

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		8. Well Name and No. MAMMOTH FED COM 26 34 1 TB 1H
2. Name of Operator MARATHON OIL PERMIAN LLC Contact: MELISSA SZUDERA E-Mail: mszudera@marathonoil.com		9. API Well No. 30-025-46127-00-X1
3a. Address 5555 SAN FELIPE STREET HOUSTON, TX 77056	3b. Phone No. (include area code) Ph: 713-296-3179	10. Field and Pool or Exploratory Area WOLFCAMP
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 1 T26S R34E SESW 448FSL 1479FWL 32.066395 N Lat, 103.427406 W Lon		11. County or Parish, State LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Marathon Oil respectfully requests to make the following changes to the approved APD:

- (1) ~~Well Name~~ (Mammoth Federal Com 26 34 1 TB 1H) ~~to Mammoth 1 TB Fed Com 1H)~~
 - (2) ~~SHL change~~ (448 FSL 1479' FWL) ~~to 448' FSL 1479' FWL~~, swapping SHL with the Mammoth 2H).
- Please see attached updated drill plan, drilling directional and C-102 plat.

Surface fire. NM. 10/18/2019. Same stipulations apply.

14. I hereby certify that the foregoing is true and correct. Electronic Submission #486375 verified by the BLM Well Information System For MARATHON OIL PERMIAN LLC, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 10/03/2019 (20PP0039SE)	
Name (Printed/Typed) MELISSA SZUDERA	Title REGULATORY COMPLIANCE REP
Signature (Electronic Submission)	Date 10/03/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <i>[Signature]</i> <i>[Signature]</i> <i>[Signature]</i> Conditions of approval, if any, are attached. Approval of this notice 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.	Title Petroleum Engineer Office C50	Date 10/18/19
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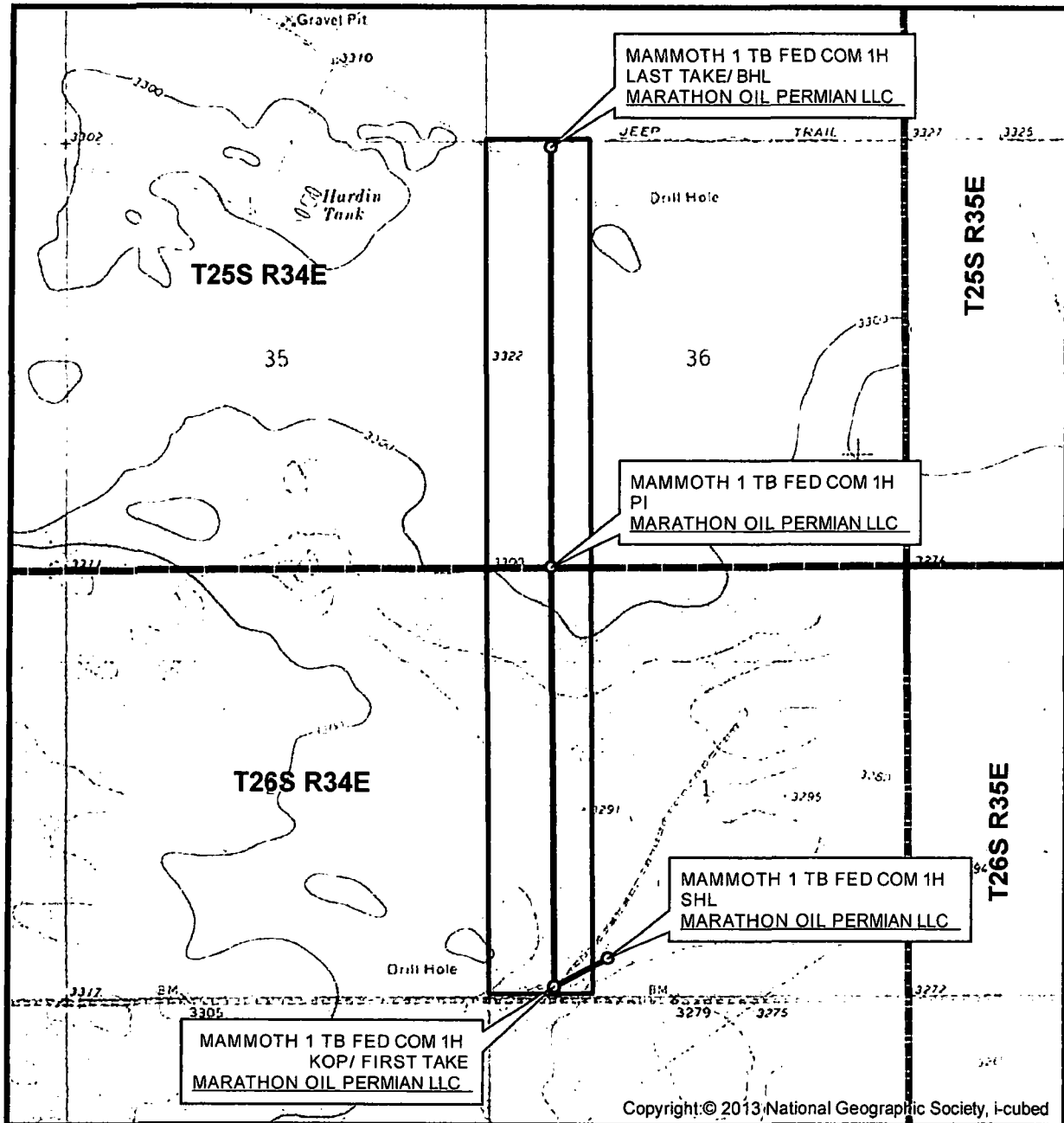
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

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LOCATION VERIFICATION MAP



SEC. 1 TWP. 26-S RGE. 34-E
 SURVEY: N.M.P.M.
 COUNTY: LEA
 OPERATOR: MARATHON OIL PERMIAN LLC
 DESCRIPTION: 448' FSL & 1509' FWL
 ELEVATION: 3281'
 LEASE: MAMMOTH 1 FED COM
 U.S.G.S. TOPOGRAPHIC MAP: ANDREWS PLACE, NM, TX.

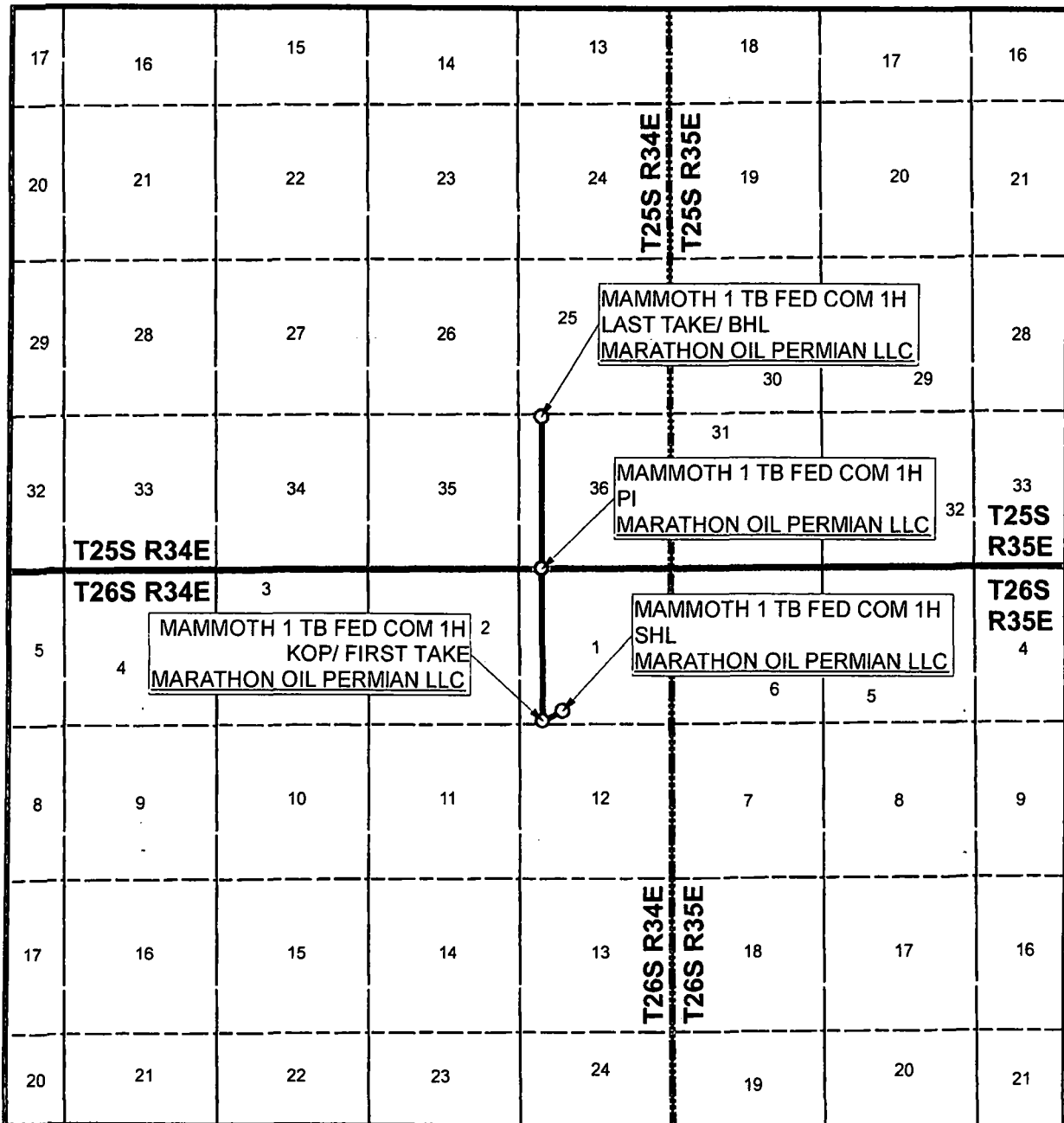
1" = 2,000'
 CONTOUR INTERVAL = 10'



SHEET 2 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 1309 LOUISVILLE AVENUE, MONROE, LA 71201
 318-323-6900 OFFICE
 JOB No. R3762_008

VICINITY MAP



SEC. 1 TWP. 26-S RGE. 34-E
 SURVEY: N.M.P.M.
 COUNTY: LEA
 OPERATOR: MARATHON OIL PERMIAN LLC
 DESCRIPTION: 448' FSL & 1509' FWL
 ELEVATION: 3281'
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 U.S.G.S. TOPOGRAPHIC MAP: ANDREWS PLACE, NM, TX.

1" = 1 MILE



SHEET 3 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 1309 LOUISVILLE AVENUE, MONROE, LA 71201
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 JOB No. R3762_008

MARATHON OIL PERMIAN LLC

DRILLING AND OPERATIONS PLAN

WELL NAME / NUMBER: MAMMOTH 1 TB FED COM 1H

STATE: NEW MEXICO

COUNTY: LEA

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	TWSP	Range	Section	Aliquot/Lot/Trac	Latitude (NAD 83)	Longitude (NAD 83)	County	State	Meridian	Lease Type	Lease Number	Elevation (ft SS)	MD (RKB)	TVD (RKB)
SHL	448	FSL		FWL	26S	34E	1	SESW			Lea	NM	NMP	F	NMNM 113970	3281	0	0
KOP		FSL		FWL	26S	34E	1	SWSW			Lea	NM	NMP	F	NMNM 113970			
PPP		FSL		FWL	26S	34E	1	SWSW			Lea	NM	NMP	F	NMNM 113970			
EXIT	0	FNL		FWL	26S	34E	1	NWNW			Lea	NM	NMP	F	NMNM 113970			
PPP		FSL		FWL	25S	34E	36	SWSW			Lea	NM	NMP	S	State			
BHL		FNL		FWL	25S	34E	36	NWNW			Lea	NM	NMP	S	State			

1. GEOLOGIC NAME OF SURFACE FORMATION

a. Permian/Quaternary Alluvium

2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS

Formation	True Vertical Depth (ft)	Measured Depth (ft)	Lithologies	Mineral Resources	Producing Formation
Rustler	1116	1116	Anhydrite/Dolomite	BRINE	N
Salado	1555	1555	Salt/Anhydrite	BRINE	N
Castile	3593	3597	Base Salt	BRINE	N
Base of Salt	5149	5200	Limy Sands	BRINE	N
Lamar	5415	5474	Sand/Shales	OIL	Y
Bell Canyon	5443	5503	Sands/Shale	OIL	Y
Brushy Canyon	8051	8188	Sands/Carbonates	OIL	Y
Bone Spring	9342	9480	Sands/Carbonates	OIL	Y
1 st Bone Spring Sand	10463	10601	Sands/Carbonates	OIL	Y
2 nd Bone Spring Sand	11012	11150	Sands/Carbonates	OIL	Y
3 rd Bone Spring Sand	12097	12238	Sands/Carbonates	OIL	Y
Wolfcamp	12524	12635	Carbonates/Shales/Sands	OIL	N

DEEPEST EXPECTED FRESH WATER: 400' TVD

ANTICIPATED BOTTOM HOLE PRESSURE: 8,760 psi

ANTICIPATED BOTTOM HOLE TEMPERATURE: 195°F

ANTICIPATED ABNORMAL PRESSURE: N

ANTICIPATED ABNORMAL TEMPERATURE: N

3. CASING PROGRAM

String Type	Hole Size	Casing Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Weight (lbs/ft)	Grade	Connection	SF Collapse	SF Burst	SF Tension
Surface	17 1/2	13 3/8	0	1130	0	1130	<u>3281</u>	<u>2151</u>	54.5	J55	STC	3.37	1.71	2.93
Intermediate	9 7/8	7 5/8	0		0		<u>3281</u>	<u>-8519</u>	29.7	P110	BTC	2.21	1.18	1.9
Production	6 3/4	5 1/2	0		0		<u>3281</u>	<u>-9134</u>	23	P110	Wedge	1.73	1.2	2.09

Minimum safety factors: Burst 1.125 Collapse 1.125 Tension 1.8 Wet/1.6 Dry

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N

If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

4. CEMENT PROGRAM:

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity (sx)	Yield (ft3/sx)	Density (ppg)	Slurry Volume (ft3)	Excess (%)	Cement Type	Additives
Surface	Lead	N/A	0	904	907	1.73	13.5	1570	150	Class C	LCM
Surface	Tail	N/A	904	1130	236	1.33	14.8	314	100	Class C	Accelerator
Intermediate	Lead	N/A	0	10800	1880	2.49	11.0	4682	100	Class C	Extender, Accelerator, 50/50 Poz C
Intermediate	Tail	N/A	10800	11800	226	1.28	13.8	290	30	Class H	Retarder, 35/65 Poz H
Production	Lead	N/A	9438	9938	47	1.29	14.5	60	30	Class H	Viscosifier, Retarder
Production	Tail	N/A	9938	10681	1287	1.09	14.5	1403	30	Class H	Extender, Fluid Loss, Dispersant

Stage tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Stage tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Pilot hole depth: N/A TVD/MD

KOP: N/A TVD/MD

Plug top	Plug Bottom	Excess (%)	Quantity (sx)	Density (ppg)	Yield (ft3/sx)	Water gal/sk	Slurry Description and Cement Type

Attach plugging procedure for pilot hole.

N/A

5. PRESSURE CONTROL EQUIPMENT

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12 ¼"	13 5/8	10000	Annular	x	100% of working pressure
			Blind Ram	x	10000
			Pipe Ram		
			Double Ram	x	
			Other*		
8 ¾"	13 5/8	10000	Annular	x	100% of working pressure
			Blind Ram	x	10000
			Pipe Ram		
			Double Ram	x	
			Other*		
6 1/8"	13 5/8	10000	Annular	x	100% of working pressure
			Blind Ram	x	10000
			Pipe Ram		
			Double Ram	x	
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. See attached schematic.

6. MUD PROGRAM:

Top Depth	Bottom Depth	Mud Type	Min. Weight (ppg)	Max. Weight (ppg)	Additional Characteristics
0	1130	Water Based Mud	8.4	8.8	
1130		Oil Base Mud	8.4	10.0	
		Oil Based Mud	11.5	13.5	

Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. **If Hydrogen Sulfide is encountered , measured amounts and formations will be reported to the BLM**

8. LOGGING / CORING AND TESTING PROGRAM:

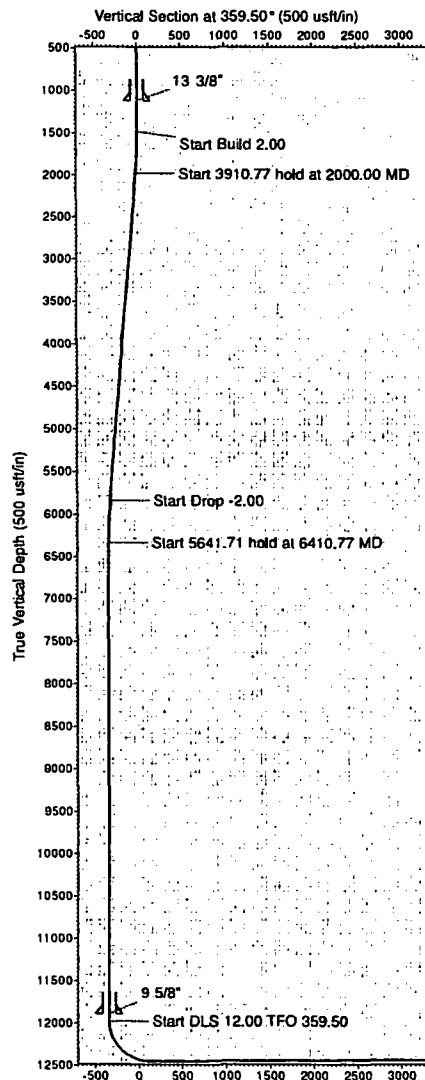
- A. Mud Logger: None.
- B. DST's: None.
- C. Open Hole Logs: GR while drilling from Intermediate casing shoe to TD.

9. POTENTIAL HAZARDS:

- A. H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6.
- B. No abnormal temperatures or pressures are anticipated. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.
- C. No losses are anticipated at this time.
- D. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.
- E. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



Marathon Oil
Lea County, NM
Mammoth 1 (1-2-7-10-11)
TB No. 1H
Prelim Plan A
GL: 3281' + KB: 25' (PD594)

US State Plane 1927 (Exact solution)
NAD 1927 (NAD83 CONUS)
Clarke 1866
New Mexico East 3001
Mean Sea Level

RKB Elevation: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	389012.20	780809.21	32.066268	-103.426846	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dlog	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00
3	2000.00	10.00	242.56	1997.47	-19.99	-38.66	2.00	-19.65
4	5910.77	10.00	242.56	5849.82	-331.90	-641.89	0.00	-326.29
5	6410.77	0.00	0.00	6346.29	-351.89	-680.55	2.00	-345.94
6	12052.48	0.00	0.00	11988.00	-351.89	-680.55	0.00	-345.94
7	12804.94	90.30	359.50	12465.46	128.02	-684.77	12.00	133.99
8	22680.91	90.30	359.50	12414.59	10003.47	-771.61	0.00	10009.82

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
Mammoth1#1HJFTP	11988.00	-351.89	-680.55	388660.31	780128.66
Mammoth1#1HJLTP/BHL	12414.59	10003.47	-771.61	399015.67	780037.60



PRODIRECTIONAL



Azimuths to Grid North
True North: -0.48°
Magnetic North: 6.07°

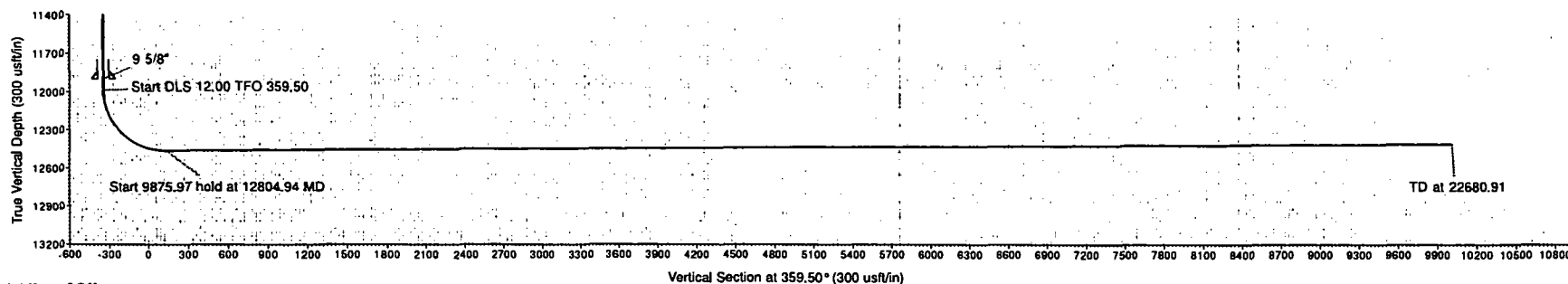
Magnetic Field
Strength: 47673.2anT
Dip Angle: 59.67°
Date: 9/30/2019
Model: HDGM

Azimuth Corrections

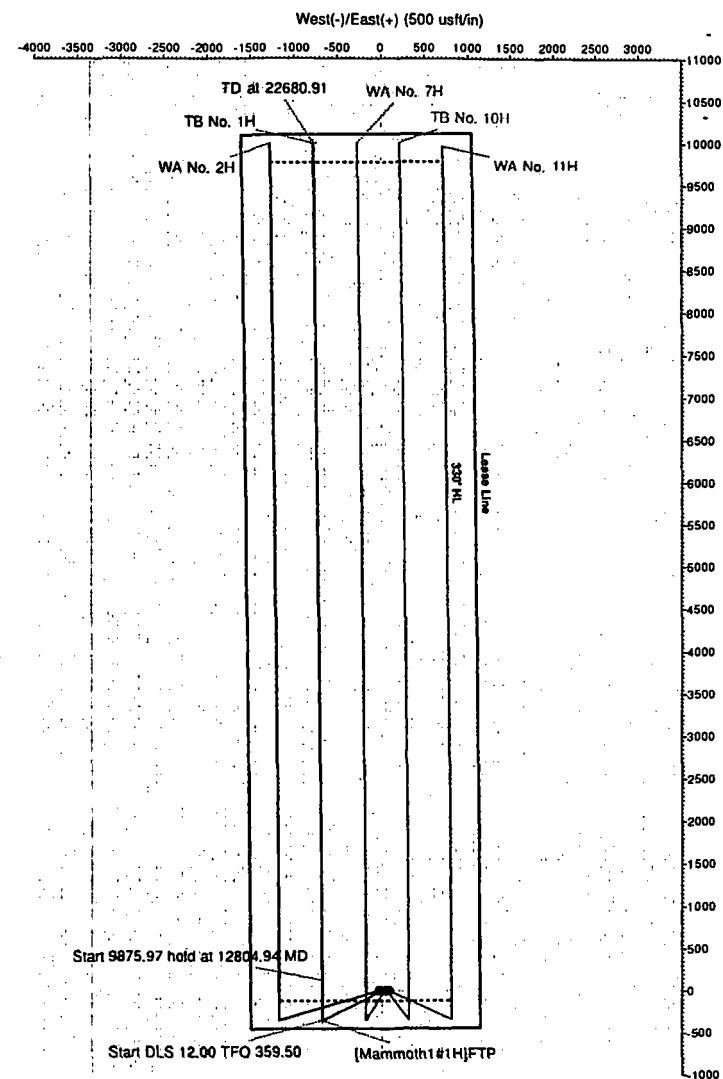
Total Magnetic Corr. (M to G): 6.07°

Declination (M to T): 6.55° East

Target Line: 12467' TVD @ 0° VS :: 90.3° INC



36" x 48"



Company: Marathon Oil
Project: Lea County, NM
Site: Mammoth 1 (1-2-7-10-11)
Well: TB No. 1H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well TB No. 1H
TVD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
MD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Project	Lea County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Mammoth 1 (1-2-7-10-11)			
Site Position:		Northing:	389,012.20 usft	Latitude: 32.066268
From: Map		Easting:	780,809.21 usft	Longitude: -103.426846
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.48 °

Well	TB No. 1H			
Well Position	+N/-S	0.00 usft	Northing: 389,012.20 usft	Latitude: 32.066268
	+E/-W	0.00 usft	Easting: 780,809.21 usft	Longitude: -103.426846
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level: 3,281.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/30/2019	6.55	59.67	47,673.20

Design	Prelim Plan A			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.50

Survey Tool Program	Date 9/30/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,130.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
1,130.00	11,900.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
11,900.00	22,680.91	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	

Company: Marathon Oil
Project: Lea County, NM
Site: Mammoth 1 (1-2-7-10-11)
Well: TB No. 1H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well TB No. 1H
TVD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
MD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,130.00	0.00	0.00	1,130.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8"									
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	2.00	242.66	1,599.98	-0.80	-1.55	-0.79	2.00	2.00	0.00
1,700.00	4.00	242.66	1,699.84	-3.21	-6.20	-3.15	2.00	2.00	0.00
1,800.00	6.00	242.66	1,799.45	-7.21	-13.94	-7.09	2.00	2.00	0.00
1,900.00	8.00	242.66	1,898.70	-12.81	-24.77	-12.59	2.00	2.00	0.00
2,000.00	10.00	242.66	1,997.47	-19.99	-38.66	-19.65	2.00	2.00	0.00
2,100.00	10.00	242.66	2,095.95	-27.97	-54.09	-27.49	0.00	0.00	0.00
2,200.00	10.00	242.66	2,194.43	-35.94	-69.51	-35.33	0.00	0.00	0.00
2,300.00	10.00	242.66	2,292.91	-43.92	-84.93	-43.17	0.00	0.00	0.00
2,400.00	10.00	242.66	2,391.39	-51.89	-100.36	-51.01	0.00	0.00	0.00
2,500.00	10.00	242.66	2,489.87	-59.87	-115.78	-58.86	0.00	0.00	0.00
2,600.00	10.00	242.66	2,588.35	-67.84	-131.21	-66.70	0.00	0.00	0.00
2,700.00	10.00	242.66	2,686.83	-75.82	-146.63	-74.54	0.00	0.00	0.00
2,800.00	10.00	242.66	2,785.31	-83.80	-162.06	-82.38	0.00	0.00	0.00
2,900.00	10.00	242.66	2,883.79	-91.77	-177.48	-90.22	0.00	0.00	0.00
3,000.00	10.00	242.66	2,982.27	-99.75	-192.91	-98.06	0.00	0.00	0.00
3,100.00	10.00	242.66	3,080.75	-107.72	-208.33	-105.90	0.00	0.00	0.00
3,200.00	10.00	242.66	3,179.23	-115.70	-223.76	-113.74	0.00	0.00	0.00
3,300.00	10.00	242.66	3,277.72	-123.67	-239.18	-121.58	0.00	0.00	0.00
3,400.00	10.00	242.66	3,376.20	-131.65	-254.61	-129.42	0.00	0.00	0.00
3,500.00	10.00	242.66	3,474.68	-139.63	-270.03	-137.26	0.00	0.00	0.00
3,600.00	10.00	242.66	3,573.16	-147.60	-285.46	-145.10	0.00	0.00	0.00
3,700.00	10.00	242.66	3,671.64	-155.58	-300.88	-152.94	0.00	0.00	0.00
3,800.00	10.00	242.66	3,770.12	-163.55	-316.31	-160.79	0.00	0.00	0.00
3,900.00	10.00	242.66	3,868.60	-171.53	-331.73	-168.63	0.00	0.00	0.00
4,000.00	10.00	242.66	3,967.08	-179.50	-347.16	-176.47	0.00	0.00	0.00
4,100.00	10.00	242.66	4,065.56	-187.48	-362.58	-184.31	0.00	0.00	0.00
4,200.00	10.00	242.66	4,164.04	-195.45	-378.01	-192.15	0.00	0.00	0.00
4,300.00	10.00	242.66	4,262.52	-203.43	-393.43	-199.99	0.00	0.00	0.00
4,400.00	10.00	242.66	4,361.00	-211.41	-408.86	-207.83	0.00	0.00	0.00
4,500.00	10.00	242.66	4,459.48	-219.38	-424.28	-215.67	0.00	0.00	0.00
4,600.00	10.00	242.66	4,557.97	-227.36	-439.71	-223.51	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Mammoth 1 (1-2-7-10-11)
Well: TB No. 1H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well TB No. 1H
TVD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
MD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.00	10.00	242.66	4,656.45	-235.33	-455.13	-231.35	0.00	0.00	0.00
4,800.00	10.00	242.66	4,754.93	-243.31	-470.56	-239.19	0.00	0.00	0.00
4,900.00	10.00	242.66	4,853.41	-251.28	-485.98	-247.03	0.00	0.00	0.00
5,000.00	10.00	242.66	4,951.89	-259.26	-501.41	-254.87	0.00	0.00	0.00
5,100.00	10.00	242.66	5,050.37	-267.24	-516.83	-262.72	0.00	0.00	0.00
5,200.00	10.00	242.66	5,148.85	-275.21	-532.25	-270.56	0.00	0.00	0.00
5,300.00	10.00	242.66	5,247.33	-283.19	-547.68	-278.40	0.00	0.00	0.00
5,400.00	10.00	242.66	5,345.81	-291.16	-563.10	-286.24	0.00	0.00	0.00
5,500.00	10.00	242.66	5,444.29	-299.14	-578.53	-294.08	0.00	0.00	0.00
5,600.00	10.00	242.66	5,542.77	-307.11	-593.95	-301.92	0.00	0.00	0.00
5,700.00	10.00	242.66	5,641.25	-315.09	-609.38	-309.76	0.00	0.00	0.00
5,800.00	10.00	242.66	5,739.73	-323.07	-624.80	-317.60	0.00	0.00	0.00
5,900.00	10.00	242.66	5,838.22	-331.04	-640.23	-325.44	0.00	0.00	0.00
5,910.77	10.00	242.66	5,848.82	-331.90	-641.89	-326.29	0.00	0.00	0.00
6,000.00	8.22	242.66	5,936.92	-338.39	-654.44	-332.66	2.00	-2.00	0.00
6,100.00	6.22	242.66	6,036.13	-344.16	-665.59	-338.33	2.00	-2.00	0.00
6,200.00	4.22	242.66	6,135.71	-348.33	-673.67	-342.44	2.00	-2.00	0.00
6,300.00	2.22	242.66	6,235.55	-350.91	-678.65	-344.97	2.00	-2.00	0.00
6,400.00	0.22	242.66	6,335.52	-351.88	-680.53	-345.93	2.00	-2.00	0.00
6,410.77	0.00	0.00	6,346.29	-351.89	-680.55	-345.94	2.00	-2.00	0.00
6,500.00	0.00	0.00	6,435.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
6,600.00	0.00	0.00	6,535.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
6,700.00	0.00	0.00	6,635.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
6,800.00	0.00	0.00	6,735.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
6,900.00	0.00	0.00	6,835.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,000.00	0.00	0.00	6,935.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,100.00	0.00	0.00	7,035.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,200.00	0.00	0.00	7,135.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,300.00	0.00	0.00	7,235.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,400.00	0.00	0.00	7,335.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,500.00	0.00	0.00	7,435.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,600.00	0.00	0.00	7,535.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,700.00	0.00	0.00	7,635.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,800.00	0.00	0.00	7,735.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
7,900.00	0.00	0.00	7,835.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,000.00	0.00	0.00	7,935.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,100.00	0.00	0.00	8,035.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,200.00	0.00	0.00	8,135.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,300.00	0.00	0.00	8,235.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,400.00	0.00	0.00	8,335.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,500.00	0.00	0.00	8,435.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,600.00	0.00	0.00	8,535.52	-351.89	-680.55	-345.94	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Mammoth 1 (1-2-7-10-11)
Well: TB No. 1H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well TB No. 1H
TVD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
MD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,700.00	0.00	0.00	8,635.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,800.00	0.00	0.00	8,735.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
8,900.00	0.00	0.00	8,835.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,000.00	0.00	0.00	8,935.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,100.00	0.00	0.00	9,035.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,200.00	0.00	0.00	9,135.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,300.00	0.00	0.00	9,235.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,400.00	0.00	0.00	9,335.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,500.00	0.00	0.00	9,435.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,600.00	0.00	0.00	9,535.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,700.00	0.00	0.00	9,635.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,800.00	0.00	0.00	9,735.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
9,900.00	0.00	0.00	9,835.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,000.00	0.00	0.00	9,935.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,100.00	0.00	0.00	10,035.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,200.00	0.00	0.00	10,135.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,300.00	0.00	0.00	10,235.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,400.00	0.00	0.00	10,335.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,500.00	0.00	0.00	10,435.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,600.00	0.00	0.00	10,535.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,700.00	0.00	0.00	10,635.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,800.00	0.00	0.00	10,735.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
10,900.00	0.00	0.00	10,835.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,000.00	0.00	0.00	10,935.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,100.00	0.00	0.00	11,035.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,200.00	0.00	0.00	11,135.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,300.00	0.00	0.00	11,235.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,400.00	0.00	0.00	11,335.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,500.00	0.00	0.00	11,435.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,600.00	0.00	0.00	11,535.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,700.00	0.00	0.00	11,635.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,800.00	0.00	0.00	11,735.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,900.00	0.00	0.00	11,835.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
11,964.48	0.00	0.00	11,900.00	-351.89	-680.55	-345.94	0.00	0.00	0.00
9 5/8"									
12,000.00	0.00	0.00	11,935.52	-351.89	-680.55	-345.94	0.00	0.00	0.00
12,052.48	0.00	0.00	11,988.00	-351.89	-680.55	-345.94	0.00	0.00	0.00
[Mammoth1#1H]FTP									
12,075.00	2.70	359.50	12,010.51	-351.36	-680.55	-345.41	12.00	12.00	0.00
12,100.00	5.70	359.50	12,035.44	-349.53	-680.57	-343.58	12.00	12.00	0.00
12,125.00	8.70	359.50	12,060.24	-346.39	-680.60	-340.44	12.00	12.00	0.00
12,150.00	11.70	359.50	12,084.84	-341.97	-680.64	-336.01	12.00	12.00	0.00

Company: Marathon Oil
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Site: Mammoth 1 (1-2-7-10-11)
Well: TB No. 1H
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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,175.00	14.70	359.50	12,109.18	-336.26	-680.69	-330.30	12.00	12.00	0.00
12,200.00	17.70	359.50	12,133.18	-329.28	-680.75	-323.33	12.00	12.00	0.00
12,225.00	20.70	359.50	12,156.79	-321.06	-680.82	-315.11	12.00	12.00	0.00
12,250.00	23.70	359.50	12,179.93	-311.62	-680.90	-305.66	12.00	12.00	0.00
12,275.00	26.70	359.50	12,202.55	-300.97	-681.00	-295.02	12.00	12.00	0.00
12,300.00	29.70	359.50	12,224.58	-289.16	-681.10	-283.21	12.00	12.00	0.00
12,325.00	32.70	359.50	12,245.96	-276.21	-681.22	-270.26	12.00	12.00	0.00
12,350.00	35.70	359.50	12,266.63	-262.16	-681.34	-256.20	12.00	12.00	0.00
12,375.00	38.70	359.50	12,286.55	-247.05	-681.47	-241.09	12.00	12.00	0.00
12,400.00	41.70	359.50	12,305.64	-230.91	-681.61	-224.95	12.00	12.00	0.00
12,425.00	44.70	359.50	12,323.86	-213.80	-681.76	-207.84	12.00	12.00	0.00
12,450.00	47.70	359.50	12,341.16	-195.76	-681.92	-189.80	12.00	12.00	0.00
12,475.00	50.70	359.50	12,357.49	-176.84	-682.09	-170.88	12.00	12.00	0.00
12,500.00	53.70	359.50	12,372.81	-157.08	-682.26	-151.12	12.00	12.00	0.00
12,525.00	56.70	359.50	12,387.08	-136.56	-682.44	-130.60	12.00	12.00	0.00
12,550.00	59.70	359.50	12,400.25	-115.31	-682.63	-109.35	12.00	12.00	0.00
12,575.00	62.70	359.50	12,412.29	-93.41	-682.82	-87.45	12.00	12.00	0.00
12,600.00	65.70	359.50	12,423.17	-70.90	-683.02	-64.94	12.00	12.00	0.00
12,625.00	68.70	359.50	12,432.86	-47.86	-683.22	-41.90	12.00	12.00	0.00
12,650.00	71.70	359.50	12,441.32	-24.34	-683.43	-18.38	12.00	12.00	0.00
12,675.00	74.70	359.50	12,448.55	-0.41	-683.64	5.55	12.00	12.00	0.00
12,700.00	77.70	359.50	12,454.51	23.86	-683.85	29.83	12.00	12.00	0.00
12,725.00	80.70	359.50	12,459.19	48.42	-684.07	54.38	12.00	12.00	0.00
12,750.00	83.70	359.50	12,462.58	73.18	-684.29	79.15	12.00	12.00	0.00
12,775.00	86.70	359.50	12,464.67	98.09	-684.51	104.06	12.00	12.00	0.00
12,800.00	89.70	359.50	12,465.46	123.07	-684.73	129.04	12.00	12.00	0.00
12,804.94	90.30	359.50	12,465.46	128.02	-684.77	133.99	12.00	12.00	0.00
12,900.00	90.30	359.50	12,464.97	223.07	-685.61	229.04	0.00	0.00	0.00
13,000.00	90.30	359.50	12,464.45	323.06	-686.49	329.04	0.00	0.00	0.00
13,100.00	90.30	359.50	12,463.94	423.06	-687.36	429.04	0.00	0.00	0.00
13,200.00	90.30	359.50	12,463.42	523.05	-688.24	529.04	0.00	0.00	0.00
13,300.00	90.30	359.50	12,462.91	623.05	-689.12	629.04	0.00	0.00	0.00
13,400.00	90.30	359.50	12,462.39	723.04	-690.00	729.04	0.00	0.00	0.00
13,500.00	90.30	359.50	12,461.88	823.04	-690.88	829.04	0.00	0.00	0.00
13,600.00	90.30	359.50	12,461.36	923.03	-691.76	929.03	0.00	0.00	0.00
13,700.00	90.30	359.50	12,460.85	1,023.03	-692.64	1,029.03	0.00	0.00	0.00
13,800.00	90.30	359.50	12,460.33	1,123.02	-693.52	1,129.03	0.00	0.00	0.00
13,900.00	90.30	359.50	12,459.82	1,223.02	-694.40	1,229.03	0.00	0.00	0.00
14,000.00	90.30	359.50	12,459.30	1,323.01	-695.28	1,329.03	0.00	0.00	0.00
14,100.00	90.30	359.50	12,458.79	1,423.01	-696.16	1,429.03	0.00	0.00	0.00
14,200.00	90.30	359.50	12,458.27	1,523.00	-697.04	1,529.03	0.00	0.00	0.00
14,300.00	90.30	359.50	12,457.76	1,623.00	-697.92	1,629.02	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM

Site: Mammoth 1 (1-2-7-10-11)

Well: TB No. 1H

Wellbore: OH

Design: Prelim Plan A

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well TB No. 1H

Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))

Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))

Grid

Minimum Curvature

WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,400.00	90.30	359.50	12,457.24	1,722.99	-698.80	1,729.02	0.00	0.00	0.00
14,500.00	90.30	359.50	12,456.73	1,822.99	-699.67	1,829.02	0.00	0.00	0.00
14,600.00	90.30	359.50	12,456.21	1,922.98	-700.55	1,929.02	0.00	0.00	0.00
14,700.00	90.30	359.50	12,455.70	2,022.98	-701.43	2,029.02	0.00	0.00	0.00
14,800.00	90.30	359.50	12,455.18	2,122.97	-702.31	2,129.02	0.00	0.00	0.00
14,900.00	90.30	359.50	12,454.67	2,222.96	-703.19	2,229.02	0.00	0.00	0.00
15,000.00	90.30	359.50	12,454.15	2,322.96	-704.07	2,329.02	0.00	0.00	0.00
15,100.00	90.30	359.50	12,453.64	2,422.95	-704.95	2,429.01	0.00	0.00	0.00
15,200.00	90.30	359.50	12,453.12	2,522.95	-705.83	2,529.01	0.00	0.00	0.00
15,300.00	90.30	359.50	12,452.61	2,622.94	-706.71	2,629.01	0.00	0.00	0.00
15,400.00	90.30	359.50	12,452.09	2,722.94	-707.59	2,729.01	0.00	0.00	0.00
15,500.00	90.30	359.50	12,451.58	2,822.93	-708.47	2,829.01	0.00	0.00	0.00
15,600.00	90.30	359.50	12,451.06	2,922.93	-709.35	2,929.01	0.00	0.00	0.00
15,700.00	90.30	359.50	12,450.55	3,022.92	-710.23	3,029.01	0.00	0.00	0.00
15,800.00	90.30	359.50	12,450.03	3,122.92	-711.11	3,129.00	0.00	0.00	0.00
15,900.00	90.30	359.50	12,449.52	3,222.91	-711.99	3,229.00	0.00	0.00	0.00
16,000.00	90.30	359.50	12,449.00	3,322.91	-712.86	3,329.00	0.00	0.00	0.00
16,100.00	90.30	359.50	12,448.49	3,422.90	-713.74	3,429.00	0.00	0.00	0.00
16,200.00	90.30	359.50	12,447.97	3,522.90	-714.62	3,529.00	0.00	0.00	0.00
16,300.00	90.30	359.50	12,447.46	3,622.89	-715.50	3,629.00	0.00	0.00	0.00
16,400.00	90.30	359.50	12,446.94	3,722.89	-716.38	3,729.00	0.00	0.00	0.00
16,500.00	90.30	359.50	12,446.43	3,822.88	-717.26	3,829.00	0.00	0.00	0.00
16,600.00	90.30	359.50	12,445.91	3,922.88	-718.14	3,928.99	0.00	0.00	0.00
16,700.00	90.30	359.50	12,445.40	4,022.87	-719.02	4,028.99	0.00	0.00	0.00
16,800.00	90.30	359.50	12,444.88	4,122.87	-719.90	4,128.99	0.00	0.00	0.00
16,900.00	90.30	359.50	12,444.37	4,222.86	-720.78	4,228.99	0.00	0.00	0.00
17,000.00	90.30	359.50	12,443.85	4,322.86	-721.66	4,328.99	0.00	0.00	0.00
17,100.00	90.30	359.50	12,443.34	4,422.85	-722.54	4,428.99	0.00	0.00	0.00
17,200.00	90.30	359.50	12,442.82	4,522.85	-723.42	4,528.99	0.00	0.00	0.00
17,300.00	90.30	359.50	12,442.31	4,622.84	-724.30	4,628.98	0.00	0.00	0.00
17,400.00	90.30	359.50	12,441.79	4,722.84	-725.17	4,728.98	0.00	0.00	0.00
17,500.00	90.30	359.50	12,441.28	4,822.83	-726.05	4,828.98	0.00	0.00	0.00
17,600.00	90.30	359.50	12,440.76	4,922.82	-726.93	4,928.98	0.00	0.00	0.00
17,700.00	90.30	359.50	12,440.25	5,022.82	-727.81	5,028.98	0.00	0.00	0.00
17,800.00	90.30	359.50	12,439.73	5,122.81	-728.69	5,128.98	0.00	0.00	0.00
17,900.00	90.30	359.50	12,439.22	5,222.81	-729.57	5,228.98	0.00	0.00	0.00
18,000.00	90.30	359.50	12,438.70	5,322.80	-730.45	5,328.98	0.00	0.00	0.00
18,100.00	90.30	359.50	12,438.19	5,422.80	-731.33	5,428.97	0.00	0.00	0.00
18,200.00	90.30	359.50	12,437.67	5,522.79	-732.21	5,528.97	0.00	0.00	0.00
18,300.00	90.30	359.50	12,437.16	5,622.79	-733.09	5,628.97	0.00	0.00	0.00
18,400.00	90.30	359.50	12,436.64	5,722.78	-733.97	5,728.97	0.00	0.00	0.00
18,500.00	90.30	359.50	12,436.13	5,822.78	-734.85	5,828.97	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Mammoth 1 (1-2-7-10-11)
Well: TB No. 1H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well TB No. 1H
TVD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
MD Reference: Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,600.00	90.30	359.50	12,435.61	5,922.77	-735.73	5,928.97	0.00	0.00	0.00
18,700.00	90.30	359.50	12,435.09	6,022.77	-736.61	6,028.97	0.00	0.00	0.00
18,800.00	90.30	359.50	12,434.58	6,122.76	-737.48	6,128.97	0.00	0.00	0.00
18,900.00	90.30	359.50	12,434.06	6,222.76	-738.36	6,228.96	0.00	0.00	0.00
19,000.00	90.30	359.50	12,433.55	6,322.75	-739.24	6,328.96	0.00	0.00	0.00
19,100.00	90.30	359.50	12,433.03	6,422.75	-740.12	6,428.96	0.00	0.00	0.00
19,200.00	90.30	359.50	12,432.52	6,522.74	-741.00	6,528.96	0.00	0.00	0.00
19,300.00	90.30	359.50	12,432.00	6,622.74	-741.88	6,628.96	0.00	0.00	0.00
19,400.00	90.30	359.50	12,431.49	6,722.73	-742.76	6,728.96	0.00	0.00	0.00
19,500.00	90.30	359.50	12,430.97	6,822.73	-743.64	6,828.96	0.00	0.00	0.00
19,600.00	90.30	359.50	12,430.46	6,922.72	-744.52	6,928.95	0.00	0.00	0.00
19,700.00	90.30	359.50	12,429.94	7,022.72	-745.40	7,028.95	0.00	0.00	0.00
19,800.00	90.30	359.50	12,429.43	7,122.71	-746.28	7,128.95	0.00	0.00	0.00
19,900.00	90.30	359.50	12,428.91	7,222.71	-747.16	7,228.95	0.00	0.00	0.00
20,000.00	90.30	359.50	12,428.40	7,322.70	-748.04	7,328.95	0.00	0.00	0.00
20,100.00	90.30	359.50	12,427.88	7,422.70	-748.92	7,428.95	0.00	0.00	0.00
20,200.00	90.30	359.50	12,427.37	7,522.69	-749.80	7,528.95	0.00	0.00	0.00
20,300.00	90.30	359.50	12,426.85	7,622.68	-750.67	7,628.95	0.00	0.00	0.00
20,400.00	90.30	359.50	12,426.34	7,722.68	-751.55	7,728.94	0.00	0.00	0.00
20,500.00	90.30	359.50	12,425.82	7,822.67	-752.43	7,828.94	0.00	0.00	0.00
20,600.00	90.30	359.50	12,425.31	7,922.67	-753.31	7,928.94	0.00	0.00	0.00
20,700.00	90.30	359.50	12,424.79	8,022.66	-754.19	8,028.94	0.00	0.00	0.00
20,800.00	90.30	359.50	12,424.28	8,122.66	-755.07	8,128.94	0.00	0.00	0.00
20,900.00	90.30	359.50	12,423.76	8,222.65	-755.95	8,228.94	0.00	0.00	0.00
21,000.00	90.30	359.50	12,423.25	8,322.65	-756.83	8,328.94	0.00	0.00	0.00
21,100.00	90.30	359.50	12,422.73	8,422.64	-757.71	8,428.93	0.00	0.00	0.00
21,200.00	90.30	359.50	12,422.22	8,522.64	-758.59	8,528.93	0.00	0.00	0.00
21,300.00	90.30	359.50	12,421.70	8,622.63	-759.47	8,628.93	0.00	0.00	0.00
21,400.00	90.30	359.50	12,421.19	8,722.63	-760.35	8,728.93	0.00	0.00	0.00
21,500.00	90.30	359.50	12,420.67	8,822.62	-761.23	8,828.93	0.00	0.00	0.00
21,600.00	90.30	359.50	12,420.16	8,922.62	-762.11	8,928.93	0.00	0.00	0.00
21,700.00	90.30	359.50	12,419.64	9,022.61	-762.98	9,028.93	0.00	0.00	0.00
21,800.00	90.30	359.50	12,419.13	9,122.61	-763.86	9,128.93	0.00	0.00	0.00
21,900.00	90.30	359.50	12,418.61	9,222.60	-764.74	9,228.92	0.00	0.00	0.00
22,000.00	90.30	359.50	12,418.10	9,322.60	-765.62	9,328.92	0.00	0.00	0.00
22,100.00	90.30	359.50	12,417.58	9,422.59	-766.50	9,428.92	0.00	0.00	0.00
22,200.00	90.30	359.50	12,417.07	9,522.59	-767.38	9,528.92	0.00	0.00	0.00
22,300.00	90.30	359.50	12,416.55	9,622.58	-768.26	9,628.92	0.00	0.00	0.00
22,400.00	90.30	359.50	12,416.04	9,722.58	-769.14	9,728.92	0.00	0.00	0.00
22,500.00	90.30	359.50	12,415.52	9,822.57	-770.02	9,828.92	0.00	0.00	0.00
22,600.00	90.30	359.50	12,415.01	9,922.57	-770.90	9,928.91	0.00	0.00	0.00
22,680.91	90.30	359.50	12,414.59	10,003.47	-771.61	10,009.82	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Mammoth 1 (1-2-7-10-11)
Well: TB No. 1H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well TB No. 1H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
[Mammoth1#1H]LTP/BHL									

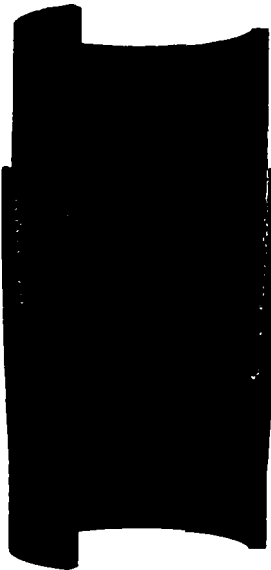
Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
[Mammoth1#1H]FTP - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	11,988.00	-351.89	-680.55	388,660.31	780,128.66	32.065316	-103.429052
[Mammoth1#1H]LTP/BH - plan hits target center - Point	0.00	0.00	12,414.5 9	10,003.47	-771.61	399,015.67	780,037.60	32.093782	-103.429066

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,130.00	1,130.00	13 3/8"	13-3/8	17-1/2
11,964.48	11,900.00	9 5/8"	9-5/8	12-1/4

Checked By: _____ Approved By: _____ Date: _____



TEC-LOCK WEDGE

5.500" 23 LB/FT (.415"Wall)

BENTELER P110 CY

Pipe Body Data

Nominal OD:	5.500	in
Nominal Wall:	.415	in
Nominal Weight:	23.00	lb/ft
Plain End Weight:	22.56	lb/ft
Material Grade:	P110 CY	
Mill/Specification:	BENTELER	
Yield Strength:	125,000	psi
Tensile Strength:	130,000	psi
Nominal ID:	4.670	in
API Drift Diameter:	4.545	in
Special Drift Diameter:	None	in
RBW:	87.5 %	
Body Yield:	829,000	lbf
Burst:	16,510	psi
Collapse:	16,910	psi

Connection Data

Standard OD:	5.950	in
Pin Bored ID:	4.670	in
Critical Section Area:	6.457	in ²
Tensile Efficiency:	97.4 %	
Compressive Efficiency:	100 %	
Longitudinal Yield Strength:	807,000	lbf
Compressive Limit:	829,000	lbf
Internal Pressure Rating:	16,510	psi
External Pressure Rating:	16,910	psi
Maximum Bend:	101.5	°/100ft

Operational Data

Minimum Makeup Torque:	16,400	ft*lbf
Optimum Makeup Torque:	20,500	ft*lbf
Maximum Makeup Torque:	44,300	ft*lbf
Minimum Yield:	49,200	ft*lbf
Makeup Loss:	5.97	in

Notes Operational Torque is equivalent to the Maximum Make-Up Torque



**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL for EC486375**

OPERATOR'S NAME:	Marathon Oil Permian LLC
LEASE NO.:	NMNM113970
WELL NAME & NO.:	Mammoth 1 TB Fed Com 1H
SURFACE HOLE FOOTAGE:	448' FSL & 1509' FWL
BOTTOM HOLE FOOTAGE:	100' FNL & 825' FWL
LOCATION:	Section 1, T 26S, R 34E, NMPM
COUNTY:	Lea County, New Mexico

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☒ Conventional	☐ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☒ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

All other previous Conditions of Approval still apply.

A. CASING

1. The 13-3/8" surface casing shall be set at approximately 1130' (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
 - a. If cement does not circulate to surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of 6 hours after pumping cement, ideally between 8-10 hours after completing the cement job.
 - b. WOC time for a primary cement job will be a minimum of 8 hours or 500 psi compressive strength, whichever is greater. This is to include the lead cement.
 - c. If cement falls back, remedial cementing will be done prior to drilling out that string.
 - d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

2. The 7-5/8" intermediate casing shall be cemented to surface.
 - a. If cement does not circulate to surface, see B.1.a, c & d.
 - b. This casing must be kept at least 1/3 full at all times in order to meet BLM collapse requirements.

3. The 5-1/2" production casing shall be cemented with at least 500' tie-back into the previous casing.

10/18/2019 DR