



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

DHC - 769

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

RE: Proposed:

MC _____
DHC _____
NSL _____
NSP _____
SWD _____
WFX _____
PMX _____

Gentlemen:

I have examined the application for the:

Exxon Corp. New Mexico & State # 37-C 2-22-37
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton
Jerry Sexton
Supervisor, District 1

/ed

EXXON COMPANY, U.S.A.

POST OFFICE BOX 1600 • MIDLAND, TEXAS 79702-1600

PRODUCTION DEPARTMENT
SOUTHWESTERN DIVISION

September 4, 1990

Downhole Commingling
New Mexico "S" State #37
Unit C, Section 2, T22S, R37E
Lea County, New Mexico

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, NM 87504

Attention: Mr. David R. Catanach

Exxon Corporation requests an exception to New Mexico Oil Conservation Division Rule 303-A to permit downhole commingling of production from the Wantz Abo and Wantz Granite Wash Pools in the captioned wellbore.

This well has been shut in since it failed a packer leakage test in May, 1988. Prior to being shut in, the well was a dual producer which flowed the Wantz Abo in the upper tubing string and pumped the Wantz Granite Wash in the lower tubing string (see attached wellbore schematic). The Wantz Abo has potential reserves behind pipe. The Wantz Granite Wash produced an average of 4 bopd and 12 mcfpd during the year prior to being shut in and is approaching its economic limit of 2 bopd. By downhole commingling the Wantz Granite Wash with the economic Wantz Abo completion, Exxon will be able to recover an additional 4492 BO and 11,980 MCF from the Granite Wash that would not otherwise be recovered (see Attachment 3 for the calculation).

Exxon proposes to pull the current dual production equipment and artificially lift the remaining reserves out of both zones simultaneously. The seat nipple will be set across the Wantz Granite Wash pay to prevent crossflow.

All offset operators have been notified by copy of this letter and its attachments.

Sincerely,


for Michael W. Andrews

MWA:dbm
Attachments

c: Offset Operators
Mr. Jerry Sexton, NMOCD, Hobbs, NM
2 copies to addressee

Attachment 1
Offset Operators
Exxon's New Mexico "S" State Lease

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Chevron U.S.A., Inc.
P. O. Box 670
Hobbs, New Mexico 88240

Marathon Oil Company
P. O. Box 552
Midland, Texas 79702

ORYX Energy Company
P. O. Box 1861
Midland, Texas 79702

Attachment 2
New Mexico "S" State #37
Downhole Commingling - Data Required

To obtain approval for downhole commingling, we have enclosed the following data pursuant to Rule 303 (C) (2) (a through j):

1. Exxon's name and address:

Exxon Corporation
P. O. Box 1600
Midland, TX 79702

2. Lease name, well number, well location, and name of pools to be commingled:

New Mexico "S" State No. 37, Unit C, Section 2, T-22-S, R-37-E, Lea County, New Mexico. Pools to be commingled: Wantz Abo and Wantz Granite Wash.

3. A plat of the area showing the acreage dedicated to the well and ownership of all offsetting leases:

Attached.

4. A 24-hour productivity test on Division Form C-116 showing the amount of oil, gas, and water produced from each zone:

Tests for the Wantz Abo and Wantz Granite Wash are attached.

5. A production decline curve for zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes:

Decline curves for the Wantz Abo and Wantz Granite Wash are attached.

6. A current bottomhole pressure for each zone capable of flowing:

Measured shut-in bottomhole pressure is 542 psia for the Wantz Abo (measured by static downhole pressure bomb in the New Mexico "S" State #37), and 610 psia for the Wantz Granite Wash (measured by static downhole pressure bomb in the New Mexico "S" State #33). When adjusted to a common average datum of 3665 feet subsea, the Wantz Abo pressure is 549 psia and the Wantz Granite Wash pressure is 590 psia.

7. A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the wellbore:

Produced fluids are already surface commingled with no compatibility problems.

NEW MEXICO "S" STATE #37
DOWNHOLE COMMINGLING APPLICATION

8. A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams:

All of the crude and condensate currently produced from the Wantz Abo and Wantz Granite Wash is already being surface commingled into one common stock tank, and sold as a mixture.

9. A formula for the allocation of production to each of the commingled zones and a description of the factors or data used in determining such a formula:

The Wantz Granite Wash produced an average of 4 bopd and 12 mcfpd during the year prior to being shut in. Pay will be added in the Wantz Abo. The contribution from the Wantz Abo will be determined by subtracting the prior rate of the Wantz Granite Wash from the total commingled rate. A test period of 2 to 3 weeks will be used to obtain a stabilized rate prior to submitting the allocation formula.

10. A statement that all offset operators and, in case of a well on Federal land, the United States Geological Survey, has been notified in writing of the proposed commingling.

By copy of this letter, we are notifying the offset operators of this proposed commingling.

11. In addition, working interest and royalty interest ownership in all zones are the same.

ATTACHMENT 3

NEW MEXICO "S" STATE #37

ADDITIONAL RECOVERY CALCULATION

Wantz Granite Wash

Current Rate: 4.5 BOPD, 12.0 MCFPD (GOR = 2667 SCF/bbl)

Decline Rate: 15% per year

Economic Limit: 2 BOPD

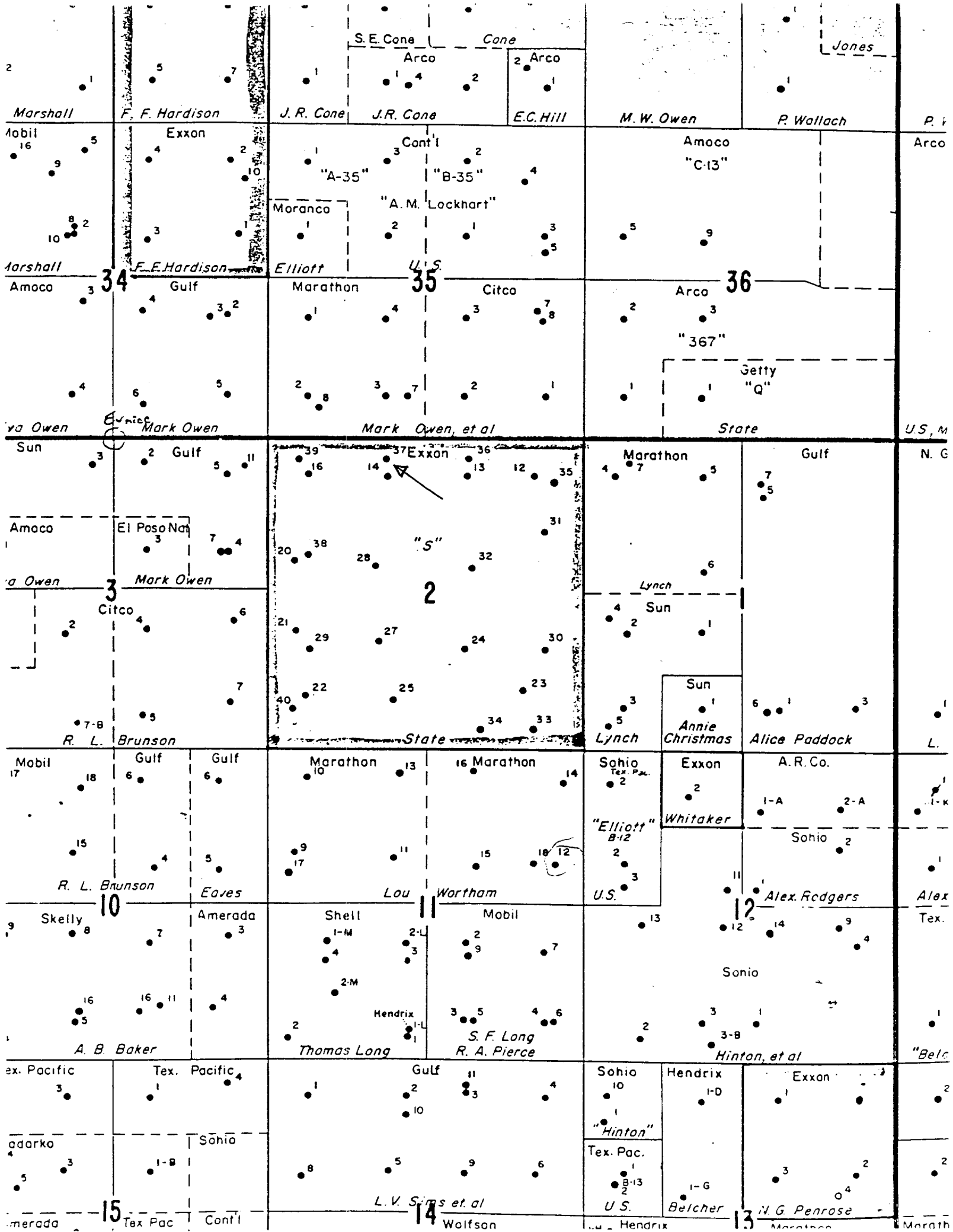
Remaining Wantz Granite Wash Reserves

Produce to economic limit
without commingling: $N = \frac{(Q-Q_i)365}{\ln(1-d)} = \frac{(2-4.5)365}{\ln(1-.15)} = 5,615 \text{ BO}$

Produce to commingling
with Wantz Abo: $N = \frac{(Q-Q_i)365}{\ln(1-d)} = \frac{(0-4.5)365}{\ln(1-.15)} = 10,107 \text{ BO}$

Additional Oil Reserves Captured by Commingling = $10,107 - 5615 = \underline{\underline{4492 \text{ BO}}}$

Additional Gas Reserves Captured by Commingling = $4492 \text{ BO} \times 2667 \text{ SCF/bbl} = \underline{\underline{11,980 \text{ MCF}}}$



Exxon Lease No. _____

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-102
Supersedes C-128
Effective 1-1-65State Lease No. B-934

WELL LOCATION AND ACREAGE DEDICATION PLAT

Federal Lease No. _____

All distances must be from the outer boundaries of the Section.

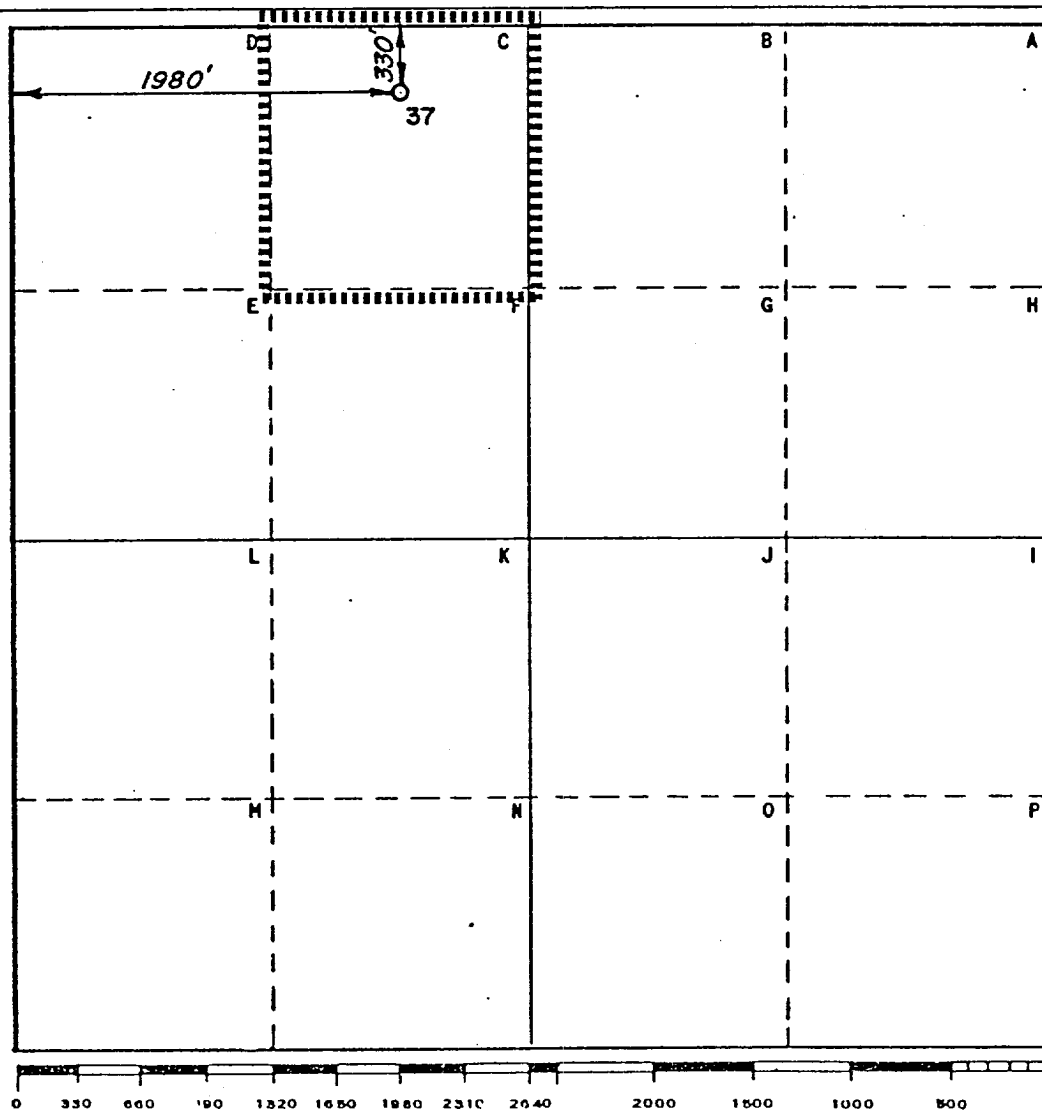
Operator Exxon Corporation		Lease New Mexico "S" State		Well No. 37
Unit Letter C	Section 2	Township 22 South	Range 37 East	County Lea
Actual Footage Location of Well: 330 feet from the North line and 1980 feet from the West line				
Ground Level Elev.:	Producing Formation Granite Wash & Abo	Pool Wantz-Granite Wash & Wantz Abo	Dedicated Acreage: 40 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Name
Melba Knippling

Position
Proration Specialist

Company **Exxon Corporation**
Box 1600 Midland, Texas

Date
2-2-77

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 knowledge and belief.

Date Surveyed
2-1-77

Registered Professional Engineer
and/or Land Surveyor

H. L. Hesterfield

Certificate No.
1382

Submit 2 copies to Appropriate District Office.
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240
DISTRICT II
P.O. Drawer DD, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-116
Revised 1/1/89

OIL CONSERVATION DIVISION

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

GAS - OIL RATIO TEST

Test Period - February

Operator Exxon Co. U.S.A.	Pool Wantz Abo	County Lea													
Address P. O. Box 1600	Midland, TX 79702	TYPE OF TEST - (X)	Scheduled ☒ Special ☐												
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	CHOKE SIZE	TBQ PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO	
		U	S	T	R						WATER BBL.S.	GRAV. OIL	OIL BBL.S.	GAS MCF.	CU.FT/BBL.
New Mexico 'S' State	24	J	2	22	37	2-10-90	F 32			24	2		8	65	8126
	25	N				2-2-90	F 32			24	2		5	206	41228
	27	K				2-22-90	F 32			24	0		0	2	
	28	F				SHUT-IN									
	29	L				2-14-90	F 32			24	0		0	8	
	31	H				2-11-90	F 32			24	0		1	26	26000
	34	O				2-8-90	F 32			24	0		0	9	
	35	A				2-17-90	F 32			24	0		0	6	
36	B				2-28-90	F			24	0		1	22	22080	

Instructions:

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

(See Rule 301, Rule 1116 & appropriate pool rules.)

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

Anita R. Douglass
Signature

Anita R. Douglass, Sr. Staff Ofc. Ass.
Printed name and title

3-2-90

Date

915/688-7627

Telephone No.

Submit 2 copies to Appropriate
District Office.
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240
DISTRICT II
P.O. Drawer DD, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-116
Revised 1/1/89

GAS - OIL RATIO TEST

Test Period - February

Operator	Exxon Co. U.S.A.	Pool	Wantz Abo	County	Lea				
Address	P. O. Box 1600	Midland, TX 79702	TYPE OF TEST - (X)	Scheduled ☒	Completion ☐ Special ☐				
LEASE NAME	WELL NO.	LOCATION	DATE OF TEST	CHOKE SIZE	TBQ. PRESS.	DAILY ALLOW. ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST	GAS - OIL RATIO CU FT/8BL
New Mexico 'S' State	37	C 2 22 37	SHUT-IN						
	38	E	SHUT-IN						
	39	D	2-9-90	32			24	0	3
	40	M	2-11-90				24	0	51
Wantz Federal	1	R 1 21 37	2-16-90	P			24	2	21
	2	O	2-19-90	P			24	0	58
	4	Q	2-22-90	P			24	2	24
	5	P	2-25-90	P			24	7	44

Instructions:

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

(See Rule 301, Rule 1116 & appropriate pool rules.)

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

Anita R. Douglass
Signature

Anita R. Douglass, Sr. Staff Ofc. Asst.
Printed name and title

3-2-90
Date

915/688-7627
Telephone No.

Submit 2 copies to Appropriate
District Office.
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P.O. Drawer DD, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-1116
Revised 1/1/89

GAS - OIL RATIO TEST

Test Period - April

Operator	Exxon Co., U.S.A. Operations Acctg.	P.C. #3	Pool	Wantz Granite Wash	County	Lea						
Address	P. O. Box 1600 Midland, TX 79702											
LEASE NAME	WELL NO.	LOCATION	DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW. ABLE	LENGTH OF TEST HOURS	Completion			Special	
								WATER BBL.	GRAV. OIL	OIL BBL.		
New Mexico "S" State	30 L	I 2 22 37	4-26-90 P				24	0		1	3	3000
	32	G	S.I.									
	33 L	P	4-27-90 P				24	0	4	132	33000	
	35 L	A	4-25-90 P				24	0	1	6	6000	
	36 L	B	S.I.									
	37 L	C	S.I.									
	38 L	E	S.I.									
	24 J	J	4-22-90 P				24	0	0	0	12	

Instructions:

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

(See Rule 301, Rule 1116 & appropriate pool rules.)

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

Signature

Anita R. Douglass, Jr. Staff Ofc.

Printed name and title

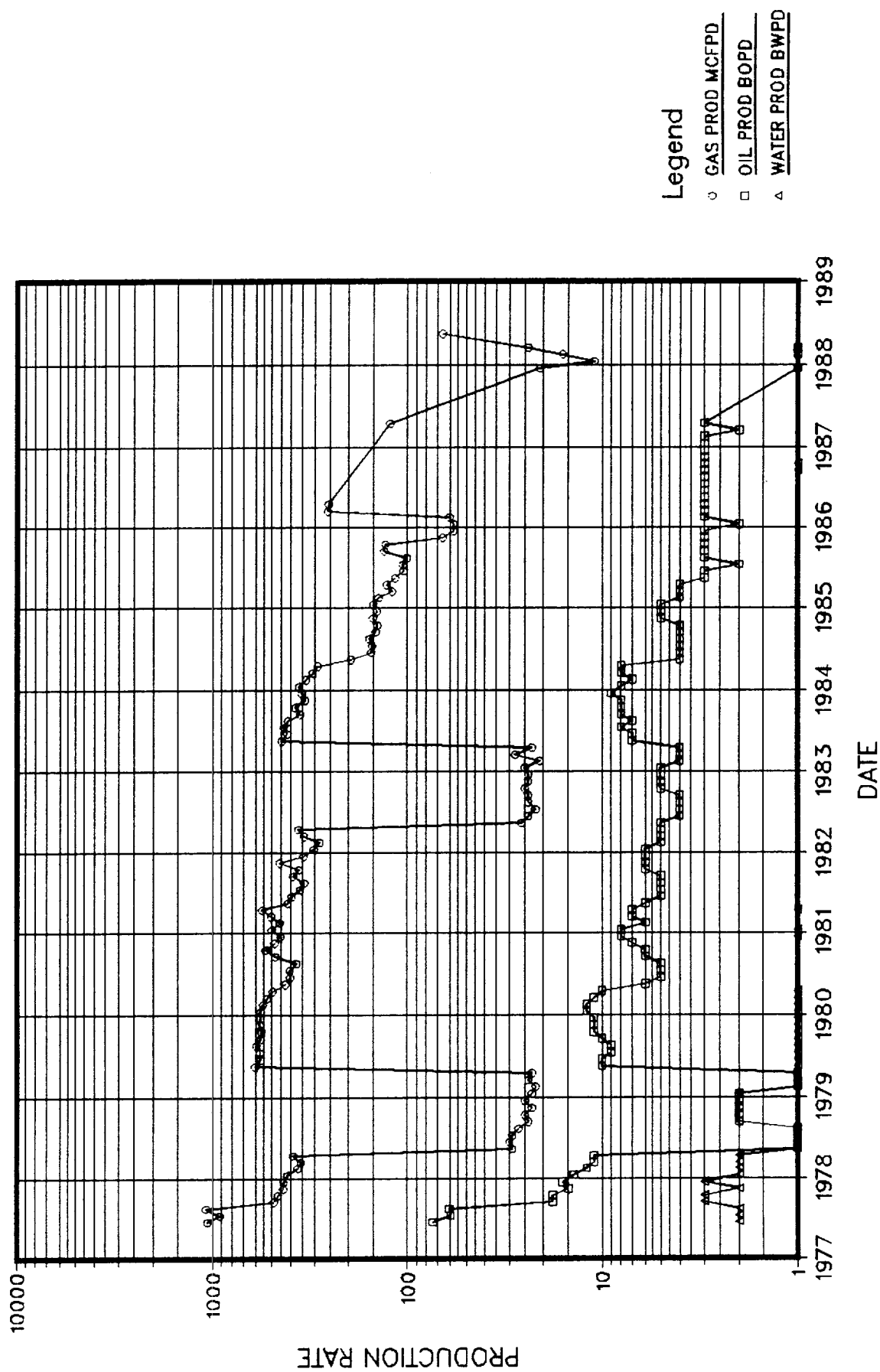
5-11-90

Date

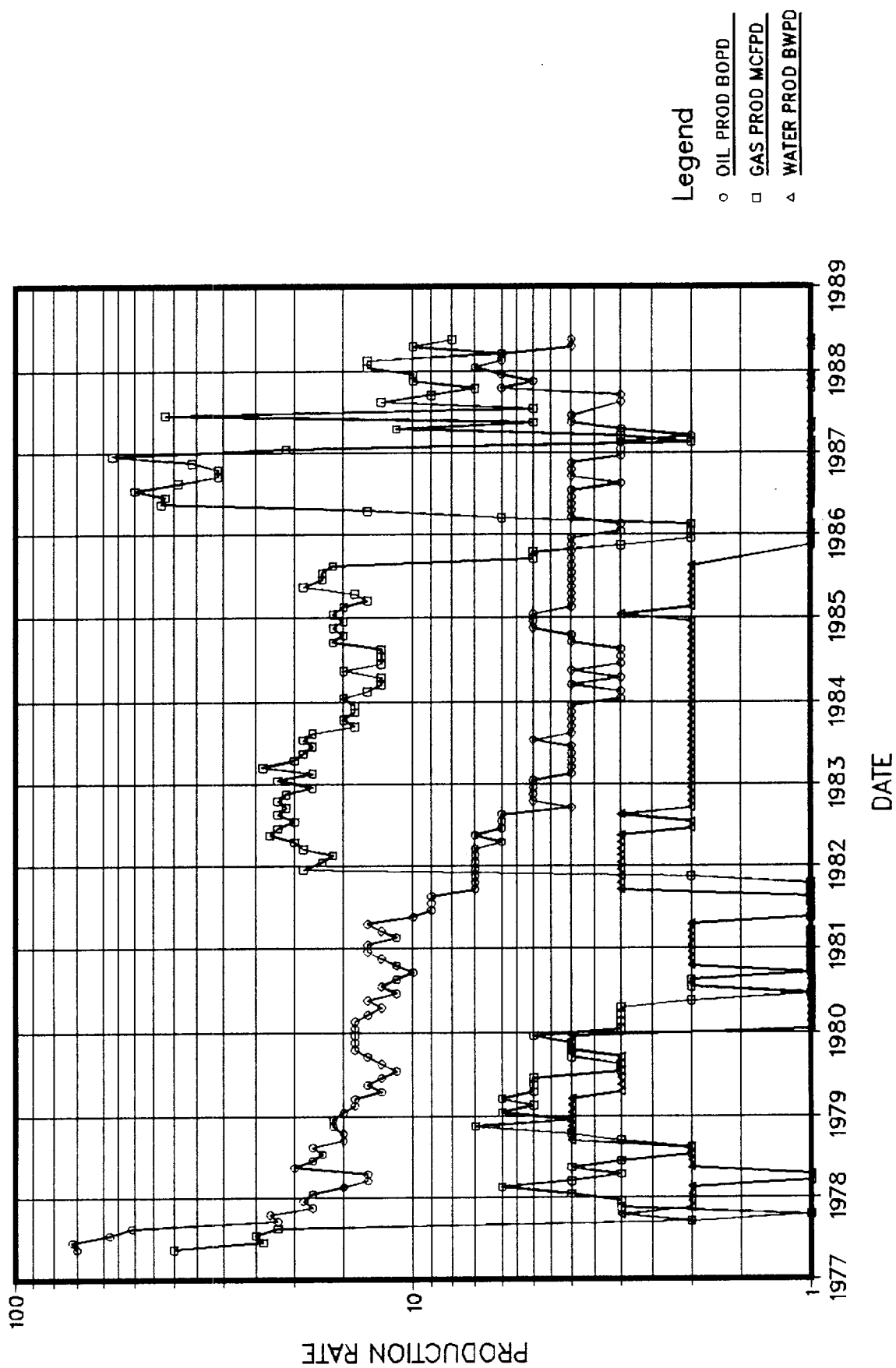
915/688-7627

Telephone No.

NEW MEXICO S STATE #37 WANTZ ABO PRODUCTION



NEW MEXICO S STATE #37 WANTZ GRANITE WASH PRODUCTION



Date: 4/19/90

Loc., Well: N. Mex. S State #37

Elev. K63371', 14'
above GHE

Field: BDT

H2S 0 PPM

Field Supt: McBEE

Tubing Size 2 3/8" Grade

CURRENT
WELLBORE
CONFIGURATION

Bottom Hole Arrangement

Well history:
1174' - 9 5/8" csg

6538' - Baker 'K' dual pkr

6640' - 6870' Wantz Abo
(66 shots)

7070' - Baker Lokiset pkr
w/on-off

7154' - 7310' Granite
(182F) Wash

7500' - 7" csg

TOC

0 - 7354'

TD - 7500'

4/77

D & C. Perf. Abo 6640'-6870'
Acidize w/ 2325 gal 15% HCl
Frac w/ 30,000 gal K-1 & 30,000
gal 20% HCl.
IP Abo: 175 bopd, 56 wpp, 1710.
Perf Granite Wash 7154-7310
Acidize w/ 200 gal 15% HCl
Frac w/ 40,000 gal gel oil
& 40,000 # 20/40 sand.
IP G/W: 170 bopd, 249 KCFD, 06

WANTZ ABO - FLOWING

GRANITE WASH - PUMPING

AFTER COMMINGLING

Wellbore Sketch

Date: 4/19/90

Lease, Well: NEW MEXICO'S STATE #37

Elev. 3371' KB, 14'
above CHF

Field: B-D-T

Field Supt: McBEE

H2S 0 PPM

Tubing Size 2 3/8" Grade

AFTER COMMINGLING
WELLBORE
CONFIGURATION

Bottom Hole Arrangement

9 5/8" @ 1174'

Well history:

4/77

D+C Perf Abo 6640' - 6870'

Acidize w/ 2325 gals 15% HCL

Free w/ 30,000 gal K-1 + 30,000 gal
of 20% HCL

ABO IP = 175 BOPD, 5 BWPD, 1710 KCFPD

Perf Granite Wash 7154' - 7310'

Acidize w/ 200 gal. 15% HCL

Free w/ 40,000 gals. gelled oil
+ 46,000 # 20/40 sand

G/W IP: 170 BOPD, 249 MCF/DAY

6606' - 7070'

WANTZ ABO

7154' - 7310'

GRANITE WASH

7" @ 7500'

TDC 7500'

PBTD @ 7359'

TOC