

FORM APPROVED  
OMB NO. 1004-0136  
Expires: February 28, 1995

# APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK <b>DRILL</b> <input type="checkbox"/> <b>DEEPEN</b> <input type="checkbox"/> <i>Recompletion</i> <input checked="" type="checkbox"/>		7. UNIT AGREEMENT NAME <b>LEA UNIT</b>		
b. TYPE OF WELL OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> SINGLE ZONE <input checked="" type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>		8. FARM OR LEASE NAME <b>LEA UNIT</b>		
2. NAME OF OPERATOR <b>Marathon Oil Company</b>		9. WELL NO. <b>12</b>		
3. ADDRESS AND TELEPHONE NO. <b>P.O. Box 552 Midland, Texas 79702</b>		10. FIELD AND POOL, OR WILDCAT <b>LEA UNIT (BONE SPRING)</b>		
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)* At surface <i>1850</i> <b>UNIT LETTER H 1950' FNL &amp; 990' FEL</b> At proposed prod. zone		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA <b>S13 T20S R34E</b>		
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* <b>14.6 MILES SW MONUMET NM</b>		12. COUNTY OR PARISH <b>LEA</b>	13. STATE <b>NM</b>	
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drg. unit line, if any) <b>2213.7</b>	16. NO. OF ACRES IN LEASE <b>2560</b>	17. NO OF ACRES ASSIGNED TO THIS WELL <b>80</b>		
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. <b>1650</b>	19. PROPOSED DEPTH <b>14215</b>	20. ROTARY OR CABLE TOOLS <b>N/A</b>		
21. ELEVATIONS (Show whether DF, RT, GR, ETC.) <b>KB: 3661.7 GL: 3693.6</b>		22. APPROX. DATE WORK WILL START		
23. <b>PROPOSED CASING AND CEMENTING PROGRAM</b>				
SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
	<b>NO CHANGE SEE</b>	<b>ORIGINAL</b>	<b>COMPLETION</b>	<b>REPORT</b>

MARATHON OIL COMPANY REQUESTS PERMISSION TO RECOMPLETE FROM THE MORROW TO THE BONE SPRING FORMATION. THE PROPOSED PROCEDURE IS ATTACHED.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED Thomas m Price TITLE ADV. ENGINEERING TECH. DATE 7-30-93

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

**\*See Instructions On Reverse Side**

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**RECOMPLETION PROCEDURE**

LEA UNIT NO. 12  
(API NO. 30-025-2636)

1980' FNL & 990' FEL  
SECTION 13, T-20-S, R-3-E  
LEA COUNTY, NEW MEXICO  
APE NO. 654493

**Date:** May 28, 1993

**Purpose:** Abandon the Morrow Formation and recomplete to the Bone Spring Formation.

**Status:** Shut-in

**TD:** 16,553' **PBTD:** 12,990' **KB:** 3661.7' **GL:** 3693.6'

**Surface Casing:** 13-3/8", 48#, H-40, set at 900.5'. Cemented with 500 sxs of Halliburton Lite with additives. Tailed with 300 sxs of class "C". Circulated 135 sxs to the pit.

**Intermediate Casing:** 9-5/8", 40#/36#, N-80/K-55, set at 5,423'. Cement with 4,100 sxs. DV tool at 3,154'

**Production Casing:** 7-5/8", 29.7#/33.7#/39#, P-110/AR-95/S-95, set at 14,341. Cemented with 1,200 sxs of Halliburton Lite with additives. Tailed with 300 sxs Class "H" with additives. Displaced with 665 BBLs. drilling mud. Over displaced with 21 BBLs. Full returns while cementing. TOC at 5,450'.

**Liner:** 5-1/2", 20#, P-110, set from 14,033' to 16,553'. Cemented with 160 sxs of Class "H" cement.

**Tubing:** 2-3/8", 4.7#, N-80, 8rd, RUE (402 jts.)

**Bottom Hole Assembly:** Vann tbq Release (1.56"), 1 jlt 2-3/8" tbq (31.67'), 2-3/8"x 2-7/8" XO, 2-7/8"x 7-5/8" PermaLach pkr w/ 2.48" bore (5.74'), 2-3/8" x 2-7/8" XO, Otis on/off tool w/ 1.875" x-profile (1.45'), 1 jlt 2-3/8" tbq (31.69') and 1 RA sub (6.14').

**Abandoned Perforations:** (Morrow) 13,003'-07' & 13,028'-48' with 6 JSPF. CIBP set at 12,990'. (Devonian) 14,421'-24', 14,428', 14,531'-34', 14,345'-51' (2 JSPF). CIBP at 14,400 w/ 12' of cement.

**Current Perforations:** (Morrow) 12,906'-11', 12,931'-40' & 12,47'-57'.

1. Bleed down well. MIRU PU. (Anchors last tested 1/92.)
2. ND wellhead. NU double valved riser spool and 900 series triple stack SOPs with 2-3/8" and 3 1/2" pipe rams and blind rams. Release packer and TOOH.
3. RIH with a RBP on 2 3/8" tbq to ±120'. Set RBP and POOH. Test blinds to 3,000 psig. RIH with a R-4 pkr on 2 jts 2 3/8" tbq. Set pkr and test 2 3/8" pipe rams to 3,000 psig. Unset pkr and POOH. RIH with a R-4 pkr on 2 jts 3 1/2" tbq. Set pkr and test 3 1/2" pipe rams to 3000 psi. Unset pkr and POOH. RIH with a ret. head on 2 3/8" tbq. Unset RBP and POOH.

# RECOMPLETION PROCEDURE

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4. RU wireline company. NU 7" WKM valve. RU lubricator and test to 2,000 psig. RIH with a 7-5/8" CIBP to 12,850'. Set CIBP and POCH. RIH with a dump bailer and dump 35' of cement on top of CIBP. Load hole with 2% KCL and test CIBP to 1000 psig.

5. RIH with 4" casing guns and perforate the Bone Spring "V" Dolomite from 10,245' to 10,255' with 4 JSPP 90° phasing using a Gamma Gun to tie-back to the Open Hole logs for correlation. RD wireline company. ND 7" WKM valve.

6. RIH with a 7 5/8" RTTS pkr and SN on 2 3/8" tbg to ±10,255'.

7. RU service company. Drop SV. Test tbg and lines to 6000 psig. RIH with sand line and retrieve SV. Est circ and spot 250 gals of 15% HCl acid. Pull up to ±10,190' and reverse ±4 bbls up the tubing.

8. Set pkr. Pressure up backside to 1000 psig. Pump spot acid away at 1 BPM. Bullhead 1,500 gals of 15% HCl acid with 40 1.3 S.G. ball sealers for divert down the 2-3/8" tubing and acidize the Bone Spring "V" Dolomite @ 2-3 BPM. Flush to bottom perf with 2% KCL. RD service company.

9. Swab back load and catch samples from Bone Spring "V" Dolomite.

10. Unset pkr and POCH.

11. RU wireline company. NU 7" WKM valve. RU lubricator and test to 2,000 psig. RIH with 4" casing guns and perforate the Bone Spring "Q" Sand and "R" Dolomite at 9,532', 34', 36', 38', 40' & 42', 9,554' & 56', 9,566', 68', 70', 72', 74', 76', 78', 80', 82', 84', 86', 88', 90' & 92', and 9,620', 22', 24', 26', 28', 36', 38', 40', & 42' with 2 JSPP 120° phasing using a Gamma Gun to tie-back to the Open Hole logs for correlation. RD wireline company. ND 7" WKM valve.

12. Pick up a 7 5/8" RBP, ret. head, RTTS pkr and SN on 3-1/2", 9.3#, N-80 workstring. TIH to ±9,700' hydro-testing the 3-1/2" tbg below the slips to 8,000 psig. Set RBP.

13. Pick-up 10' and set pkr. Test the RBP to 1,000 psig. Release the pkr and PU to ±9,628'. Dump 2 axs of sand on RBP.

14. RU service company. Test line to 6,000 psig. Est circ and spot 250 gals 7 1/2% HCl acid and pull up to ±9,400'. Reverse circulate 4 bbls and set pkr. Break down Bone Spring perforations with spot acid @ 1-2 BPM.

15. Open bypass and spot 3,000 gals 7-1/2% HCl acid to the top of the pkr.

16. Close bypass and catch 1000 psi on backside. Acidize the Bone Spring "Q" Sand and "R" Dolomite with 3,000 gals of 7-1/2% HCl acid and 81 1.3 S.G. ball sealers for divert @ 2-3 BPM. Flush to bottom perf with 2% KCL. Unset pkr and GIH and knock balls off the perms. PU and reset the pkr.

17. RU swab. Swab back load and test. Evaluate samples to determine if Bone Spring zone should be fracture stimulated.

18. If Bone Spring "Q" Sand and "R" Dolomite does not indicate oil, squeeze perforations 9,532' to 9,628'. Retrieve RBP and place the Bone Spring "V" Dolomite on production.

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19. If Bone Spring "Q" Sand and "R" Dolomite indicates oil, RU service company. Perform quality control check on frac fluids. Test lines to 8,000 psig. Pressure up backside to 1000 psig and hold during the frac job. Fracture stimulate the Bone Spring with 50,000 gals of delayed borate and 129,200 lbs. of 20/40 EconoProp down 3-1/2" tubing at 30 BPM with an anticipated WHTP of 6,200 psig as follows:

<u>Volume</u>	<u>Fluid Type</u>	<u>Proppant</u>	<u>Concentration</u>
16,000 g	35# Delayed Borate	Pad	0 PPG
29,000 g	35# Delayed Borate	20/40 EconoProp	1 - 6 PPG ramp
5,000 g	35# Delayed Borate	20/40 EconoProp	6 PPG
3,500 g	Treated Water	Flush	0 PPG

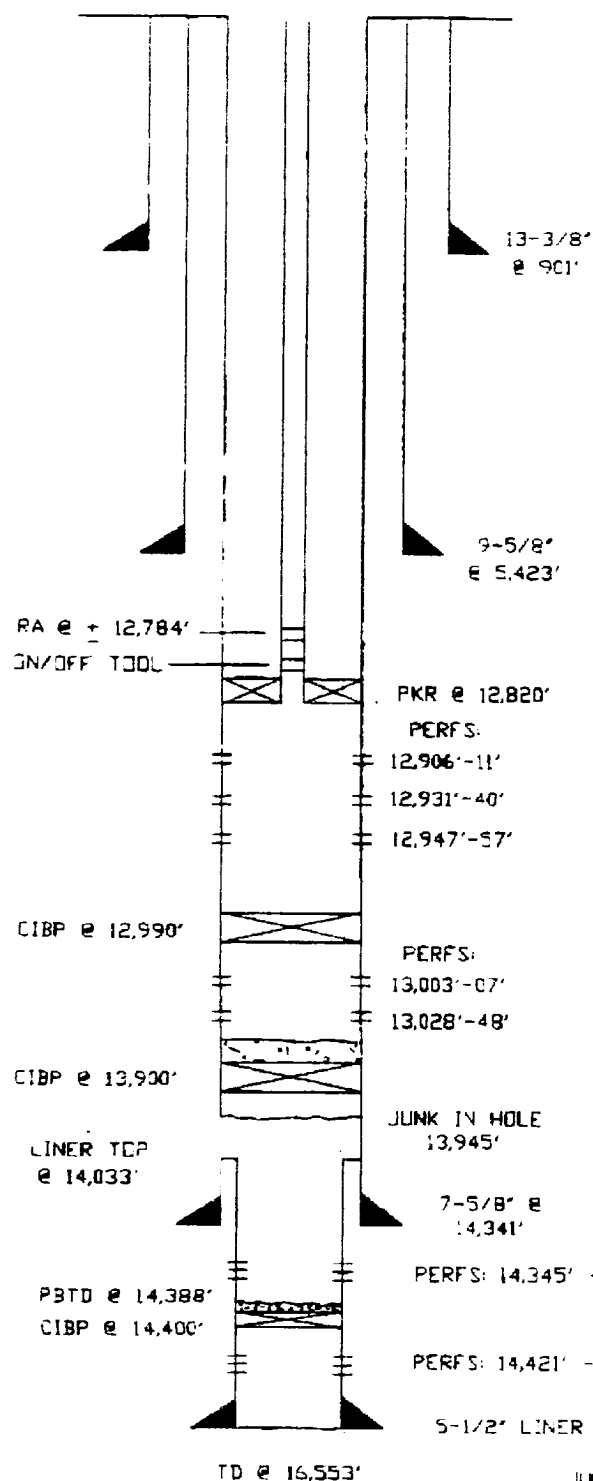
20. Wait for 15 minute shut-in pressure and rig down service company.
21. Shut well in for 2-3 hours to allow gel to break.
22. OWU and blow down to frac tank. Swab back load. RD swab.
23. Unset pkr and POOH laying down 3 1/2" tbq.
24. RIH w/ notched collar on 2 3/8" tbq and tag fill. Clean out to RBP at 9,480'. POOH. RIH with a ret. head on 2 3/8" tbq to RBP. Circulate top of RBP clean and unset RBP. POOH
25. RIH with a mud joint, 4' perforated 2-3/8" tbq sub, SN, 29 joints of 2-3/8" tbq, TAC, on 2-3/8", 4.7#, 8rd, EUB, N-80 tubing. Set TAC at 19,400'. ND BOPs and riser spool. Set TAC. NU wellhead.
26. Install rod stripper. RIH with a 1" x 20' gas anchor, 1.25" x 28' insert pump, 1 - 0.875" D rod, 21K shear tool, 168 - 0.875" D rods, 164 - 0.98" fiberglass rods. Space out pump a minimum of 74" off bottom. REMO PU.
27. Turn well on to test separator at battery with pumping unit set at 10 SPM.

## LEA UNIT WELL NO. 12

1,980' FNL & 990' FEL  
SECTION 13, T-20S, R-34E  
LEA COUNTY, NEW MEXICO

PBTD - 14,388' TD - 16,553'  
KB - 3,661.7' GL - 3,693.6'

STATUS SHUT-IN



SURFACE CASING 13-3/8", 48# - H-40 SET @ 900.5'  
CEMENTED W/500 SXS HALLIBURTON LIGHT

INTERMEDIATE CASING : 9-5/8", 40# - N-80, 36# - K-55,  
SET @ 5,423'. CEMENTED W/4,100 SXS.  
DV TOOL @ 3,154'.

PRODUCTION CASING : 7-5/8", 29.7# - P-110, 33.7# - S-95,  
39# - S-95, SET @ 14,341'. CEMENTED  
W/1,200 SXS HALLIBURTON LIGHT W/ADI  
TAILED W/300 SXS CLASS 'H' W/ADDS.  
DISPLACED W/665 BBLs DRILLING MUD  
OVER DISPLACED W/21 BBLs. FULL  
RETURNS WHILE CEMENTING.

LINER : 5-1/2", 20# - P-110, SET FROM 14,033' TO 16,553'.  
CEMENTED W/160 SXS CLASS 'H' CEMENT.

TUBING : 2-7/8", 6.5#, N-80

ABANDON PERFS: MORROW - 13,003'-07' & 13,028'-48' (6 SPF).

DEVONIAN 14,421' - 24', 14,428', 14,431' - 34',  
14,345' - 51' W/2 JSFF.

CURRENT PERFS: MORROW - 12,906'-11', 12,931'-40' & 12,947'-57'  
W/6 JSFF.

HISTORY - SPUDDED 7/10/79. DRILLED AS A 16,600'  
ELLENBURGER TEST. COMPLETED IN  
DEVONIAN FROM 14,345' - 51' WITH 2 JSFF.  
IP'D AT 124 BOPD, 97 MCFD AND 1,790 BWPI  
2/83 - INSTALL SUBPUMP, TESTED 128 BOP  
AND 5,492 BWP. 7/92 - WELL TESTING  
BELOW ECONOMIC LIMIT OF 32 BOPD. TESTE  
FOR CASING LEAK. NO LEAK FOUND. FOUND

JUNK IN HOLE 8912'. PUSHED JUNK TO 13,945' W/WEIGHT ON BIT. SI  
CIBP @ 13,900' W/35' OF CEMENT ON TOP OF PLUG. RIH W/TBG  
CONVEYED GUNS & PERF'D MORROW @ 13,003'-07' & 13,028'-48' W/  
6 JSFF (144 HOLES). HAD CTS 5 MIN. FLOW TESTED WELL & WATER  
OUT. SET CIBP @ 12,990'. RIH W/VANN GUNS & PERF'D MORROW @  
12,906'-11', 12,931'-40' & 12,947'-57'. TESTED WATER, SHUT-IN WELL.

RNM/RWW 6/93