

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM 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**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		8. Well Name and No. DOGIE DRAW FED COM 25 34 14 TB 1H
2. Name of Operator MARATHON OIL PERMIAN LLC Contact: JENNIFER VAN CUREN E-Mail: jvancuren@marathonoil.co		9. API Well No. 30-025-45092-00-X1
3a. Address 5555 SAN FELIPE STREET HOUSTON, TX 77056	3b. Phone No. (include area code) Ph: 713-296-2500 <i>Carlsbad Field Office</i>	10. Field and Pool or Exploratory Area RED HILLS-BONE SPRINGS
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 14 T25S R34E NWSW 2600FSL 626FWL 32.130268 N Lat, 103.446800 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 recomple 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 recomple 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 Permian LLC. respectfully requests to make changes to the approved APD. Including:

1) Change Casing design to add additional string of 7-in. casing, production string will become 4-1/2-in Liner.

2) Revised cement volumes due to change in casing scheme

3) Request a variance to use a multibowl wellhead.

Please see email with attachments for details.
Changes are highlighted in yellow.**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct. Electronic Submission #451070 verified by the BLM Well Information System For MARATHON OIL PERMIAN LLC, sent to the Hobbs Committed to AFMSS for processing by ZOTA STEVENS on 01/18/2019 (19ZS0019SE)	
Name (Printed/Typed) JENNIFER VAN CUREN	Title SR. REGULATORY COMPLIANCE REP
Signature (Electronic Submission)	Date 01/18/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>ZOTA STEVENS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>01/18/2019</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 <u>Hobbs</u>

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 *****KZ*

Marathon Oil Permian, LLC

Dogie Draw Fed Com 25 34 1 1H

API# 30-025-45092

Lea County, New Mexico

Drilling Program Changes

1. Casing Changes:

- Change casing design to add additional string of 7" casing, production string will become 4-1/2" Liner

String Type	Hole Size	Csg Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Weight (lbs/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
Surface	17 1/2	13 3/8	0	1000	0	1000	54.5	J55	BTC	1.5	1.5	1.5
Intermediate I	12 1/4	9 5/8	0	1100	0	1100	40	J55	BTC	1.5	1.5	1.5
Intermediate II	8 3/4	7	0	1150	0	1150	30	P110	BTC	1.5	1.5	1.5
Production Liner	4 1/2	4 1/2	1150	1300	1150	1200	13.5	P110	BTC	1.5	1.5	1.5

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

2. Cementing Program:

Changes:

- Revised cement volumes due to change in casing scheme

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity (sk)	Yield (ft ³ /sk)	Density (ppg)	Slurry Volume (ft ³)	Excess (%)	Cement Type	Additives
Surface	Lead	--	0	800	642	1.73	13.5	1111	100	Class C	3 lbm/sk granular LCM + 0.1250 lbm/sk Poly-E-Flake
Surface	Tail	--	800	1000	209	1.33	14.8	278	100	Class C	N/A
Intermediate I	Lead	--	0	4400	1091	2.21	12.8	2412	75	Class C	0.02 Gal/Sk Defoamer + 0.5% Extender + 1% Accelerator
Intermediate I	Tail	--	1400	5400	353	1.33	14.8	470	50	Class C	0.3 % Retarder
Intermediate II	Lead	--	5100	10600	358	1.21	11	1406	70	Class C	10% extender + 0.02% Defoamer + 0.02% retarder + 0.02% dispersant
Intermediate II	Tail	--	10600	11650	178	1.15	13.8	205	30	Class H	10% extender + 0.15% Dispersant + 0.03% retarder
Production Liner	Tail	--	11350	15914	359	1.21	14.5	1048	30	Class H	0.1% Retarder + 3.5% extender + 0.3% fluid loss + 0.1% Dispersant

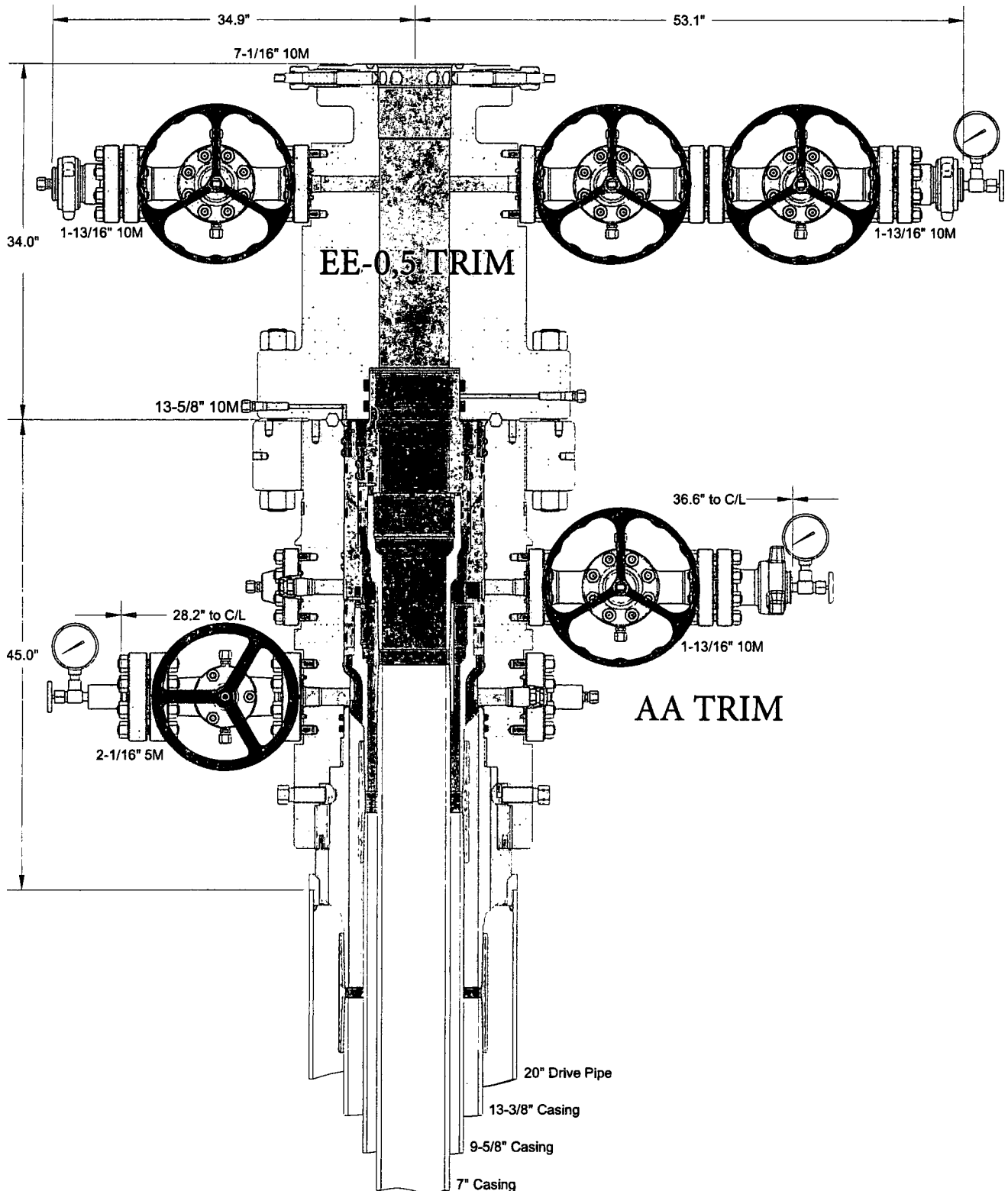
3. Wellhead:

Changes:

A variance is requested to use a multibowl wellhead. 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.

A landing ring will be installed on the 20" conductor. A hanger will be installed on the surface casing that will land on the landing ring. The hanger will hold the surface casing in tension during the WOC duration. The wellhead will be installed on the surface casing.
See attached wellhead schematic.

WH&TH Design # 2



INFORMATION CONTAINED HEREIN IS THE PROPERTY OF CACTUS WELLHEAD, LLC. REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PERMISSIBLE ONLY AS PROVIDED BY CONTRACT OR AS EXPRESSLY AUTHORIZED BY CACTUS WELLHEAD, LLC.

CACTUS WELLHEAD LLC

MARATHON OIL COMPANY

20" x 13-3/8" x 9-5/8" x 7" MBU-3T-CFL-R-DBLO Wellhead
 13-5/8" 10M x 7-1/16" 10M CTH-DBLHPS Tubing Head (34" LG)
 Utilizing Pin Down Mandrel Casing Hangers

DRAWN	DLE	23AUG17
APPRV		
DRAWING NO.	ODE0001825	

Database:	WellPlanner1	Local Co-ordinate Reference:	Well TB #1H
Company:	Marathon Oil	TVD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Project:	Lea County, NM	MD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Site:	Dogie Draw Fed Com 25-34-14	North Reference:	Grid
Well:	TB #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan B		

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:	Dogie Draw Fed Com 25-34-14				
Site Position:		Northing:	412,243.02 usft	Latitude:	32.130268
From:	Map	Easting:	774,436.00 usft	Longitude:	-103.446801
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.47 °

Well	TB #1H				
Well Position	+N/-S	0.00 usft	Northing:	412,243.02 usft	Latitude: 32.130268
	+E/-W	0.00 usft	Easting:	774,436.00 usft	Longitude: -103.446801
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level: 3,331.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/26/2018	6.67	59.78	47,845.80

Design	Prelim Plan B				
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	179.52	

Plan Survey Tool Program		Date 11/29/2018			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,850.00 Prelim Plan B (OH)	MWD+HDGM	OWSG MWD + HRGM	
2	1,850.00	5,400.00 Prelim Plan B (OH)	MWD+HDGM	OWSG MWD + HRGM	
3	5,400.00	10,000.00 Prelim Plan B (OH)	MWD+HDGM	OWSG MWD + HRGM	
4	10,000.00	19,914.10 Prelim Plan B (OH)	MWD+HDGM	OWSG MWD + HRGM	

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Well:	TB #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan B		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
2,200.00	2.00	180.00	2,199.96	-3.49	0.00	1.00	1.00	0.00	180.00	
3,100.00	2.00	180.00	3,099.41	-34.90	0.00	0.00	0.00	0.00	0.00	
3,402.74	2.00	81.68	3,402.04	-39.42	5.23	1.00	0.00	-32.48	-139.12	
4,177.01	2.00	81.68	4,175.83	-35.51	32.00	0.00	0.00	0.00	0.00	
4,377.22	0.00	0.00	4,376.00	-35.00	35.46	1.00	-1.00	0.00	180.00	
11,899.22	0.00	0.00	11,898.00	-35.00	35.46	0.00	0.00	0.00	0.00	[DogieDraw#1H]Newt
12,645.05	89.50	179.52	12,375.45	-508.28	39.41	12.00	12.00	24.07	179.52	
19,914.46	89.50	179.52	12,438.88	-7,777.16	100.00	0.00	0.00	0.00	0.00	[DogieDraw#1H]LTP/i

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Project:	Lea County, NM	MD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Site:	Dogie Draw Fed Com 25-34-14	North Reference:	Grid
Well:	TB #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan B		

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
[DogieDraw#1H]FTP									
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
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
1,200.00	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	1.00	180.00	2,099.99	-0.87	0.00	0.87	1.00	1.00	0.00
2,200.00	2.00	180.00	2,199.96	-3.49	0.00	3.49	1.00	1.00	0.00
2,300.00	2.00	180.00	2,299.90	-6.98	0.00	6.98	0.00	0.00	0.00
2,400.00	2.00	180.00	2,399.84	-10.47	0.00	10.47	0.00	0.00	0.00
2,500.00	2.00	180.00	2,499.78	-13.96	0.00	13.96	0.00	0.00	0.00
2,600.00	2.00	180.00	2,599.72	-17.45	0.00	17.45	0.00	0.00	0.00
2,700.00	2.00	180.00	2,699.65	-20.94	0.00	20.94	0.00	0.00	0.00
2,800.00	2.00	180.00	2,799.59	-24.43	0.00	24.43	0.00	0.00	0.00
2,900.00	2.00	180.00	2,899.53	-27.92	0.00	27.92	0.00	0.00	0.00
3,000.00	2.00	180.00	2,999.47	-31.41	0.00	31.41	0.00	0.00	0.00
3,100.00	2.00	180.00	3,099.41	-34.90	0.00	34.90	0.00	0.00	0.00
3,200.00	1.41	152.25	3,199.37	-37.73	0.57	37.73	1.00	-0.59	-27.75
3,300.00	1.40	110.43	3,299.34	-39.24	2.28	39.26	1.00	-0.01	-41.81
3,402.74	2.00	81.68	3,402.04	-39.42	5.23	39.46	1.00	0.59	-27.98
3,500.00	2.00	81.68	3,499.24	-38.93	8.60	39.00	0.00	0.00	0.00
3,600.00	2.00	81.68	3,599.18	-38.42	12.05	38.52	0.00	0.00	0.00
3,700.00	2.00	81.68	3,699.12	-37.92	15.51	38.05	0.00	0.00	0.00
3,800.00	2.00	81.68	3,799.05	-37.41	18.97	37.57	0.00	0.00	0.00
3,900.00	2.00	81.68	3,898.99	-36.91	22.42	37.09	0.00	0.00	0.00
4,000.00	2.00	81.68	3,998.93	-36.40	25.88	36.62	0.00	0.00	0.00
4,100.00	2.00	81.68	4,098.87	-35.90	29.34	36.14	0.00	0.00	0.00
4,177.01	2.00	81.68	4,175.83	-35.51	32.00	35.77	0.00	0.00	0.00
4,200.00	1.77	81.68	4,198.81	-35.40	32.75	35.67	1.00	-1.00	0.00
4,300.00	0.77	81.68	4,298.79	-35.08	34.95	35.37	1.00	-1.00	0.00
4,377.22	0.00	0.00	4,376.00	-35.00	35.46	35.30	1.00	-1.00	0.00
4,400.00	0.00	0.00	4,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
4,500.00	0.00	0.00	4,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
4,600.00	0.00	0.00	4,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
4,700.00	0.00	0.00	4,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
4,800.00	0.00	0.00	4,798.78	-35.00	35.46	35.30	0.00	0.00	0.00

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Wellbore:	OH		
Design:	Prelim Plan B		

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)
4,900.00	0.00	0.00	4,898.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,000.00	0.00	0.00	4,998.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,100.00	0.00	0.00	5,098.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,200.00	0.00	0.00	5,198.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,300.00	0.00	0.00	5,298.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,400.00	0.00	0.00	5,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,500.00	0.00	0.00	5,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,600.00	0.00	0.00	5,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,700.00	0.00	0.00	5,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,800.00	0.00	0.00	5,798.78	-35.00	35.46	35.30	0.00	0.00	0.00
5,900.00	0.00	0.00	5,898.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,000.00	0.00	0.00	5,998.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,100.00	0.00	0.00	6,098.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,200.00	0.00	0.00	6,198.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,300.00	0.00	0.00	6,298.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,400.00	0.00	0.00	6,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,500.00	0.00	0.00	6,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,600.00	0.00	0.00	6,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,700.00	0.00	0.00	6,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,800.00	0.00	0.00	6,798.78	-35.00	35.46	35.30	0.00	0.00	0.00
6,900.00	0.00	0.00	6,898.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,000.00	0.00	0.00	6,998.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,100.00	0.00	0.00	7,098.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,200.00	0.00	0.00	7,198.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,300.00	0.00	0.00	7,298.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,400.00	0.00	0.00	7,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,500.00	0.00	0.00	7,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,600.00	0.00	0.00	7,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,700.00	0.00	0.00	7,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,800.00	0.00	0.00	7,798.78	-35.00	35.46	35.30	0.00	0.00	0.00
7,900.00	0.00	0.00	7,898.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,000.00	0.00	0.00	7,998.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,100.00	0.00	0.00	8,098.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,200.00	0.00	0.00	8,198.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,300.00	0.00	0.00	8,298.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,400.00	0.00	0.00	8,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,500.00	0.00	0.00	8,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,600.00	0.00	0.00	8,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,700.00	0.00	0.00	8,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,800.00	0.00	0.00	8,798.78	-35.00	35.46	35.30	0.00	0.00	0.00
8,900.00	0.00	0.00	8,898.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,000.00	0.00	0.00	8,998.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,100.00	0.00	0.00	9,098.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,200.00	0.00	0.00	9,198.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,300.00	0.00	0.00	9,298.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,400.00	0.00	0.00	9,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,500.00	0.00	0.00	9,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,600.00	0.00	0.00	9,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,700.00	0.00	0.00	9,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,800.00	0.00	0.00	9,798.78	-35.00	35.46	35.30	0.00	0.00	0.00
9,900.00	0.00	0.00	9,898.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,000.00	0.00	0.00	9,998.78	-35.00	35.46	35.30	0.00	0.00	0.00

Database:	WellPlanner1	Local Co-ordinate Reference:	Well TB #1H
Company:	Marathon Oil	TVD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Project:	Lea County, NM	MD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Site:	Dogie Draw Fed Com 25-34-14	North Reference:	Grid
Well:	TB #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan B		

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)
10,100.00	0.00	0.00	10,098.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,200.00	0.00	0.00	10,198.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,300.00	0.00	0.00	10,298.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,400.00	0.00	0.00	10,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,500.00	0.00	0.00	10,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,600.00	0.00	0.00	10,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,700.00	0.00	0.00	10,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,800.00	0.00	0.00	10,798.78	-35.00	35.46	35.30	0.00	0.00	0.00
10,900.00	0.00	0.00	10,898.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,000.00	0.00	0.00	10,998.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,100.00	0.00	0.00	11,098.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,200.00	0.00	0.00	11,198.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,300.00	0.00	0.00	11,298.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,400.00	0.00	0.00	11,398.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,500.00	0.00	0.00	11,498.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,600.00	0.00	0.00	11,598.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,700.00	0.00	0.00	11,698.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,800.00	0.00	0.00	11,798.78	-35.00	35.46	35.30	0.00	0.00	0.00
11,899.22	0.00	0.00	11,898.00	-35.00	35.46	35.30	0.00	0.00	0.00
[DogieDraw#1H]NewKOP									
11,925.00	3.09	179.52	11,923.77	-35.70	35.47	35.99	12.00	12.00	0.00
11,950.00	6.09	179.52	11,948.69	-37.70	35.48	37.99	12.00	12.00	0.00
11,975.00	9.09	179.52	11,973.47	-41.00	35.51	41.30	12.00	12.00	0.00
12,000.00	12.09	179.52	11,998.04	-45.60	35.55	45.89	12.00	12.00	0.00
12,025.00	15.09	179.52	12,022.33	-51.47	35.60	51.77	12.00	12.00	0.00
12,050.00	18.09	179.52	12,046.29	-58.61	35.66	58.91	12.00	12.00	0.00
12,075.00	21.09	179.52	12,069.84	-66.99	35.73	67.29	12.00	12.00	0.00
12,100.00	24.09	179.52	12,092.92	-76.60	35.81	76.89	12.00	12.00	0.00
12,125.00	27.09	179.52	12,115.46	-87.40	35.90	87.69	12.00	12.00	0.00
12,150.00	30.09	179.52	12,137.41	-99.36	36.00	99.66	12.00	12.00	0.00
12,175.00	33.09	179.52	12,158.70	-112.45	36.11	112.75	12.00	12.00	0.00
12,200.00	36.09	179.52	12,179.28	-126.65	36.22	126.94	12.00	12.00	0.00
12,225.00	39.09	179.52	12,199.09	-141.89	36.35	142.19	12.00	12.00	0.00
12,250.00	42.09	179.52	12,218.07	-158.16	36.49	158.46	12.00	12.00	0.00
12,275.00	45.09	179.52	12,236.17	-175.40	36.63	175.70	12.00	12.00	0.00
12,300.00	48.09	179.52	12,253.35	-193.56	36.78	193.86	12.00	12.00	0.00
12,325.00	51.09	179.52	12,269.55	-212.59	36.94	212.89	12.00	12.00	0.00
12,350.00	54.09	179.52	12,284.74	-232.45	37.11	232.75	12.00	12.00	0.00
12,375.00	57.09	179.52	12,298.86	-253.07	37.28	253.37	12.00	12.00	0.00
12,400.00	60.09	179.52	12,311.89	-274.40	37.46	274.71	12.00	12.00	0.00
12,425.00	63.09	179.52	12,323.78	-296.39	37.64	296.69	12.00	12.00	0.00
12,450.00	66.09	179.52	12,334.50	-318.97	37.83	319.27	12.00	12.00	0.00
12,475.00	69.09	179.52	12,344.03	-342.08	38.02	342.38	12.00	12.00	0.00
12,500.00	72.09	179.52	12,352.34	-365.65	38.22	365.96	12.00	12.00	0.00
12,525.00	75.09	179.52	12,359.40	-389.63	38.42	389.94	12.00	12.00	0.00
12,550.00	78.09	179.52	12,365.19	-413.95	38.62	414.26	12.00	12.00	0.00
12,575.00	81.09	179.52	12,369.71	-438.53	38.82	438.84	12.00	12.00	0.00
12,600.00	84.09	179.52	12,372.93	-463.32	39.03	463.63	12.00	12.00	0.00
12,625.00	87.09	179.52	12,374.85	-488.24	39.24	488.55	12.00	12.00	0.00
12,645.05	89.50	179.52	12,375.45	-508.28	39.41	508.59	12.00	12.00	0.00
12,700.00	89.50	179.52	12,375.93	-563.23	39.86	563.54	0.00	0.00	0.00
12,800.00	89.50	179.52	12,376.80	-663.22	40.70	663.54	0.00	0.00	0.00

Database:	WellPlanner1	Local Co-ordinate Reference:	Well TB #1H
Company:	Marathon Oil	TVD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Project:	Lea County, NM	MD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Site:	Dogie Draw Fed Com 25-34-14	North Reference:	Grid
Well:	TB #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan B		

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)
12,900.00	89.50	179.52	12,377.67	-763.21	41.53	763.53	0.00	0.00	0.00
13,000.00	89.50	179.52	12,378.54	-863.21	42.36	863.53	0.00	0.00	0.00
13,100.00	89.50	179.52	12,379.42	-963.20	43.20	963.53	0.00	0.00	0.00
13,200.00	89.50	179.52	12,380.29	-1,063.19	44.03	1,063.52	0.00	0.00	0.00
13,300.00	89.50	179.52	12,381.16	-1,163.18	44.86	1,163.52	0.00	0.00	0.00
13,400.00	89.50	179.52	12,382.03	-1,263.18	45.70	1,263.52	0.00	0.00	0.00
13,500.00	89.50	179.52	12,382.91	-1,363.17	46.53	1,363.51	0.00	0.00	0.00
13,600.00	89.50	179.52	12,383.78	-1,463.16	47.37	1,463.51	0.00	0.00	0.00
13,700.00	89.50	179.52	12,384.65	-1,563.16	48.20	1,563.50	0.00	0.00	0.00
13,800.00	89.50	179.52	12,385.53	-1,663.15	49.03	1,663.50	0.00	0.00	0.00
13,900.00	89.50	179.52	12,386.40	-1,763.14	49.87	1,763.50	0.00	0.00	0.00
14,000.00	89.50	179.52	12,387.27	-1,863.13	50.70	1,863.49	0.00	0.00	0.00
14,100.00	89.50	179.52	12,388.14	-1,963.13	51.53	1,963.49	0.00	0.00	0.00
14,200.00	89.50	179.52	12,389.02	-2,063.12	52.37	2,063.49	0.00	0.00	0.00
14,300.00	89.50	179.52	12,389.89	-2,163.11	53.20	2,163.48	0.00	0.00	0.00
14,400.00	89.50	179.52	12,390.76	-2,263.10	54.03	2,263.48	0.00	0.00	0.00
14,500.00	89.50	179.52	12,391.63	-2,363.10	54.87	2,363.47	0.00	0.00	0.00
14,600.00	89.50	179.52	12,392.51	-2,463.09	55.70	2,463.47	0.00	0.00	0.00
14,700.00	89.50	179.52	12,393.38	-2,563.08	56.53	2,563.47	0.00	0.00	0.00
14,800.00	89.50	179.52	12,394.25	-2,663.08	57.37	2,663.46	0.00	0.00	0.00
14,900.00	89.50	179.52	12,395.12	-2,763.07	58.20	2,763.46	0.00	0.00	0.00
15,000.00	89.50	179.52	12,396.00	-2,863.06	59.04	2,863.45	0.00	0.00	0.00
15,100.00	89.50	179.52	12,396.87	-2,963.05	59.87	2,963.45	0.00	0.00	0.00
15,200.00	89.50	179.52	12,397.74	-3,063.05	60.70	3,063.45	0.00	0.00	0.00
15,300.00	89.50	179.52	12,398.61	-3,163.04	61.54	3,163.44	0.00	0.00	0.00
15,400.00	89.50	179.52	12,399.49	-3,263.03	62.37	3,263.44	0.00	0.00	0.00
15,500.00	89.50	179.52	12,400.36	-3,363.02	63.20	3,363.44	0.00	0.00	0.00
15,600.00	89.50	179.52	12,401.23	-3,463.02	64.04	3,463.43	0.00	0.00	0.00
15,700.00	89.50	179.52	12,402.10	-3,563.01	64.87	3,563.43	0.00	0.00	0.00
15,800.00	89.50	179.52	12,402.98	-3,663.00	65.70	3,663.42	0.00	0.00	0.00
15,900.00	89.50	179.52	12,403.85	-3,763.00	66.54	3,763.42	0.00	0.00	0.00
16,000.00	89.50	179.52	12,404.72	-3,862.99	67.37	3,863.42	0.00	0.00	0.00
16,100.00	89.50	179.52	12,405.60	-3,962.98	68.20	3,963.41	0.00	0.00	0.00
16,200.00	89.50	179.52	12,406.47	-4,062.97	69.04	4,063.41	0.00	0.00	0.00
16,300.00	89.50	179.52	12,407.34	-4,162.97	69.87	4,163.41	0.00	0.00	0.00
16,400.00	89.50	179.52	12,408.21	-4,262.96	70.71	4,263.40	0.00	0.00	0.00
16,500.00	89.50	179.52	12,409.09	-4,362.95	71.54	4,363.40	0.00	0.00	0.00
16,600.00	89.50	179.52	12,409.96	-4,462.94	72.37	4,463.39	0.00	0.00	0.00
16,700.00	89.50	179.52	12,410.83	-4,562.94	73.21	4,563.39	0.00	0.00	0.00
16,800.00	89.50	179.52	12,411.70	-4,662.93	74.04	4,663.39	0.00	0.00	0.00
16,900.00	89.50	179.52	12,412.58	-4,762.92	74.87	4,763.38	0.00	0.00	0.00
17,000.00	89.50	179.52	12,413.45	-4,862.91	75.71	4,863.38	0.00	0.00	0.00
17,100.00	89.50	179.52	12,414.32	-4,962.91	76.54	4,963.37	0.00	0.00	0.00
17,200.00	89.50	179.52	12,415.19	-5,062.90	77.37	5,063.37	0.00	0.00	0.00
17,300.00	89.50	179.52	12,416.07	-5,162.89	78.21	5,163.37	0.00	0.00	0.00
17,400.00	89.50	179.52	12,416.94	-5,262.89	79.04	5,263.36	0.00	0.00	0.00
17,500.00	89.50	179.52	12,417.81	-5,362.88	79.87	5,363.36	0.00	0.00	0.00
17,600.00	89.50	179.52	12,418.68	-5,462.87	80.71	5,463.36	0.00	0.00	0.00
17,700.00	89.50	179.52	12,419.56	-5,562.86	81.54	5,563.35	0.00	0.00	0.00
17,800.00	89.50	179.52	12,420.43	-5,662.86	82.37	5,663.35	0.00	0.00	0.00
17,900.00	89.50	179.52	12,421.30	-5,762.85	83.21	5,763.34	0.00	0.00	0.00
18,000.00	89.50	179.52	12,422.17	-5,862.84	84.04	5,863.34	0.00	0.00	0.00

Database:	WellPlanner1	Local Co-ordinate Reference:	Well TB #1H
Company:	Marathon Oil	TVD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Project:	Lea County, NM	MD Reference:	Well @ 3357.50usft (GL: 3331' + KB: 26.5' (H&P498))
Site:	Dogie Draw Fed Com 25-34-14	North Reference:	Grid
Well:	TB #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan B		

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)
18,100.00	89.50	179.52	12,423.05	-5,962.83	84.88	5,963.34	0.00	0.00	0.00
18,200.00	89.50	179.52	12,423.92	-6,062.83	85.71	6,063.33	0.00	0.00	0.00
18,300.00	89.50	179.52	12,424.79	-6,162.82	86.54	6,163.33	0.00	0.00	0.00
18,400.00	89.50	179.52	12,425.67	-6,262.81	87.38	6,263.33	0.00	0.00	0.00
18,500.00	89.50	179.52	12,426.54	-6,362.81	88.21	6,363.32	0.00	0.00	0.00
18,600.00	89.50	179.52	12,427.41	-6,462.80	89.04	6,463.32	0.00	0.00	0.00
18,700.00	89.50	179.52	12,428.28	-6,562.79	89.88	6,563.31	0.00	0.00	0.00
18,800.00	89.50	179.52	12,429.16	-6,662.78	90.71	6,663.31	0.00	0.00	0.00
18,900.00	89.50	179.52	12,430.03	-6,762.78	91.54	6,763.31	0.00	0.00	0.00
19,000.00	89.50	179.52	12,430.90	-6,862.77	92.38	6,863.30	0.00	0.00	0.00
19,100.00	89.50	179.52	12,431.77	-6,962.76	93.21	6,963.30	0.00	0.00	0.00
19,200.00	89.50	179.52	12,432.65	-7,062.75	94.04	7,063.29	0.00	0.00	0.00
19,300.00	89.50	179.52	12,433.52	-7,162.75	94.88	7,163.29	0.00	0.00	0.00
19,400.00	89.50	179.52	12,434.39	-7,262.74	95.71	7,263.29	0.00	0.00	0.00
19,500.00	89.50	179.52	12,435.26	-7,362.73	96.55	7,363.28	0.00	0.00	0.00
19,600.00	89.50	179.52	12,436.14	-7,462.73	97.38	7,463.28	0.00	0.00	0.00
19,700.00	89.50	179.52	12,437.01	-7,562.72	98.21	7,563.28	0.00	0.00	0.00
19,800.00	89.50	179.52	12,437.88	-7,662.71	99.05	7,663.27	0.00	0.00	0.00
19,900.00	89.50	179.52	12,438.75	-7,762.70	99.88	7,763.27	0.00	0.00	0.00
19,914.46	89.50	179.52	12,438.88	-7,777.16	100.00	7,777.73	0.00	0.00	0.00

[DogieDraw#1H]LTP/BHL

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marathon Oil Permian
LEASE NO.:	NM136221
WELL NAME & NO.:	1H – Dogie Draw Federal 25 34 14 TB
SURFACE HOLE FOOTAGE:	2600'/S & 626'/W
BOTTOM HOLE FOOTAGE	330'/S & 330'/W, sec. 23
LOCATION:	Sec. 14, T. 25 S, R. 34 E
COUNTY:	Lea County, New Mexico

COA

All previous COAs still apply expect the following:

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

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately 1000 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the 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 six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of 8 hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

3. The minimum required fill of cement behind the 7 inch production casing is:

- Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. The minimum required fill of cement behind the 4-1/2 inch production liner is:

- Cement should tie-back at least 100 feet into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 10,000 (10M) psi.

Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.

During office hours call (575) 627-0272.

After office hours call (575)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,

(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)

393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. **The operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).**
 - b. **The operator proposes to set surface casing with Spudder Rig**
 - **Notify the BLM when moving in and removing the Spudder Rig.**
 - **Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.**
 - **BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.**
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition

to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the

plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

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