

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		5. Lease Serial No. NMNM85939	
2. Name of Operator MARATHON OIL PERMIAN, LLC		6. Indian, Allottee or Tribe Name	
3a. Address 5555 SAN FELIPE STREET HOUSTON, TX 77056		7. Unit or CA/Agreement, Name and/or No.	
3b. Phone No. (include area code) Ph 713-296-8179		8. Well Name and No. COLIBRI FEDERAL 23H	
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 10 T23S R32E Mer NMP NWNE 230FNL 2200FEL		9. API Well No. 30-025-42181	
10. Field and Pool or Exploratory Area DIAMOND TAIL		11. County or Parish, State LEA COUNTY, NM	

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

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

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

Marathon Oil Permian, LLC respectfully requests to make the following changes to the original APD for this well:

Name Change - Colibri Federal 23-32-10 FB 2014
SHL
BHL
Target Formation/Drill Depth
Testing, Logging and Coring
Cement and Casing
Well Head

SEE ATTACHED FOR
CONDITIONS OF APPROV

Please see supporting documentation attached.

Approved CCR 03/20/2018. DOI-BLM-NM-PD20-2014-1491-EA. Same CDA's apply.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #401961 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 01/31/2018 ()	
Name (Printed/Typed) MELISSA B SZUDERA	Title REGULATORY COMPLIANCE REP
Signature (Electronic Submission)	Date 01/23/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____	Title _____	Date _____
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 _____		

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 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)

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

KZ

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: (505) 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 30-025-42181	² Pool Code 17644	³ Pool Name DIAMONDTAIL; BONE SPRING
⁴ Property Code 313792	⁵ Property Name COLIBRI FEDERAL 23-32-10 FB	⁶ Well Number 20H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN, LLC	⁹ Elevation 3705'

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
B	10	T23S	R32E		212	NORTH	2222	EAST	LEA

¹¹ Bottom Hole Location If Different From Surface

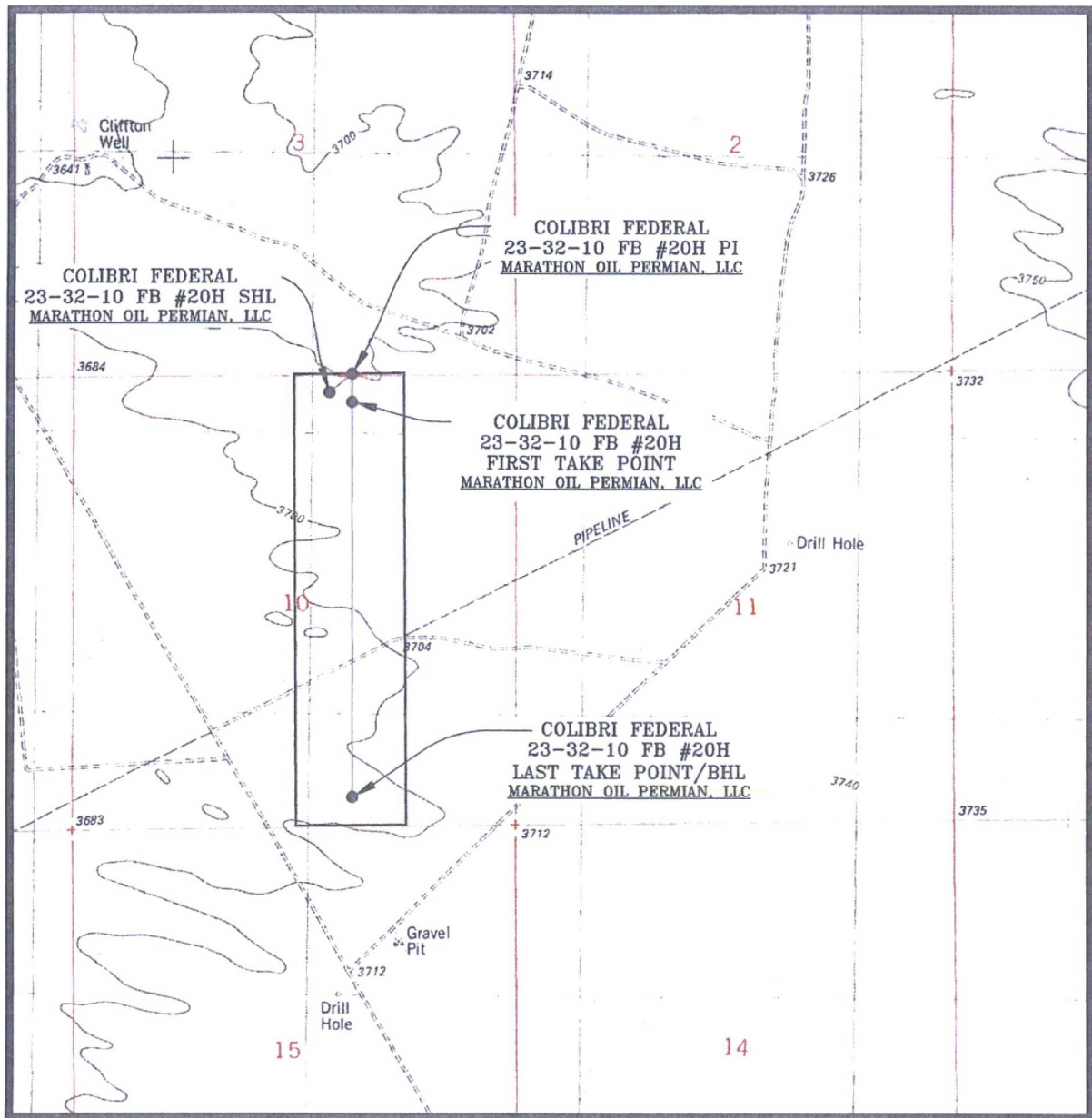
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	10	T23S	R32E		330	SOUTH	1982	EAST	LEA

¹² Dedicated Acres 160.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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.

SECTION 4 SECTION 9 SECTION 16	SECTION 3 CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 748541.66' / Y: 483138.93' B - X: 749862.60' / Y: 483152.48' C - X: 749898.03' / Y: 477868.15' D - X: 748577.33' / Y: 477856.57'	SECTION 10 SURFACE HOLE LOCATION 212' FNL 2222' FEL NAD 83, SPCS NM EAST X: 748963.88' / Y: 482931.36' LAT: 32.32586002N / LDN: 103.66116348W NAD 27, SPCS NM EAST X: 707780.82' / Y: 482871.52' LAT: 32.32573680N / LDN: 103.66067888W FIRST TAKE POINT 330' FNL 1983' FEL NAD 83, SPCS NM EAST X: 749204.35' / Y: 482815.71' LAT: 32.32553809N / LDN: 103.66038744W NAD 27, SPCS NM EAST X: 708021.28' / Y: 482755.87' LAT: 32.32541487N / LDN: 103.65990287W LAST TAKE POINT/BOTTOM HOLE LOCATION 330' FSL 1982' FEL NAD 83, SPCS NM EAST X: 749235.46' / Y: 478192.35' LAT: 32.3282944N / LDN: 103.66038072W NAD 27, SPCS NM EAST X: 708052.27' / Y: 478132.64' LAT: 32.3270617N / LDN: 103.65989661W	SECTION 2 SECTION 11 SECTION 12 SECTION 13 SECTION 14	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 Signature <u>Melissa Szudera</u> Date <u>01/23/2018</u> Printed Name <u>Melissa Szudera</u> E-mail Address <u>mszudera@marathonoil.com</u> 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. NOVEMBER 27, 2017 Date of Survey Signature and Seal of Professional Surveyor Certificate Number <u>LLOYD P. SHORT 21653</u>	
	SECTION 10 SECTION 15				SECTION 11 SECTION 12 SECTION 13 SECTION 14
	SECTION 11 SECTION 12 SECTION 13 SECTION 14				SECTION 15 SECTION 16
	SECTION 15 SECTION 16				SECTION 16

LOCATION VERIFICATION MAP

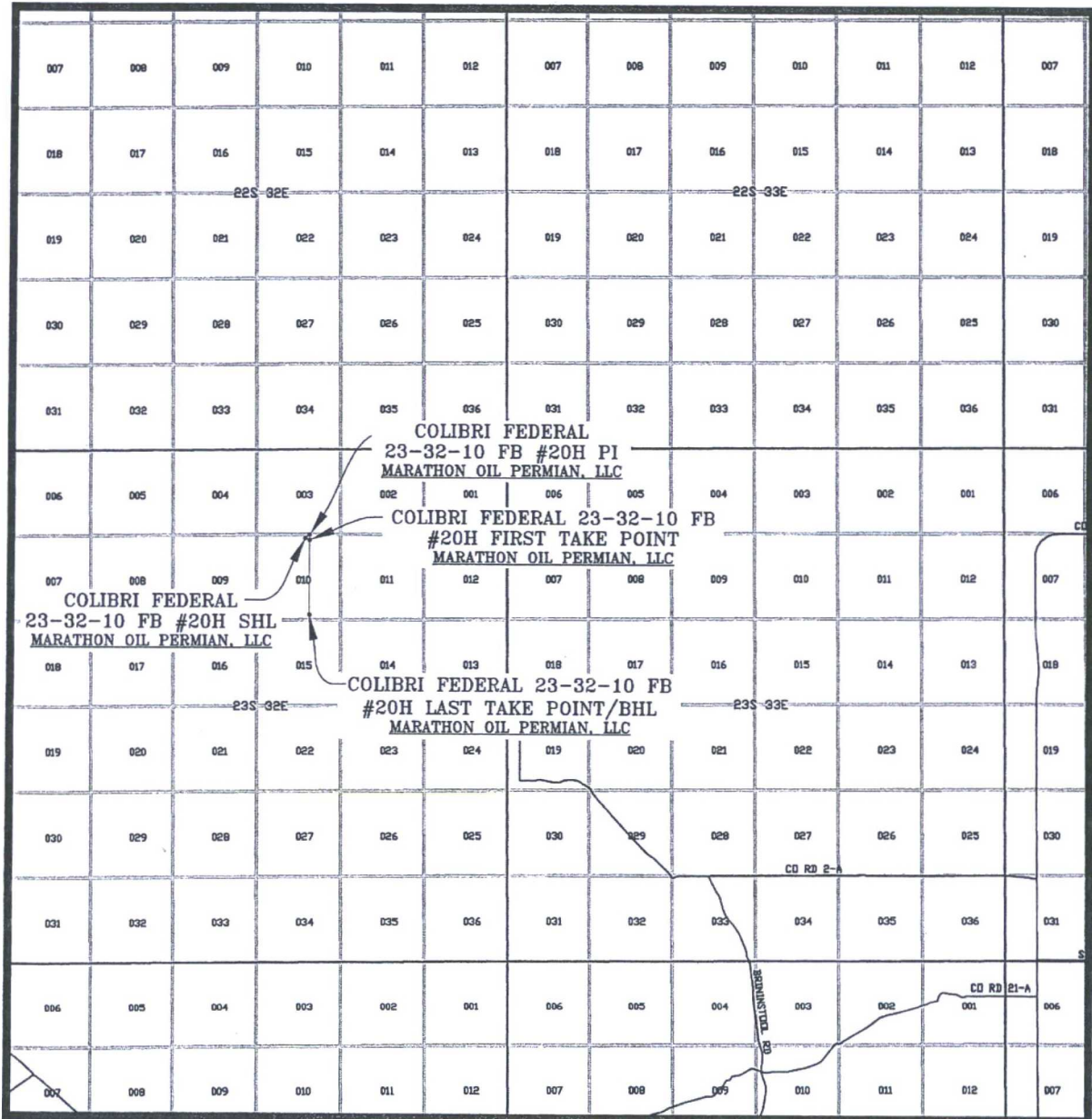


SEC. 10 TWP. 23-S RGE. 32-E
SURVEY: N.M.P.M.
COUNTY: LEA
DESCRIPTION: 212' FNL & 2222' FEL
ELEVATION: 3705'
OPERATOR: MARATHON OIL PERMIAN, LLC
LEASE: COLIBRI FEDERAL 23-32-10
U.S.G.S. TOPOGRAPHIC MAP: BOOTLEG RIDGE, N.M.

SCALE: 1" = 2000'
CONTOUR INTERVAL = 10'

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. R3821_001

VICINITY MAP



SEC. 10 TWP. 23-S RGE. 32-E

SURVEY: N.M.P.M.

COUNTY: LEA

DESCRIPTION: 212' FNL & 2222' FEL

ELEVATION: 3705'

OPERATOR: MARATHON OIL PERMIAN, LLC

LEASE: COLIBRI FEDERAL 23-32-10

U.S.G.S. TOPOGRAPHIC MAP: BOOTLEG RIDGE, N.M.

SCALE: 1" = 2 MILES

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-8900 OFFICE
JOB No. R3821_001

Marathon Oil Permian, LLC

Old Well Name: COLIBRI FEDERAL #23H

New Well Name: COLIBRI FEDERAL 23-32-10 FB 20H

REVISED SHL: 212' FNL & 2222' FEL / SEC 10 – T23S – R32E

REVISED BHL: 330' FSL & 1982' FEL / SEC 10 – T23S – R32E

API # 30-025-42181

Lea County, NM

Drilling Program Changes

1. Target Formation:

Changes: Target formation changed from Avalon Shale to First Bone Spring. Revised formation tops:

Formation	TVD (ft, GL)	Lithologies	Mineral Resources	Producing Formation
Rustler	1135	Anhydrite/Dolomite	Brine	N
Salado	1607	Salt/Anhydrite	Brine	N
Castile	3493	Base Salt	Brine	N
Base of Salt	4756	Limy Sands	Brine	N
Lamar	4872	Sands/Shale	Oil	Y
Bell Canyon	4938	Sands/Shale	Oil	Y
Cherry Canyon	6033	Sands/Carbonates	Oil	Y
Brushy Canyon	7075	Sands/Carbonates	Oil	Y
Bone Spring	8714	Sands/Carbonates	Oil	Y
Avalon Shale	9516	Sands/Carbonates	Oil	Y
1 st Bone Spring Sand	9865	Sands/Carbonates	Oil	Y

2. Proposed Drilling Depth:

14551 MD 9926 TVD

We will not perform a pilot hole

3. Testing, Logging, and Coring

- A. Mud logging program: 2 man unit from Intermediate Casing shoe to TD
- B. Electric logging program: Triple Combo Logging (Gamma, Formation Density, Formation Porosity, Resistivity) from Intermediate Casing shoe to directional plan KOP
- C. Gamma Ray (MWD) from Intermediate Casing shoe to TD

4. Casing Program:

Changes:

- I. 5-1/2" Production Casing depth adjusted according to new TD depth
- II. 5-1/2" Production Casing connection changed to BTC for full string
- III. 5-1/2" Production Casing weight and grade adjusted

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
Production	8-3/4	5-1/2	0	14551	0	9926	20	P110	BTC	2.06	1.29	2.18

Minimum Safety Factors: Burst 1.125 Collapse 1.125 Tension 1.8 Wet/1.6 Dry

5. Cementing Program:

Changes:

Revised cement slurry volumes for revised Production Casing depth

String Type	Lead/Tail	Top MD	Bottom MD	Quantity (sx)	Yield (ft3/sx)	Density (ppg)	Slurry Volume (ft3)	Excess (%)	Cement Type	Additives
Production	Lead	3000	9300	1127	2.4	11.9	2705	70	Class H	35:65 (poz/H) + Salt + Sodium Metasilcate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder
Production	Tail	9300	14551	1397	1.24	14.5	1724	30	Class H	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder

6. Wellhead Changes:

A 5M multibowl wellhead will be used on this well

Y	A variance is requested to use a multibowl wellhead system. 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.
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7. Directional Plan

Revised directional plan to account for new depth, SHL, FTP, and LTP. See attached directional plan



Quotation

Quote Number : ODE0001625

MIDLAND WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Date: 07/21/2017

Valid For 30 Days

Page 1 of 6

Bill To: 7170

MARATHON OIL COMPANY
SOUTHERN BUSINESS
PO BOX 22165
TULSA OK 74121-2165
US

Ship To: 0

MARATHON OIL COMPANY
SOUTHERN BUSINESS
PO BOX 22165
TULSA OK 74121-2165
US

Quantity	Price	Ext Price
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MARATHON OIL COMPANY
BRENT EVANS

CARLSBAD, NM

MBU-3T-CFL WELLHEAD ASSEMBLY
20" X 13-3/8" X 9-5/8" X 5-1/2"

QUOTATION SUMMARY:

- MBU-3T-CFL ASSEMBLY - \$13,898.00
- CASING HANGERS & PACKOFFS - \$11,519.00
- TUBING HEAD ASSEMBLY - \$14,762.30
- TUBING HEAD ASSEMBLY - \$11,197.88

CACTUS CONTACT:
DEAN SMITH
OFFICE: 713.396.5763
MOBILE: 832.691.7857
EMAIL: dean.smith@cactuswellhead.com

NOTE: PRICES ARE F.O.B. CACTUS BOSSIER CITY, LA. THE FOLLOWING QUOTATION DOES NOT INCLUDE PRO RATA FREIGHT AND OTHER APPLICABLE MILEAGE AND SERVICES THAT WILL BE CHARGED AT TIME OF INVOICING.



Quotation

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		Quantity	Price	Ext Price
MBU-3T CFL ASSEMBLY				
1	118173 HSG,CW,MBU-3T-CFL-R-DBLO,13-3/8,13-5/8 5M,W/2 2-1/16 5M FP UPR & LWR,6A-PU-AA-1-2	1.00	10,963.00	10,963.00
2	116444 LANDING RING,20 X 3/8 WT CSG X 20.06 OD X 18.13 ID,4140 110K	1.00	650.00	650.00
3	118174 CSGHGR,CW,MBU-3T-CFL-R,13-3/8,13-3/8 (54.5#) BC PIN BTM X 14.000-2 STUB ACME-2G LEFT HAND PIN TOP,12.489 MIN BORE,6A-U-AA-1-1	1.00	2,225.00	2,225.00
4	VR2 VR PLUG,CW,1-1/2 (1.900) SHARP VEE X 1-1/4 HEX,API 6A-DD-NL	1.00	30.00	30.00
5	VR2 VR PLUG,CW,1-1/2 (1.900) SHARP VEE X 1-1/4 HEX,API 6A-DD-NL	1.00	30.00	30.00
				13,898.00
CASING HANGERS AND PACKOFFS				
6	117760 CSGHGR,CW,MBU-3T-LWR-TP,FLUTED,13-5/8 X 9-5/8 (40#) BC PIN BTM X 10.250-4 STUB ACME-2G R.H BOX TOP,W/11-1/2 OD NECK,6A-U-AA-1-2	1.00	2,500.00	2,500.00
7	117152 PACKOFF,CW,MBU-3T,MANDREL,13-5/8 NESTED X 11,W/11.250-4 STUB ACME-2G LH BOX TOP,6A-U-AA-1-1	1.00	2,899.00	2,899.00
8	117296 CSGHGR,CW,MBU-3T-TP8-UPR,SN,7-5/8,FLUTED,11 NESTED X 5-1/2 (20#) BC PIN BTM X 6.125-4 STUB ACME-2G RIGHT HAND BOX TOP & 5 HBPV THD,SPEC FOR ROTATING CASING STRING,6A-U-AA-1-2	1.00	2,870.00	2,870.00
9	115867 PACKOFF,CW,CTF-MBU-3T,11,A/F 7.75 SEAL PREP,W/8.750-4 STUB ACME-2G LH BOX TOP,10000 PSI MAX WP,A/F LANDING ON 45 DEG SHOULDER ON HANGER,6A-PU-DD-NL-2-2	1.00	3,250.00	3,250.00
				11,519.00



Quotation

Quote Number : ODE0001625

MIDLAND WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Date: 07/21/2017

Valid For 30 Days

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			Quantity	Price	Ext Price
RENTAL TOOLS					
10	AR4	Advance Rental Charge 45 Day	0.00	4,650.00	0.00
MBU-3T RENTAL TOOLS = \$4,650.00 PER WELL FOR THE FIRST 45 DAYS; \$250.00 PER DAY THEREAFTER					
RENTAL TOOLS INCLUDE THE FOLLOWING ITEMS:					
PN 119126: LIFT RING,CSGHGR,CFL-R,W/14.000-2 STUB ACME-2G LEFT HAND THDS,4140 110K (\$200.00; \$10.00)					
PN 118176: RUN TOOL,CW,CSGHGR,MBU-3T-CFL-R,13-3/8 BC BOX TOP X 14.000-2 STUB ACME-2G LH BOX LANDING THD,12.60 MIN BORE (\$200.00; \$10.00)					
PN 118178: TORQUE COLLAR,CW,CSGHGR,MBU-3T-CFL-R,F/16 NECK,4140 110K (\$100.00; \$5.00)					
PN 800002: COMB TEST PLUG/RET TOOL,JMPE,13-5/8 X 4-1/2 IF (NC50) BOX BTM & TOP, W/1-1/2 SHARP VEE BYPASS & SPRING LOADED DOGS (\$250.00; \$15.00)					
PN 116974: WBUSH,CW,MBU-3T,LWR,13-5/8 X 12.31 ID X 26.5 LG (\$250.00; \$15.00)					
PN 107796: RUN TOOL,CW,CSGHGR,MBU-3T-LR-TP,13-5/8 X 9-5/8 BC BOX TOP,10.250-4 STUB ACME-2G RIGHT HAND PIN BTM,MAX LOAD CAPACITY 1000K,MAX TORQUE 18000FT-LBS,SPEC FOR ROTATING CASING STRING (\$575.00; \$30.00)					
PN 103374: TORQUE COLLAR,CW,F/USE W RUN TOOL,TP,10.250-4 STUB ACME-2G RIGHT HAND PIN BTM AND A/F 11.50 OD X 5.00 LG BOX HGR NECK,MAXIMUM TORQUE 36000 LBF-FT (\$200.00; \$10.00)					
PN 106277: WASH TOOL,CW,MBU-LR,MBS2 & FLUTED,13-5/8 X 4-1/2 IF (NC50) BOX TOP THD,W/BRUSHES (\$400.00; \$20.00)					
PN 117310: RUN TOOL,CW,PACKOFF,MBU-3T,13-5/8 X 4-1/2 IF (NC50) BTM & TOP,W/10.250-4 STUB ACME-2G LH (\$300.00; \$15.00)					
PN 108848: TEST PLUG,CW,MBU-2LR(3T) INNER,11 X 4-1/2 IF (NC50) BOX BTM & TOP,W/1-1/4 LP BYPASS (\$150.00; \$10.00)					
PN 117158: WBUSH,CW,MBU-3T,UPR,NESTED,13-5/8 X 11 X 9.00 ID X 20.0 LG,A/F 13-5/8 RET TOOL (\$250.00; \$15.00)					
PN 111379: RUN TOOL,CW,CSGHGR,CTH-MBU-3T-TP8,6.125-4 STUB ACME-2G RIGHT HAND PIN BTM X 5-1/2 BC BOX TOP,W/4.940 MIN BORE & MAX LOAD CAPACITY 500K,MAX (\$550.00; \$30.00)					
PN 103164: WASH TOOL,CW,CSGHGR,MBU-2LR/MBS2-R,FLUTED,11 X 4-1/2 IF (NC50) BOX TOP THDS,FAB (\$250.00; \$15.00)					
PN 117306: RUN TOOL,CW,PACKOFF,MBU-3T-SN,7-5/8,W/8.750-4 STUB ACME-2G LEFT HAND PIN BTM X 4-1/2 IF (NC50) BOX TOP,W/BALL BEARINGS (\$275.00; \$15.00)					
PN 117319: TORQUE COLLAR,CW,CSGHGR,F/USE W/7.62 OD X 15.38 LG BOX HGR NECK AND 10.83 OD RUNNING TOOL,MAXIMUM TORQUE 35000 LBF-FT (\$500.00; \$25.00)					



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		Quantity	Price	Ext Price
	PN 116240: SUB,CROSSOVER,CW,5 HBPV PIN THD BTM X 4-1/2 IF (NC50) BOX TOP,18.0 LG,4140 110K (\$200.00; \$10.00)			
	NOTE: CUSTOMER RESPONSIBLE FOR LOST, DAMAGED, OR BEYOND REPAIR RENTAL TOOLS. RENTAL CHARGES MAY NOT BE APPLIED TO THE PURCHASE PRICE OF EQUIPMENT.			
11	RNM Rental Charge Minimum TA CAP RENTAL = \$65.00 PER DAY	0.00	65.00	0.00
	PN 119995: TA CAP,CW,DBLHPS,7-5/8,13-5/8 5M STD,F/5.75 CUTOFF,W/ONE 2 LP & 1/2 LP PORT,6A-PU-EE-NL-1-1			
	NOTE: CUSTOMER RESPONSIBLE FOR LOST, DAMAGED, OR BEYOND REPAIR RENTAL EQUIPMENT. RENTAL CHARGES MAY NOT BE APPLIED TO THE PURCHASE PRICE OF EQUIPMENT. ACCESSORIES FOR ASSEMBLY NOT INCLUDED IN RENTAL RATE.			
				0.00
	TUBING HEAD ASSEMBLY			
12	117451 TBGHD,CW,CTH-DBLHPS,7-5/8,13-5/8 5M X 7-1/16 10M,W/2 1-13/16 10M FP,31 LG,RND BAR,17-4PH LDS,6A-PU-EE-0,5-2-1	1.00	7,881.00	7,881.00
13	103188 VLV,AOZE,FC,1-13/16 10M FE EE-0,5 (6A LU EE-0,5 PSL3 PR1) QPQ TRIM	1.00	1,700.00	1,700.00
14	105943 ADPT,CFH,1-13/16 10M X 2 FIG 1502 X 1/2 NPT,NACE SVC,6A-PU-EE-NL-1-1	1.00	450.00	450.00
15	103188 VLV,AOZE,FC,1-13/16 10M FE EE-0,5 (6A LU EE-0,5 PSL3 PR1)	2.00	1,700.00	3,400.00
16	105943 ADPT,CFH,1-13/16 10M X 2 FIG 1502 X 1/2 NPT,NACE SVC,6A-PU-EE-NL-1-1	1.00	450.00	450.00
17	BX151 RING GASKET,BX151,1-13/16 10/15/20M	5.00	10.85	54.25
18	780080 STUD,ALL-THD W/2 NUTS,BLK,3/4-10UNC X 5-1/2,A193 GR B7/A194 GR 2H,NO PLATING	24.00	5.20	124.80
19	NVA NEEDLE VALVE,MFA,1/2 10M	2.00	47.25	94.50
20	PG10M PRESSURE GAUGE,10M,4-1/2 FACE, LIQUID FILLED,1/2 NPT	2.00	63.84	127.68
21	BX160 RING GASKET,BX160,13-5/8 5M	1.00	70.47	70.47
22	780087 STUD,ALL-THD W/2 NUTS,BLK,1-5/8-8UN X 12-3/4,A193 GR B7/A194 GR 2H,NO PLATING	16.00	25.60	409.60



Quotation

MIDLAND WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Quote Number : ODE0001625

Date: 07/21/2017

Valid For 30 Days

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		Quantity	Price	Ext Price
				14,762.30
	CONTINGENCY EQUIPMENT			
	EMERGENCY EQUIPMENT; INVOICED AS REQUIRED			
23	116998 CSGHGR,CW,MBU-3T-LWR,EMERG,13-5/8 X 9-5/8,6A-PU-DD-NL-3-1	0.00	1,350.00	0.00
24	117184 PACKOFF,CW,MBU-3T,EMERG,13-5/8 NESTED X 11 X 9-5/8,W/11.250-4 STUB ACME-2G LH BOX TOP,6A-U-AA-1-1	0.00	3,080.00	0.00
25	117987 CSGHGR,CW,C2-(MBU-3T,INNER,EMERG,NESTED),11 X 5-1/2,6A-P-AA-3-1	0.00	2,885.00	0.00
26	117989 PACKOFF,CW,C2,MBU-3T,INNER,EMERG,NESTED,11 X 5-1/2,W/7-5/8 SEAL NECK,5 HBPV THDS & 4.93 MIN BORE,A/F HOLD DOWN RING,4140 80K,6A-U-DD-NL-1-1	0.00	2,995.00	0.00
27	116161 HOLD DOWN,RING,F/22 CSGHGR 11 X 4-1/2,A/F PACKOFF MBU-LR,13-5/8 10M,W/11.250-4 STUB ACME-2G LH PIN X 8.00 ID X 2.62 LG,4140 110K	0.00	600.00	0.00
				0.00
	RISER ASSEMBLIES			
28	610003 VLV,CW1,2-1/16 3/5M FE AA/DD-NL (API 6A LU AA/DD-NL PSL1 PR2)	1.00	755.00	755.00
29	100177 TEE,CW,STD,2-1/16 5M X 2-1/16 5M,6A-PU-EE-NL-1	1.00	650.00	650.00
30	191005 FLG,BLIND,CW,2-1/16 5M X 1/2 NPT,6A-LU-EE-NL-1	1.00	120.00	120.00
31	NPN-WHD SPACER SPL,CW,2-1/16 5M X 2-1/16 5M X 31.6" LG,6A-PU-EE-NL-1 (REF 110024)	1.00	2,910.00	2,910.00
32	610003 VLV,CW1,2-1/16 3/5M FE AA/DD-NL (API 6A LU AA/DD-NL PSL1 PR2)	1.00	755.00	755.00
33	200002 FLG,COMP,CW,2-1/16 5M X 2 LP,6A-KU-EE-NL-1	2.00	80.00	160.00
34	BP2T BULL PLUG,CW,2 LP X 1/2 LP,API 6A DD-NL	2.00	33.00	66.00
35	100048 FTG,GRS,VENTED CAP,1/2 NPT,4140 -50F W/ELECTROLESS NICKEL COATING NACE,K-MONEL BALL,INCONEL X-750 SPRING	2.00	34.55	69.10
36	R24 RING GASKET,R24,2-1/16 3/5M	7.00	8.40	58.80



Quotation

MIDLAND WAREHOUSE
8001 GROENING STREET
ODESSA TX 79765
Phone: 432-653-0306

Quote Number : ODE0001625

Date: 07/21/2017

Valid For 30 Days

Page 6 of 6

		Quantity	Price	Ext Price
37	780067 STUD,ALL-THD W/2 NUTS,BLK,7/8-9UNC X 6-1/2,A193 GR B7/A194 GR 2H,NO PLATING	16.00	5.20	83.20
38	NVS NEEDLE VALVE,MFS,1/2 NPT MXF 10,000 PSI WP CARBON STEEL BODY, 304/316SS STEM, TFE PACKING NACE	1.00	54.00	54.00
39	PG5M PRESSURE GAUGE,5M,4-1/2 FACE,LIQUID FILLED,1/2 NPT	1.00	63.84	63.84
40	610003 VLV,CW1,2-1/16 3/5M FE AA/DD-NL (API 6A LU AA/DD-NL PSL1 PR2)	1.00	755.00	755.00
41	100177 TEE,CW,STD,2-1/16 5M X 2-1/16 5M,6A-PU-EE-NL-1	1.00	650.00	650.00
42	191005 FLG,BLIND,CW,2-1/16 5M X 1/2 NPT,6A-LU-EE-NL-1	1.00	120.00	120.00
43	110024 SPACER SPL,CW,2-1/16 5M X 2-1/16 5M X 24.0 LG,6A-PU-EE-NL-1	1.00	2,618.00	2,618.00
44	610003 VLV,CW1,2-1/16 3/5M FE AA/DD-NL (API 6A LU AA/DD-NL PSL1 PR2)	1.00	755.00	755.00
45	200002 FLG,COMP,CW,2-1/16 5M X 2 LP,6A-KU-EE-NL-1	2.00	80.00	160.00
46	BP2T BULL PLUG,CW,2 LP X 1/2 LP,API 6A DD-NL	2.00	33.00	66.00
47	100048 FTG,GRS,VENTED CAP,1/2 NPT,4140 -50F W/ELECTROLESS NICKEL COATING NACE,K-MONEL BALL,INCONEL X-750 SPRING	2.00	34.55	69.10
48	R24 RING GASKET,R24,2-1/16 3/5M	7.00	8.40	58.80
49	780067 STUD,ALL-THD W/2 NUTS,BLK,7/8-9UNC X 6-1/2,A193 GR B7/A194 GR 2H,NO PLATING	16.00	5.20	83.20
50	NVS NEEDLE VALVE,MFS,1/2 NPT MXF 10,000 PSI WP CARBON STEEL BODY, 304/316SS STEM, TFE PACKING NACE	1.00	54.00	54.00
51	PG5M PRESSURE GAUGE,5M,4-1/2 FACE,LIQUID FILLED,1/2 NPT	1.00	63.84	63.84
				11,197.88

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 .

For Acceptance of this Quotation
Please Contact Dean Smith Ph: 713-396-5763
dean.smith@cactuswellhead.com

Matl:	51,377.18
Labor:	0.00
Misc:	0.00
Sales Tax:	0.00
Total:	51,377.18



Marathon Oil
Lea County, NM
Colibri Fed 23-32-10
FB #20H
Prelim Plan A
GL: 3705' + KB: 25' (H&P480)

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

RKB Elevation: Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	482871.52	707780.82	32° 19' 32.6530 N	103° 39' 38.4442 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	N/S	E/W	Dleg	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2600.00	0.00	0.00	2600.00	0.00	0.00	0.00	0.00
3	3933.33	10.00	64.30	3926.57	50.32	104.58	0.75	-49.63
4	4291.08	10.00	64.30	4278.89	77.26	160.56	0.00	-76.19
5	5291.08	0.00	0.00	5273.82	115.00	239.00	1.00	-113.41
6	9370.26	0.00	0.00	9353.00	115.00	239.00	0.00	-113.41
7	10270.26	90.00	179.62	9925.96	-457.94	242.83	10.00	459.54
8	14551.29	90.00	179.62	9926.00	-4738.88	271.45	0.00	4740.58

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[ColibriFB#20H]FTP	0.00	-115.65	240.46	482755.87	708021.28
[ColibriFB#20H]KOP	9353.00	115.00	239.00	482986.52	708019.82
[ColibriFB#20H]LTP/BHL	9926.00	-4738.88	271.45	478132.64	708052.27



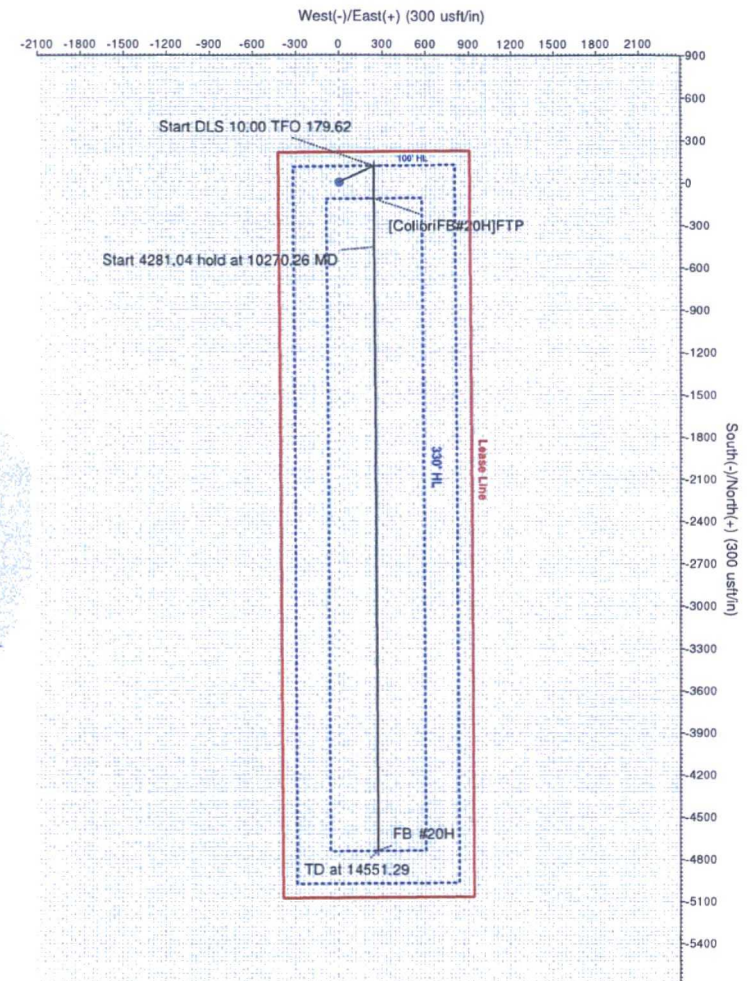
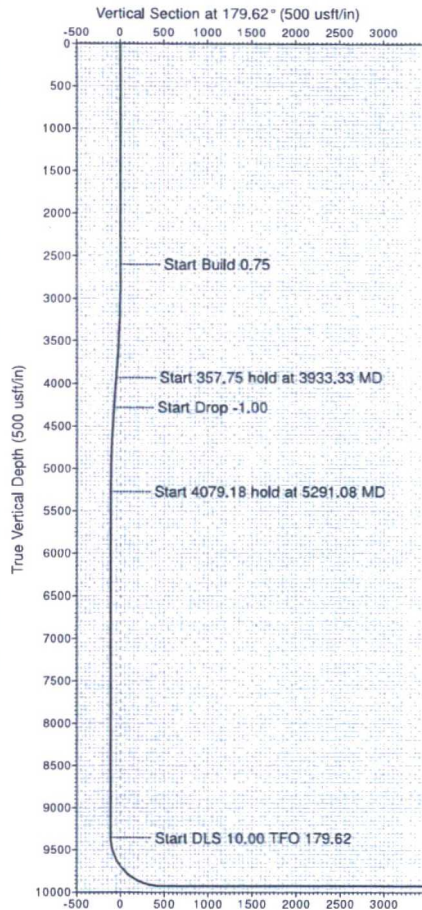
Azimuths to Grid North
True North: -0.36°
Magnetic North: 6.54°

Magnetic Field
Strength: 48148.9nT
Dip Angle: 60.12°
Date: 1/9/2018
Model: HDGM

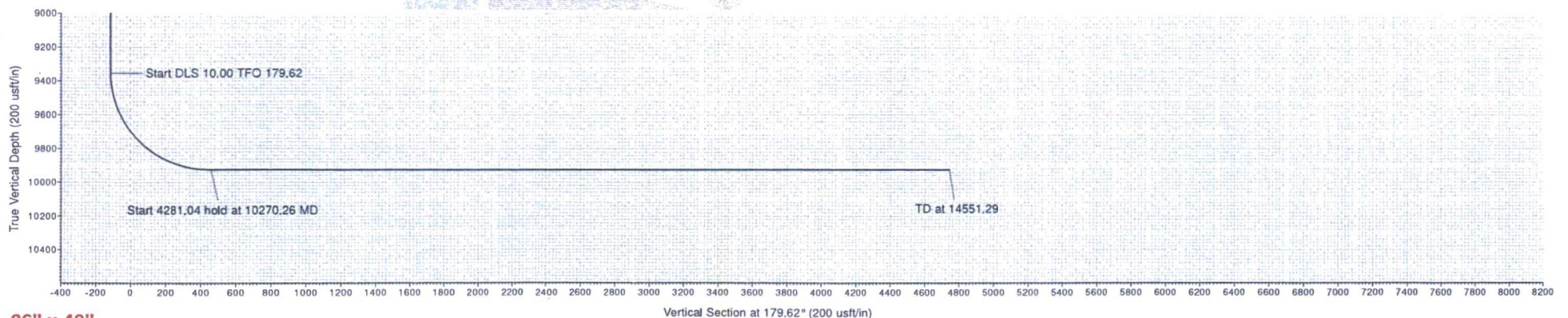
Azimuth Corrections

Total Magnetic Corr. (M to G): 6.54°

Declination (M to T): 6.90° East



Target Line: 9926' TVD @ 0° VS, 90° INC



36" x 48"

Vertical Section at 179.62° (200 usft/in)

Company:	Marathon Oil	Local Co-ordinate Reference:	Well FB #20H
Project:	Lea County, NM	TVD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Site:	Colibri Fed 23-32-10	MD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Well:	FB #20H	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	Colibri Fed 23-32-10		
Site Position:		Northing:	482,871.52 usft
From:	Map	Easting:	707,780.82 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 19' 32.6530 N
		Longitude:	103° 39' 38.4442 W
		Grid Convergence:	0.36 °

Well	FB #20H		
Well Position	+N/-S	0.00 usft	Northing: 482,871.52 usft
	+E/-W	0.00 usft	Easting: 707,780.82 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 19' 32.6530 N
		Longitude:	103° 39' 38.4442 W
		Ground Level:	3,705.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	1/9/2018	6.90
			Dip Angle (°)
			60.12
			Field Strength (nT)
			48,148.90

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)
	0.00	0.00	0.00
			Direction (°)
			179.62

Survey Tool Program	Date 1/9/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.00	14,551.29	Prelim Plan A (OH)	MWD+IFR1
			Description
			OWSG MWD + IFR1

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
[ColibriFB#20H]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

Company:	Marathon Oil	Local Co-ordinate Reference:	Well FB #20H
Project:	Lea County, NM	TVD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Site:	Colibri Fed 23-32-10	MD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Well:	FB #20H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	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)
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	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.75	64.30	2,700.00	0.28	0.59	-0.28	0.75	0.75	0.00
2,800.00	1.50	64.30	2,799.98	1.14	2.36	-1.12	0.75	0.75	0.00
2,900.00	2.25	64.30	2,899.92	2.55	5.31	-2.52	0.75	0.75	0.00
3,000.00	3.00	64.30	2,999.82	4.54	9.43	-4.48	0.75	0.75	0.00
3,100.00	3.75	64.30	3,099.64	7.09	14.74	-6.99	0.75	0.75	0.00
3,200.00	4.50	64.30	3,199.38	10.21	21.22	-10.07	0.75	0.75	0.00
3,300.00	5.25	64.30	3,299.02	13.90	28.88	-13.70	0.75	0.75	0.00
3,400.00	6.00	64.30	3,398.54	18.15	37.71	-17.90	0.75	0.75	0.00
3,500.00	6.75	64.30	3,497.92	22.96	47.72	-22.64	0.75	0.75	0.00
3,600.00	7.50	64.30	3,597.15	28.34	58.89	-27.95	0.75	0.75	0.00
3,700.00	8.25	64.30	3,696.20	34.28	71.24	-33.81	0.75	0.75	0.00
3,800.00	9.00	64.30	3,795.07	40.78	84.75	-40.22	0.75	0.75	0.00
3,900.00	9.75	64.30	3,893.73	47.84	99.43	-47.18	0.75	0.75	0.00
3,933.33	10.00	64.30	3,926.57	50.32	104.58	-49.63	0.75	0.75	0.00
4,000.00	10.00	64.30	3,992.23	55.34	115.01	-54.58	0.00	0.00	0.00
4,100.00	10.00	64.30	4,090.71	62.87	130.66	-62.00	0.00	0.00	0.00
4,200.00	10.00	64.30	4,189.19	70.40	146.31	-69.43	0.00	0.00	0.00
4,291.08	10.00	64.30	4,278.89	77.26	160.56	-76.19	0.00	0.00	0.00
4,300.00	9.91	64.30	4,287.67	77.93	161.95	-76.85	1.00	-1.00	0.00
4,400.00	8.91	64.30	4,386.32	85.02	176.69	-83.84	1.00	-1.00	0.00
4,500.00	7.91	64.30	4,485.25	91.36	189.87	-90.10	1.00	-1.00	0.00
4,600.00	6.91	64.30	4,584.41	96.95	201.49	-95.61	1.00	-1.00	0.00
4,700.00	5.91	64.30	4,683.78	101.79	211.55	-100.39	1.00	-1.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well FB #20H
Project:	Lea County, NM	TVD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Site:	Colibri Fed 23-32-10	MD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Well:	FB #20H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	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)
4,800.00	4.91	64.30	4,783.34	105.88	220.05	-104.42	1.00	-1.00	0.00
4,900.00	3.91	64.30	4,883.04	109.22	226.98	-107.71	1.00	-1.00	0.00
5,000.00	2.91	64.30	4,982.86	111.79	232.34	-110.25	1.00	-1.00	0.00
5,100.00	1.91	64.30	5,082.77	113.62	236.13	-112.05	1.00	-1.00	0.00
5,200.00	0.91	64.30	5,182.74	114.69	238.35	-113.10	1.00	-1.00	0.00
5,291.08	0.00	0.00	5,273.82	115.00	239.00	-113.41	1.00	-1.00	0.00
5,300.00	0.00	0.00	5,282.74	115.00	239.00	-113.41	0.00	0.00	0.00
5,400.00	0.00	0.00	5,382.74	115.00	239.00	-113.41	0.00	0.00	0.00
5,500.00	0.00	0.00	5,482.74	115.00	239.00	-113.41	0.00	0.00	0.00
5,600.00	0.00	0.00	5,582.74	115.00	239.00	-113.41	0.00	0.00	0.00
5,700.00	0.00	0.00	5,682.74	115.00	239.00	-113.41	0.00	0.00	0.00
5,800.00	0.00	0.00	5,782.74	115.00	239.00	-113.41	0.00	0.00	0.00
5,900.00	0.00	0.00	5,882.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,000.00	0.00	0.00	5,982.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,100.00	0.00	0.00	6,082.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,200.00	0.00	0.00	6,182.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,300.00	0.00	0.00	6,282.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,400.00	0.00	0.00	6,382.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,500.00	0.00	0.00	6,482.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,600.00	0.00	0.00	6,582.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,700.00	0.00	0.00	6,682.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,800.00	0.00	0.00	6,782.74	115.00	239.00	-113.41	0.00	0.00	0.00
6,900.00	0.00	0.00	6,882.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,000.00	0.00	0.00	6,982.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,100.00	0.00	0.00	7,082.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,200.00	0.00	0.00	7,182.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,300.00	0.00	0.00	7,282.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,400.00	0.00	0.00	7,382.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,500.00	0.00	0.00	7,482.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,600.00	0.00	0.00	7,582.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,700.00	0.00	0.00	7,682.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,800.00	0.00	0.00	7,782.74	115.00	239.00	-113.41	0.00	0.00	0.00
7,900.00	0.00	0.00	7,882.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,000.00	0.00	0.00	7,982.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,100.00	0.00	0.00	8,082.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,200.00	0.00	0.00	8,182.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,300.00	0.00	0.00	8,282.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,400.00	0.00	0.00	8,382.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,500.00	0.00	0.00	8,482.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,600.00	0.00	0.00	8,582.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,700.00	0.00	0.00	8,682.74	115.00	239.00	-113.41	0.00	0.00	0.00
8,800.00	0.00	0.00	8,782.74	115.00	239.00	-113.41	0.00	0.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well FB #20H
Project:	Lea County, NM	TVD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Site:	Colibri Fed 23-32-10	MD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Well:	FB #20H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	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)
8,900.00	0.00	0.00	8,882.74	115.00	239.00	-113.41	0.00	0.00	0.00
9,000.00	0.00	0.00	8,982.74	115.00	239.00	-113.41	0.00	0.00	0.00
9,100.00	0.00	0.00	9,082.74	115.00	239.00	-113.41	0.00	0.00	0.00
9,200.00	0.00	0.00	9,182.74	115.00	239.00	-113.41	0.00	0.00	0.00
9,300.00	0.00	0.00	9,282.74	115.00	239.00	-113.41	0.00	0.00	0.00
9,370.26	0.00	0.00	9,353.00	115.00	239.00	-113.41	0.00	0.00	0.00
[ColibriFB#20H]KOP									
9,400.00	2.97	179.62	9,382.72	114.23	239.01	-112.64	10.00	10.00	0.00
9,450.00	7.97	179.62	9,432.48	109.46	239.04	-107.87	10.00	10.00	0.00
9,500.00	12.97	179.62	9,481.63	100.37	239.10	-98.79	10.00	10.00	0.00
9,550.00	17.97	179.62	9,529.80	87.04	239.19	-85.45	10.00	10.00	0.00
9,600.00	22.97	179.62	9,576.63	69.56	239.30	-67.97	10.00	10.00	0.00
9,650.00	27.97	179.62	9,621.76	48.06	239.45	-46.47	10.00	10.00	0.00
9,700.00	32.97	179.62	9,664.83	22.71	239.62	-21.12	10.00	10.00	0.00
9,750.00	37.97	179.62	9,705.54	-6.30	239.81	7.89	10.00	10.00	0.00
9,800.00	42.97	179.62	9,743.56	-38.74	240.03	40.33	10.00	10.00	0.00
9,850.00	47.97	179.62	9,778.61	-74.37	240.27	75.97	10.00	10.00	0.00
9,900.00	52.97	179.62	9,810.43	-112.93	240.52	114.52	10.00	10.00	0.00
9,950.00	57.97	179.62	9,838.76	-154.11	240.80	155.70	10.00	10.00	0.00
10,000.00	62.97	179.62	9,863.39	-197.60	241.09	199.19	10.00	10.00	0.00
10,050.00	67.97	179.62	9,884.14	-243.07	241.39	244.67	10.00	10.00	0.00
10,100.00	72.97	179.62	9,900.85	-290.18	241.71	291.78	10.00	10.00	0.00
10,150.00	77.97	179.62	9,913.38	-338.57	242.03	340.16	10.00	10.00	0.00
10,200.00	82.97	179.62	9,921.66	-387.86	242.36	389.46	10.00	10.00	0.00
10,250.00	87.97	179.62	9,925.60	-437.69	242.69	439.29	10.00	10.00	0.00
10,270.26	90.00	179.62	9,925.96	-457.94	242.83	459.54	10.00	10.00	0.00
10,300.00	90.00	179.62	9,925.96	-487.68	243.03	489.28	0.00	0.00	0.00
10,400.00	90.00	179.62	9,925.96	-587.68	243.70	589.28	0.00	0.00	0.00
10,500.00	90.00	179.62	9,925.96	-687.68	244.37	689.28	0.00	0.00	0.00
10,600.00	90.00	179.62	9,925.96	-787.67	245.03	789.28	0.00	0.00	0.00
10,700.00	90.00	179.62	9,925.96	-887.67	245.70	889.28	0.00	0.00	0.00
10,800.00	90.00	179.62	9,925.96	-987.67	246.37	989.28	0.00	0.00	0.00
10,900.00	90.00	179.62	9,925.96	-1,087.67	247.04	1,089.28	0.00	0.00	0.00
11,000.00	90.00	179.62	9,925.97	-1,187.67	247.71	1,189.28	0.00	0.00	0.00
11,100.00	90.00	179.62	9,925.97	-1,287.66	248.38	1,289.28	0.00	0.00	0.00
11,200.00	90.00	179.62	9,925.97	-1,387.66	249.05	1,389.28	0.00	0.00	0.00
11,300.00	90.00	179.62	9,925.97	-1,487.66	249.71	1,489.28	0.00	0.00	0.00
11,400.00	90.00	179.62	9,925.97	-1,587.66	250.38	1,589.28	0.00	0.00	0.00
11,500.00	90.00	179.62	9,925.97	-1,687.65	251.05	1,689.28	0.00	0.00	0.00
11,600.00	90.00	179.62	9,925.97	-1,787.65	251.72	1,789.28	0.00	0.00	0.00
11,700.00	90.00	179.62	9,925.97	-1,887.65	252.39	1,889.28	0.00	0.00	0.00
11,800.00	90.00	179.62	9,925.97	-1,987.65	253.06	1,989.28	0.00	0.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well FB #20H
Project:	Lea County, NM	TVD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Site:	Colibri Fed 23-32-10	MD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Well:	FB #20H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	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)	
11,900.00	90.00	179.62	9,925.97	-2,087.65	253.73	2,089.28	0.00	0.00	0.00	
12,000.00	90.00	179.62	9,925.98	-2,187.64	254.39	2,189.28	0.00	0.00	0.00	
12,100.00	90.00	179.62	9,925.98	-2,287.64	255.06	2,289.28	0.00	0.00	0.00	
12,200.00	90.00	179.62	9,925.98	-2,387.64	255.73	2,389.28	0.00	0.00	0.00	
12,300.00	90.00	179.62	9,925.98	-2,487.64	256.40	2,489.28	0.00	0.00	0.00	
12,400.00	90.00	179.62	9,925.98	-2,587.63	257.07	2,589.28	0.00	0.00	0.00	
12,500.00	90.00	179.62	9,925.98	-2,687.63	257.74	2,689.28	0.00	0.00	0.00	
12,600.00	90.00	179.62	9,925.98	-2,787.63	258.41	2,789.28	0.00	0.00	0.00	
12,700.00	90.00	179.62	9,925.98	-2,887.63	259.07	2,889.28	0.00	0.00	0.00	
12,800.00	90.00	179.62	9,925.98	-2,987.63	259.74	2,989.28	0.00	0.00	0.00	
12,900.00	90.00	179.62	9,925.98	-3,087.62	260.41	3,089.28	0.00	0.00	0.00	
13,000.00	90.00	179.62	9,925.98	-3,187.62	261.08	3,189.28	0.00	0.00	0.00	
13,100.00	90.00	179.62	9,925.99	-3,287.62	261.75	3,289.28	0.00	0.00	0.00	
13,200.00	90.00	179.62	9,925.99	-3,387.62	262.42	3,389.28	0.00	0.00	0.00	
13,300.00	90.00	179.62	9,925.99	-3,487.61	263.08	3,489.28	0.00	0.00	0.00	
13,400.00	90.00	179.62	9,925.99	-3,587.61	263.75	3,589.28	0.00	0.00	0.00	
13,500.00	90.00	179.62	9,925.99	-3,687.61	264.42	3,689.28	0.00	0.00	0.00	
13,600.00	90.00	179.62	9,925.99	-3,787.61	265.09	3,789.28	0.00	0.00	0.00	
13,700.00	90.00	179.62	9,925.99	-3,887.61	265.76	3,889.28	0.00	0.00	0.00	
13,800.00	90.00	179.62	9,925.99	-3,987.60	266.43	3,989.28	0.00	0.00	0.00	
13,900.00	90.00	179.62	9,925.99	-4,087.60	267.10	4,089.28	0.00	0.00	0.00	
14,000.00	90.00	179.62	9,925.99	-4,187.60	267.76	4,189.28	0.00	0.00	0.00	
14,100.00	90.00	179.62	9,926.00	-4,287.60	268.43	4,289.28	0.00	0.00	0.00	
14,200.00	90.00	179.62	9,926.00	-4,387.59	269.10	4,389.28	0.00	0.00	0.00	
14,300.00	90.00	179.62	9,926.00	-4,487.59	269.77	4,489.28	0.00	0.00	0.00	
14,400.00	90.00	179.62	9,926.00	-4,587.59	270.44	4,589.28	0.00	0.00	0.00	
14,500.00	90.00	179.62	9,926.00	-4,687.59	271.11	4,689.28	0.00	0.00	0.00	
14,551.29	90.00	179.62	9,926.00	-4,738.88	271.45	4,740.58	0.00	0.00	0.00	
[ColibriFB#20H]LTP/BHL										

Company:	Marathon Oil	Local Co-ordinate Reference:	Well FB #20H
Project:	Lea County, NM	TVD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Site:	Colibri Fed 23-32-10	MD Reference:	Well @ 3730.00usft (GL: 3705' + KB: 25' (H&P480))
Well:	FB #20H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	Database:	WellPlanner1

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
[ColibriFB#20H]FTP	0.00	0.00	0.00	-115.65	240.46	482,755.87	708,021.28	32° 19' 31.4936 N	103° 39' 35.6504 W
- plan misses target center by 266.83usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
[ColibriFB#20H]KOP	0.00	0.00	9,353.00	115.00	239.00	482,986.52	708,019.82	32° 19' 33.7761 N	103° 39' 35.6506 W
- plan hits target center									
- Point									
[ColibriFB#20H]LTP/BHL	0.00	0.00	9,926.00	-4,738.88	271.45	478,132.64	708,052.27	32° 18' 45.7423 N	103° 39' 35.6279 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MARATHON OIL PERMIAN LLC
LEASE NO.:	NMNM85939
WELL NAME & NO.:	COLIBRI FEDERAL 23 32 10 FB 20H
SURFACE HOLE FOOTAGE:	212' FNL & 2222' FEL
BOTTOM HOLE FOOTAGE	330' FSL & 1982' FEL
LOCATION:	Section 10, T. 23 S., R 32 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

All pervious 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

- The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

ZS 021518

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	
"A"	48.00	H 40	ST&C	5.37	1.35	0.68	1,250	
"B"							0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 666			Tail Cmt	does not	circ to sfc.	Totals:	1,250	
Comparison of Proposed to Minimum Required Cement Volumes								
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE
17 1/2	0.6946	733	1218	923	32	8.80	1481	2M

Burst Frac Gradient(s) for Segment(s) A, B = 1.38, b All > 0.70, OK.

9 5/8	casing inside the	13 3/8	Design Factors				INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	
"A"	36.00	J 55	LT&C	2.59	1.19	0.74	4,860	
"B"							0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 343						Totals:	4,860	
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		1250	
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE
12 1/4	0.3132	1056	1832	1620	13	10.10	2560	3M

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.72, b, c, d All > 0.70, OK.

5 1/2	casing inside the		9 5/8	Design Factors			PRODUCTION	
Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	
"A"	20.00	P 110	BUTT	3.23	2.47	2.66	9,370	
"B"	20.00	P 110	BUTT	7.49	2.07	2.66	5,181	
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,061						Totals:	14,551	
B	Segment	Design	Factors	would be:	57.65	2.34	if it were a vertical well	
No Pilot Hole Planned			MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°
			14551	9926	9926	9370	90	11
The cement volume(s) are intended to achieve a top of					4660	ft from surface or a		200
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE
8 3/4	0.2526	2524	4437	2507	77	9.20		