



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

GARREY CARRUTHERS
GOVERNOR

8-24-90

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

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

DHC - 771

RE: Proposed:

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

Gentlemen:

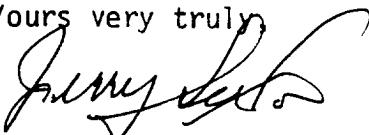
I have examined the application for the:

Marathon Oil Co. W. S. Marshall #2-m 27-21-37
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

Subb is prerated gas well

Yours very truly,


Jerry Sexton
Supervisor, District 1

/ed

Mid-Continent Region
Production United States



P.O. Box 552
Midland, Texas 79702
Telephone 915/682-1626

August 16, 1990

Mr. David Catanach
Energy and Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Request for Exception to Rule 303-A
Downhole Commingling
W. S. Marshall "B" No. 2 Well
Sec. 27-21S-37E
Tubb and Drinkard Zones
Lea County, New Mexico

Dear Mr. Catanach:

Marathon Oil respectfully requests administrative approval for an exception to Rule 303-A to permit the downhole commingling of production from the Tubb and Drinkard oil pools in the subject well.

Well No. 2 was originally drilled and openhole completed in 1947 in the Drinkard formation. In 1953, a Tubb completion was added to make a Tubb-Drinkard dual completion. In 1974, the lower openhole Drinkard formation was temporarily abandoned and the Upper Drinkard was perforated. Currently this well is dually completed in the Upper Drinkard and Tubb formations.

A static bottomhole pressure of 471 psi was obtained in the Drinkard using a pressure bomb. A static fluid level was shot on the Tubb. Using surface pressure and pressure gradients, a bottomhole pressure of 705 psi was calculated for the Tubb zone.

Marathon believes that the two zones can be downhole commingled without crossflow or a loss of reserves in either zone. The last test on the Tubb zone showed it producing 23 MCFD with 0 BO and 0 BW. The well test on the Drinkard zone shows it producing 26 MCFD, 0 BO and 0 BW.

A sonic fluid level shot on the Tubb zone indicates 970' of fluid above the middle perforation. A plot of depth vs. pressure from data gathered using a pressure bomb on the Drinkard zone indicates a fluid level 215' above the middle

Mr. David Catanach
August 16, 1990
Page 2

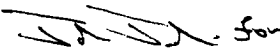
of perforations. This well does not currently have artificial lift. With approval of this application, Marathon will artificially lift the well to produce the liquids and help maximize production. With downhole commingling, both zones should produce at a combined rate of 49 MCFD and an estimated 5 BOPD.

All ownership (WI, Royalty and ORRI) in the wellbore is the same. Furthermore, commingling will not jeopardize future secondary recovery operations. As required, additional information is attached and all offset operators are being notified by copy of this application.

In summary, Marathon feels that as a prudent operator, we can effectively downhole commingle the Tubb and Drinkard zones and maximize production by doing so. We look forward to your approval of this application.

Sincerely yours,

MARATHON OIL COMPANY


William D. Holmes
Midland Operations Superintendent

WPB/lr
Attachments

021-90

ATTACHMENT NO. 1

Request for Exception to Rule 303-A
W. S. Marshall "B" No. 2
Tubb and Drinkard Zones
Lea County, New Mexico

Reference: Section 2, Rule 303

- a) Marathon Oil Company
P. O. Box 552
Midland, Texas 79702
- b) W. S. Marshall "B" No. 2
660' FSL and 660' FWL, Sec. 27, T21S, R37E
Lea County, New Mexico (see Attachment No. 2 for Form C103)
- c) Plat of acreage dedicated and offsetting operators (see Attachment Nos. 3 and 4).
- d) Form C-116 for the Tubb completion (see Attachment No. 5).
Form C-116 for the Drinkard completion (see Attachment No. 6).
- e) Production curve for the Tubb completion (see Attachment No. 7).
Production curve for the Drinkard completion (see Attachment No. 8).
- f) Bottomhole pressures for both of the zones in question (48 hr. static pressures).
Tubb - 705 psi calculated using sonic fluid level (Attachment No. 9).
Drinkard - 471 psi measured using Amerada pressure bomb (Attachment No. 10).
- g) Marathon Oil Company has commingled these fluids at the surface and has encountered no incompatibility problems.
- h) As previously stated in the body of the letter, if the downhole commingling is approved, an artificial lift system will be installed on the well, resulting in an extended economic life of the well.

The value of the produced hydrocarbons will not be altered by commingling production. Therefore, the same market price should be obtained as if both zones were produced individually.

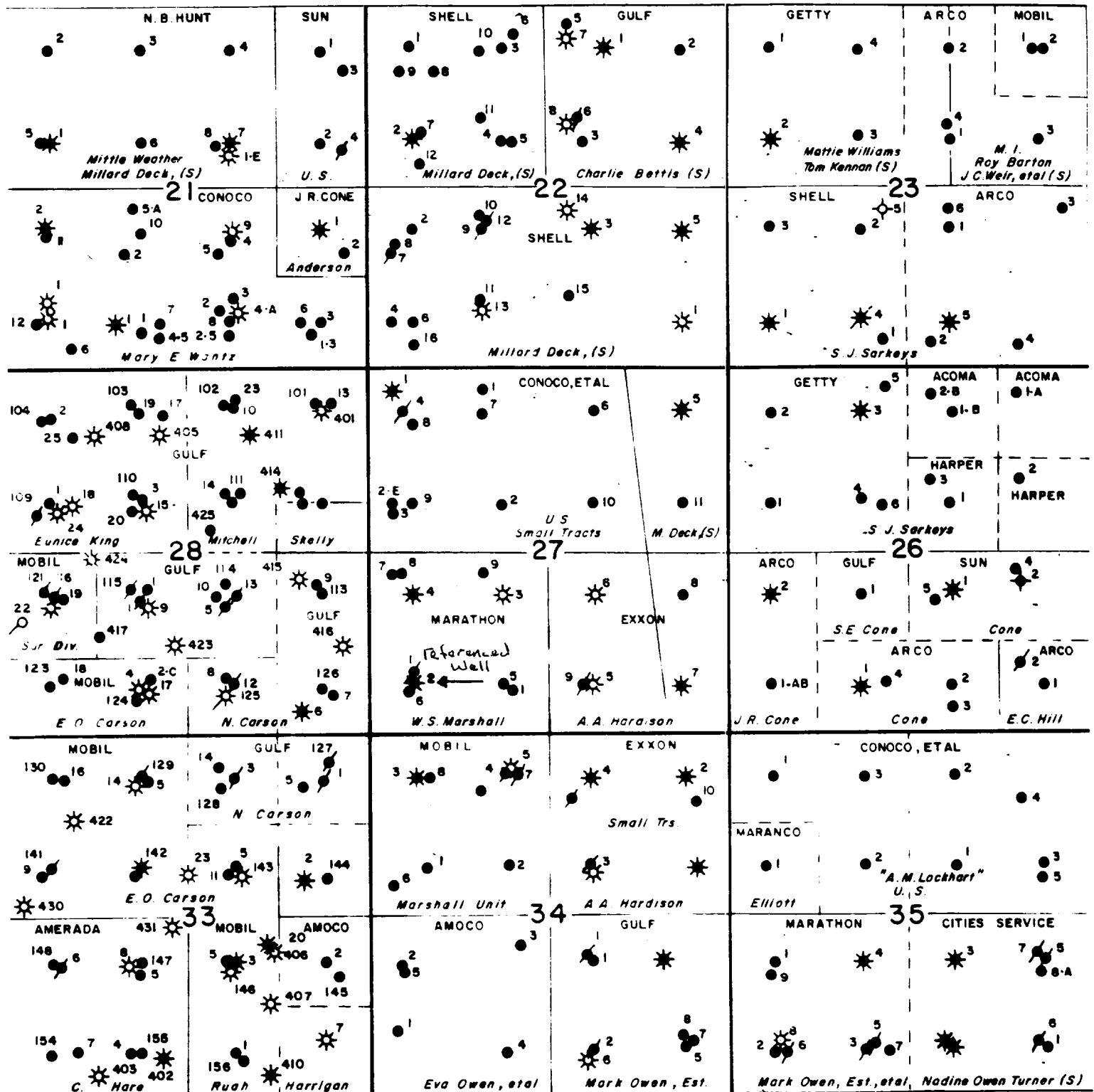
- i) Method of allocation:

Both zones have a fluid level, therefore an estimated combined production of 5 BOPD will be used.

	<u>Gas</u> (MCFD)	<u>Gas %</u>	<u>Oil</u> (BPD est.)	<u>Oil %</u>
Tubb	23	47	2.5	50
Drinkard	<u>26</u>	<u>53</u>	<u>2.5</u>	<u>50</u>
Total	49	100	5.0	100

- j) By copy of this letter, we are notifying all offset operators of the proposed commingling by certified mail (see attached letters.)

ATTACHMENT NO. 4
Map of Offset Operators
Lea County, New Mexico



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

ATTACHMENT NO. 5

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

Operator Marathon Oil Company		Pool Tubb		County Lea											
Address P. O. Box 552, Midland, Texas 79702		TYPE OF TEST - (X)		Completion ☐ Special ☒											
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	Csg. PRESS.	DAILY ALLOW. ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU FT/BBL		
		U	S	T						R	WATER BBL.S.	GRAV. OIL		OIL BBL.S.	GAS MCF.
W. S. Marshall "B"	2	M	27	21	37	5-6-90	F	--	Gas	24	0	--	0	23	--

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

J. R. Jenkins, Hobbs Production Sup't.

Printed name and title

6-25-90

(915) 682-1626

Date

Telephone No.

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

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

GAS - OIL RATIO TEST

Operator Marathon Oil Company		Pool Drinkard		County Lea											
Address P. O. Box 552, Midland, Texas 79702		TYPE OF TEST - (X)		Completion ☐ Special ☒											
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU FT/BBL		
		U	S	T						R	WATER BRLS.	GRAV. OIL		OIL BBL S.	GAS MCF.
W. S. Marshall "B"	2	M	27	21	37	5-5-90	F	70	Gas	24	0	--	0	26	--

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.

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J. R. Jenkins, Hobbs Production Sup't.
Printed name and title

6-25-90

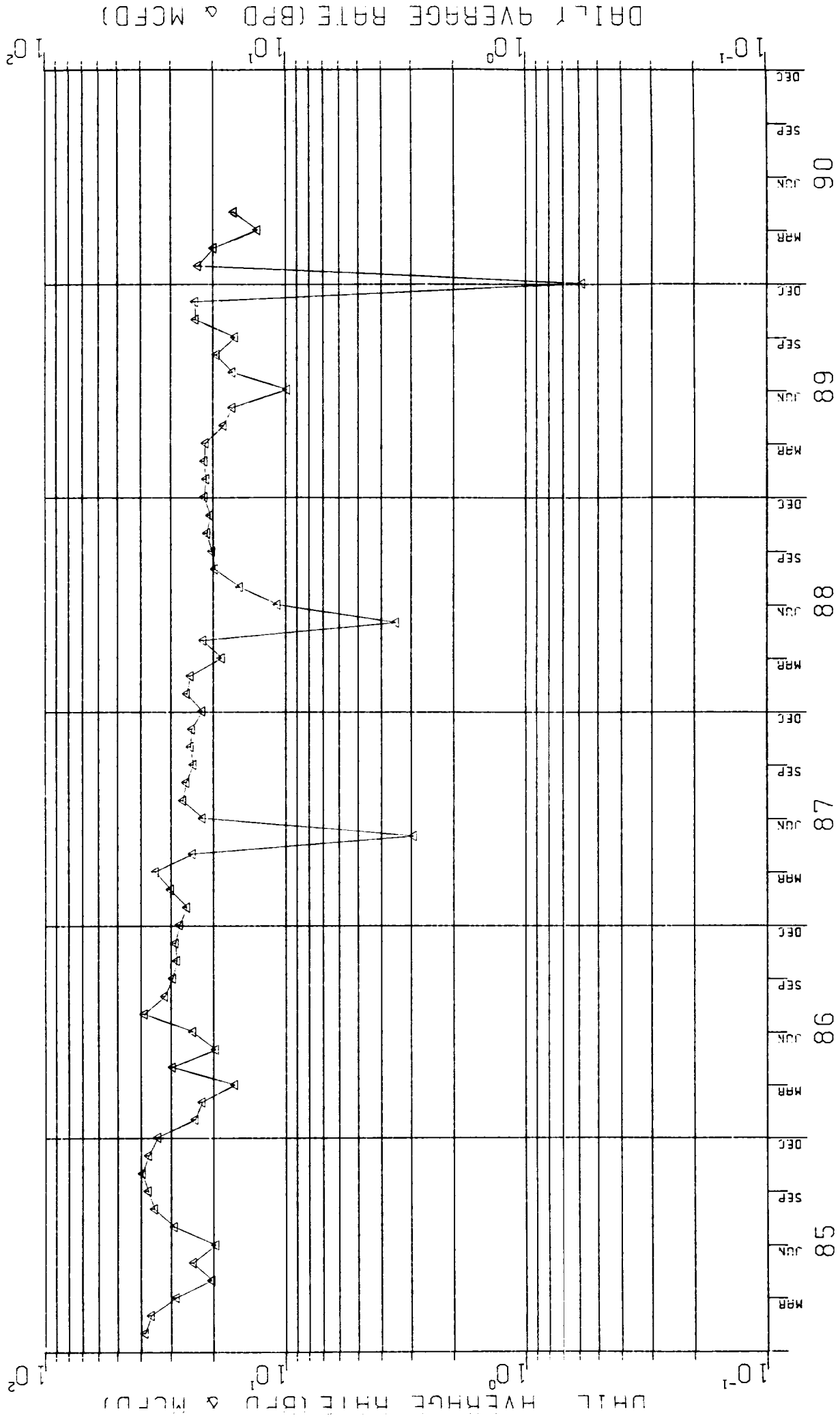
Date

(915) 682-1626

Telephone No.

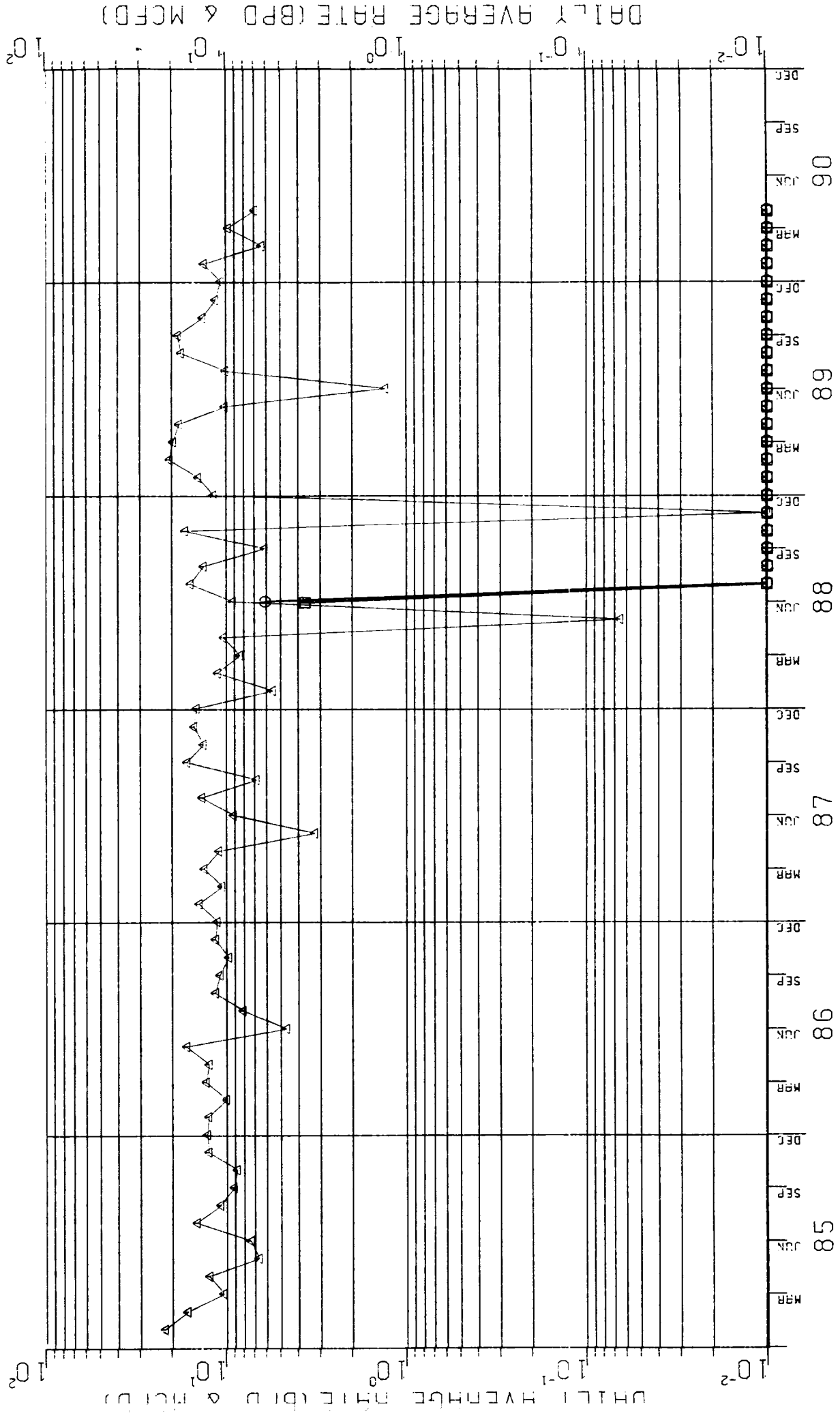
ATTACHMENT NO. 7

FIELD - TUBB
 RESERVOIR - TUBB
 LEASE - MARSHALL, W. S. 'B'
 WELL - W. S. MARSHALL-B-NO. 2



ATTACHMENT NO. 8

FIELD - DRINKARD
 RESERVOIR - DRINKARD
 LEASE - MARSHALL, W. S. 'B'
 WELL - W. S. MARSHALL-B-NO. 21



O+C CALENDAR DLY AVG
 CAS CALENDAR DLY AVG
 WTR CALENDAR DLY AVG

ATTACHMENT NO. 9

MARATHON OIL COMPANY
HOBBS, NEW MEXICO OPERATIONS

48 HOUR SHUT IN SONIC FLUID LEVEL REPORT

Date: 7/27/90

Field: Drinkard / Tubb Gas

Well: W.S. Marshall "B" # 2

Fluid Level Data

Fluid Above SN: 1183 Ft. Casing Pressure: 330 PSIG

Fluid Level Depth: 5135 Ft. Fluid Level Depth: 165 Jts.

Well Test Data

Date: 6/8/90

Produced: 0 bo + 0 bw = 0 bbls. total

Tubing Record Data

Date: Unknown

Tubing Size: 2-3/8"

Seating Nipple Depth 6318 Ft. Seating Nipple Depth 203 Jts.

Perforations: 5907' - 6299' Ave. Joint Length: 31.12 Ft.

Tested By: Greenough

Remarks: Sonic was shot per request of Mr. J.R. Jenkins to determine the static reservoir pressure of the Tubb Gas zone.

INTRACOMPANY CORRESPONDENCE

TO J.R. Jenkins DATE 8/7/90
 OFFICE Midland, Texas FROM M.L. Greenough
48 Hour Shut in Bottom Hole Pressure OFFICE Hobbs, New Mexico

M.L. Greenough

W.S. Marshall B Well No. 2
 Drinkard Gas Zone
 Lea County, New Mexico

A measure of the shut in bottom hole pressure and static gradients was obtained on this well with an Amerada RPG-3 gauge fitted with a 2150# pressure element, on 7/27/90.

Results are presented below.

	DEPTH (FEET)	PRESSURE (PSIG)	P	D	GRADIENT
SURFACE	9	390			
	2000	413	23	1991	0.0116
	4000	438	25	2000	0.0125
	5000	451	13	1000	0.0130
	6000	464	13	1000	0.0130
	6150	466	2	150	0.0133
	6300	469	3	150	0.0200

Mid-Continent Region
Production United States



P.O. Box 552
Midland, Texas 79702
Telephone 915/682-1626

August 16, 1990

Mobil Oil Company
P. O. Box 633
Midland, Texas 79702

Re: Request for Exception to Rule 303-A
Downhole Commingling
W. S. Marshall "B" No. 2
Sec. 27, T-21-S, R-37-E
Tubb and Drinkard Zones
Lea County, New Mexico

Gentlemen:

Marathon Oil Company is requesting administrative approval from the New Mexico Oil Conservation Division to downhole commingle production in the above referenced well. The W. S. Marshall "B" No. 2 is completed in the Tubb and Drinkard zones in the Drinkard field. Combined production should average approximately 49 MCFD and 5 BOPD.

Attached for your scrutiny is a copy of our application. Should you have any questions or concerns, please do not hesitate to call me.

Sincerely yours,

MARATHON OIL COMPANY

A handwritten signature in dark ink, appearing to read 'W.D. Holmes'.

William D. Holmes
Midland Operations Superintendent

WPB/lr
Attachment

023-90

Mid-Continent Region
Production United States



P.O. Box 552
Midland, Texas 79702
Telephone 915/682-1626

August 16, 1990

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

Re: Request for Exception to Rule 303-A
Downhole Commingling
W. S. Marshall "B" No. 2
Sec. 27, T-21-S, R-37-E
Tubb and Drinkard Zones
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Midland Operations Superintendent

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Attachment

022-90