

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -

2944

ADMINISTRATIVE APPLICATION COVER SHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]
- [DD-Directional Drilling] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION - Check Those Which Apply for [A]**

- [A] Location - Spacing Unit - Directional Drilling
 NSL NSP DD SD

Check One Only for [B] and [C]

- [B] Commingling - Storage - Measurement
 DHC CTB PLC PC OLS OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
 WFX PMX SWD IPI EOR PPR

[2] **NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply**

- [A] Working, Royalty or Overriding Royalty Interest Owners
- [B] Offset Operators, Leaseholders or Surface Owner
- [C] Application is One Which Requires Published Legal Notice
- [D] Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] Waivers are Attached

[3] **INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding**

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I understand that any omission of data (including API numbers, pool codes, etc.), pertinent information and any required notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with supervisory capacity.

Brian Collins Brian Collins Engr. 19 July 01
 Print or Type Name Signature Title Date



marbob
energy corporation

July 19, 2001

New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Attention: Engineering Bureau

RE: Application for Downhole Commingling

Gentlemen:

Marbob Energy Corporation respectfully requests approval to downhole commingle production in our "D" State number 7, 8, 9, and 10 wells. Enclosed, in triplicate, is the applications and supporting documentation. The ownership is identical as to the zones being commingled. We hope we have submitted all the information needed to reach a decision. However, if you are in need of further data, please do not hesitate to contact us.

Thank you for reviewing these applications.

Sincerely,

Dean Chumbley
Land Department

DC/mm
Enclosures

OIL CONSERVATION DIV.
01 JUL 23 PM 1:13

District I
1625 N. French Drive, Hobbs, NM 88240

District II
811 South First Street, Artesia, NM 88210

District III
1000 Rio Brazos Road, Aztec, NM 87410

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-107A
Revised May 15, 2000

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

APPLICATION TYPE
 Single Well
 Establish Pre-Approved Pools
EXISTING WELLBORE
 Yes No

APPLICATION FOR DOWNHOLE COMMINGLING

Marbob Energy Corporation P. O. Box 227 Artesia, NM 88211-0227
Operator Address
"D" State 10 D-36-17S-28E Eddy
Lease Well No. Unit Letter-Section-Township-Range County
OGRID No. 14049 Property Code 25375 API No. 30-015-31165 Lease Type: Federal State Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name	Artesia Queen Grayburg San Andres		Artesia Glorieta Yeso
Pool Code	Oil - 3230		Oil - 96830
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)			4011' - 4276'
Method of Production (Flowing or Artificial Lift)	Artificial Lift		Artificial Lift
Bottomhole Pressure (Note: Pressure data will not be required if the bottom perforation in the lower zone is within 150% of the depth of the top perforation in the upper zone)	1300 psi est.		1700 psi est.
Oil Gravity or Gas BTU (Degree API or Gas BTU)	36° API		39° API
Producing, Shut-In or New Zone	Not Tested Yet		Producing
Date and Oil/Gas/Water Rates of Last Production. (Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data.)	Date: Rates: N/A	Date: Rates:	Date: May, 2001 Rates: 38 bopd, 344 bwpd 62 mcf/d
Fixed Allocation Percentage (Note: If allocation is based upon something other than current or past production, supporting data or explanation will be required.)	Oil 26 % Gas 40 %	Oil % Gas %	Oil 74 % Gas 60 %

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones? Yes No
If not, have all working, royalty and overriding royalty interest owners been notified by certified mail? Yes No
Are all produced fluids from all commingled zones compatible with each other? Yes No
Will commingling decrease the value of production? Yes No
If this well is on, or communitized with, state or federal lands, has either the Commissioner of Public Lands or the United States Bureau of Land Management been notified in writing of this application? Yes No
NMOCD Reference Case No. applicable to this well: Administrative Order DHC-2906

Attachments:

- C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- Production curve for each zone for at least one year. (If not available, attach explanation.)
- For zones with no production history, estimated production rates and supporting data.
- Data to support allocation method or formula.
- Notification list of working, royalty and overriding royalty interests for uncommon interest cases.
- Any additional statements, data or documents required to support commingling.

PRE-APPROVED POOLS

If application is to establish Pre-Approved Pools, the following additional information will be required:

- List of other orders approving downhole commingling within the proposed Pre-Approved Pools
- List of all operators within the proposed Pre-Approved Pools
- Proof that all operators within the proposed Pre-Approved Pools were provided notice of this application.
- Bottomhole pressure data.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Paul Lullin TITLE Engr DATE 19 July 01

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Ed., Artesia, NM 87410

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

DISTRICT IV
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 3230	Pool Name Artesia Queen Grayburg, San Andres
Property Code 25375	Property Name D STATE	Well Number 10
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3679

Surface Location

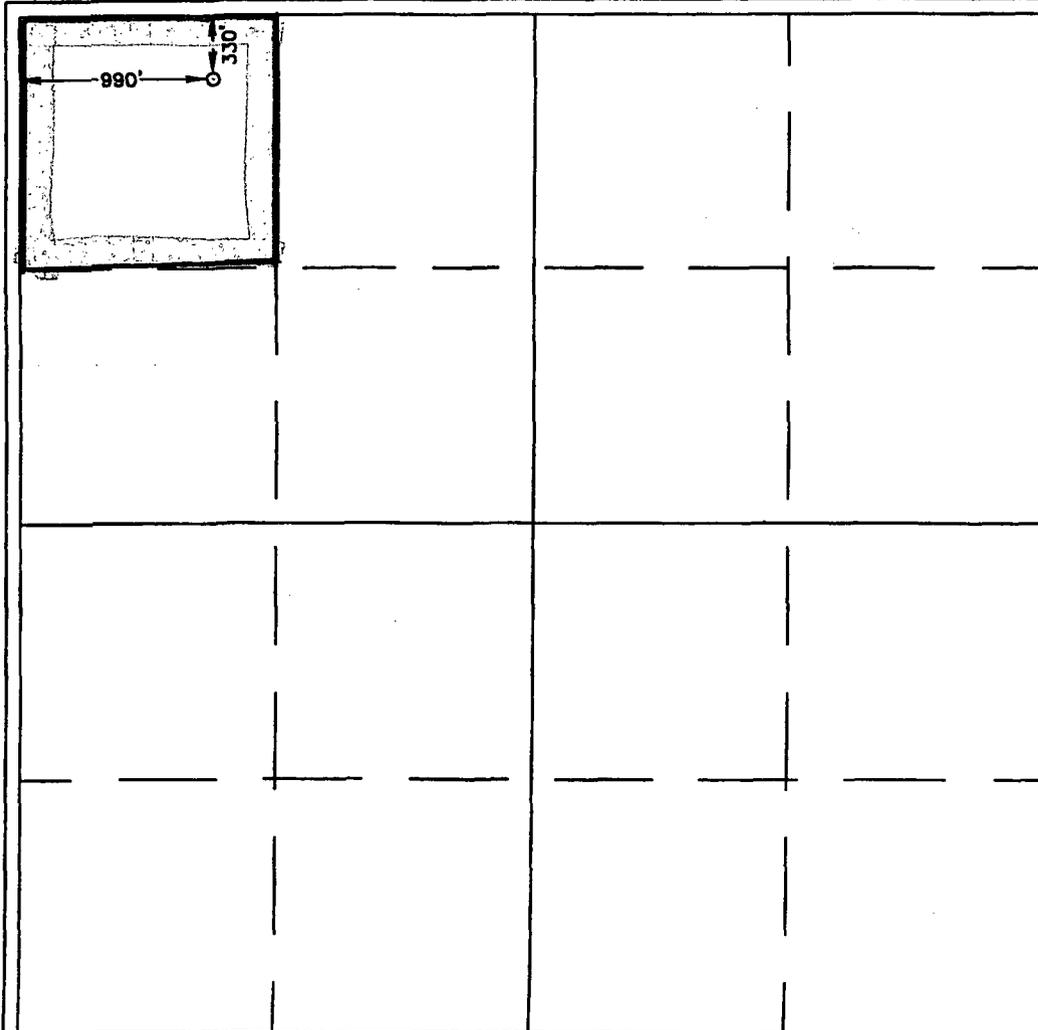
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	36	17 S	28 E		330	NORTH	990	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.

Robin Cockrum
Signature

ROBIN COCKRUM
Printed Name

PRODUCTION ANALYST
Title

5/23/00
Date

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.

MAY 13, 2000
Date Surveyed

Signature & Seal of EIDSON
Professional Surveyor

Ronald L. Eidsen 5/16/00
600-11-0602

Certificate No. RONALD L. EIDSON 3230
GARY KIDSON 12641
MACON McDONALD 12185

APPLICATION FOR DOWNHOLE COMMINGLING
 MARBOB ENERGY CORPORATION
 "D" STATE NO. 1
 M-25-17S-28E, EDDY COUNTY

DATA SUPPORTING OIL AND GAS ALLOCATION FOR EACH ZONE

FOR THE SAN ANDRES, 33 AREA WELLS WERE USED TO DERIVE AN AVERAGE EUR = 33.9 MBO, 101.7 MMCF (SEE ATTACHED PRODUCTION PLOT)
 FOR THE YESO, 10 AREA WELLS WERE USED TO DERIVE AN AVERAGE EUR = 97.8 MBO, 150.3 MMCF (SEE ATTACHED PRODUCTION PLOTS)
 PRODUCTION TO DATE ON THE "D" STATE LEASE INDICATES THAT THE ABOVE AVERAGE EUR IS REASONABLE IN THE YESO

YESO WELL DATA:

LEASE	EUR OIL (MBO)	EUR GAS (MMCF)	# WELLS
B440	100.2	135.3	5
BR549	93.5	187	3
MUSKEGON	98.4	132.8	2
WEIGHTED AVG. EUR	97.8	150.3	

SAN ANDRES WELL DATA:

	EUR OIL (MBO)	EUR GAS (MMCF)
33 MARBOB WELLS	33.9	101.7

ALLOCATION SUMMARY:

OIL—YESO = 97.8 MBO/(97.8 MBO + 33.9 MBO) = 0.74
 OIL—SAN ANDRES = 33.9 MBO/(97.8 MBO + 33.9 MBO) = 0.26
 GAS—YESO = 150.3 MMCF/(150.3 MMCF + 101.7 MMCF) = 0.60
 GAS—SAN ANDRES = 101.7 MMCF/(150.3 MMCF + 101.7 MMCF) = 0.40

Note:

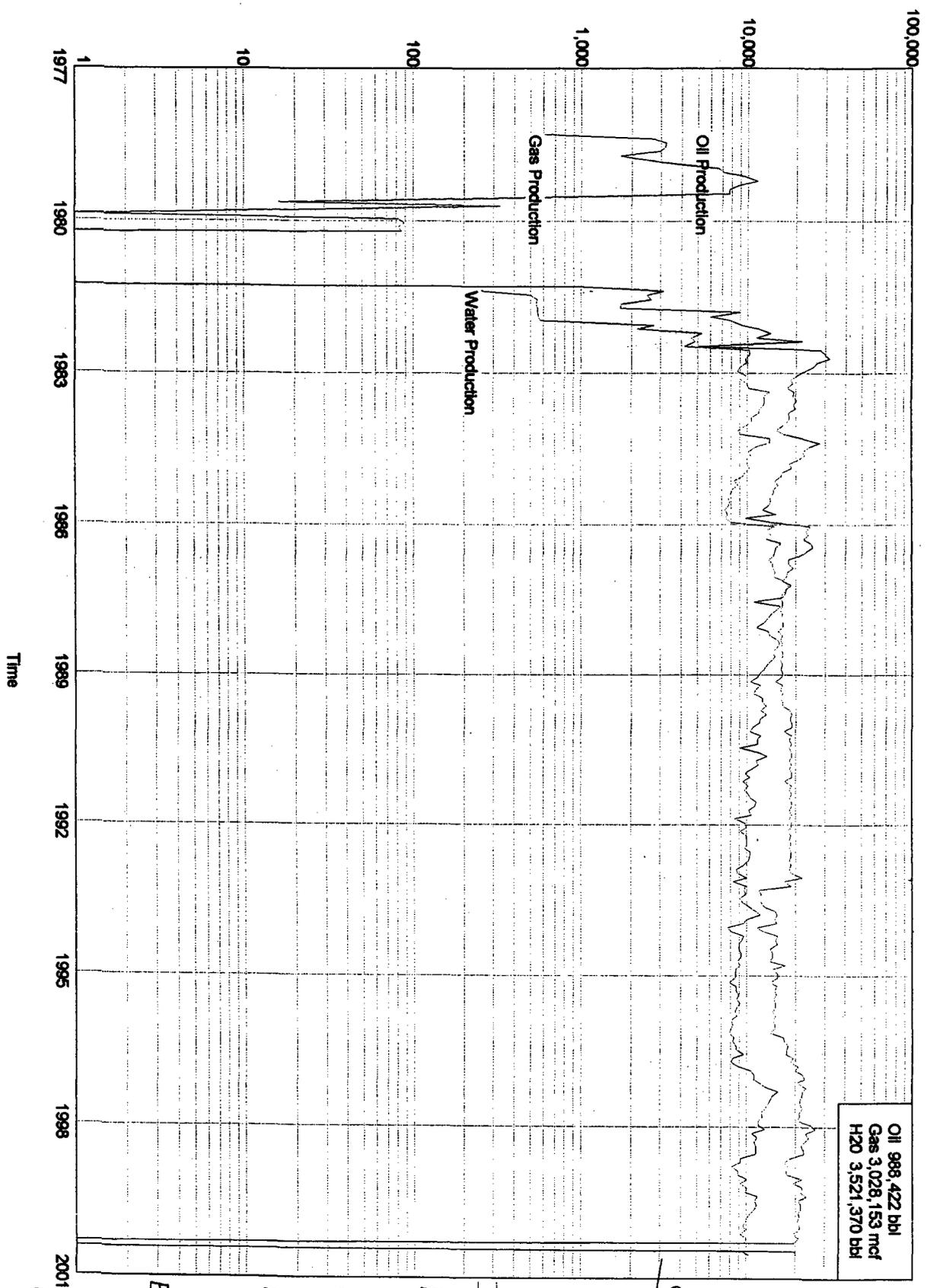
The "D" state Yeso wells have not been producing long enough to establish an accurate decline curve. Nearby Yeso wells are used as analogs for estimating reserves. Attached

22 SAN ANTONIO WELLS
 Sec. 26, 27, 34 - 175-28e
 Eddy, NM

Lease Name: MULTIPLE
 County, State: EDDY, UNKNOWN
 Operator: MARBOB ENERGY CORPORATION
 Field: MULTIPLE
 Reservoir: QUEEN-GRAYBURG-SAN A
 Location:

Avg. EUR per well = 33.9 MBO
 San Andres
 Avg. GOR = 3000 (Avg 101.7 MMBbl/w)

MULTIPLE - MULTIPLE



Oil 988,422 bbl
 Gas 3,028,153 mcf
 H2O 3,521,370 bbl

$d_{exp} = 13\%/yr.$

Oil Production
 Gas Production
 Water Production

$$RUR = \frac{-365(Q_1 - Q_2)}{\ln(1-d)}$$

$$Q_1 = 110 \text{ bopd}$$

$$Q_2 = 60 \text{ bopd (33\% wrr)}$$

$$d = 13\%/yr$$

$$RUR = \frac{-365(110 - 60)}{\ln(1 - .13)}$$

$$= 131,048 \text{ bo}$$

$$EUR = 988,422$$

$$+ 131,048$$

$$\frac{1,119,470 \text{ BO}}$$

$$EUR/well = \frac{1,119,470 \text{ BO}}{33}$$

$$= 33,923 \text{ BO}$$

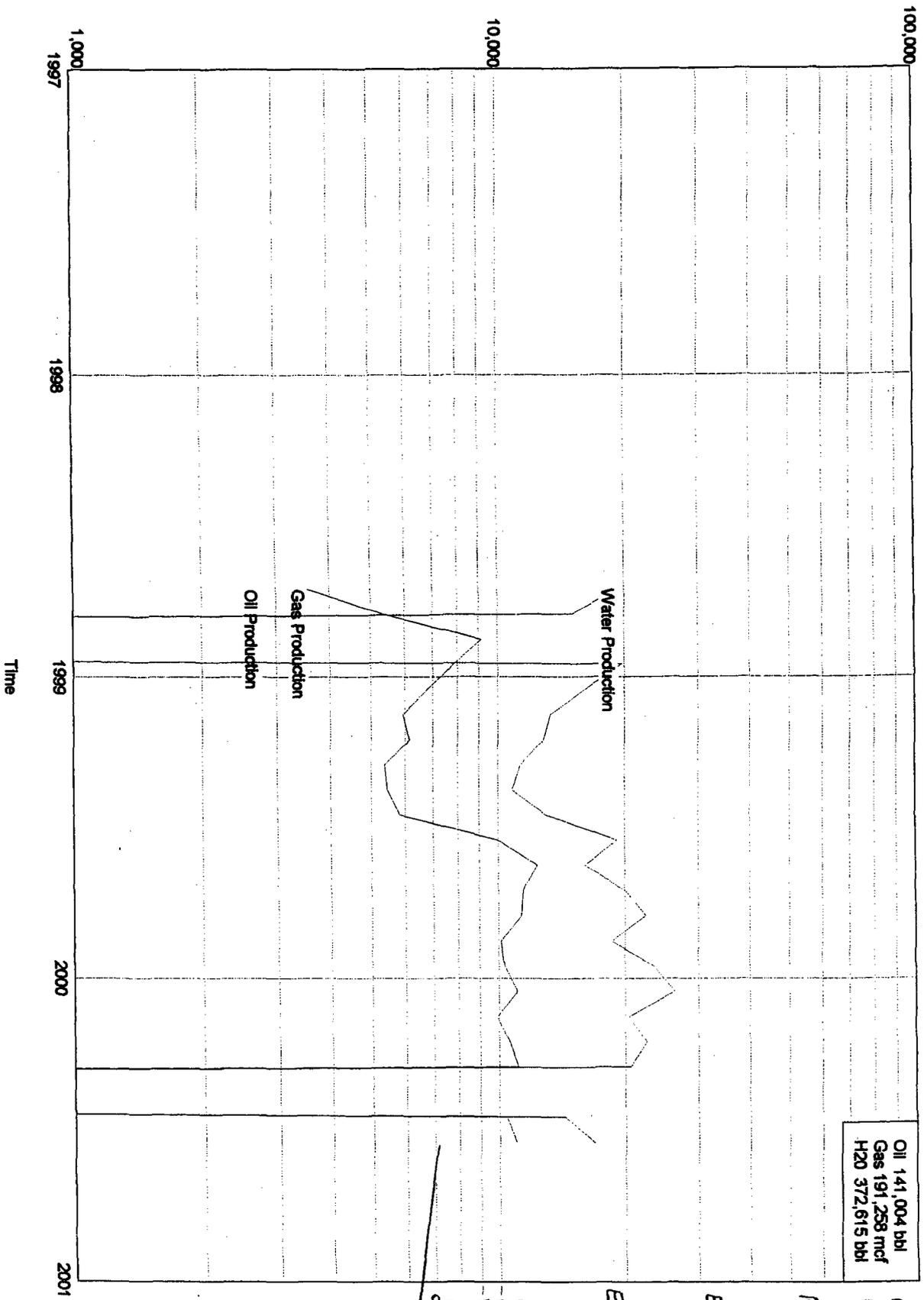
Yeso Wells
 These wells are used as an analog to the "D" State Yeso wells because the "D" State doesn't have enough production history.

Lease Name: B 440 FEDERAL
 County, State: EDDY, Unknown
 Operator: MARBOB ENERGY CORPORATION
 Field: EMPIRE EAST
 Reservoir: YESO
 Location:

B 440 FEDERAL - EMPIRE EAST

Avg. EUR per well = 100.2 MB0
 Yeso
 Avg. GOR = 1350 (Avg 135.3 MMBF/well)

Production Rates



Oil 141,004 bbl
 Gas 191,258 mcf
 H2O 372,615 bbl

$$RUR = \frac{-365(Q_1 - Q_2)}{\ln(Q_1/Q_2)}$$

$$Q_1 = 230 \text{ bopd}$$

$$Q_2 = 10 \text{ bopd}$$

$$d = 20\%/\text{yr}$$

$$RUR = \frac{-365(230 - 10)}{\ln(1 - 20)}$$

$$= 359,858 \text{ BO}$$

$$EUR = \frac{141,004}{5} + 359,858$$

$$= 500,862 \text{ BO}$$

$$EUR/well = \frac{500,862}{5}$$

$$= 100,172 \text{ BO}$$

Oil Production
 Gas Production
 Water Production

$$d_{exp} = 20\%/\text{yr.}$$

1999 2000 2001

3 wells currently producing an average of 50 bopd per well (GOR = 2000)
Cumulative production to date (through Jan 01) = 45,000 BO (Avg. 15,000 BO per well)
Production analog to "D" state.

Lease Name: BR-549 STATE
County, State: EDDY, Unknown
Operator: MARBOB ENERGY CORPORATION
Field: EMPIRE EAST
Reservoir:
Location:

Avg. EUR per well = 73.0 mbo
Yeso
Avg. GOR = 2000 (Avg. 187 MMCF/well)

$ROR = -365 (Q_1 - Q_{21})$
 $\ln (1-d)$

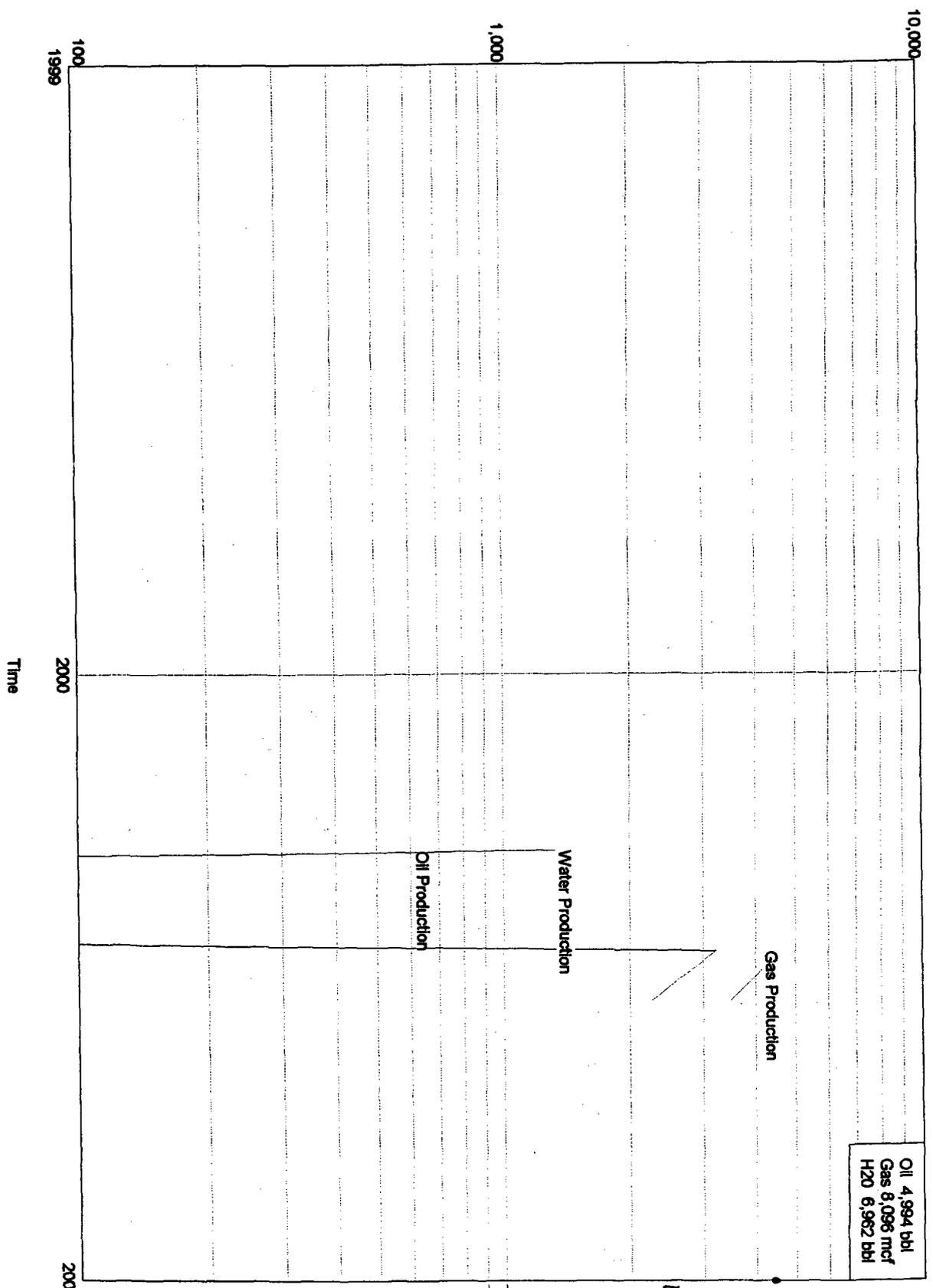
$Q_1 = 50 \text{ bopd}$
 $Q_{21} = 2 \text{ bopd}$
 $d = \text{Assume } 20\%/yr$

$ROR = -365 (50 - 2)$
 $\ln (1 - .2)$
 $= -78,515 \text{ BO}$

$EUR = 15,000 \text{ BO}$
 $+ 78,515 \text{ BO}$
 $93,515 \text{ BO}$

Oil Production
Gas Production
Water Production

Oil 4,994 bbl
Gas 8,096 mcf
H2O 6,962 bbl



Production Rates

2 Test Wells

Production analog to "D" State.

Lease Name: MUSKEGON SOUTH STATE
 County, State: EDDY, Unknown
 Operator: MARBOB ENERGY CORPORATION
 Field: EMPIRE EAST
 Reservoir: MULTIPLE
 Location:

MUSKEGON SOUTH STATE - EMPIRE EAST

Avg. EUR per well = 98.4 MBO

Yeso

Avg. GOR = 1350 (Avg. 132.8 MMCF/well)

$$RUR = \frac{-365 (Q_1 - Q_2)}{\ln(Q_1/Q_2)}$$

Oil 25,042 bbl
 Gas 33,157 mcf
 H2O 66,649 bbl

Q₁ = 110 bopd
 Q₂ = 5 bopd
 d = 20%/yr.

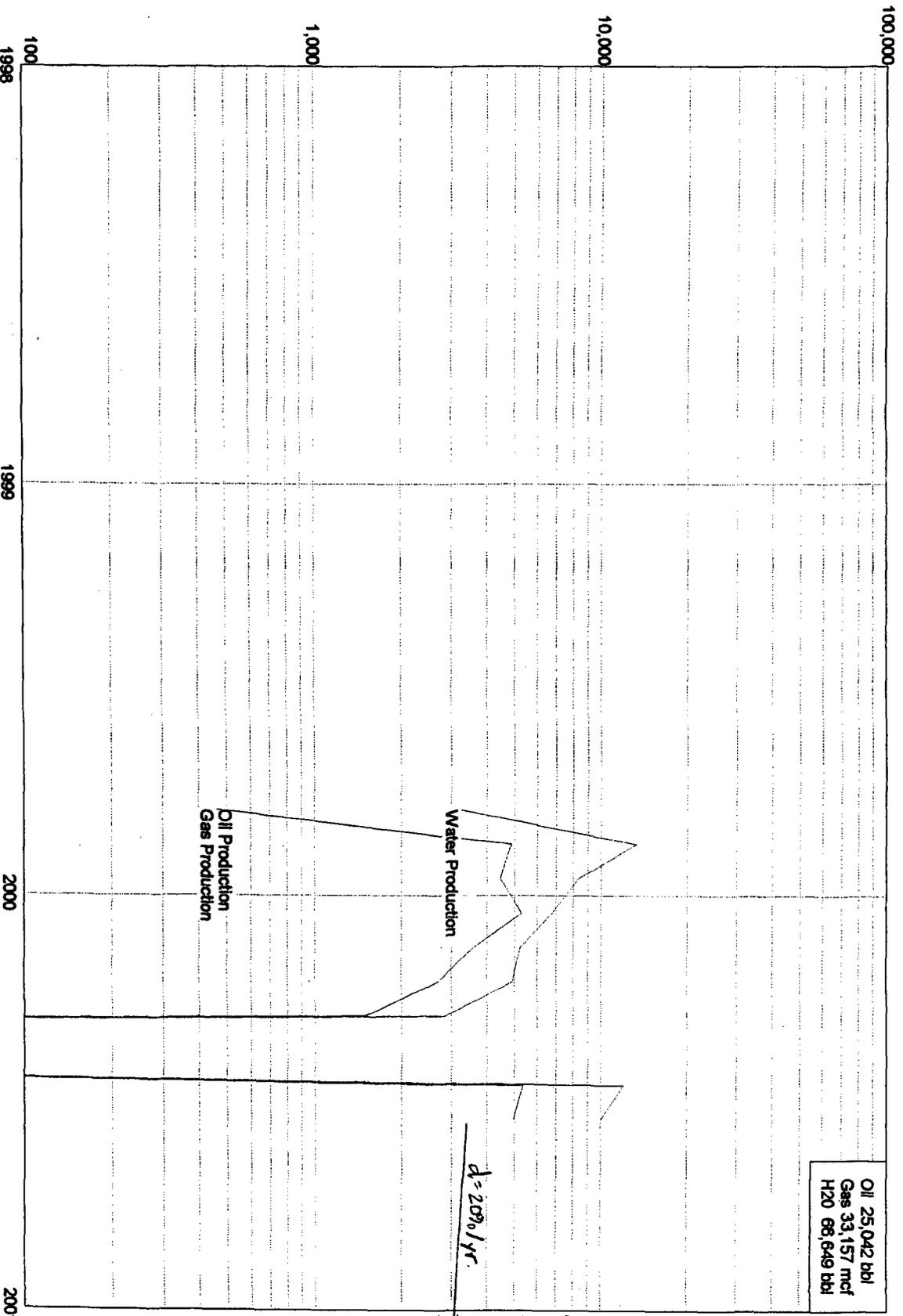
$$RUR = \frac{-365 (110 - 5)}{\ln(110/5)} = 171,750 \text{ BO}$$

$$EUR = \frac{25,042 + 171,750}{2} = 98,396 \text{ BO}$$

$$EUR/well = \frac{196,792}{2} = 98,396 \text{ BO}$$

Oil Production
 Gas Production
 Water Production

d = 20%/yr.



Production Rates

POOL NO. AND NAME PROPERTY NO. AND NAME WELL NO. AND U-L-S-T-R API NUMBER	INJECTION			PRODUCTION					DISPOSITION OF OIL, GAS, AND WATER							
	8 C O D E	9 VOLUME	10 PRESSURE	11 C O D E	12 BBLs OF OIL/COND- ENSATE PRODUCED	13 BBLs OF WATER PRODUCED	14 GAS PRODUCED (MCF)	15 DAYS PRODUCED	16 C O D E	17 POINT OF DISPOST- TION	18 GAS BTU/ OR OIL GRAV	19 OIL ON HAND AT BEGINNING OF MONTH	20 VOLUME (BBLs/MCF)	21 TRANS- FERRED OGRID	22 C O D E	23 OIL ON HAND AT END OF MONTH
008 B-35-17S-28E 30-015-31424	P				1054	10182	1735	31								
009 A-35-17S-28E 30-015-31425	P				1676	3717	1624	31								
010 D-36-17S-28E 30-015-31165	P				1163	10666	1913	31								
017 K-35-17S-28E 30-015-31426	P				1379	11350	2314	31								
018 I-35-17S-28E 30-015-30977	P				1108	12258	1068	31								
019 J-34-17S-28E 30-015-31389	P				1432	3742	1535	31								
021 I-25-17S-28E 30-015-30975	P				1082	10331	1246	31								
026 J-25-17S-28E 30-015-31586	P				1704	3941	1936	31								
25702 LP STATE																
001 E-05-18S-28E 30-015-31086	P				241	2498	565	31								
003 M-06-18S-28E 30-015-31087	P				121	2498	141	31								
96831 CEDAR LAKE; YESO 023300 LEE FEDERAL																

#10

38 bopd / 344 bopd / 62 mcf

