM		No operations
11-35-1-26 WPM	88-07-28	Drill out bridge plug to commingle
8-8-2-25 WPM	88-08-16	Drill out bridge plug to commingle
6-3-2-26 WPM		No operations

10-6-1-25 WPM PRODUCTION TEST DATA *

LOWER AMARANTH ZONE

DATE	OIL (m^3)	WATER (m^3)
88/08/19	9.8	9.9
88/08/20	3.0	9.1
88/08/21	0.9	2.8
88/08/22	2.9	8.6
88/08/23	1.2	3.5
88/08/24	4.7	3.4
88/08/25	6.1	4.4
88/08/26	4.9	5.9
88/08/27	4.6	5.6
88/08/28	4.4	5.3
88/08/29	4.3	5.3
88/08/30	4.5	5.6
88/08/31	2.2	2.8
88/09/01	4.6	5.7
88/09/02	4.6	5.7
88/09/03	4.1	5.0
88/09/04	4.5	5.5
88/09/05	5.0	2.2
88/09/06	5.9	2.6
88/09/07	5.6	2.4
88/09/08	4.8	2.0
88/09/09	5.9	2.5
88/09/10	3.1	3.2
88/09/11	3.2	3.2
88/09/12	3.0	3.0
88/09/13	4.0	4.1
88/09/14	4.1	4.2
88/09/15	3.3	3.4
88/09/16	3.3	3.4
88/09/17	3.5	3.6
88/09/18	3.1	3.2
88/09/19	3.3	3.4
88/09/20	3.2	3.3
88/09/21	3.6	3.7

*NOTE: This data is field test data and is not to be used for accounting purposes as it is not prorated.

OMEGA
HYDROCARBONS LTD.

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

August 16, 1988

DEPARTMENT OF ENERGY AND MINES
AUG 17 198-
PETROLEUM BRANCH

MANITOBA PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Bob Dubreuil

Dear Sir:

Re: Waskada Production Commingling
Progress Report for June, 1988

Please find enclosed a summary of the events and data for the month of June, 1988. Included in this summary is production data, wellbore liquid levels, produced fluid salinities and workover operations.

To the end of June, wells 6-6-1-25, 9-35 and 11-35-1-26 WPM are still being tested. There have been no problems encountered with the commingled wells 5-6-1-25, 10-35-1-26 and 6-3-2-26 WPM. As agreed, subsequent progress reports will be made on a bi-monthly basis with the first report due for the July-August report period.

Should you require additional information please to contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c.: Warren Sharp
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

Month: June 1988

FORMATION	UNIQUE WELL IDENTIFIER	HRS	OIL m3	WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
L. Alida	5-6-1-25 W1M(0)	708	88.5	74.3	7.0	3.0	0.84	45.6	79
LAm	5-6-1-25 W1M(2)	708	113.2	112.3	9.0	3.8	0.99	49.8	80
L. Alida	6-6-1-25 W1M(0)	0							
LAm	6-6-1-25 W1M(2)	702	0.0	68.1	0.0	0.0	0.00	100.0	0
L. Alida	9-35-1-26 W1M(0)	0							
LAm	9-35-1-26 W1M(2)	648	68.9	5.9	8.2	2.6	0.09	7.9	119
L. Alida	10-35-1-26 W1M(0)	720	58.2	7.2	2.2	1.9	0.12	11.0	38
LAm	10-35-1-26 W1M(2)	720	66.3	0.0	6.0	2.2	0.00	0.0	90
L. Alida	11-35-1-26 W1M(0)	0							
LAm	11-35-1-26 W1M(2)	240	23.3	4.1	0.5	2.3	0.18	15.0	21
U. Alida	6-3-2-26 W1M(0)	710	45.9	31.2	3.3	1.6	0.68	40.5	72
LAm	6-3-2-26 W1M(2)	710	52.8	0.0	0.5	1.8	0.00	0.0	9

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATION
5-6-1-25 WPM	88-06-02	Changed pump
6-6-1-25 WPM	88-06-01	Changed pump
9-35-1-26 WPM	88-06-06	Flushed sand from pump
	88-06-17	Flushed sand from pump
	88-06-20	Changed pump
10-35-1-26 WPM		No operations
11-35-1-26 WPM	88-06-06	Flushed sand from pump
	88-06-07	Flushed sand from pump
	88-06-08	Changed pump
	88-06-13	Flushed sand from pump
	88-06-16	Changed pump
	88-06-17	Flushed sand from pump
	88-06-21	Changed pump
6-3-2-26 WPM	88-06-06	Tubing test

WASKADA PRODUCTION COMMINGLING

LIQUID LEVELS AND WATER SALINITIES

WELL	DATE	LIQUID LEVEL JTS. FROM SURFACE	SALINITY PPM
5-6-1-25 WPM	88-06-08	52	73,200
6-6-1-25 WPM	88-06-08	97	73,200
9-35-1-26 WPM	88-06-08	15	91,000
	88-06-26	92	--
10-35-1-26 WPM	88-06-08	93	82,100
	88-06-28	92	76,800
11-35-1-26 WPM	No tests due to sand problems.		
6-3-2-26 WPM	88-06-08	82	92,800
	88-06-13	92	80,400

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

June 27, 1988

DEPARTMENT OF ENERGY AND MINES
JUN 28 1988
PETROLEUM BRANCH

MANITOBA PETROLEUM BRANCH
555 - 330 Graham Avenue
Winnipeg, Manitoba
R3C 4E3

Attention: Mr. Bob Dubreuil

Dear Sir:

Re: Waskada Production Commingling
Progress Report for May, 1988

Please find enclosed a summary of the events and data for the month of May, 1988. Included in this summary is production data, wellbore liquid levels, produced fluid salinities and workover operations.

To the end of May, wells 5-6-1-25, 10-35-1-26 and 6-3-2-26 WPM have been on production for three months. Testing is still proceeding on the three additional wells to obtain the necessary data. Some problems with clean out work and pump changes have been encountered, but steps have been implemented in order to eliminate these.

Should you require additional information please to contact the undersigned at (403) 261-0743.

Yours truly,

OMEGA HYDROCARBONS LTD.

D.M. Boyko, P. Eng.
Petroleum Engineer

c.c.: Warren Sharp
Waskada Special Projects File - Commingling

WASKADA COMMINGLED PRODUCTION

Month: May 1988

FORMATION	UNIQUE WELL IDENTIFIER	HRS	OIL m3	WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
L. Alida	5-6-1-25 W1M(0)	504	63.0	52.9	5.0	3.0	0.8	45.6	79.4
LAm	5-6-1-25 W1M(2)	504	53.8	73.1	4.3	2.6	1.4	57.6	79.9
L. Alida	6-6-1-25 W1M(0)								
LAm	6-6-1-25 W1M(2)	290	0.0	24.3	0.0	0.0	ERR	100.0	ERR
L. Alida	9-35-1-26 W1M(0)								
LAm	9-35-1-26 W1M(2)	159	7.3	0.7	0.7	1.1	0.1	8.8	95.9
L. Alida	10-35-1-26 W1M(0)	744	54.6	8.2	2.4	1.8	0.2	13.1	44.0
LAm	10-35-1-26 W1M(2)	744	72.9	0.0	8.7	2.4	0.0	0.0	119.3
L. Alida	11-35-1-26 W1M(0)								
LAm	11-35-1-26 W1M(2)	480	59.6	18.3	1.1	3.0	0.3	23.5	18.5
U. Alida	6-3-2-26 W1M(0)	708	41.6	6.2	3.3	1.4	0.1	13.0	79.3
LAm	6-3-2-26 W1M(2)	708	70.2	0.0	0.6	2.4	0.0	0.0	8.5

WASKADA PRODUCTION COMMINGLING

WORKOVERS

WELL	DATE	OPERATION
5-6-1-25 WPM	88-05-20	Flushed sand from pump
	88-05-26	Changed pump
10-35-1-25 WPM		No operations
6-3-2-26 WPM	88-05-25	Condensate treatment
	88-05-27	Condensate treatment
6-1-1-25 WPM	88-05-02	Changed pump
	88-05-06	Flushed sand from pump
	88-05-11	Circulated well clean
	88-05-13	Changed pump
	88-05-20	Flushed sand from pump
	88-05-25	Changed pump
	88-05-30	Flushed sand from pump
	88-05-31	Changed pump
9-35-1-26 WPM	88-05-06	Changed pump
	88-05-10	Changed pump
	88-05-14	Changed pump
	88-05-20	Flushed sand from pump
	88-05-27	Cleaned out sand, set bridge plug
11-35-1-26 WPM	88-05-05	Flushed sand from pump
	88-05-10	Changed pump
	88-05-14	Changed pump
	88-05-20	Flushed sand from pump
	88-05-27	Cleaned out sand, set bridge plug

WASKADA PRODUCTION COMMINGLING

LIQUID LEVELS AND WATER SALINITIES

WELL	DATE	LIQUID LEVEL JTS. FROM SURFACE	SALINITY PPM
5-6-1-25 WPM	88-05-28	15	71,400
	88-05-29	39	73,200
10-35-1-26 WPM	88-05-28	88	73,200
	88-05-29	97	75,000
6-3-2-26 WPM	88-05-28	99	91,000
	88-05-29	98	91,000
6-6-1-25 WPM	88-05-29	61	85,700
9-35-1-26 WPM	88-05-29	15	91,000
11-35-1-26 WPM	88-05-29	45	75,000

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CALGARY, ALBERTA, CANADA T2P 0H3
TELEPHONE (403) 261-0743

DEPARTMENT OF ENERGY AND MINES
MAY 30 1988
PETROLEUM BRANCH

May 26, 1988

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

Attention : Mr. Bob Dubreuil

Dear Sir:

**RE: Waskada Production Commingling
Progress Report for March & April, 1988**

As previously discussed, a separate statistical and narrative summary of commingled production operations is to be submitted. Enclosed are three tables setting out statistical data regarding production, well bore liquid levels, produced water salinities, and workovers for these months.

At the end of April, 1988, commingled production from the Mission Canyon and Lower Amaranth Formations has been carried out on three wells for about two months. Commingled production is proceeding as planned, although there was considerably more than expected clean-out work and pump changes required for the well 5-6-1-25 WPM.

On April 18, 1988, operations were commenced on three additional wells to obtain pressure data for the Mission Canyon Formation, and production test data for the Lower Amaranth Formation.

Yours truly,

OMEGA HYDROCARBONS LTD.

RABeamish

R. A. Beamish, P. Eng.
Joint Interest Co-ordinator

RAB/lb
Enclosures

c.c. T.J. Hall
G.A. Cormack
Waskada Production Commingling File
W. Sharp

WASKADA COMMINGLED PRODUCTION

Month: March 1988

	HRS	OIL m3	WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
5-6-1-25 W1M(0)	488	61.0	51.2	4.7	3.0	0.84	43.8	77.0
5-6-1-25 W1M(2)	488	34.7	54.1	2.7	1.7	1.56	59.1	77.8
6-6-1-25 W1M(0)	724	14.2	46.7	1.1	0.5	3.29	75.3	77.5
6-6-1-25 W1M(2)								
9-35-1-26 W1M(0)	744	73.2	3.4	1.1	2.4	0.05	4.4	15.0
9-35-1-26 W1M(2)								
10-35-1-26 W1M(0)	652	47.6	9.8	2.2	1.8	0.21	16.4	46.2
10-35-1-26 W1M(2)	652	183.3	6.4	1.6	6.7	0.03	3.3	8.7
					8.5			
11-35-1-26 W1M(0)	744	75.8	10.7	0.6	2.4	0.14	12.3	7.9
11-35-1-26 W1M(2)								
6-3-2-26 W1M(0)	682	39.8	35.3	3.3	1.4	0.89	45.0	82.9
6-3-2-26 W1M(2)	682	79.8	10.9	1.1	2.8	0.14	11.9	13.8

Month: April 1988

	HRS	OIL m3	WATER m3	GAS km3	OIL/d m3	WOR	WATER CUT %	GOR
5-6-1-25 W1M(0)	719	89.9	75.5	0.0	3.0	0.8	45.6	0.0
5-6-1-25 W1M(2)	719	169.3	165.2	13.9	5.7	1.0	47.4	82.1
6-6-1-25 W1M(0)	316	0.5	19.9	0.0	0.0	39.8	97.5	0.0
6-6-1-25 W1M(2)	60	0.0	7.8	0.0	0.0		100.0	
9-35-1-26 W1M(0)	466	46.0	1.4	1.6	2.4	0.0	2.9	34.8
9-35-1-26 W1M(2)	24	0.5	0.2	0.2	0.5	0.4	22.2	400.0
10-35-1-26 W1M(0)	719	50.1	4.5	2.2	1.7	0.1	7.9	43.9
10-35-1-26 W1M(2)	719	122.8	0.0	6.0	4.1	0.0	0.0	48.9
11-35-1-26 W1M(0)	467	45.3	9.1	0.7	2.3	0.2	16.5	15.5
11-35-1-26 W1M(2)								
6-3-2-26 W1M(0)	719	40	24.4	3.2	1.3	0.6	36.1	80.0
6-3-2-26 W1M(2)	719	70.4	0	1.1	2.3	0.0	0.0	15.6

WASKADA - PRODUCTION COMMINGLING

LIQUID LEVELS AND WATER SALINITIES

WELL	DATE	LIQUID LEVEL Jts. from Surface	SALINITY PPM
5-6-1-25 WPM	88-03-18	52	-
	88-03-22	38	78,600
	88-03-24	55	-
	88-04-04	53	-
	88-04-19	84	-
	88-04-22	90	91,000
	88-04-29	90	-
10-35-1-26 WPM	88-03-14	74	-
	88-03-23	96	85,700
	88-04-20	97	-
6-3-2-26 WPM	88-03-14	94	-
	88-03-22	90	94,600
	88-04-20	95	-

WASKADA - PRODUCTION COMMINGLING

Workovers

WELL	DATE	OPERATION
5-6-1-25 WPM	88-03-03	Converted to Commingled production.
	88-03-04	Changed pump
	88-03-08	Changed pump
	88-03-09	Changed to tubing pump
	88-03-10	Flushed sand from pump
	88-03-11	Flushed sand from pump
	88-03-14	Circulated well clean
	88-03-15	Changed pump
	88-03-16	Changed pump
	88-03-17&18	Cleaned out with bit
10-35-1-26 WPM	88-03-03	Converted to commingled production
6-3-2-26 WPM	88-03-03	Converted to commingled production
6-6-1-25 WPM	88-04-18	Ran 180 hr. pressure bombs
	88-04-25 to 28	Pulled bombs. Recompleted to Lower Amaranth Formation
	88-04-29	Cleaned out sand, changed pump
9-35-1-26 WPM	88-04-18	Ran 180 hr. pressure bombs
	88-04-25 to 28	Pulled bombs. Recompleted to Lower Amaranth Formation.
	88-04-29	Cleaned out Frac. sand,changed pump
11-35-1-26 WPM	88-04-18	Ran 180 hr. pressure bombs
	88-04-25 to 28	Pulled bombs. Recompleted to Lower Amaranth Formation.
	88-04-29	Cleaned out Frac. sand,changed pump