

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 2**5. Lease Serial No.
NMNM113970

6. If Indian, Allottee or Tribe Name

If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
MAMMOTH 1 WA FED COM 7H2. Name of Operator
MARATHON OIL PERMIAN LLCContact: MELISSA SZUDERA
E-Mail: mszudera@marathonoil.com9. API Well No.
30-025-46133-00-X13a. Address
5555 SAN FELIPE STREET
HOUSTON, TX 770563b. Phone No. (include area code)
Ph: 713-296-317910. Field and Pool or Exploratory Area
WC025G09S263504N-WOLFCAMP

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 1 T26S R34E SESW 448FSL 1539FWL
32.066395 N Lat, 103.427216 W Lon11. 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 below listed changes to this well.

1. Name - From Mammoth Fed Com 26 34 1 WXY 7H to Mammoth 1 WA Fed Com 7H
2. Drilling - Casing, Cement, Mud Program
3. Well Plan - Footages

Updated Drill Plan, Directional Plan, 5.5 Casing Detail, and C-102 Plat attached.

14. I hereby certify that the foregoing is true and correct. Electronic Submission #489898 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 10/25/2019 (20PP0243SE)	
Name (Printed/Typed) MELISSA SZUDERA	Title REGULATORY COMPLIANCE REP
Signature (Electronic Submission)	Date 10/25/2019

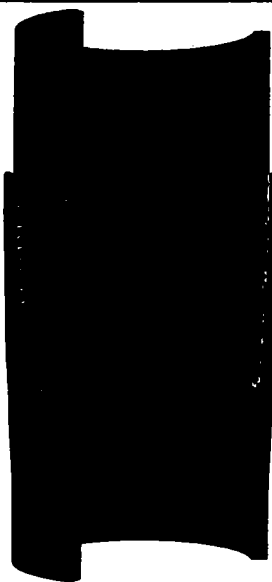
THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>DYLAN ROSSMANGO</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>10/28/2019</u>
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.		
Office Hobbs		

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 ****



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



MARATHON OIL PERMIAN LLC

DRILLING AND OPERATIONS PLAN

WELL NAME / NUMBER: MAMMOTH 1 WA FED COM 7H

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	1539	FWL	26S	34E	1	SESW	32.06639292 N	103.42721223 W	Lea	NM	NMP	F	NMNM 113970	3281	0	0
KOP	121	FSL	1310	FWL	26S	34E	1	SESW	32.065499302 N	103.427949988 W	Lea	NM	NMP	F	NMNM 113970	-8760	12061	12041
PPP	150	FSL	1310	FWL	26S	34E	1	SESW	32.06557527 N	103.42794951 W	Lea	NM	NMP	F	NMNM 113970	-9333	12966	12614
EXIT	0	FNL	1310	FWL	26S	34E	1	NENW	32.07967964 W	103.42795814 W	Lea	NM	NMP	F	NMNM 113970	-9293	17548	12574
PPP	0	FSL	1310	FWL	25S	34E	36	SESW	32.07967964 W	103.42795814 W	Lea	NM	NMP	S	State	-9293	17548	12574
BHL	150	FNL	1310	FWL	25S	34E	36	NENW	32.09376692 N	103.42796527 W	Lea	NM	NMP	S	State	-9249	22673	12530

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	3599	Base Salt	BRINE	N
Base of Salt	5149	5164	Limy Sands	BRINE	N
Lamar	5415	5431	Sand/Shales	OIL	N
Bell Canyon	5443	5460	Sands/Shale	OIL	N
Brushy Canyon	8051	8071	Sands/Carbonates	OIL	N
Bone Spring	9342	9362	Sands/Carbonates	OIL	N
1 st Bone Spring Sand	10463	10483	Sands/Carbonates	OIL	N
2 nd Bone Spring Sand	11012	11032	Sands/Carbonates	OIL	N
3 rd Bone Spring Sand	12097	12117	Sands/Carbonates	OIL	N
Wolfcamp	12524	12635	Carbonates/Shales/Sands	OIL	Y
Wolfcamp X	12544	12674	Carbonates/Shales/Sands	OIL	Y

DEEPEST EXPECTED FRESH WATER: 400' TVD

ANTICIPATED BOTTOM HOLE PRESSURE: 8,890 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 (TVD)	Bottom Set MSL (TVD)	Weight (lbs/ft)	Grade	Connection	SF Collapse	SF Burst	SF Tension
Surface	17 1/2	13 3/8	0	1130	0	1130	3281	2151	54.5	J55	STC	3.37	1.71	2.93
Intermediate	9 7/8	7 5/8	0	11970	0	11970	3281	-8689		P110	BTC	2.21	1.18	1.9
Production	6 3/4	5 1/2	0	22673	0	12530	3281	-9249		P110	Weld	1.13	1.13	1.13

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		1.73	13.5			Class C	LCM
Surface	Tail	N/A	904	1130	236	1.33	14.8	314	100	Class C	Accelerator
Intermediate	Lead	N/A	0	10900	1880	2.49	11.0	4682	100	Class C	Extender, Accelerator, 50/50 Poz C
Intermediate	Tail	N/A	10900	11970	233	1.28	13.8	299	30	Class H	Retarder, 35/65 Poz H
Production	Lead	N/A	9470	9970	47	1.29	14.5	60	30	Class H	Viscosifier, Retarder
Production	Tail	N/A	9970	22673	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	
11970	22673	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.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code 98117	³ Pool Name WC-025 G-09 S263504N; WOLFCAMP
⁴ Property Code	⁵ Property Name MAMMOTH 1 WA FED COM	⁶ Well Number 7H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3281'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	1	26S	34E		448	SOUTH	1539	WEST	LEA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	36	25S	34E		100	NORTH	1331	WEST	LEA

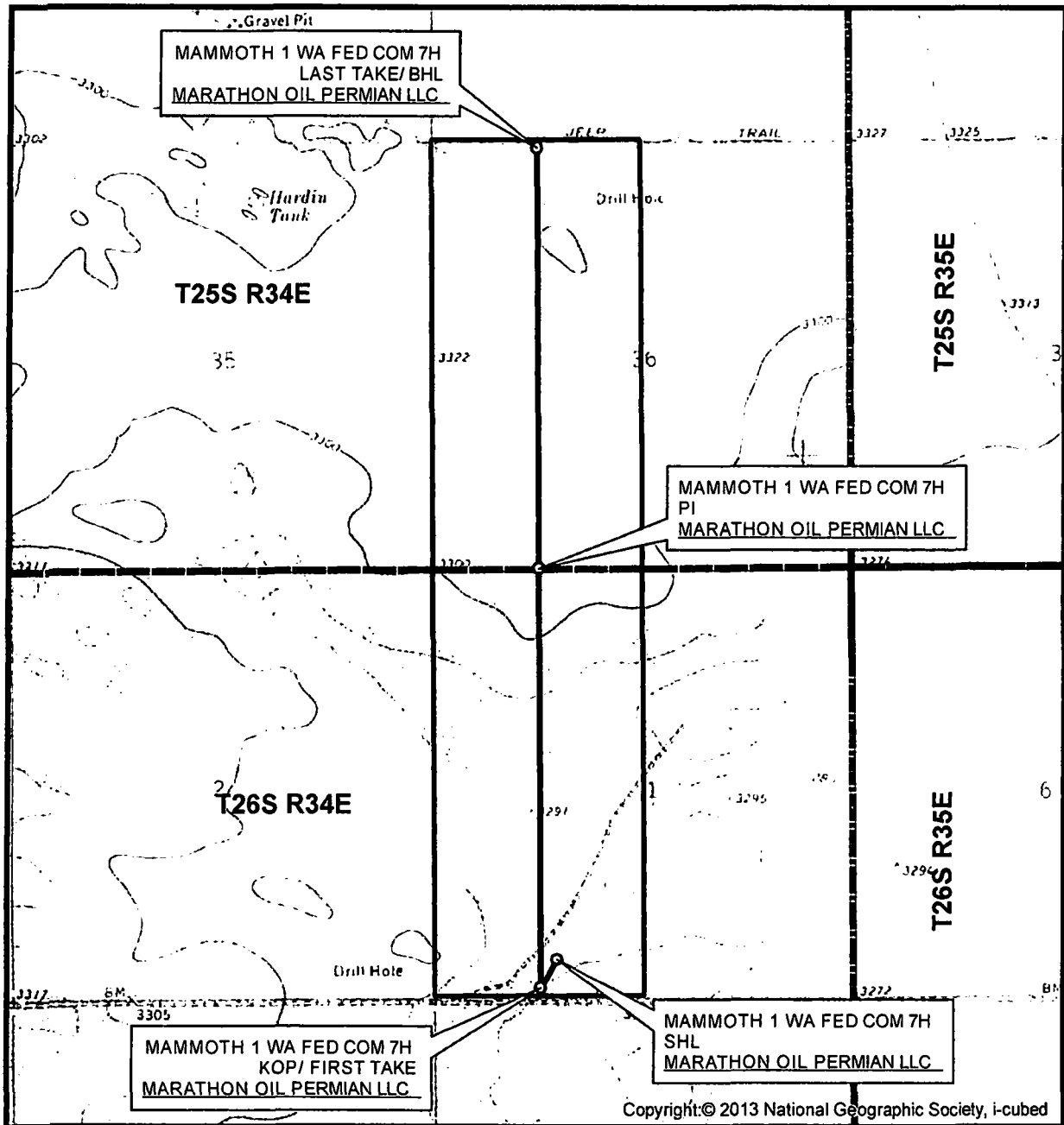
¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
640.0			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

Infill Well CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 820398.92' / Y: 399168.72' B - X: 823039.78' / Y: 399183.78' C - X: 823132.38' / Y: 388627.40' D - X: 820492.21' / Y: 388613.44' CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 779211.91' / Y: 399110.96' B - X: 781852.75' / Y: 399126.00' C - X: 781944.85' / Y: 388569.90' D - X: 779304.71' / Y: 388555.97' LAST TAKE POINT/BOTTOM HOLE LOCATION 100' FNL 1331' FWL, SECTION 36 NAD 83, SPCS NM EAST X: 821730.18' / Y: 399076.31' LAT: 32.09390421N / LON: 103.42789851W NAD 27, SPCS NM EAST X: 780543.14' / Y: 399018.54' LAT: 32.09377849N / LON: 103.42743326W FIRST TAKE POINT 100' FSL 1330' FWL, SECTION 1 NAD 83, SPCS NM EAST X: 821821.35' / Y: 388720.47' LAT: 32.06543778N / LON: 103.42788478W NAD 27, SPCS NM EAST X: 780633.84' / Y: 388662.98' LAT: 32.06531191N / LON: 103.42742122W KICK OFF POINT 100' FSL 1330' FWL, SECTION 1 NAD 83, SPCS NM EAST X: 821821.35' / Y: 388720.47' LAT: 32.06543778N / LON: 103.42788478W NAD 27, SPCS NM EAST X: 780633.84' / Y: 388662.98' LAT: 32.06531191N / LON: 103.42742122W SURFACE HOLE LOCATION 448' FSL 1539' FWL, SECTION 1 NAD 83, SPCS NM EAST X: 822026.78' / Y: 389069.69' LAT: 32.06638290N / LON: 103.42721224W NAD 27, SPCS NM EAST X: 780839.28' / Y: 388012.18' LAT: 32.06626704N / LON: 103.42674864W PI N00°28'11"W - 5181.12' SHL N00°32'21"W - 5175.12' KOP/ FIRST TAKE SECTION 26 SECTION 25 SECTION 30 SECTION 31 SECTION 32 SECTION 33 SECTION 34 SECTION 35 SECTION 36 SECTION 37 SECTION 38 SECTION 39 SECTION 40 SECTION 41 SECTION 42 SECTION 43 SECTION 44 SECTION 45 SECTION 46 SECTION 47 SECTION 48 SECTION 49 SECTION 50 SECTION 51 SECTION 52 SECTION 53 SECTION 54 SECTION 55 SECTION 56 SECTION 57 SECTION 58 SECTION 59 SECTION 60 SECTION 61 SECTION 62 SECTION 63 SECTION 64 SECTION 65 SECTION 66 SECTION 67 SECTION 68 SECTION 69 SECTION 70 SECTION 71 SECTION 72 SECTION 73 SECTION 74 SECTION 75 SECTION 76 SECTION 77 SECTION 78 SECTION 79 SECTION 80 SECTION 81 SECTION 82 SECTION 83 SECTION 84 SECTION 85 SECTION 86 SECTION 87 SECTION 88 SECTION 89 SECTION 90 SECTION 91 SECTION 92 SECTION 93 SECTION 94 SECTION 95 SECTION 96 SECTION 97 SECTION 98 SECTION 99 SECTION 100 1331' 1330' 1330' 1539' 448' 1310' 1310' 100' 100' SECTION 1 SECTION 2 SECTION 3 SECTION 4 SECTION 5 SECTION 6 SECTION 7 SECTION 8 SECTION 9 SECTION 10 SECTION 11 SECTION 12 SECTION 13 SECTION 14 SECTION 15 SECTION 16 SECTION 17 SECTION 18 SECTION 19 SECTION 20 SECTION 21 SECTION 22 SECTION 23 SECTION 24 SECTION 25 SECTION 26 SECTION 27 SECTION 28 SECTION 29 SECTION 30 SECTION 31 SECTION 32 SECTION 33 SECTION 34 SECTION 35 SECTION 36 SECTION 37 SECTION 38 SECTION 39 SECTION 40 SECTION 41 SECTION 42 SECTION 43 SECTION 44 SECTION 45 SECTION 46 SECTION 47 SECTION 48 SECTION 49 SECTION 50 SECTION 51 SECTION 52 SECTION 53 SECTION 54 SECTION 55 SECTION 56 SECTION 57 SECTION 58 SECTION 59 SECTION 60 SECTION 61 SECTION 62 SECTION 63 SECTION 64 SECTION 65 SECTION 66 SECTION 67 SECTION 68 SECTION 69 SECTION 70 SECTION 71 SECTION 72 SECTION 73 SECTION 74 SECTION 75 SECTION 76 SECTION 77 SECTION 78 SECTION 79 SECTION 80 SECTION 81 SECTION 82 SECTION 83 SECTION 84 SECTION 85 SECTION 86 SECTION 87 SECTION 88 SECTION 89 SECTION 90 SECTION 91 SECTION 92 SECTION 93 SECTION 94 SECTION 95 SECTION 96 SECTION 97 SECTION 98 SECTION 99 SECTION 100 SHEET 1 OF 3 JOB No. R3762_010 REV 4 JCS 9/10/2019	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. 10/23/2019 Date MELISSA SZUDERA Signature Printed Name E-mail Address	
	18 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 belief. SEPTEMBER 19, 2019 Date of Survey Lloyd P. Short Signature and Seal of Professional Surveyor 21653 Certificate Number LLOYD P. SHORT 21653 Professional Surveyor	

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99985482 Convergence: 00°29'26.29720"

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 & 1539' FWL
 ELEVATION: 3281'
 LEASE: MAMMOTH 1 FED COM
 U.S.G.S. TOPOGRAPHIC MAP: ANDREWS PLACE, NM, TX.

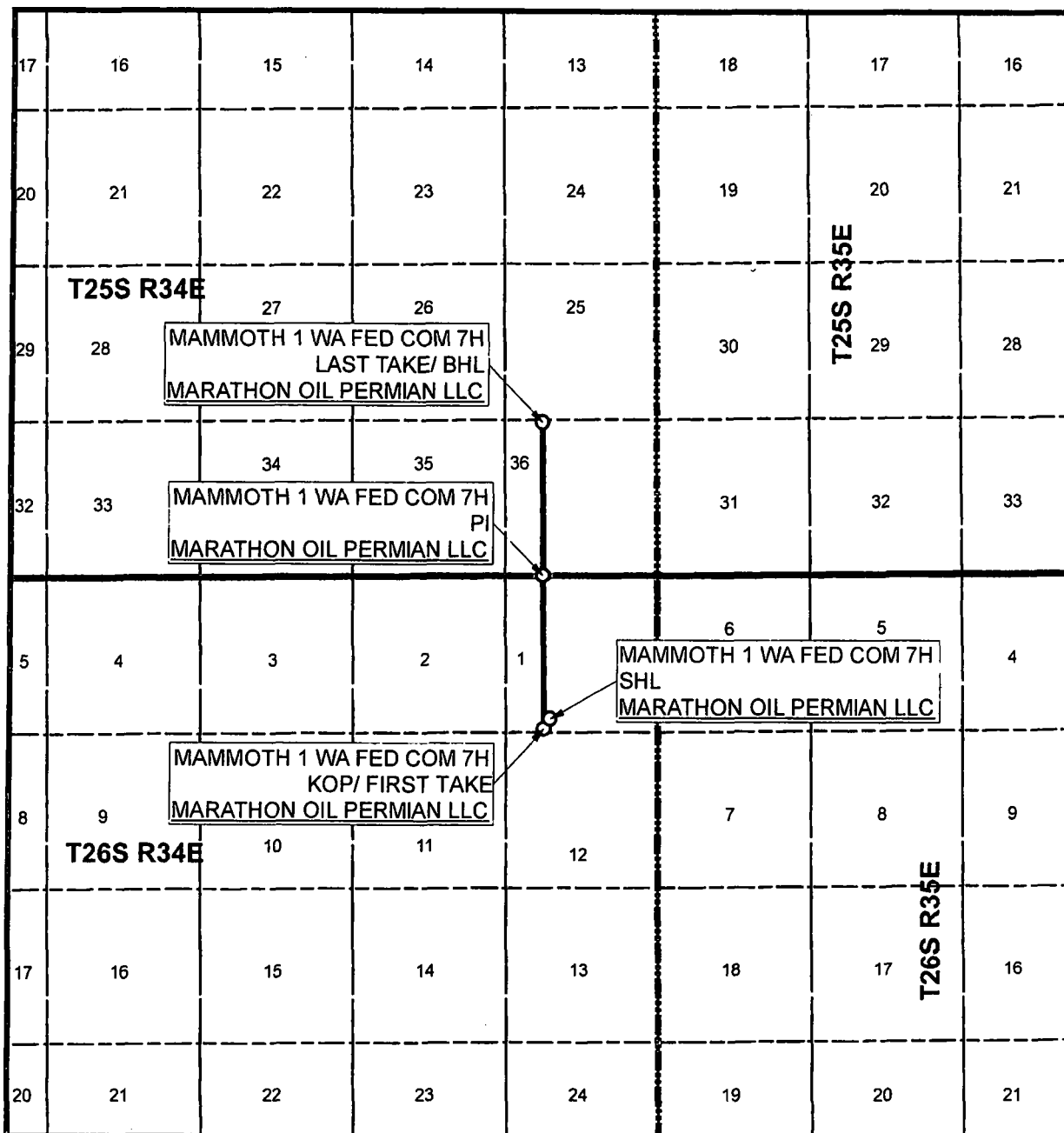
1" = 2,000'
 CONTOUR INTERVAL = 10'



SHEET 2 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 1309 LOUISVILLE AVENUE, MONROE, LA 71201
 318-323-6900 OFFICE
 JOB No. R3762_010

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 & 1539' FWL
 ELEVATION: 3281'
 LEASE: MAMMOTH 1 FED COM
 U.S.G.S. TOPOGRAPHIC MAP: ANDREWS PLACE, NM, TX.

1" = 1 MILE



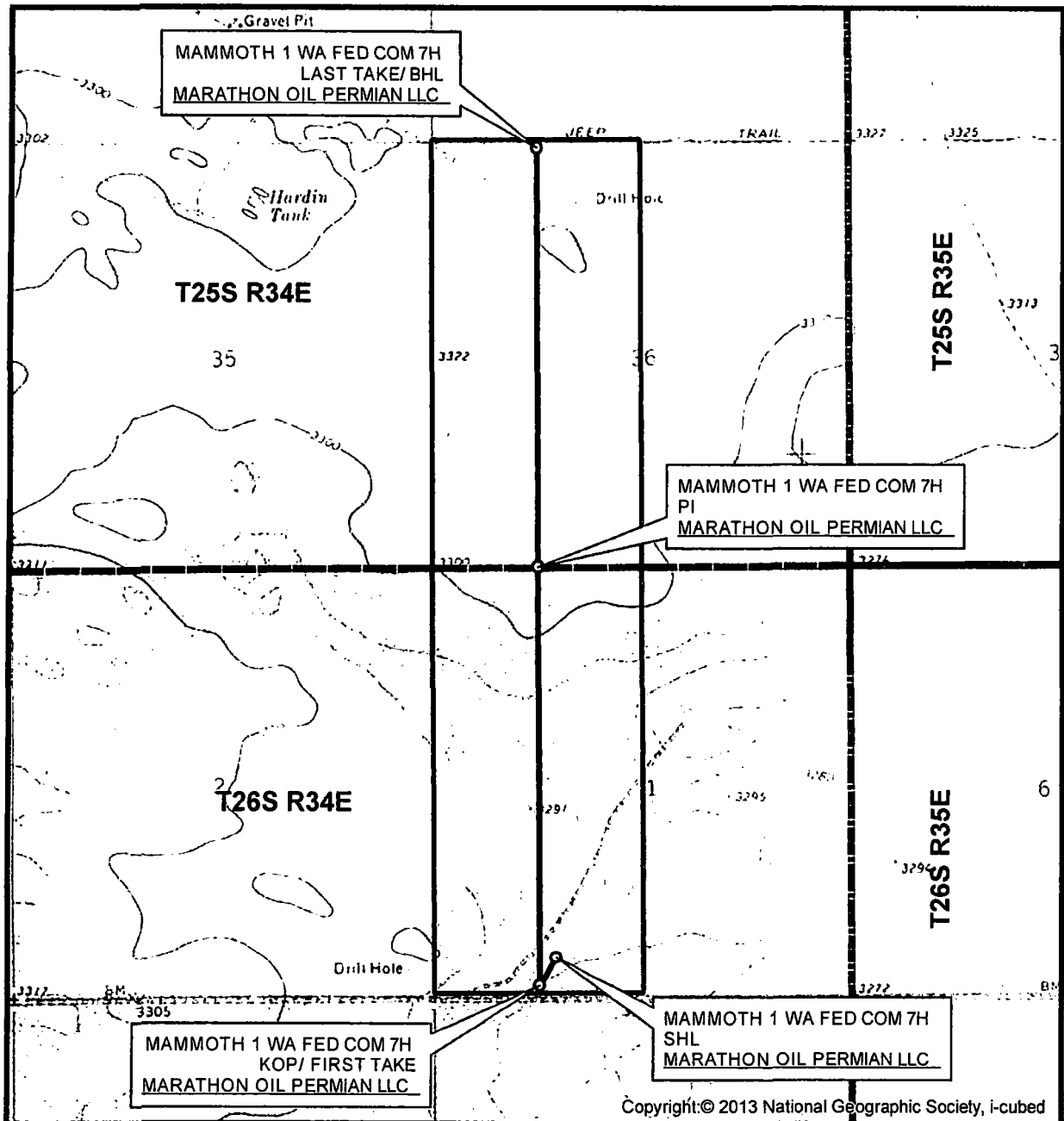
SHEET 3 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 1309 LOUISVILLE AVENUE, MONROE, LA 71201
 318-323-6900 OFFICE
 JOB No. R3762_010

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99985482 Convergence: 00°29'26.29720"

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 & 1539' FWL
 ELEVATION: 3281'
 LEASE: MAMMOTH 1 FED COM
 U.S.G.S. TOPOGRAPHIC MAP: ANDREWS PLACE, NM, TX.

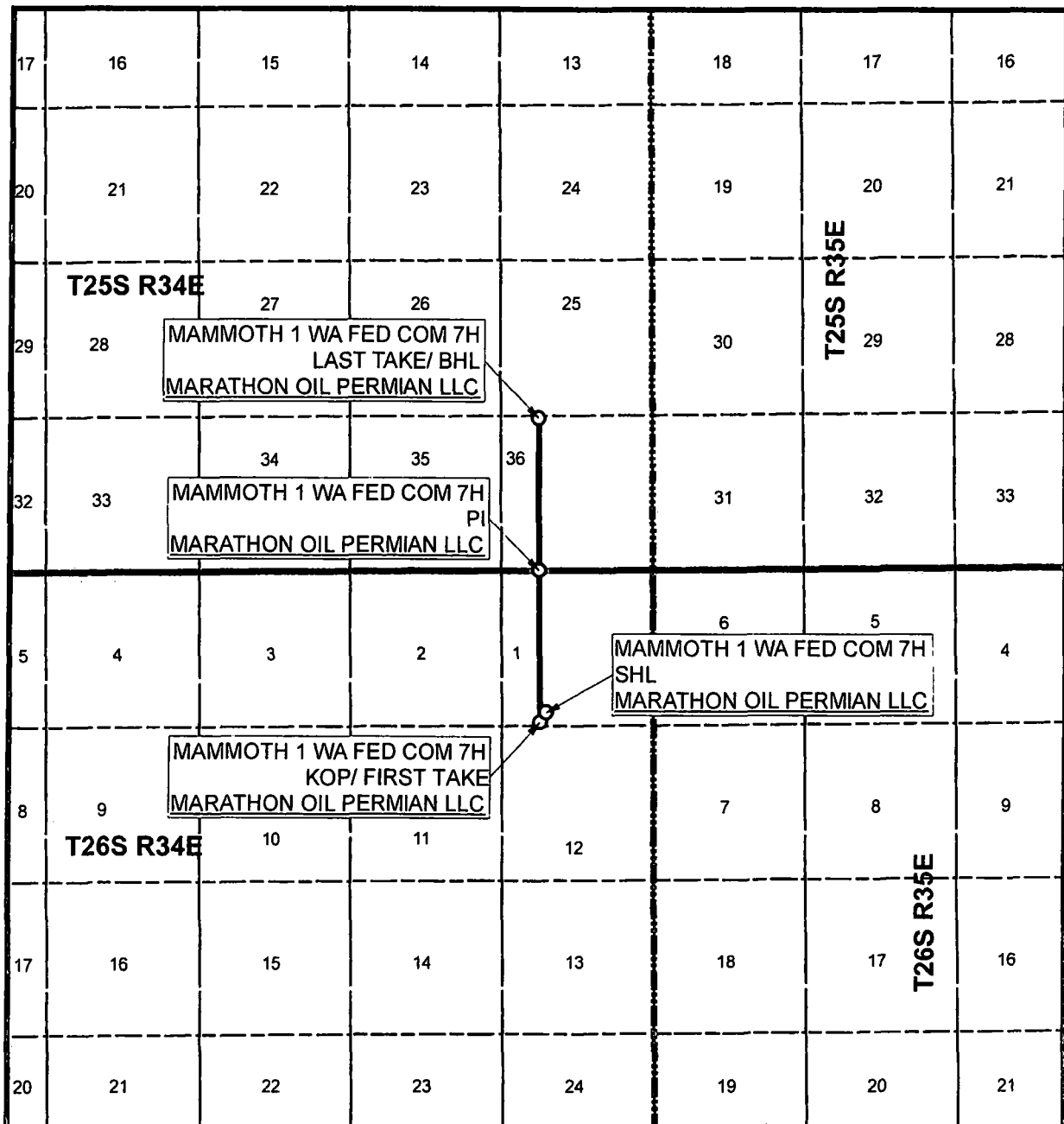
1" = 2,000'
 CONTOUR INTERVAL = 10'



SHEET 2 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 1309 LOUISVILLE AVENUE, MONROE, LA 71201
 318-323-6900 OFFICE
 JOB No. R3762_010

VICINITY MAP



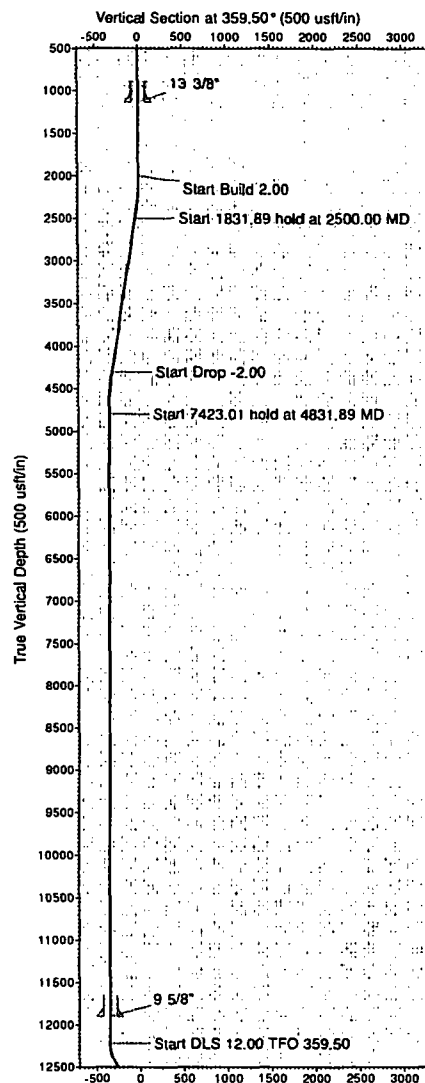
SEC. 1 TWP. 26-S RGE. 34-E
 SURVEY: N.M.P.M.
 COUNTY: LEA
 OPERATOR: MARATHON OIL PERMIAN LLC
 DESCRIPTION: 448' FSL & 1539' FWL
 ELEVATION: 3281'
 LEASE: MAMMOTH 1 FED COM
 U.S.G.S. TOPOGRAPHIC MAP: ANDREWS PLACE, NM, TX.

1" = 1 MILE



SHEET 3 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 1309 LOUISVILLE AVENUE, MONROE, LA 71201
 318-323-6900 OFFICE
 JOB No. R3762_010



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

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

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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	389012.18	780839.28	32.066267	-103.426749	

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	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00
3	2500.00	10.00	210.47	2437.47	-37.51	-22.07	2.00	-37.32
4	4331.89	10.00	210.47	4301.53	-311.69	-183.37	0.00	-310.08
5	4831.89	0.00	0.00	4798.99	-349.20	-205.44	2.00	-347.39
6	12254.90	0.00	0.00	12222.00	-349.20	-205.44	0.00	-347.39
7	13007.41	90.30	359.50	12699.46	130.75	-209.64	12.00	132.58
8	22883.53	90.30	359.50	12647.60	10008.36	-298.14	0.00	10008.56

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[Mammoth1#7H]FTP	12222.00	-349.20	-205.44	388662.98	780633.84
[Mammoth1#7H]LTP/BHL	12647.60	10008.36	-298.14	399018.54	780543.14



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

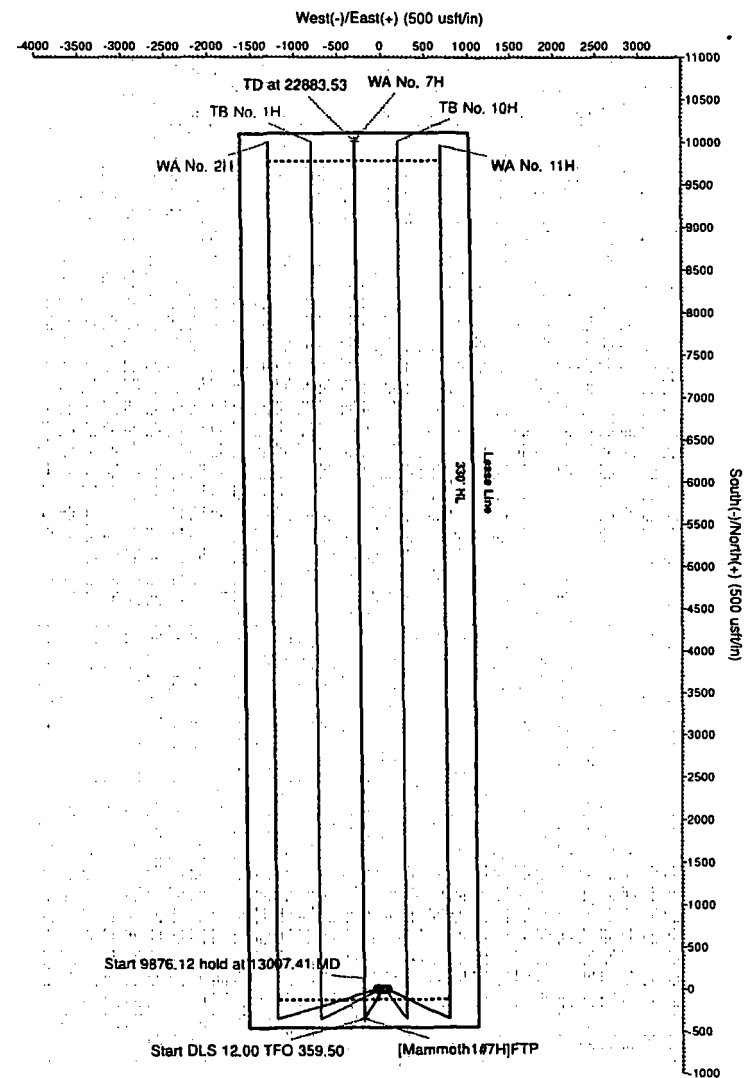
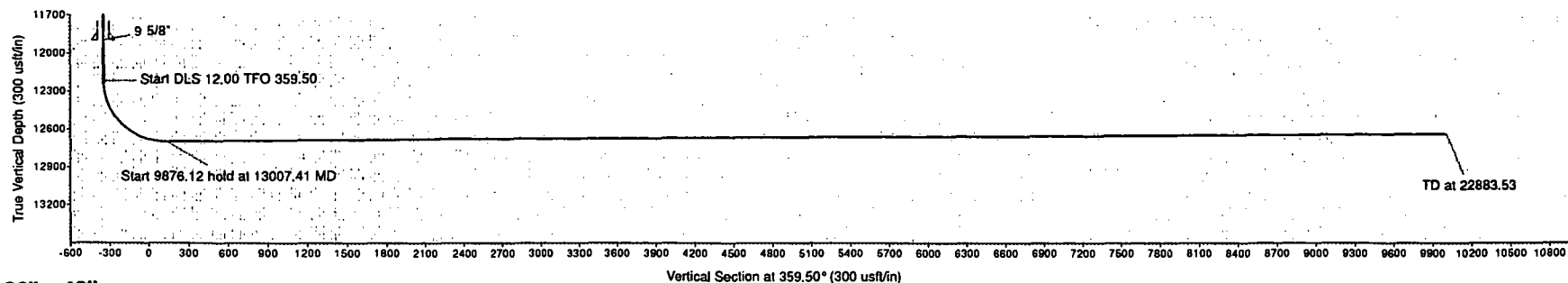
Magnetic Field
Strength: 47873.2anT
Dip Angle: 68.67°
Date: 9/30/2010
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.07°

Declination (M to T): 6.56° East

Target Line: 12700' TVD @ 0° VS :: 90.3° INC



36" x 48"

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WA No. 7H
Project:	Lea County, NM	TVD Reference:	Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
Site:	Mammoth 1 Fed Com (1-2-7-10-11)	MD Reference:	Well @ 3306.00usft (GL: 3281' + KB: 25' (PD594))
Well:	WA No. 7H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	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 Fed Com (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	WA No. 7H			
Well Position	+N/-S	0.00 usft	Northing:	389,012.18 usft
	+E/-W	0.00 usft	Easting:	780,839.28 usft
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	22,883.53	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 Fed Com (1-2-7-10-11)
Well: WA No. 7H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well WA No. 7H
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	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	2.00	210.47	2,099.98	-1.50	-0.88	-1.50	2.00	2.00	0.00
2,200.00	4.00	210.47	2,199.84	-6.01	-3.54	-5.98	2.00	2.00	0.00
2,300.00	6.00	210.47	2,299.45	-13.53	-7.96	-13.46	2.00	2.00	0.00
2,400.00	8.00	210.47	2,398.70	-24.03	-14.14	-23.91	2.00	2.00	0.00
2,500.00	10.00	210.47	2,497.47	-37.51	-22.07	-37.32	2.00	2.00	0.00
2,600.00	10.00	210.47	2,595.95	-52.48	-30.87	-52.21	0.00	0.00	0.00
2,700.00	10.00	210.47	2,694.43	-67.45	-39.68	-67.10	0.00	0.00	0.00
2,800.00	10.00	210.47	2,792.91	-82.41	-48.48	-81.99	0.00	0.00	0.00
2,900.00	10.00	210.47	2,891.39	-97.38	-57.29	-96.88	0.00	0.00	0.00
3,000.00	10.00	210.47	2,989.87	-112.35	-66.10	-111.77	0.00	0.00	0.00
3,100.00	10.00	210.47	3,088.35	-127.31	-74.90	-126.65	0.00	0.00	0.00
3,200.00	10.00	210.47	3,186.83	-142.28	-83.71	-141.54	0.00	0.00	0.00
3,300.00	10.00	210.47	3,285.31	-157.25	-92.51	-156.43	0.00	0.00	0.00
3,400.00	10.00	210.47	3,383.79	-172.21	-101.32	-171.32	0.00	0.00	0.00
3,500.00	10.00	210.47	3,482.27	-187.18	-110.12	-186.21	0.00	0.00	0.00
3,600.00	10.00	210.47	3,580.75	-202.15	-118.93	-201.10	0.00	0.00	0.00
3,700.00	10.00	210.47	3,679.23	-217.11	-127.73	-215.99	0.00	0.00	0.00
3,800.00	10.00	210.47	3,777.72	-232.08	-136.54	-230.88	0.00	0.00	0.00
3,900.00	10.00	210.47	3,876.20	-247.05	-145.34	-245.77	0.00	0.00	0.00
4,000.00	10.00	210.47	3,974.68	-262.01	-154.15	-260.66	0.00	0.00	0.00
4,100.00	10.00	210.47	4,073.16	-276.98	-162.95	-275.55	0.00	0.00	0.00
4,200.00	10.00	210.47	4,171.64	-291.95	-171.76	-290.44	0.00	0.00	0.00
4,300.00	10.00	210.47	4,270.12	-306.91	-180.56	-305.33	0.00	0.00	0.00
4,331.89	10.00	210.47	4,301.53	-311.69	-183.37	-310.08	0.00	0.00	0.00
4,400.00	8.64	210.47	4,368.73	-321.19	-188.96	-319.53	2.00	-2.00	0.00
4,500.00	6.64	210.47	4,467.84	-332.65	-195.70	-330.93	2.00	-2.00	0.00

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

Local Co-ordinate Reference: Well WA No. 7H
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)
4,600.00	4.64	210.47	4,567.35	-341.12	-200.68	-339.35	2.00	-2.00	0.00
4,700.00	2.64	210.47	4,667.15	-346.58	-203.90	-344.79	2.00	-2.00	0.00
4,800.00	0.64	210.47	4,767.10	-349.05	-205.35	-347.24	2.00	-2.00	0.00
4,831.89	0.00	0.00	4,798.99	-349.20	-205.44	-347.39	2.00	-2.00	0.00
4,900.00	0.00	0.00	4,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,000.00	0.00	0.00	4,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,100.00	0.00	0.00	5,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,200.00	0.00	0.00	5,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,300.00	0.00	0.00	5,267.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,400.00	0.00	0.00	5,367.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,500.00	0.00	0.00	5,467.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,600.00	0.00	0.00	5,567.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,700.00	0.00	0.00	5,667.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,800.00	0.00	0.00	5,767.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
5,900.00	0.00	0.00	5,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,000.00	0.00	0.00	5,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,100.00	0.00	0.00	6,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,200.00	0.00	0.00	6,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,300.00	0.00	0.00	6,267.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,400.00	0.00	0.00	6,367.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,500.00	0.00	0.00	6,467.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,600.00	0.00	0.00	6,567.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,700.00	0.00	0.00	6,667.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,800.00	0.00	0.00	6,767.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
6,900.00	0.00	0.00	6,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,000.00	0.00	0.00	6,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,100.00	0.00	0.00	7,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,200.00	0.00	0.00	7,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,300.00	0.00	0.00	7,267.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,400.00	0.00	0.00	7,367.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,500.00	0.00	0.00	7,467.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,600.00	0.00	0.00	7,567.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,700.00	0.00	0.00	7,667.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,800.00	0.00	0.00	7,767.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
7,900.00	0.00	0.00	7,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,000.00	0.00	0.00	7,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,100.00	0.00	0.00	8,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,200.00	0.00	0.00	8,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,300.00	0.00	0.00	8,267.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,400.00	0.00	0.00	8,367.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,500.00	0.00	0.00	8,467.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,600.00	0.00	0.00	8,567.10	-349.20	-205.44	-347.39	0.00	0.00	0.00

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

Local Co-ordinate Reference: Well WA No. 7H
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	8,667.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,800.00	0.00	0.00	8,767.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
8,900.00	0.00	0.00	8,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,000.00	0.00	0.00	8,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,100.00	0.00	0.00	9,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,200.00	0.00	0.00	9,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,300.00	0.00	0.00	9,267.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,400.00	0.00	0.00	9,367.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,500.00	0.00	0.00	9,467.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,600.00	0.00	0.00	9,567.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,700.00	0.00	0.00	9,667.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,800.00	0.00	0.00	9,767.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
9,900.00	0.00	0.00	9,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,000.00	0.00	0.00	9,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,100.00	0.00	0.00	10,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,200.00	0.00	0.00	10,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,300.00	0.00	0.00	10,267.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,400.00	0.00	0.00	10,367.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,500.00	0.00	0.00	10,467.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,600.00	0.00	0.00	10,567.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,700.00	0.00	0.00	10,667.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,800.00	0.00	0.00	10,767.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
10,900.00	0.00	0.00	10,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,000.00	0.00	0.00	10,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,100.00	0.00	0.00	11,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,200.00	0.00	0.00	11,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,300.00	0.00	0.00	11,267.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,400.00	0.00	0.00	11,367.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,500.00	0.00	0.00	11,467.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,600.00	0.00	0.00	11,567.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,700.00	0.00	0.00	11,667.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,800.00	0.00	0.00	11,767.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,900.00	0.00	0.00	11,867.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
11,932.90	0.00	0.00	11,900.00	-349.20	-205.44	-347.39	0.00	0.00	0.00
9 5/8"									
12,000.00	0.00	0.00	11,967.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
12,100.00	0.00	0.00	12,067.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
12,200.00	0.00	0.00	12,167.10	-349.20	-205.44	-347.39	0.00	0.00	0.00
12,254.90	0.00	0.00	12,222.00	-349.20	-205.44	-347.39	0.00	0.00	0.00
[Mammoth1#7H]FTP									
12,275.00	2.41	359.50	12,242.09	-348.78	-205.44	-346.97	12.00	12.00	0.00
12,300.00	5.41	359.50	12,267.03	-347.07	-205.46	-345.27	12.00	12.00	0.00

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

Local Co-ordinate Reference: Well WA No. 7H
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)
12,325.00	8.41	359.50	12,291.85	-344.06	-205.48	-342.26	12.00	12.00	0.00
12,350.00	11.41	359.50	12,316.47	-339.76	-205.52	-337.95	12.00	12.00	0.00
12,375.00	14.41	359.50	12,340.84	-334.18	-205.57	-332.37	12.00	12.00	0.00
12,400.00	17.41	359.50	12,364.88	-327.32	-205.63	-325.52	12.00	12.00	0.00
12,425.00	20.41	359.50	12,388.53	-319.22	-205.70	-317.41	12.00	12.00	0.00
12,450.00	23.41	359.50	12,411.72	-309.89	-205.78	-308.08	12.00	12.00	0.00
12,475.00	26.41	359.50	12,434.39	-299.36	-205.88	-297.56	12.00	12.00	0.00
12,500.00	29.41	359.50	12,456.48	-287.66	-205.98	-285.85	12.00	12.00	0.00
12,525.00	32.41	359.50	12,477.92	-274.82	-206.09	-273.01	12.00	12.00	0.00
12,550.00	35.41	359.50	12,498.67	-260.88	-206.21	-259.07	12.00	12.00	0.00
12,575.00	38.41	359.50	12,518.66	-245.86	-206.35	-244.05	12.00	12.00	0.00
12,600.00	41.41	359.50	12,537.83	-229.83	-206.49	-228.01	12.00	12.00	0.00
12,625.00	44.41	359.50	12,556.14	-212.81	-206.63	-210.99	12.00	12.00	0.00
12,650.00	47.41	359.50	12,573.53	-194.85	-206.79	-193.04	12.00	12.00	0.00
12,675.00	50.41	359.50	12,589.96	-176.01	-206.96	-174.20	12.00	12.00	0.00
12,700.00	53.41	359.50	12,605.38	-156.34	-207.13	-154.53	12.00	12.00	0.00
12,725.00	56.41	359.50	12,619.75	-135.88	-207.31	-134.07	12.00	12.00	0.00
12,750.00	59.41	359.50	12,633.03	-114.71	-207.49	-112.89	12.00	12.00	0.00
12,775.00	62.41	359.50	12,645.18	-92.86	-207.69	-91.05	12.00	12.00	0.00
12,800.00	65.41	359.50	12,656.17	-70.41	-207.88	-68.60	12.00	12.00	0.00
12,825.00	68.41	359.50	12,665.97	-47.42	-208.08	-45.60	12.00	12.00	0.00
12,850.00	71.41	359.50	12,674.56	-23.94	-208.29	-22.13	12.00	12.00	0.00
12,875.00	74.41	359.50	12,681.90	-0.05	-208.50	1.77	12.00	12.00	0.00
12,900.00	77.41	359.50	12,687.99	24.19	-208.71	26.01	12.00	12.00	0.00
12,925.00	80.41	359.50	12,692.80	48.72	-208.93	50.54	12.00	12.00	0.00
12,950.00	83.41	359.50	12,696.31	73.47	-209.14	75.29	12.00	12.00	0.00
12,975.00	86.41	359.50	12,698.53	98.37	-209.36	100.19	12.00	12.00	0.00
13,000.00	89.41	359.50	12,699.44	123.35	-209.58	125.17	12.00	12.00	0.00
13,007.41	90.30	359.50	12,699.46	130.75	-209.64	132.58	12.00	12.00	0.00
13,100.00	90.30	359.50	12,698.97	223.34	-210.45	225.17	0.00	0.00	0.00
13,200.00	90.30	359.50	12,698.45	323.34	-211.33	325.17	0.00	0.00	0.00
13,300.00	90.30	359.50	12,697.92	423.33	-212.21	425.17	0.00	0.00	0.00
13,400.00	90.30	359.50	12,697.40	523.33	-213.08	525.17	0.00	0.00	0.00
13,500.00	90.30	359.50	12,696.87	623.32	-213.96	625.16	0.00	0.00	0.00
13,600.00	90.30	359.50	12,696.35	723.32	-214.83	725.16	0.00	0.00	0.00
13,700.00	90.30	359.50	12,695.82	823.31	-215.71	825.16	0.00	0.00	0.00
13,800.00	90.30	359.50	12,695.30	923.31	-216.59	925.16	0.00	0.00	0.00
13,900.00	90.30	359.50	12,694.77	1,023.30	-217.46	1,025.16	0.00	0.00	0.00
14,000.00	90.30	359.50	12,694.25	1,123.29	-218.34	1,125.16	0.00	0.00	0.00
14,100.00	90.30	359.50	12,693.72	1,223.29	-219.21	1,225.16	0.00	0.00	0.00
14,200.00	90.30	359.50	12,693.20	1,323.28	-220.09	1,325.15	0.00	0.00	0.00
14,300.00	90.30	359.50	12,692.67	1,423.28	-220.96	1,425.15	0.00	0.00	0.00

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

Local Co-ordinate Reference: Well WA No. 7H
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)
14,400.00	90.30	359.50	12,692.15	1,523.27	-221.84	1,525.15	0.00	0.00	0.00
14,500.00	90.30	359.50	12,691.62	1,623.27	-222.72	1,625.15	0.00	0.00	0.00
14,600.00	90.30	359.50	12,691.10	1,723.26	-223.59	1,725.15	0.00	0.00	0.00
14,700.00	90.30	359.50	12,690.57	1,823.26	-224.47	1,825.15	0.00	0.00	0.00
14,800.00	90.30	359.50	12,690.05	1,923.25	-225.34	1,925.15	0.00	0.00	0.00
14,900.00	90.30	359.50	12,689.52	2,023.25	-226.22	2,025.15	0.00	0.00	0.00
15,000.00	90.30	359.50	12,689.00	2,123.24	-227.10	2,125.14	0.00	0.00	0.00
15,100.00	90.30	359.50	12,688.47	2,223.24	-227.97	2,225.14	0.00	0.00	0.00
15,200.00	90.30	359.50	12,687.95	2,323.23	-228.85	2,325.14	0.00	0.00	0.00
15,300.00	90.30	359.50	12,687.42	2,423.23	-229.72	2,425.14	0.00	0.00	0.00
15,400.00	90.30	359.50	12,686.90	2,523.22	-230.60	2,525.14	0.00	0.00	0.00
15,500.00	90.30	359.50	12,686.37	2,623.22	-231.47	2,625.14	0.00	0.00	0.00
15,600.00	90.30	359.50	12,685.85	2,723.21	-232.35	2,725.14	0.00	0.00	0.00
15,700.00	90.30	359.50	12,685.32	2,823.21	-233.23	2,825.13	0.00	0.00	0.00
15,800.00	90.30	359.50	12,684.79	2,923.20	-234.10	2,925.13	0.00	0.00	0.00
15,900.00	90.30	359.50	12,684.27	3,023.20	-234.98	3,025.13	0.00	0.00	0.00
16,000.00	90.30	359.50	12,683.74	3,123.19	-235.85	3,125.13	0.00	0.00	0.00
16,100.00	90.30	359.50	12,683.22	3,223.19	-236.73	3,225.13	0.00	0.00	0.00
16,200.00	90.30	359.50	12,682.69	3,323.18	-237.60	3,325.13	0.00	0.00	0.00
16,300.00	90.30	359.50	12,682.17	3,423.18	-238.48	3,425.13	0.00	0.00	0.00
16,400.00	90.30	359.50	12,681.64	3,523.17	-239.36	3,525.12	0.00	0.00	0.00
16,500.00	90.30	359.50	12,681.12	3,623.16	-240.23	3,625.12	0.00	0.00	0.00
16,600.00	90.30	359.50	12,680.59	3,723.16	-241.11	3,725.12	0.00	0.00	0.00
16,700.00	90.30	359.50	12,680.07	3,823.15	-241.98	3,825.12	0.00	0.00	0.00
16,800.00	90.30	359.50	12,679.54	3,923.15	-242.86	3,925.12	0.00	0.00	0.00
16,900.00	90.30	359.50	12,679.02	4,023.14	-243.74	4,025.12	0.00	0.00	0.00
17,000.00	90.30	359.50	12,678.49	4,123.14	-244.61	4,125.12	0.00	0.00	0.00
17,100.00	90.30	359.50	12,677.97	4,223.13	-245.49	4,225.11	0.00	0.00	0.00
17,200.00	90.30	359.50	12,677.44	4,323.13	-246.36	4,325.11	0.00	0.00	0.00
17,300.00	90.30	359.50	12,676.92	4,423.12	-247.24	4,425.11	0.00	0.00	0.00
17,400.00	90.30	359.50	12,676.39	4,523.12	-248.11	4,525.11	0.00	0.00	0.00
17,500.00	90.30	359.50	12,675.87	4,623.11	-248.99	4,625.11	0.00	0.00	0.00
17,600.00	90.30	359.50	12,675.34	4,723.11	-249.87	4,725.11	0.00	0.00	0.00
17,700.00	90.30	359.50	12,674.82	4,823.10	-250.74	4,825.11	0.00	0.00	0.00
17,800.00	90.30	359.50	12,674.29	4,923.10	-251.62	4,925.11	0.00	0.00	0.00
17,900.00	90.30	359.50	12,673.77	5,023.09	-252.49	5,025.10	0.00	0.00	0.00
18,000.00	90.30	359.50	12,673.24	5,123.09	-253.37	5,125.10	0.00	0.00	0.00
18,100.00	90.30	359.50	12,672.72	5,223.08	-254.25	5,225.10	0.00	0.00	0.00
18,200.00	90.30	359.50	12,672.19	5,323.08	-255.12	5,325.10	0.00	0.00	0.00
18,300.00	90.30	359.50	12,671.67	5,423.07	-256.00	5,425.10	0.00	0.00	0.00
18,400.00	90.30	359.50	12,671.14	5,523.07	-256.87	5,525.10	0.00	0.00	0.00
18,500.00	90.30	359.50	12,670.62	5,623.06	-257.75	5,625.10	0.00	0.00	0.00

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

Local Co-ordinate Reference: Well WA No. 7H
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	12,670.09	5,723.06	-258.62	5,725.09	0.00	0.00	0.00
18,700.00	90.30	359.50	12,669.57	5,823.05	-259.50	5,825.09	0.00	0.00	0.00
18,800.00	90.30	359.50	12,669.04	5,923.04	-260.38	5,925.09	0.00	0.00	0.00
18,900.00	90.30	359.50	12,668.52	6,023.04	-261.25	6,025.09	0.00	0.00	0.00
19,000.00	90.30	359.50	12,667.99	6,123.03	-262.13	6,125.09	0.00	0.00	0.00
19,100.00	90.30	359.50	12,667.47	6,223.03	-263.00	6,225.09	0.00	0.00	0.00
19,200.00	90.30	359.50	12,666.94	6,323.02	-263.88	6,325.09	0.00	0.00	0.00
19,300.00	90.30	359.50	12,666.42	6,423.02	-264.76	6,425.08	0.00	0.00	0.00
19,400.00	90.30	359.50	12,665.89	6,523.01	-265.63	6,525.08	0.00	0.00	0.00
19,500.00	90.30	359.50	12,665.37	6,623.01	-266.51	6,625.08	0.00	0.00	0.00
19,600.00	90.30	359.50	12,664.84	6,723.00	-267.38	6,725.08	0.00	0.00	0.00
19,700.00	90.30	359.50	12,664.32	6,823.00	-268.26	6,825.08	0.00	0.00	0.00
19,800.00	90.30	359.50	12,663.79	6,922.99	-269.13	6,925.08	0.00	0.00	0.00
19,900.00	90.30	359.50	12,663.27	7,022.99	-270.01	7,025.08	0.00	0.00	0.00
20,000.00	90.30	359.50	12,662.74	7,122.98	-270.89	7,125.07	0.00	0.00	0.00
20,100.00	90.30	359.50	12,662.22	7,222.98	-271.76	7,225.07	0.00	0.00	0.00
20,200.00	90.30	359.50	12,661.69	7,322.97	-272.64	7,325.07	0.00	0.00	0.00
20,300.00	90.30	359.50	12,661.17	7,422.97	-273.51	7,425.07	0.00	0.00	0.00
20,400.00	90.30	359.50	12,660.64	7,522.96	-274.39	7,525.07	0.00	0.00	0.00
20,500.00	90.30	359.50	12,660.12	7,622.96	-275.26	7,625.07	0.00	0.00	0.00
20,600.00	90.30	359.50	12,659.59	7,722.95	-276.14	7,725.07	0.00	0.00	0.00
20,700.00	90.30	359.50	12,659.07	7,822.95	-277.02	7,825.07	0.00	0.00	0.00
20,800.00	90.30	359.50	12,658.54	7,922.94	-277.89	7,925.06	0.00	0.00	0.00
20,900.00	90.30	359.50	12,658.02	8,022.94	-278.77	8,025.06	0.00	0.00	0.00
21,000.00	90.30	359.50	12,657.49	8,122.93	-279.64	8,125.06	0.00	0.00	0.00
21,100.00	90.30	359.50	12,656.97	8,222.92	-280.52	8,225.06	0.00	0.00	0.00
21,200.00	90.30	359.50	12,656.44	8,322.92	-281.40	8,325.06	0.00	0.00	0.00
21,300.00	90.30	359.50	12,655.92	8,422.91	-282.27	8,425.06	0.00	0.00	0.00
21,400.00	90.30	359.50	12,655.39	8,522.91	-283.15	8,525.06	0.00	0.00	0.00
21,500.00	90.30	359.50	12,654.87	8,622.90	-284.02	8,625.05	0.00	0.00	0.00
21,600.00	90.30	359.50	12,654.34	8,722.90	-284.90	8,725.05	0.00	0.00	0.00
21,700.00	90.30	359.50	12,653.81	8,822.89	-285.77	8,825.05	0.00	0.00	0.00
21,800.00	90.30	359.50	12,653.29	8,922.89	-286.65	8,925.05	0.00	0.00	0.00
21,900.00	90.30	359.50	12,652.76	9,022.88	-287.53	9,025.05	0.00	0.00	0.00
22,000.00	90.30	359.50	12,652.24	9,122.88	-288.40	9,125.05	0.00	0.00	0.00
22,100.00	90.30	359.50	12,651.71	9,222.87	-289.28	9,225.05	0.00	0.00	0.00
22,200.00	90.30	359.50	12,651.19	9,322.87	-290.15	9,325.04	0.00	0.00	0.00
22,300.00	90.30	359.50	12,650.66	9,422.86	-291.03	9,425.04	0.00	0.00	0.00
22,400.00	90.30	359.50	12,650.14	9,522.86	-291.91	9,525.04	0.00	0.00	0.00
22,500.00	90.30	359.50	12,649.61	9,622.85	-292.78	9,625.04	0.00	0.00	0.00
22,600.00	90.30	359.50	12,649.09	9,722.85	-293.66	9,725.04	0.00	0.00	0.00
22,700.00	90.30	359.50	12,648.56	9,822.84	-294.53	9,825.04	0.00	0.00	0.00

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

Local Co-ordinate Reference: Well WA No. 7H
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)
22,800.00	90.30	359.50	12,648.04	9,922.84	-295.41	9,925.04	0.00	0.00	0.00
22,883.53	90.30	359.50	12,647.60	10,006.36	-296.14	10,008.56	0.00	0.00	0.00

[Mammoth1#7H]LTP/BHL

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target - Shape									
[Mammoth1#7H]FTP	0.00	0.00	12,222.00	-349.20	-205.44	388,662.98	780,633.84	32.065312	-103.427421
- plan hits target center - Point									
[Mammoth1#7H]LTP/BH	0.00	0.00	12,647.60	10,006.36	-296.14	399,018.54	780,543.14	32.093779	-103.427434
- plan hits target center - Point									

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
11,932.90	11,900.00	9 5/8"	9-5/8	12-1/4

Checked By: _____ Approved By: _____ Date: _____

**PECOS DISTRICT
DRILLING OPERATIONS
CONDITIONS OF APPROVAL for EC489898**

OPERATOR'S NAME:	Marathon Oil Permian LLC
LEASE NO.:	NMNM113970
WELL NAME & NO.:	Mammoth 1 WA Fed Com 7H
SURFACE HOLE FOOTAGE:	448' FSL & 1539' FWL
BOTTOM HOLE FOOTAGE:	100' FNL & 1331' 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