

## STATE OF NEW MEXICO

# ENERGY AND MINERALS DEPARTMENT

# OIL CONSERVATION DIVISION HOBBS DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

6-12-90

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	G Ref.
Gentlemen:	
I have examined the application for the	ne:
marathon oil Co W & 7. Operator Lease & Wo	narshall B #3-K 27-21-37 ell No. Unit S-T-R
and my recommendations are as follows  Nava used Affin	Ener allow Lighter
ON S	
Yours very truly,	$\bigcap_{a\in A}$
Leng Suffer	Jeving.
Jerry Sexton Supervisor, District 1	from the swap test after w/o it looks like the Just is
/ed	Probably, not a gas
1/19/40 David C. & David	trice will any longer.
agreeded to lear	- Tulh
well class as g	las.



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

June 6, 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
Marathon Oil Company
W. S. Marshall "B" Well No. 3
Unit "K", 1,980' FSL and 1,980' FWL
Section 27, T-21-S, R-37-E
Tubb and Drinkard Formations
Lea County, New Mexico

Dear Mr. Catanach.

Marathon Oil Company requests administrative approval for an exception to Rule 303-A to permit the downhole commingling of production in the subject well from the Tubb and Drinkard pools in Lea County, New Mexico.

Currently, the well is equipped as a dual producer with the Tubb flowing up the annulus and the Drinkard flowing up the tubing. A workover was performed in December, 1989, where both zones had perforations added and were stimulated with acid. Based on the swab test results, the Tubb and Drinkard have the combined potential to produce up to 40 BOPD. This well currently has no artificial lift system, and after economic evaluation on an individual zone basis, artificial lift can not be justified. However, if the two producing zones are allowed to be downhole commingled, the installation of an artificial lift system becomes economically justified.

Therefore, in the interest of conservation and prevention of waste, we propose to downhole commingle the Tubb and Drinkard zones and place the well on artificial lift. Enclosed is pertinent data supporting this application as outlined in Rule 303-C. If additional information is necessary, please contact Donald Price at (915) 682-8258.

Sincerely,

William D. Holmes

Midland Operations Superintendent

WDH/DGP/099.274/sk

A subsidiary of USX Corporation

William D. Adline

- (a) Marathon Oil Company
  P. O. Box 552
  Midland, Texas 79702
- (b) W. S. Marshall "B" Well No. 3 Unit "K", 1,980' FSL and 1,980' FWL Section 27, T-21-S, R-37-E Lea County, New Mexico Commingled Zones: Tubb and Drinkard
- (c) Plats (2) of area attached.
- (d) The Form C-116 for the Tubb and Drinkard zones are attached. Also attached are the swab test results showing liquid production from each zone after recompletion. These values will be used to allocate the liquid production for each zone.
- (e) Production decline curves for both the Tubb and Drinkard zones are attached.
- (f) BHP Survey's recorded with Amerada bombs are attached. Tubb: 488 psig Drinkard: 430 psig
- (g) Marathon Oil Company has commingled these fluids at the surface and has encountered no incompatibility problems. Also, there are waterflood projects in the area which include the Tubb and Drinkard. Therefore, no reservoir damage will result from downhole commingling.
- (h) As previously stated in the body of the letter, if the downhole commingling is approved, a artificial lift system can be installed on the well resulting in an extended economic life of the well.

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

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HOB'S SHOEL

(i) Production from latest GOR test shows:

	GAS (MCFPD)
Tubb	7
Drinkard	<u>37</u>
	44

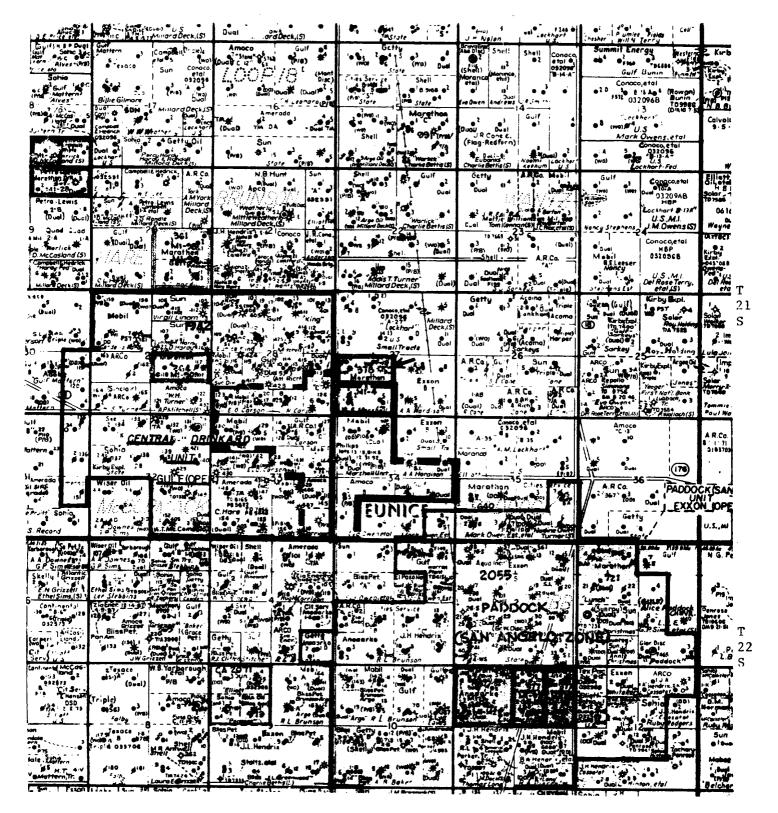
Production estimates from swab tests show:

	OIL (BOPD)	WATER (BWPD)
Tubb	10.0	50.0
Drinkard	<u>30.0</u>	<u>24.0</u>
	40.0	74.0

Therefore the allocated percentages should be:

	OIL (%)	GAS (%)	WATER (%)
Tubb Drinkard	25 _75	16 <u>84</u>	68 _ <u>32</u>
	100	100	100

- (j) Ownership of the two pools to be commingled is common and correlative rights will not be violated.
- (k) By copy of this letter, we are notifying all offset operators of the proposed commingling by certified mail. (See attached address list).



R-37E

### MARATHON OIL COMPANY

W. S. MARSHALL "B" NO. 3
1980' FWL & 1980' FSL, SEC. 27, T-21-S, R-37-E
SUBJECT WELL

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

# State of New Mexico Energy, Minerals and Natural Resources Department

Form C-102 Revised 1-1-89

DISTRICT I P.O. Box 1980, Hobbs, NM 88240

## OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

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		- 0:1 0		Lease		1 11 1'0	11		Well No.	
	Marath	ion Oil Compa	anv ——	W.	S. Mai	rshall "B	•		3	
Unit Letter K	Section 27	Township 21-Sc	outh	Range 37	-East		1	unty Le	a	
Actual Footage Loc. 1.980	feet from the	South	line and	1,980'			t from the	West	line	
Ground level Elev.	Prod	ucing Formation		Pool					Dedicated Acre	age:
	e the acreage dedic	cated to the subject we	ii by colored per	cil or hachure	marks on th	ne plat below.	<del></del>		·	Acres
2. If mon	e than one lease is	dedicated to the well,	outline each and	identify the o	wnership the	ereof (both as to	working in	terest and n	oyalty).	
3. If mon	e than one lease of tion, force-pooling	f different ownership i	s dedicated to the	weil, have the	e interest of	all owners been	consolidate	d by comm	unitization,	
_	Yes	No If an	nswer is "yes" typ	e of consolida	ition					
if answer	is "no" list the ow	voers and tract descrip	tions which have	actually been	consolidated	L (Use reverse i	ade of	<del></del>	<del></del>	
	if neccessary.	ed to the well until all	interests have he	en consolidat	4 (5.,				<del></del>	
or until a	non-standard unit,	eliminating such inte	rest, has been app	roved by the	Division.	unitization, unit	ization, for	ed-pooling	, or otherwise)	
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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**

	(A -	•	-				<u> </u>			_	
Report casing pressure in lieu of tub	order that well can be assigned increased.  Gas volumes must be reported in 1 herific gravity base will be 0.60.	During gas-oil ratio test, each well which well is located by more than 25 p	nstructions:			W. S. Marshall "B"	LEASE NAME		Address P. O. Box 552, Midland,	Marathon Oil Company	Operator
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(915)	ductio		mation and belief.			7	GAS M.C.F.				
682-162	n Sup't.	-	is true and				RATIO CU.FT/BBL	GAS - OIL			
	of tubing pressure for any well producing through casing.	psia and a temperature of 60° F.  J. R. Jenkins Hobbs Productions and title  5-29-90	well shall be produced at a rate not exceeding the top unit allowable for the pool in 125 percent. Operator is encouraged to take advantage of this 25 percent tolerance in 125 percent. Operator is encouraged to take advantage of this 25 percent tolerance in 125 percent t	I hereby certify that the above inform complete to the best of my knowledge and tage of this 25 percent tolerance in psia and a temperature of 60° F.  Signature  J. R. Jenkins Hobbs Productionsing.  5-29-90	I hereby certify that the above inform complete to the best of my knowledge and stemperature of 60° F.  Signature  J. R. Jenkins Hobbs Productions and title  5-29-90	I hereby certify that the above inform complete to the best of my knowledge and stemperature of 60° F.  Signature  J. R. Jenkins Hobbs Production of the pro	-90 F 53 Gas 24 0 0	ABLE PRESS ABLE WATER GRAV OL BBLS OIL	SI OHOKE TBG. ALLOW. TEST WATER GRAV. Oil.  SIZE PRESS ABLE HOWES BRIS OIL BRIS.  PRESS ABLE HOWES BRIS. OIL BRIS.  ABLE HOWER GRAV. Oil.  TEST WATER GRAV. Oil.  BRIS. OIL BRIS.  BRIS. OIL BRIS.  OIL BRIS.  OIL BRIS.  OIL BRIS.  I brid BRIS.  I hereby certify that the above inform complete to the best of my knowledge and complete to the best of my knowledge and complete to the best of my knowledge and J. R. Jenkins. Hobbs Produ.  Printed name and title  5-29-90	TYPE OF TEST - (X) Scheduled Completion Completion PROD. DURING TEST ON Size PRESS ABLE PRESS ABLE PROD. DURING TEST WATER GRAV OIL BBIS O	TYPE OF TEST - (X)   Scheduled   Completion   DAILY ITEST   PROD DURING TEST   PRESS   ABLE   Hours   BBUS   OIL   OI

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

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

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# 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

During which well i order that wo Gas vol Specific grav Report o	Instructions:		w.			Address	_	ò
During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance 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° Specific gravity base will be 0.60.  Report casing pressure in lieu of tubing pressure for any well producing through casing.	ions:		. S. Marshall "B"	LEASE NAME	P. O. Box 552, Midland,		Marathon Oil Company	Operator
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Signature  J. R. Jenkins Hobbs Production  Printed name and title  5-29-90  Date  Complete to the best of my knowledge and belief.  (915)	hereby certify that the above information is		24	HOUHS TEST	HENGIH			
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Hobbs	the abo		!	GRAV.	PROD DURING TEST	]	Lea	ş
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	nation i		37	GAS MC.F.	Special ^			
Production Sup't.  (915) 682-1626 Telephone No.	is true and		1	RATIO CU FT/BBL				

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

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# SWAB TEST RESULIS

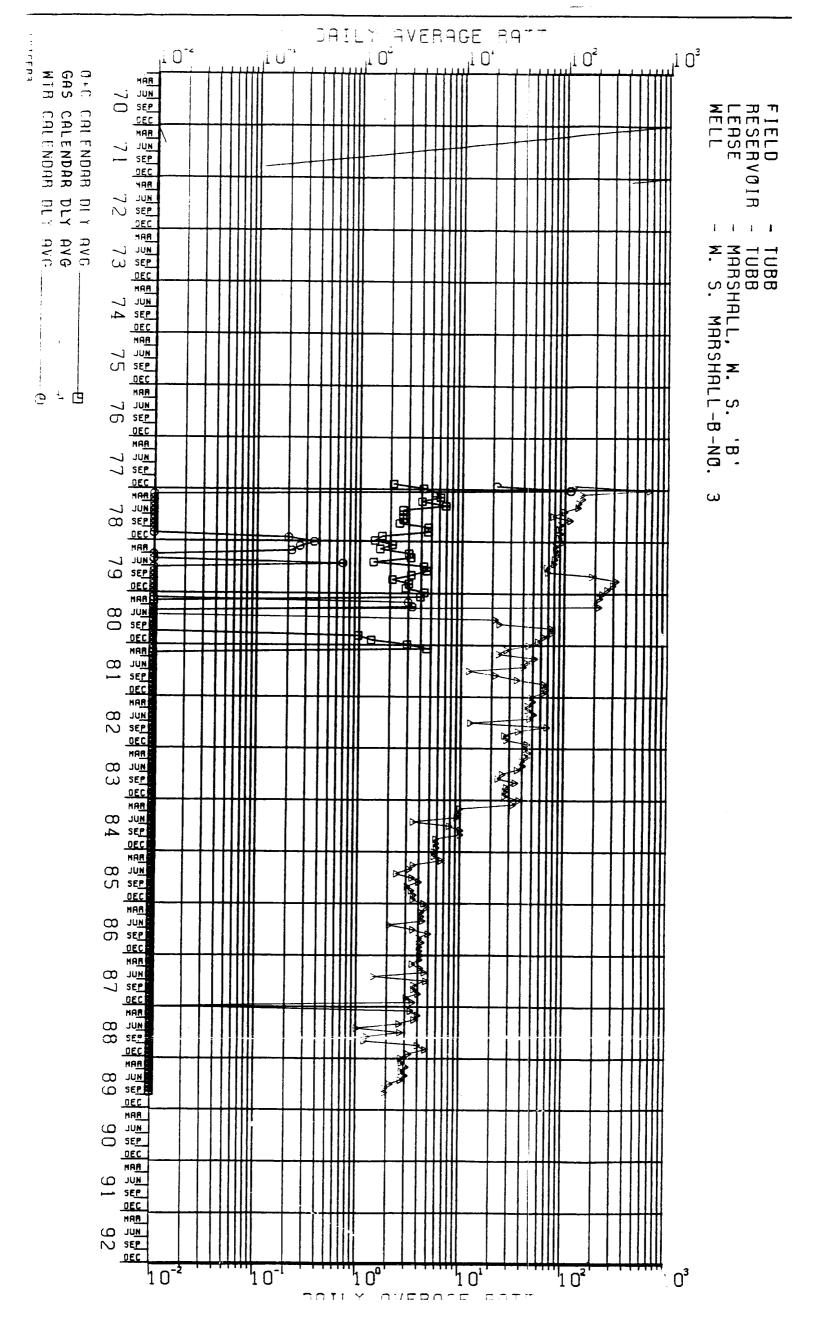
TUBB

IO BOPD 50 BWPD

DRINKARD

30 BOPD 24 BWPD

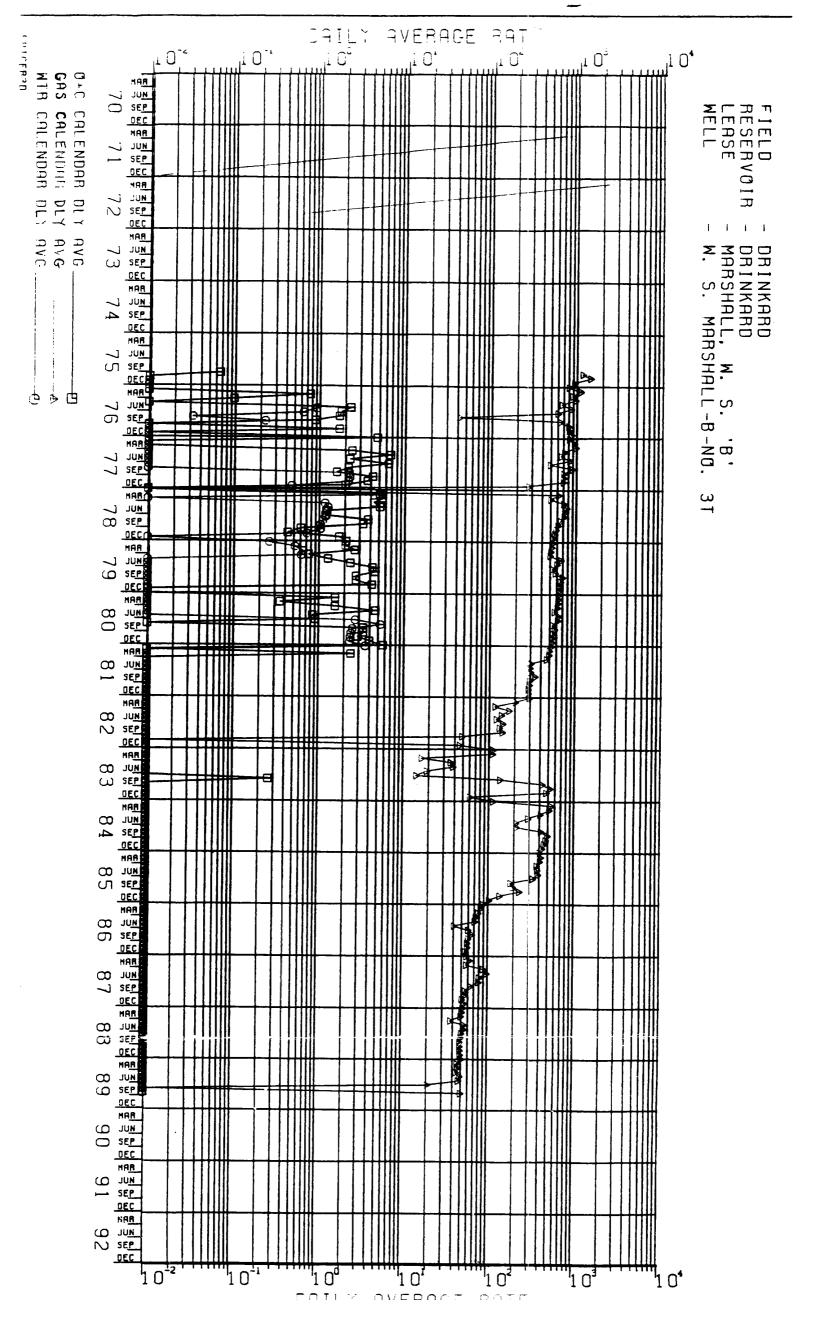
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HISTORY:									<del></del> .		
12-30-89	SITP = 7 psig in BO & 20 Between csg pres TL 887 DC \$592	30 min BW. S swab n ss incr	n. Ma Starti runs t reased TR 7	de 12 ng FL bg pr to 2 7 BO,	swat 5300 ess i 00 ps 284	run O'FS incre	s <u>in</u> . Fi ased	9 1/2 inal 1 to 20	2 hrs. FL 560 D psig	Rec 00' FS	4
12-31-89	SITP = 1 psig in & 20 BW. Between csg pres TL 887 DC \$620	l hr. Star swab r ss was BW	Made ting tuns t 180 p TR 8	12 s FL 54 bg pr sig. 1 BO.	wab 1 00' E ess i SWI. 304	runs FS. incre	in 9 Final ased	1/2 h	rs.	Rec'd FS.	4 BO
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TOTAL DAYS:	28	COMPL	. OR W	7.0. D	AYS:	9	UFI	TEST	ING DA	YS:	20
CONTRACTOR: PROD. PRIOR					RIG	OR P	ั.บ. :	NO			
PROD. PRIOR	WO:	BOPD:_	BW	PD:_	M	CFG:_	(	GOR D	ATE		
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SITP=300 ps 14 BO, 11 B Left well f	W. IFL 6	3200'.	FFL	5000'	& sc	catte	red.	Fina	al CP	s. R 500 p	ec'd sig.
PRESENT OPE	RATIONS:_	Sw	abbin	g							<del></del>
TOTAL LOAD_	1106 BW	<u> </u>	TOT.	AL RE	COVER	RY	142 B	so, 36	3 BW	<u> </u>	



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JUN 11 1990

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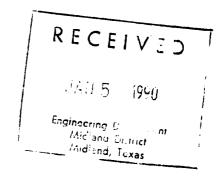
MARATHON OIL COMPANY W. S. MARSHALL B # 3 TUBB

DATE: 1-3-90

PERFORATIONS: 5914 - 6198 STATIC BOTTOM HOLE PRESSURE

D <b>epth</b>	PRESSURE (PSIG)	<u></u> P	<u> </u>	GRADIENT
8,	412#			
3556'	456#	44#	3550 <i>°</i>	.012
4556'	467#	11#	1000'	.011
5056'	475#	8#	500'	
5556'	481#	6#	500'	.016
5806'	485#		500	.012
20561	400#	4#	250'	.018
6056'	488#	3#	250'	.012

This well is a dual Tubb and Drinkard. Bottomhole pressure bomb was run to mid perfs of the Tubb at 6056'. At this time a plug was in on-off tool at 6252' and a sliding sleeve at 6245' was open.



## INTRACOMPANY CORRESPONDENCE

то .	J.R. Jenkins	DATE	4/3/90
OFFICE_	Midland, Texas	_ FROM	M.L. Greenough
	24 Hour Shut-In Bottom Hole Pressure	_ OFFICE	Hobbs, New Mexico
	W. S. Marshall "B" Well No. 3	• • • • • •	White Sellnough

Drinkard Gas Zone Lea County, New Mexico

This well was shut-in for 24 hours (4/2-3/90) and a measure of the static bottom hole pressure obtained with an Amerada RPG-3 gauge fitted with a 2150# pressure element.

Results are presented in the table below.

	DEPTH (FEET)	PRESSURE (PSIG)	Δp	α 🛆	GRADIENT
SURFACE	6	352	艾森 化单位 19 40 19 19 19	空球波 教 新 野 選 賞	i 2:2
	2000	373	21	1994	0.0105
	4000	391	18	2000	0.0090
	5000	402	11	1000	0.0110
	5500	408	6	500	0.0120
	6000	414	6	500	0.0120
	6250	416	2	250	0.0080
MID-PERF.	6434	430	14	184	0.0761

### OFFSET OPERATORS

Exxon Co., U.S.A. P. O. Box 1600 Midland, Texas 79702-1600

Chevron U.S.A., Inc. Hobbs Production Division Office 1923 N. Dal Paso Hobbs, New Mexico 88240

Conoco, Inc. P. O. Box 1959 Midland, Texas 79702

Mobil Exploration and Producing U.S., Inc. 901 E. Bender Blvd. Hobbs, New Mexico 88240

# W.S. MARSHALL 'B' WELL NO. 3

1980' FSL & 1980' FWL UNIT K SEC 27, T21S, R37E LEA COUNTY, NEW MEXICO

TD - 6570' PBTD - 6491' KB - 3422' GL - 3410'

STATUS: TUBB - FLOWING 5 MCFD DRINKARD - FLOWING 33 MCFD

13-3/8" 48#/FT. SET € 317' CMT W/250 SKS.

TUBING - 2-3/8" 4.7#/FT. J-55 SET @ 6285" DTIS X-DVER SLIDING SLEEVE W/1.875 ID. SET @ 6245". DTIS TUBING DIVIDER @ 6277".

8-5/8" 32#/FT. SET @ 2800" CMT. W/ 1500 SKS.

TUBB PERFORATIONS: 5957',62',64',69',71',78',81',91',93',95', 6002',06',13',16',22',25',69',71',73',88',6113',22',34',41',46',48',55', 57',59',61',80',83',85',90',93',95', (.41' HOLE DIA).

ADDED PERFORATIONS: 5914',16',24',26',28',58',63',70',72',77',79',80', 92',94',96',6007',15',24', (2 JSPF 36 HOLES). 6068'-6087' (1 JSPF 19 HOLES). 6088'-6140' (2 JSPF 106 HOLES). 6141'-6198' (1 JSPF 57 HOLES).

DRINKARD PERFORATIONS: 6352',57',61',77',82',92',6402',10', 26',35',40',45',49',51',58',69',71', (18 HOLES).

ADDED PERFORATIONS: 6383',94',6425',31',33',37',43',50',52',54',58', 64',66',70',72',78',79', (2 JSPF 36 HOLES).

5-1/2" 15.5#/FT, SET € 6491' CMT, W/500 SKS.

HISTORY - WELL WAS DRILLED AND COMPLETED IN MARCH 1947. IN AUGUST 1947 THE PERFORATIONS IN THE DRINKARD WERE SQUEEZED AND THE WELL CONTINUED TO PRODUCE FROM THE OPENHOLE COMPLETION. IN 1975 THE OPENHOLE COMPLETION. WAS SQUEEZED AND THE UPPER DRINKARD WAS PERFORATED. IT WAS ACIDIZED W/6000 GAL. OF 15% NE ACID. ALSO FRAC'D W/26,000 GAL GELLED 2% KCL & 20,000# 20-40 SAND. IN 1977 THE TUBB WAS COMPLETED AND ACIDIZED W/4000 GAL 15% NE ACID AND FRAC'D W/60,000 GAL OF GELLED 2% KCL & 60,000# 20-40 SAND. 12/89 PERFS WERE ADDED TO THE TUBB & DRINKARD ZONES, EACH ZONE WAS INDIVIDUALLY ACIDIZED.

DTIS PERMA LATCH PACKER SET @ 6285'

DRINKARD PERFS:
6462' - 6484' =
SQUEEZED W/200 SX
IN 1947

EZ DRILL SQUEEZE PACKER @ 6491' '

TD - 6570' 4-3/4" OPENHOLE

HORBS CHAICE

JUN 11 1990

RECEIVED