



**Marathon
Oil Company**

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

'90 AUG 24 AM 9 19

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

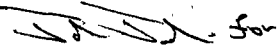
of perforations. This well does not currently have artificial lift. With approval of this application, Marathon will artificially lift the well to produce the liquids and help maximize production. With downhole commingling, both zones should produce at a combined rate of 49 MCFD and an estimated 5 BOPD.

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.)

Submit 3 Copies
to Appropriate
District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

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

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

WELL API NO.	
5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>	
6. State Oil & Gas Lease No.	
7. Lease Name or Unit Agreement Name W. S. Marshall "B"	
8. Well No. 2	
9. Pool name or Wildcat Drinkard, Tubb	

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	
1. Type of Well: OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Dual Gas/Oil Well	
2. Name of Operator Marathon Oil Company	
3. Address of Operator P. O. Box 552, Midland, Texas 79702	
4. Well Location Unit Letter <u>M</u> : <u>660</u> Feet From The <u>South</u> Line and <u>600</u> Feet From The <u>West</u> Line Section <u>27</u> Township <u>21S</u> Range <u>37E</u> NMPM Lea County 10. Elevation (Show whether DF, RKB, RT, GR, etc.) <u>3431' KDB</u>	

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data	
NOTICE OF INTENTION TO: PERFORM REMEDIAL WORK <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> CHANGE PLANS <input type="checkbox"/> PULL OR ALTER CASING <input type="checkbox"/> OTHER: <u>Downhole commingle</u> <input checked="" type="checkbox"/>	SUBSEQUENT REPORT OF: REMEDIAL WORK <input type="checkbox"/> ALTERING CASING <input type="checkbox"/> COMMENCE DRILLING OPNS. <input type="checkbox"/> PLUG AND ABANDONMENT <input type="checkbox"/> CASING TEST AND CEMENT JOB <input type="checkbox"/> OTHER: <input type="checkbox"/>

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Request authorization to downhole commingle the Tubb and the Drinkard pools.

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

SIGNATURE William D. Holmes TITLE Operations Superintendent DATE 6-19-90
 TYPE OR PRINT NAME William D. Holmes (915) TELEPHONE NO. 682-1626

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____
 CONDITIONS OF APPROVAL, IF ANY:

Submit to Appropriate
District Office
State Lease - 4 copies
Fee Lease - 3 copies

ATTACHMENT NO. 3
State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised 1-1-89

OIL CONSERVATION DIVISION

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

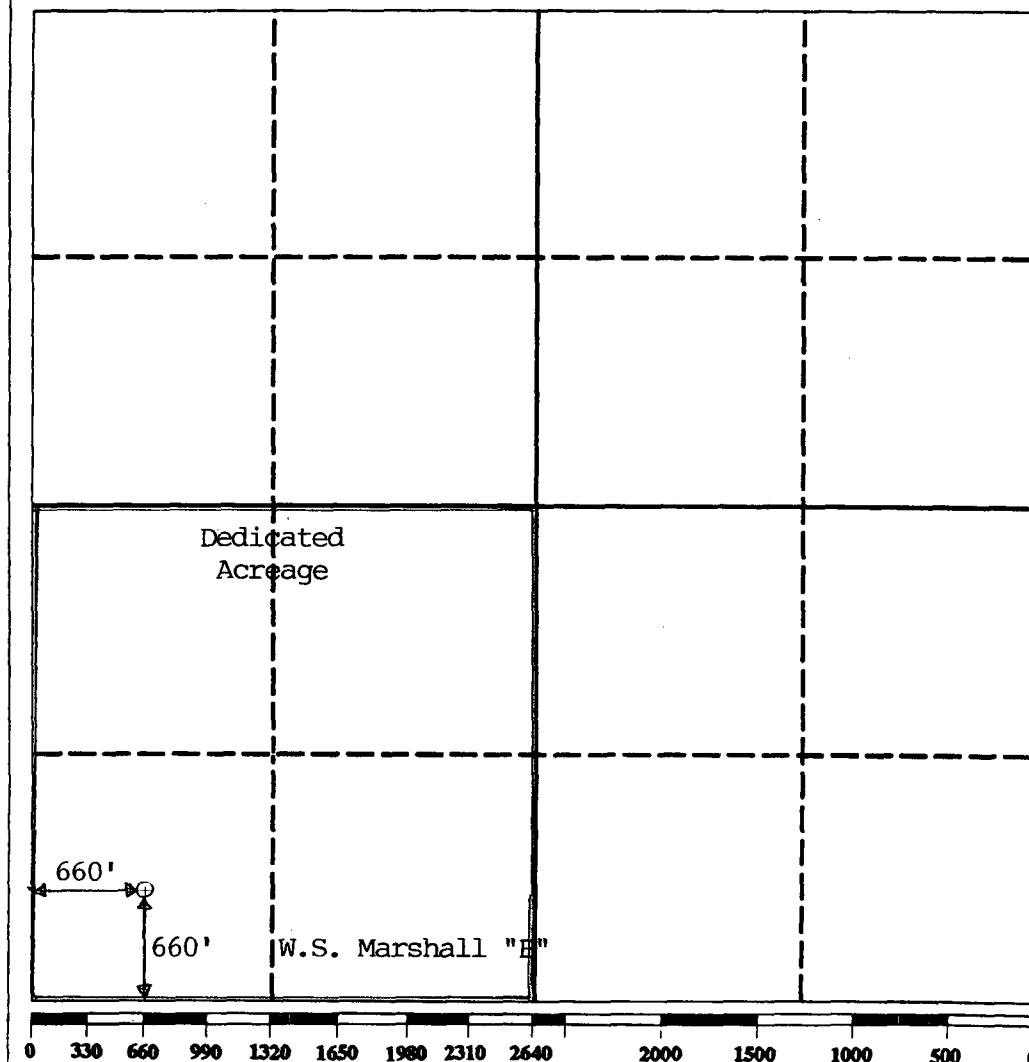
All Distances must be from the outer boundaries of the section

Operator Marathon Oil Company			Lease W. S. Marshall "B"		Well No. 2
Unit Letter M	Section 27	Township 21S	Range 37E	County Lea	

Actual Footage Location of Well:

660	feet from the	South	line and	660	feet from the	West	line
Ground level Elev. 3417'	Producing Formation Tubb/Upper Drinkard		Pool Tubb/Upper Drinkard	Dedicated Acreage: 160		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 interest 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 interest, has been approved by the Division.



OPERATOR CERTIFICATION

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

Signature

Printed Name

J. R. Jenkins

Position

Hobbs Production Sup't.

Company

Marathon Oil Company

Date

6-19-90

SURVEYOR CERTIFICATION

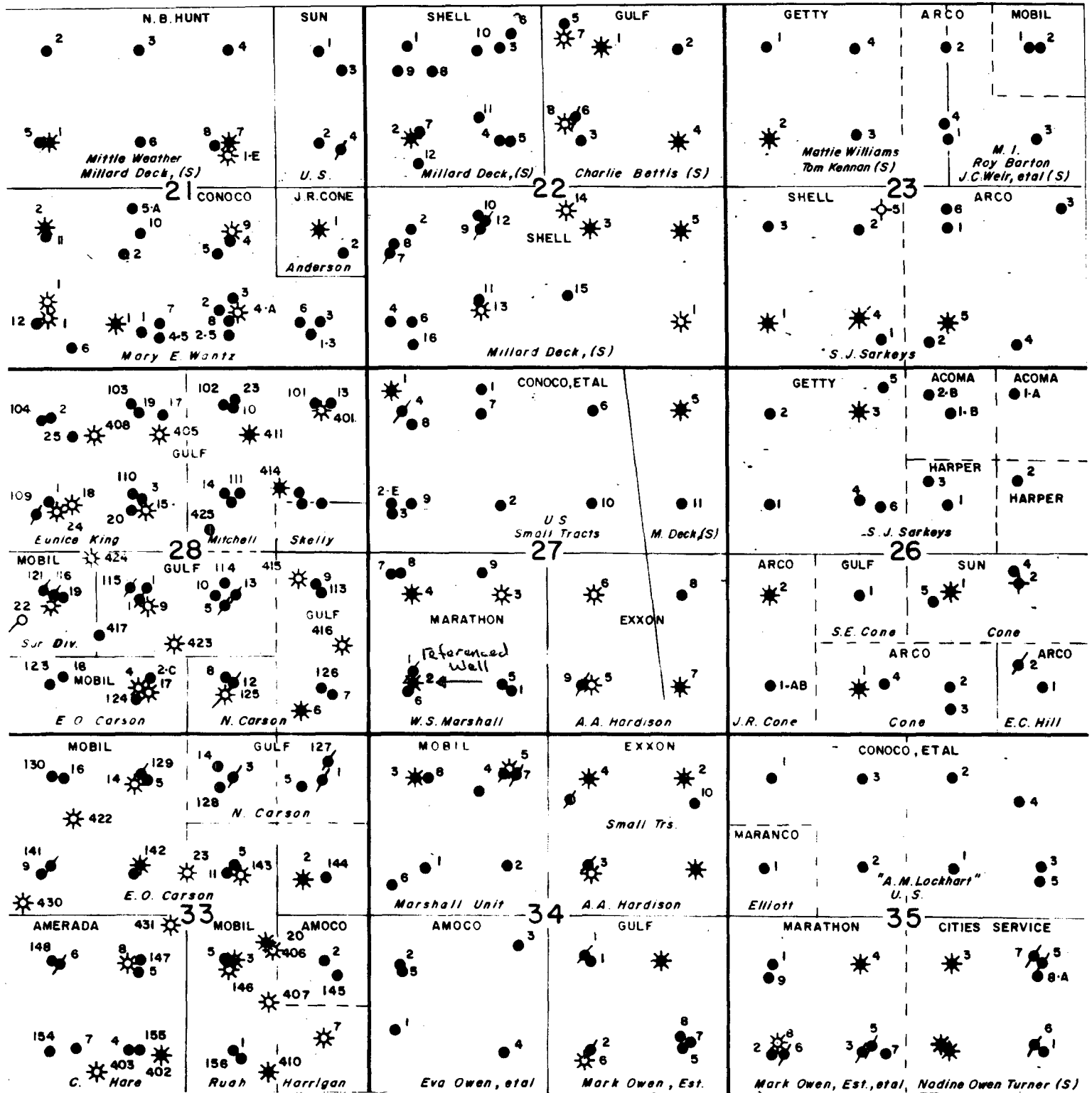
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed

Signature & Seal of
Professional Surveyor

Certificate No.

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



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		Pool		County		Lea									
Marathon Oil Company		Tubb													
Address		TYPE OF TEST - (X)		Completion		Special									
P. O. Box 552, Midland, Texas 79702		Sched		WATER BBL'S		Special <input checked="" type="checkbox"/>									
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU FT/BBL			
		U	S	T					R	GRAV. OIL	OIL BBL'S		GAS MCF		
W. S. Marshall "B"	2	M	27	21	37	5-6-90	F	70	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.

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. 6

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 Drinkard		County Lea												
Address P. O. Box 552, Midland, Texas 79702		TYPE OF TEST - (X)		Scheduled <input type="checkbox"/> Completion <input type="checkbox"/> Special <input checked="" type="checkbox"/>												
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU FT/8BL			
		U	S	T						R	WATER BBLs.	GRAV. OIL		OIL BBLs.	GAS M.C.F.	
W. S. Marshall "B"	2	M	27	21	37	5-5-90	F	--	70	Gas	24	0	--	0	26	--

Instructions:

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Signature

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

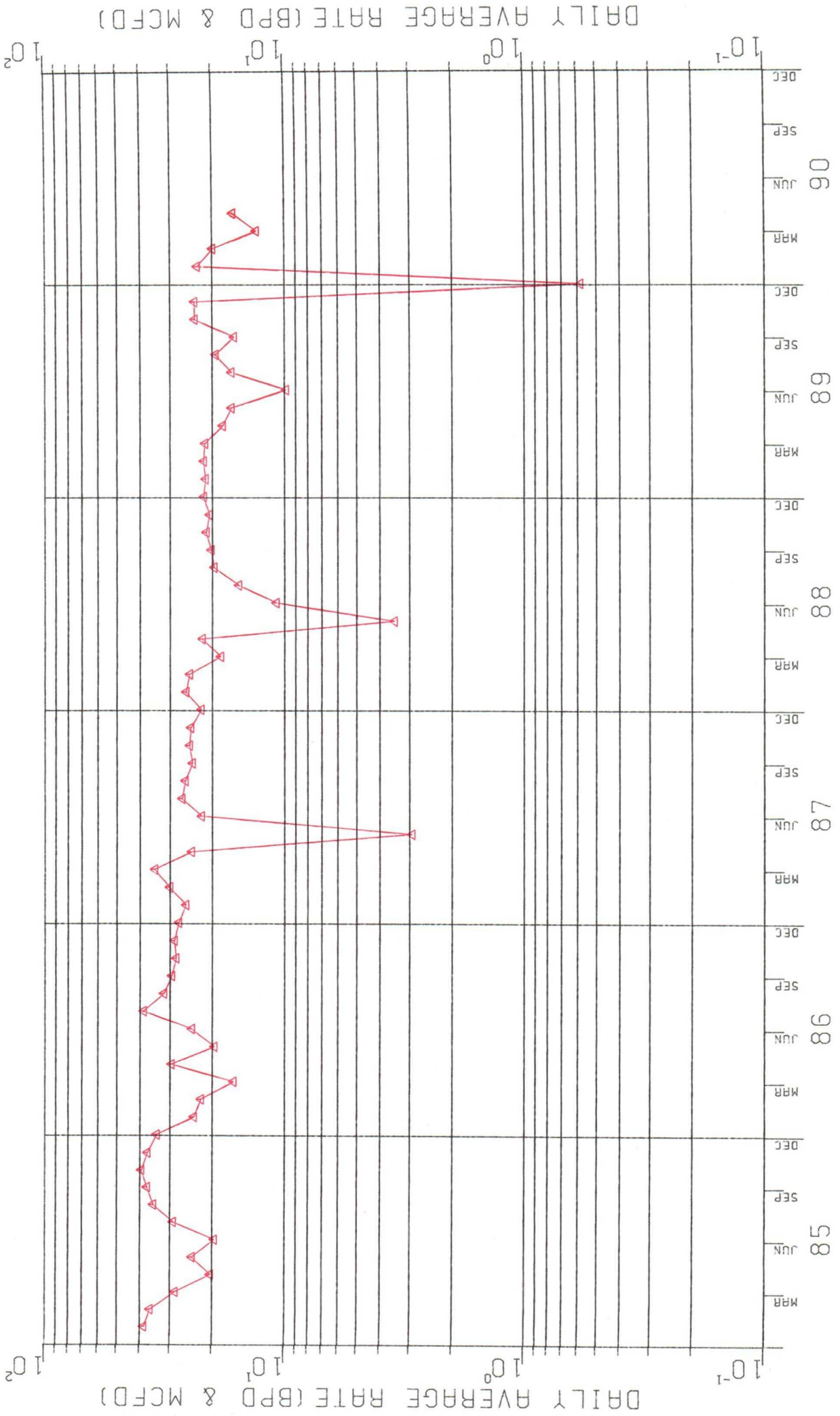
6-25-90

Date

(915) 682-1626

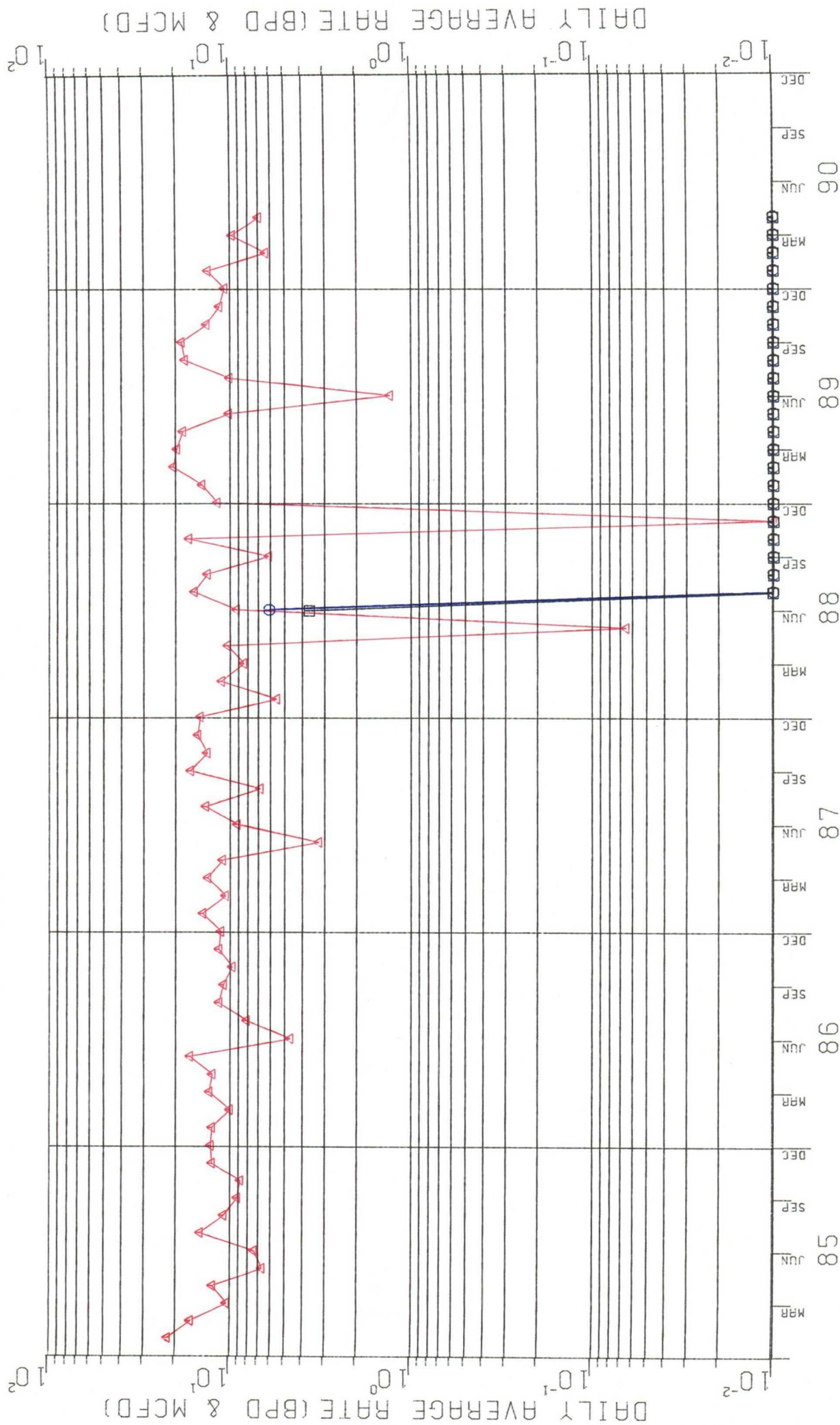
Telephone No.

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



GAS CALENDAR DLY AVG

FIELD - DRINKARD
 RESERVOIR - DRINKARD
 LEASE - MARSHALL, W. S. 'B'
 WELL - W. S. MARSHALL-B-NO. 2T



O+C CALENDAR DLY AVG
 GAS 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



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



**Marathon
Oil Company**

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
Lea County, New Mexico

Gentlemen:

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Sincerely yours,

MARATHON OIL COMPANY

William D. Holmes
Midland Operations Superintendent

WPB/lr
Attachment

022-90



CONSERVATION DIVISION
RECEIVED

90 AUG 27 AM 10 35

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

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:

Sub is prorated gas well

Yours very truly

Jerry Sexton
Supervisor, District 1

/ed