

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. NMNM85940
2. Name of Operator MARATHON OIL PERMIAN, LLC		6. If Indian, Allottee or Tribe Name
3a. Address 5555 SAN FELIPE STREET HOUSTON, TX 77056		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 713-296-3179		8. Well Name and No. URRACA FEDERAL COM 21H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 11 T23S R32E Mer NMP NENW 430FNL 1614FWL		9. API Well No. 30-025-42226
		10. Field and Pool or Exploratory Area WILDCAT
		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 APD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recomplete 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 recompletion 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 approved APD for this well:

Well Name - Urraca Federal Com 21H to Urraca Federal Com 23 32 11 AV 24H
Drilling Program - see attachments for changes to Target Formation, Casing Program, Cement Program, Directional, Well Head, and SHL.

NEW PROP ID (321028)
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Engineering Good ZS. 3/12/18

NEPA covered under

Approved CCR 03/20/2018 DOI-BLM-NM-PD20-2014-1184 EA. Same COA's apply.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #395091 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 12/13/2017 ()	
Name (Printed/Typed) MELISSA B SZUDERA	Title REGULATORY COMPLIANCE REP
Signature (Electronic Submission)	Date 11/15/2017
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
Approved By	Title
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	Date

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)

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

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 30-025-42226	² Pool Code 17644	³ Pool Name DIAMONDTAIL; BONE SPRING
⁴ Property Code <u>313460</u>	⁵ Property Name URRACA FEDERAL COM 23-32-11 AV	
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN, LLC	⁶ Well Number 24H ⁹ Elevation 3716'

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
C	11	T23S	R32E		460	NORTH	1624	WEST	LEA

¹¹ Bottom Hole Location If Different From Surface

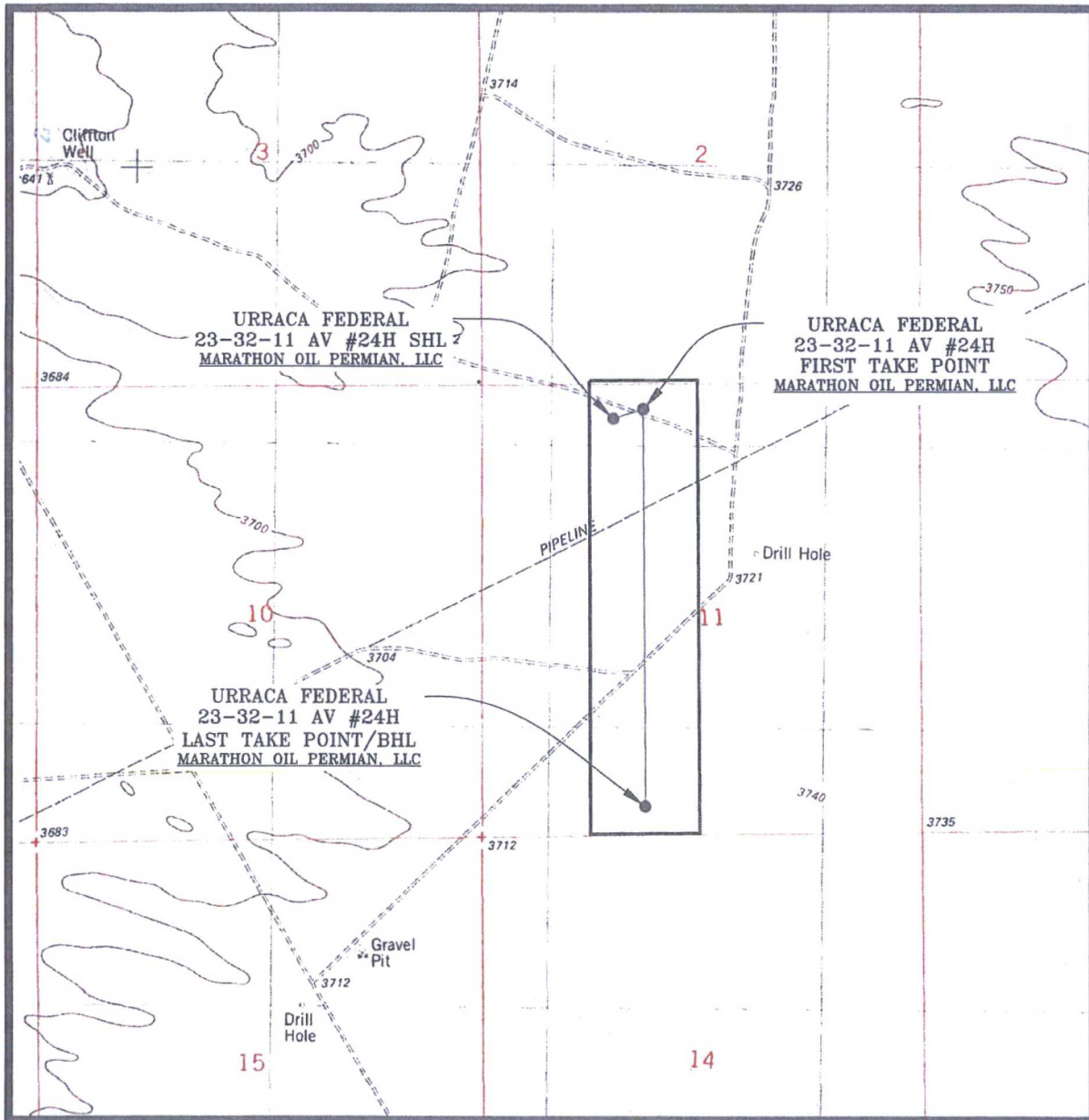
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	11	T23S	R32E		330	SOUTH	1977	WEST	LEA

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.

¹⁶	CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 752501.15' / Y: 483178.22' B - X: 753818.78' / Y: 483190.41' C - X: 753854.97' / Y: 477901.73' D - X: 752536.85' / Y: 477890.73' SURFACE HOLE LOCATION 460' FNL 1624' FWL NAD 83, SPCS NM EAST X: 752811.91' / Y: 482720.60' LAT: 32.32521382N / LON: 103.64871097W NAD 27, SPCS NM EAST X: 711628.83' / Y: 482660.76' LAT: 32.32509055N / LON: 103.64822672W FIRST TAKE POINT 330' FNL 1977' FWL NAD 83, SPCS NM EAST X: 753163.35' / Y: 482854.33' LAT: 32.32557525N / LON: 103.64757058W NAD 27, SPCS NM EAST X: 711980.27' / Y: 482794.49' LAT: 32.32545198N / LON: 103.64708635W LAST TAKE POINT/BOTTOM HOLE LOCATION 330' FSL 1977' FWL NAD 83, SPCS NM EAST X: 753194.60' / Y: 478226.23' LAT: 32.31285360N / LON: 103.64756531W NAD 27, SPCS NM EAST X: 712011.40' / Y: 478166.52' LAT: 32.31273028N / LON: 103.64708153W CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 711318.08' / Y: 483118.37' B - X: 712635.71' / Y: 483130.60' C - X: 712671.76' / Y: 477842.03' D - X: 711353.64' / Y: 477831.03'	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: <i>Melissa Szudera</i> Date: 11/15/2017 Printed Name: MELISSA SZUDERA E-mail Address: MSZUDERA@MARATHONOIL.COM 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 13, 2017 Date of Survey Signature and Seal of Professional Surveyor: <i>Lloyd P. Short</i> Certificate Number: LLOYD P. SHORT 21653
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LOCATION VERIFICATION MAP

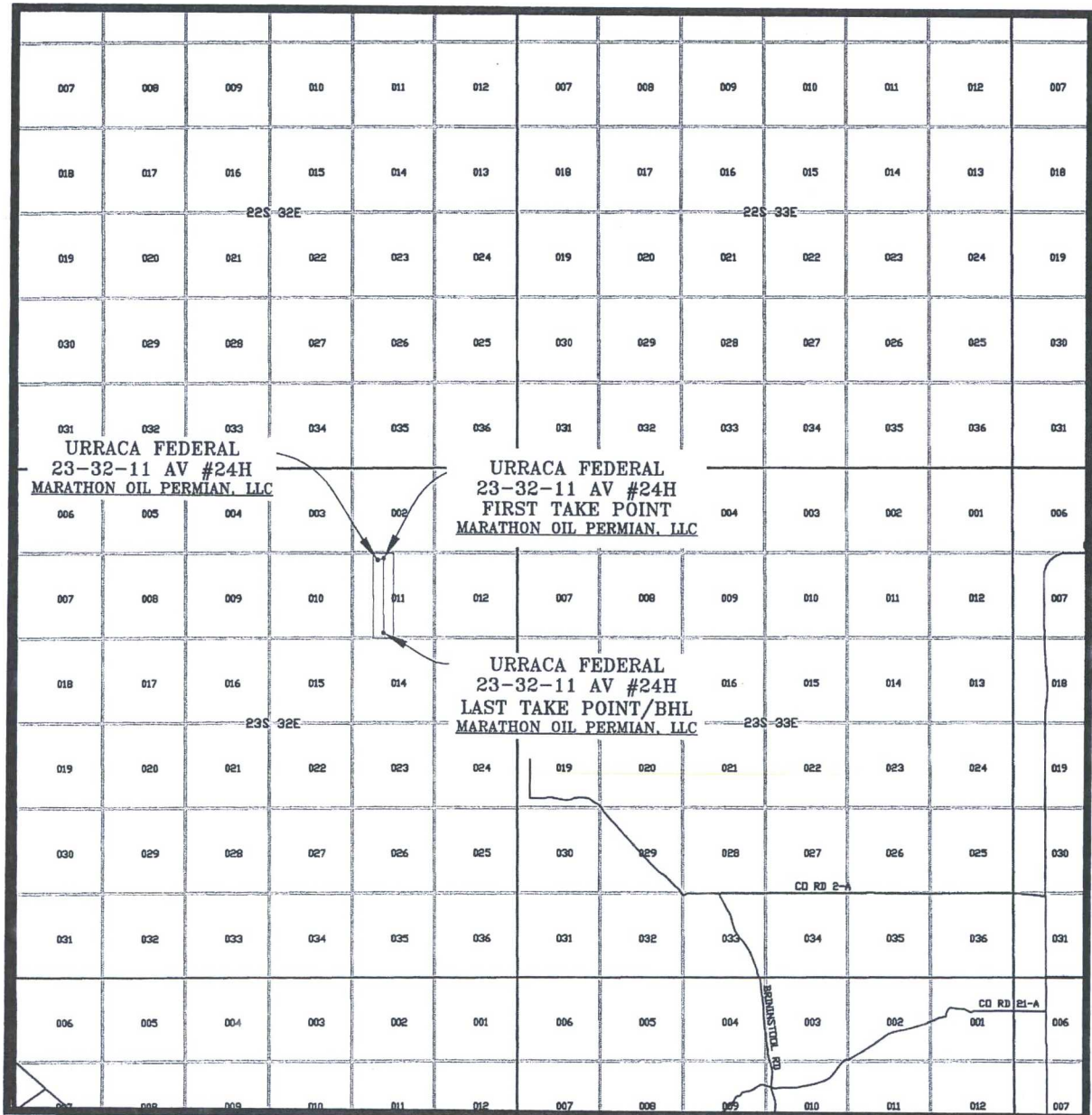


SEC. 11 TWP. 23-S RGE. 32-E
SURVEY: N.M.P.M.
COUNTY: LEA
DESCRIPTION: 460' FNL & 1624' FWL
ELEVATION: 3716'
OPERATOR: MARATHON OIL PERMIAN, LLC
LEASE: URRACA FEDERAL 23-32-11
U.S.G.S. TOPOGRAPHIC MAP: BOOTLEG RIDGE, N.M.

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

PREPARED BY:
R-SQUARED GLOBAL, LLC
1309 LOUISVILLE AVENUE, MONROE, LA 71201
318-323-6900 OFFICE
JOB No. R3811_002

VICINITY MAP



SEC. 11 TWP. 23-S RGE. 32-E
 SURVEY: N.M.P.M.
 COUNTY: LEA
 DESCRIPTION: 460' FNL & 1624' FWL
 ELEVATION: 3716'
 OPERATOR: MARATHON OIL PERMIAN, LLC
 LEASE: URRACA FEDERAL 23-32-11
 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
 316-323-6900 OFFICE
 JOB No. R3811_002

Marathon Oil Permian, LLC

Old Well Name: URRACA FEDERAL COM 21H

New Well Name: URRACA FEDERAL COM 23-32-11 AV 24H

REVISED SHL: 460' FNL & 1624' FWL / Sec 11 – T23S – R32E

REVISED BHL: 330' FSL & 1977' FWL / Sec 11 – T23S – R32E

API # 30-025-42226

Lea County, New Mexico

Drilling Program Changes

1. Testing, Logging and Coring

Electric logging program: Only GR (MWD) from intermediate casing shoe to TD

2. Wellhead Changes:

- A 5M multibowl wellhead will be used in this well.

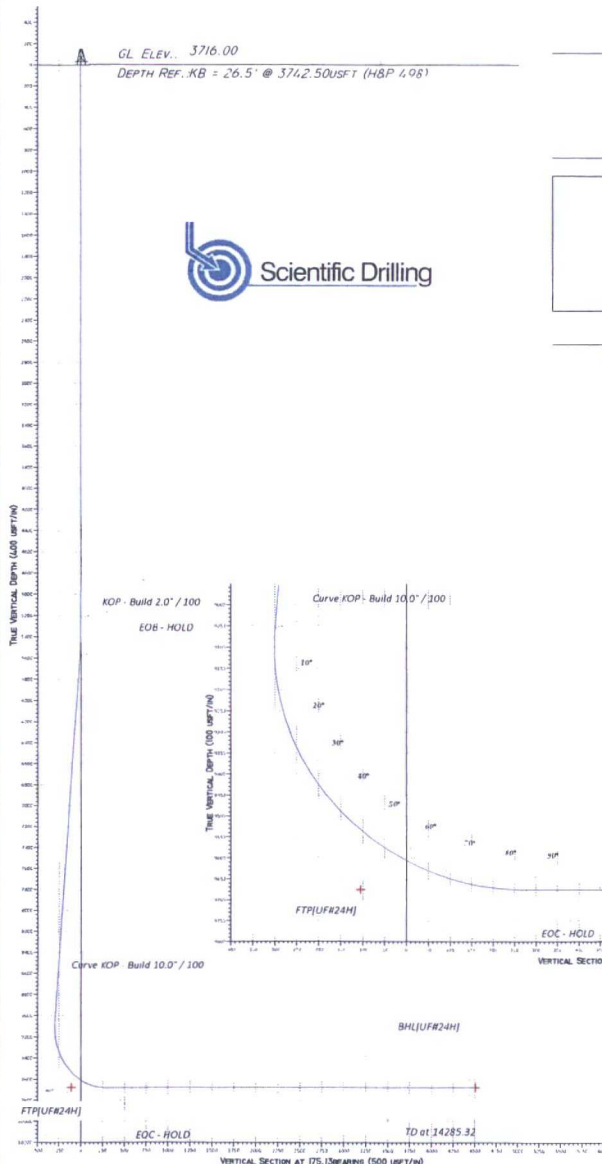
Y	A variance is requested to use a multibowl wellhead. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. A landing ring will be 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.
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3. Directional Plan

Changes:

- Revised directional plan to account for new FTP and LTP, see attached directional plan.

LEA COUNTY, NM (NAD27)
URRACA FEDERAL
23-32-11 AV #24H
OH
PLAN #1
H8P 498



WELL DETAIL:					
GROUND LEVEL: 3716.00					
N/S	E/W	NORTHING	EASTING	LATITUDE	LONGITUDE
0.00	0.00	487660.76	711628.85	32° 19' 30.526 N	103° 58' 53.616 W

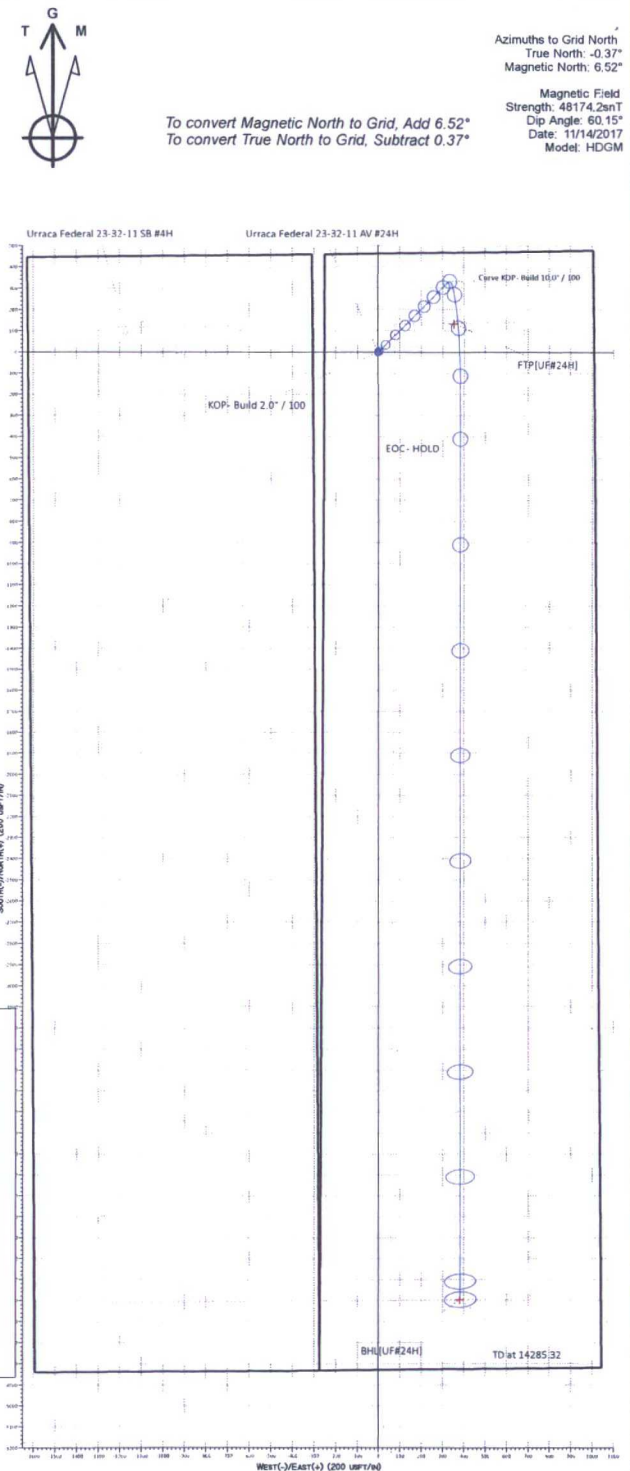
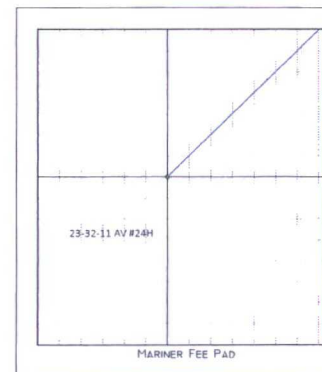
SECTION DETAILS									
HD	INC	ΔT	TVD	N-S	E-W	DEC	TFACE	VSECT	TARGET
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5222.50	0.00	0.00	5222.50	0.00	0.00	0.00	0.00	0.00	
5583.50	7.22	45.00	5582.55	16.06	16.06	2.00	45.00	4.64	
9083.50	7.22	45.00	9086.79	327.10	327.10	0.00	0.00	208.18	
10034.49	90.00	180.00	9676.18	-643.59	582.77	10.00	154.77	275.17	
10785.32	90.00	180.00	9676.00	-660.47	582.50	0.00	45.01	6510.67	RH (LF #24H)

DESIGN TARGET DETAILS					
Name	TVD	N-S	E-W	Northing	Easting
BHL(UF#24H)	9676.00	-4494.42	382.59	478166.52	712011.40
FTP(UF#24H)	9676.00	133.74	351.45	482794.49	711980.27

DRILLING TARGET: 9676 TVD @ 0VS // 90.0° INC.
WINDOW: 15 UP // 15 DOWN

SITE DETAILS: URRACA FEDERAL SITE CENTRE NORTHING: 482718.57 EASTING: 710665.50 POSITIONAL UNCERTAINTY: 0.00 CONNEPENCE: 0.56 LOCAL NORTH: GRID	PROJECT DETAILS: LEA COUNTY, NM (NAD27) GEODETIC SYSTEM: US STATE PLANE 1927 (EAGLE SOLUTION) DATUM: IGLD 1927 (DIAPYCN CORUS) ELLIPSOID: CLARKE 1866 ZONE NAME: NEW MEXICO EAST 3001 SYSTEM DATUM: MEAN SEA LEVEL
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FORMATION TOP DETAILS NO FORMATION DATA IS AVAILABLE	MAP SYSTEM: US STATE PLANE 1927 (EAGLE SOLUTION) DATUM: NAD 1927 (DIAPYCN CORUS) ELLIPSOID: CLARKE 1866 ZONE NAME: NEW MEXICO EAST 3001 LOCAL ORIGIN: WELL 23-32-11 AV #24H, GRID NORTH LATITUDE: 32° 19' 30.526 N LONGITUDE: 103° 58' 53.616 W GRID EAST: 711628.85 GRID NORTH: 487660.76 SCALE FACTOR: 1.000 GEOMAGNETIC MODEL: HDGM SCALE DATE: 16-Nov-17 MAGNETIC DECLINATION: 6.88° DIP ANGLE FROM HORIZONTAL: 60.15° MAGNETIC FIELD STRENGTH: 48174 TO CONVERT MAGNETIC NORTH TO GRID, ADD 6.52° TO CONVERT MAGNETIC NORTH TO TRUE, ADD 6.88° EAST TO CONVERT TRUE NORTH TO GRID, SUBTRACT 0.37°
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Azimuths to Grid North
True North: -0.37°
Magnetic North: 6.52°
Magnetic Field
Strength: 48174.2snT
Dip Angle: 60.15°
Date: 11/14/2017
Model: HDGM

To convert Magnetic North to Grid, Add 6.52°
To convert True North to Grid, Subtract 0.37°

Marathon Oil Permian, LLC

Lea County, NM (NAD27)

Urraca Federal

23-32-11 AV #24H

OH

Plan: Plan #1

Standard Planning Report

14 November, 2017



www.scientificdrilling.com

Planning Report

Database:	Midland District	Local Co-ordinate Reference:	Well 23-32-11 AV #24H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Project:	Lea County, NM (NAD27)	MD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Site:	Urraca Federal	North Reference:	Grid
Well:	23-32-11 AV #24H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Lea County, NM (NAD27)		
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		Using geodetic scale factor

Site	Urraca Federal			
Site Position:		Northing:	482,748.57 usft	Latitude: 32° 19' 31.269 N
From:	Map	Easting:	710,463.30 usft	Longitude: 103° 39' 7.193 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.36 °

Well	23-32-11 AV #24H			
Well Position	+N/-S	-87.81 usft	Northing:	482,660.76 usft
	+E/-W	1,165.58 usft	Easting:	711,628.83 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	3,716.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/14/2017	6.88	60.15	48,174

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (bearing)
	0.00	0.00	0.00	175.13

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	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	
5,222.50	0.00	0.00	5,222.50	0.00	0.00	0.00	0.00	0.00	0.00	
5,583.50	7.22	45.00	5,582.55	16.06	16.06	2.00	2.00	0.00	45.00	
9,083.50	7.22	45.00	9,054.79	327.10	327.10	0.00	0.00	0.00	0.00	
10,034.49	90.00	180.00	9,676.18	-243.59	382.77	10.00	8.70	14.20	134.77	
14,285.32	90.00	180.00	9,676.00	-4,494.42	382.59	0.00	0.00	0.00	45.01	BHL[UF#24H]

Planning Report

Database:	Midland District	Local Co-ordinate Reference:	Well 23-32-11 AV #24H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Project:	Lea County, NM (NAD27)	MD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Site:	Urraca Federal	North Reference:	Grid
Well:	23-32-11 AV #24H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	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
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	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	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,222.50	0.00	0.00	5,222.50	0.00	0.00	0.00	0.00	0.00	0.00

Planning Report

Database:	Midland District	Local Co-ordinate Reference:	Well 23-32-11 AV #24H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Project:	Lea County, NM (NAD27)	MD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Site:	Urraca Federal	North Reference:	Grid
Well:	23-32-11 AV #24H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
KOP - Build 2.0° / 100									
5,300.00	1.55	45.00	5,299.99	0.74	0.74	-0.68	2.00	2.00	0.00
5,400.00	3.55	45.00	5,399.89	3.89	3.89	-3.54	2.00	2.00	0.00
5,500.00	5.55	45.00	5,499.57	9.50	9.50	-8.66	2.00	2.00	0.00
5,583.50	7.22	45.00	5,582.55	16.06	16.06	-14.64	2.00	2.00	0.00
EOB - HOLD									
5,600.00	7.22	45.00	5,598.91	17.53	17.53	-15.98	0.00	0.00	0.00
5,700.00	7.22	45.00	5,698.12	26.42	26.42	-24.08	0.00	0.00	0.00
5,800.00	7.22	45.00	5,797.33	35.30	35.30	-32.18	0.00	0.00	0.00
5,900.00	7.22	45.00	5,896.54	44.19	44.19	-40.28	0.00	0.00	0.00
6,000.00	7.22	45.00	5,995.74	53.08	53.08	-48.38	0.00	0.00	0.00
6,100.00	7.22	45.00	6,094.95	61.96	61.96	-56.48	0.00	0.00	0.00
6,200.00	7.22	45.00	6,194.16	70.85	70.85	-64.59	0.00	0.00	0.00
6,300.00	7.22	45.00	6,293.36	79.74	79.74	-72.69	0.00	0.00	0.00
6,400.00	7.22	45.00	6,392.57	88.62	88.62	-80.79	0.00	0.00	0.00
6,500.00	7.22	45.00	6,491.78	97.51	97.51	-88.89	0.00	0.00	0.00
6,600.00	7.22	45.00	6,590.99	106.40	106.40	-96.99	0.00	0.00	0.00
6,700.00	7.22	45.00	6,690.19	115.28	115.28	-105.09	0.00	0.00	0.00
6,800.00	7.22	45.00	6,789.40	124.17	124.17	-113.19	0.00	0.00	0.00
6,900.00	7.22	45.00	6,888.61	133.06	133.06	-121.29	0.00	0.00	0.00
7,000.00	7.22	45.00	6,987.81	141.94	141.94	-129.40	0.00	0.00	0.00
7,100.00	7.22	45.00	7,087.02	150.83	150.83	-137.50	0.00	0.00	0.00
7,200.00	7.22	45.00	7,186.23	159.72	159.72	-145.60	0.00	0.00	0.00
7,300.00	7.22	45.00	7,285.44	168.61	168.61	-153.70	0.00	0.00	0.00
7,400.00	7.22	45.00	7,384.64	177.49	177.49	-161.80	0.00	0.00	0.00
7,500.00	7.22	45.00	7,483.85	186.38	186.38	-169.90	0.00	0.00	0.00
7,600.00	7.22	45.00	7,583.06	195.27	195.27	-178.00	0.00	0.00	0.00
7,700.00	7.22	45.00	7,682.26	204.15	204.15	-186.10	0.00	0.00	0.00
7,800.00	7.22	45.00	7,781.47	213.04	213.04	-194.20	0.00	0.00	0.00
7,900.00	7.22	45.00	7,880.68	221.93	221.93	-202.31	0.00	0.00	0.00
8,000.00	7.22	45.00	7,979.88	230.81	230.81	-210.41	0.00	0.00	0.00
8,100.00	7.22	45.00	8,079.09	239.70	239.70	-218.51	0.00	0.00	0.00
8,200.00	7.22	45.00	8,178.30	248.59	248.59	-226.61	0.00	0.00	0.00
8,300.00	7.22	45.00	8,277.51	257.47	257.47	-234.71	0.00	0.00	0.00
8,400.00	7.22	45.00	8,376.71	266.36	266.36	-242.81	0.00	0.00	0.00
8,500.00	7.22	45.00	8,475.92	275.25	275.25	-250.91	0.00	0.00	0.00
8,600.00	7.22	45.00	8,575.13	284.13	284.13	-259.01	0.00	0.00	0.00
8,700.00	7.22	45.00	8,674.33	293.02	293.02	-267.12	0.00	0.00	0.00
8,800.00	7.22	45.00	8,773.54	301.91	301.91	-275.22	0.00	0.00	0.00
8,900.00	7.22	45.00	8,872.75	310.80	310.80	-283.32	0.00	0.00	0.00
9,000.00	7.22	45.00	8,971.96	319.68	319.68	-291.42	0.00	0.00	0.00
9,083.50	7.22	45.00	9,054.79	327.10	327.10	-298.18	0.00	0.00	0.00
Curve KOP - Build 10.0° / 100									
9,100.00	6.17	55.96	9,071.18	328.33	328.57	-299.28	10.00	-6.37	66.45
9,150.00	5.35	106.89	9,120.96	329.16	333.03	-299.73	10.00	-1.64	101.84
9,200.00	8.31	142.16	9,170.62	325.63	337.48	-295.83	10.00	5.92	70.54
9,250.00	12.62	156.42	9,219.78	317.76	341.88	-287.63	10.00	8.63	28.52
9,300.00	17.30	163.29	9,268.08	305.63	346.21	-275.17	10.00	9.37	13.74
9,350.00	22.12	167.27	9,315.14	289.31	350.42	-258.55	10.00	9.64	7.96
9,400.00	27.01	169.88	9,360.60	268.94	354.50	-237.91	10.00	9.76	5.21
9,450.00	31.92	171.73	9,404.12	244.67	358.40	-213.39	10.00	9.83	3.71
9,500.00	36.86	173.14	9,445.37	216.68	362.09	-185.19	10.00	9.87	2.81
9,550.00	41.81	174.25	9,484.03	185.19	365.55	-153.52	10.00	9.90	2.23

Planning Report

Database: Midland District
Company: Marathon Oil Permian, LLC
Project: Lea County, NM (NAD27)
Site: Urraca Federal
Well: 23-32-11 AV #24H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 23-32-11 AV #24H
TVD Reference: KB = 26.5' @ 3742.50usft (H&P 498)
MD Reference: KB = 26.5' @ 3742.50usft (H&P 498)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,600.00	46.77	175.17	9,519.81	150.44	368.76	-118.62	10.00	9.92	1.83
9,650.00	51.73	175.95	9,552.44	112.68	371.68	-80.76	10.00	9.93	1.56
9,700.00	56.70	176.63	9,581.67	72.22	374.30	-40.22	10.00	9.94	1.36
FTP[UF#24H]									
9,750.00	61.68	177.23	9,607.27	29.35	376.59	2.69	10.00	9.95	1.21
9,800.00	66.65	177.78	9,629.05	-15.59	378.54	47.64	10.00	9.95	1.10
9,850.00	71.63	178.30	9,646.85	-62.27	380.14	94.29	10.00	9.95	1.02
9,900.00	76.61	178.78	9,660.53	-110.33	381.36	142.28	10.00	9.96	0.97
9,950.00	81.59	179.24	9,669.99	-159.41	382.21	191.25	10.00	9.96	0.93
10,000.00	86.57	179.69	9,675.15	-209.12	382.67	240.82	10.00	9.96	0.90
10,034.49	90.00	180.00	9,676.18	-243.59	382.77	275.17	10.00	9.96	0.89
EOC - HOLD									
10,100.00	90.00	180.00	9,676.18	-309.10	382.77	340.45	0.00	0.00	0.00
10,200.00	90.00	180.00	9,676.18	-409.10	382.77	440.09	0.00	0.00	0.00
10,300.00	90.00	180.00	9,676.18	-509.10	382.77	539.73	0.00	0.00	0.00
10,400.00	90.00	180.00	9,676.18	-609.10	382.77	639.37	0.00	0.00	0.00
10,500.00	90.00	180.00	9,676.18	-709.10	382.76	739.01	0.00	0.00	0.00
10,600.00	90.00	180.00	9,676.18	-809.10	382.76	838.65	0.00	0.00	0.00
10,700.00	90.00	180.00	9,676.18	-909.10	382.76	938.29	0.00	0.00	0.00
10,800.00	90.00	180.00	9,676.18	-1,009.10	382.76	1,037.93	0.00	0.00	0.00
10,900.00	90.00	180.00	9,676.17	-1,109.10	382.76	1,137.57	0.00	0.00	0.00
11,000.00	90.00	180.00	9,676.17	-1,209.10	382.76	1,237.21	0.00	0.00	0.00
11,100.00	90.00	180.00	9,676.17	-1,309.10	382.76	1,336.85	0.00	0.00	0.00
11,200.00	90.00	180.00	9,676.17	-1,409.10	382.75	1,436.49	0.00	0.00	0.00
11,300.00	90.00	180.00	9,676.17	-1,509.10	382.75	1,536.13	0.00	0.00	0.00
11,400.00	90.00	180.00	9,676.16	-1,609.10	382.75	1,635.77	0.00	0.00	0.00
11,500.00	90.00	180.00	9,676.16	-1,709.10	382.74	1,735.40	0.00	0.00	0.00
11,600.00	90.00	180.00	9,676.16	-1,809.10	382.74	1,835.04	0.00	0.00	0.00
11,700.00	90.00	180.00	9,676.15	-1,909.10	382.74	1,934.68	0.00	0.00	0.00
11,800.00	90.00	180.00	9,676.15	-2,009.10	382.74	2,034.32	0.00	0.00	0.00
11,900.00	90.00	180.00	9,676.15	-2,109.10	382.73	2,133.96	0.00	0.00	0.00
12,000.00	90.00	180.00	9,676.14	-2,209.10	382.73	2,233.60	0.00	0.00	0.00
12,100.00	90.00	180.00	9,676.14	-2,309.10	382.72	2,333.24	0.00	0.00	0.00
12,200.00	90.00	180.00	9,676.13	-2,409.10	382.72	2,432.88	0.00	0.00	0.00
12,300.00	90.00	180.00	9,676.13	-2,509.10	382.71	2,532.52	0.00	0.00	0.00
12,400.00	90.00	180.00	9,676.13	-2,609.10	382.71	2,632.16	0.00	0.00	0.00
12,500.00	90.00	180.00	9,676.12	-2,709.10	382.71	2,731.80	0.00	0.00	0.00
12,600.00	90.00	180.00	9,676.12	-2,809.10	382.70	2,831.44	0.00	0.00	0.00
12,700.00	90.00	180.00	9,676.11	-2,909.10	382.70	2,931.08	0.00	0.00	0.00
12,800.00	90.00	180.00	9,676.10	-3,009.10	382.69	3,030.72	0.00	0.00	0.00
12,900.00	90.00	180.00	9,676.10	-3,109.10	382.68	3,130.36	0.00	0.00	0.00
13,000.00	90.00	180.00	9,676.09	-3,209.10	382.68	3,230.00	0.00	0.00	0.00
13,100.00	90.00	180.00	9,676.09	-3,309.10	382.67	3,329.63	0.00	0.00	0.00
13,200.00	90.00	180.00	9,676.08	-3,409.10	382.67	3,429.27	0.00	0.00	0.00
13,300.00	90.00	180.00	9,676.07	-3,509.10	382.66	3,528.91	0.00	0.00	0.00
13,400.00	90.00	180.00	9,676.07	-3,609.10	382.65	3,628.55	0.00	0.00	0.00
13,500.00	90.00	180.00	9,676.06	-3,709.10	382.65	3,728.19	0.00	0.00	0.00
13,600.00	90.00	180.00	9,676.05	-3,809.10	382.64	3,827.83	0.00	0.00	0.00
13,700.00	90.00	180.00	9,676.05	-3,909.10	382.63	3,927.47	0.00	0.00	0.00
13,800.00	90.00	180.00	9,676.04	-4,009.10	382.62	4,027.11	0.00	0.00	0.00
13,900.00	90.00	180.00	9,676.03	-4,109.10	382.62	4,126.75	0.00	0.00	0.00
14,000.00	90.00	180.00	9,676.02	-4,209.10	382.61	4,226.39	0.00	0.00	0.00
14,100.00	90.00	180.00	9,676.02	-4,309.10	382.60	4,326.03	0.00	0.00	0.00

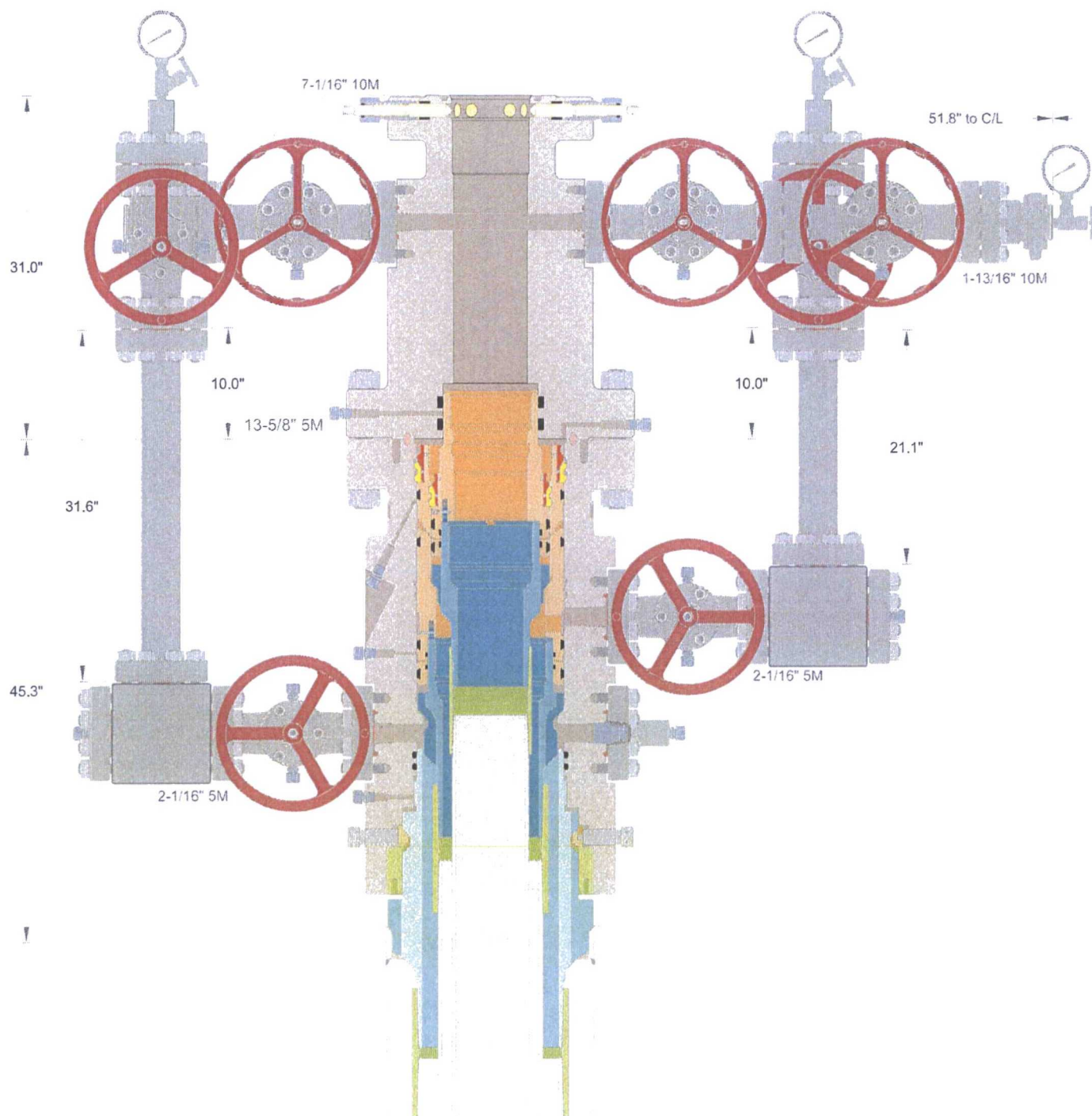
Planning Report

Database:	Midland District	Local Co-ordinate Reference:	Well 23-32-11 AV #24H
Company:	Marathon Oil Permian, LLC	TVD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Project:	Lea County, NM (NAD27)	MD Reference:	KB = 26.5' @ 3742.50usft (H&P 498)
Site:	Urraca Federal	North Reference:	Grid
Well:	23-32-11 AV #24H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,200.00	90.00	180.00	9,676.01	-4,409.10	382.59	4,425.66	0.00	0.00	0.00
14,285.32	90.00	180.00	9,676.00	-4,494.42	382.59	4,510.67	0.00	0.00	0.00
TD at 14285.32 - BHL[UF#24H]									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP[UF#24H]	0.00	0.00	9,676.00	133.74	351.45	482,794.49	711,980.27	32° 19' 31.627 N	103° 38' 49.511 W
- hit/miss target									
- Shape									
- plan misses target center by 114.91usft at 9700.00usft MD (9581.67 TVD, 72.22 N, 374.30 E)									
- Point									
BHL[UF#24H]	0.00	0.00	9,676.00	-4,494.42	382.59	478,166.52	712,011.40	32° 18' 45.829 N	103° 38' 49.494 W
- plan hits target center									
- Point									

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
5,222.50	5,222.50	0.00	0.00	KOP - Build 2.0° / 100	
5,583.50	5,582.55	16.06	16.06	EOB - HOLD	
9,083.50	9,054.79	327.10	327.10	Curve KOP - Build 10.0° / 100	
10,034.49	9,676.18	-243.59	382.77	EOC - HOLD	
14,285.32	9,676.00	-4,494.42	382.59	TD at 14285.32	



20" Conductor Pipe

13-3/8" Casing

9-5/8" Casing

7" Casing

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
With 13-5/8" 5M x 7-1/16" 10M CTH-DBLHPS Tubing Head (31" LG)
Utilizing Pin Down Mandrel Casing Hangers

DRAWN	DLE	24JUL17
APPRV		
DRAWING NO.		ODE0001624

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MARATHON OIL PERMIAN, LLC
LEASE NO.:	NMNM85940
WELL NAME & NO.:	URRACA FEDERAL COM 23 32 11 AV 24H
SURFACE HOLE FOOTAGE:	460' FNL & 1624' FWL
BOTTOM HOLE FOOTAGE:	330' FSL & 1977' FWL
LOCATION:	Section 11, T. 23 S., R 32 E., NMPM
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. CASING

1. 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. **Additional cement maybe required. Excess calculates to 12%.**

ZS 031218

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	5.30	1.41	0.68	1,265	
"B"							0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 659			Tail Cmt	does not	circ to sfc.	Totals:	1,265	
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	745	1239	933	33	8.30	1460	2M

Burst Frac Gradient(s) for Segment(s) A, B = 1.37, b All > 0.70, OK.

9 5/8	casing inside the	13 3/8	Design Factors					INTERMEDIA
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	
"A"	40.00	J 55	LT&C	2.67	1.01	0.87	4,875	
"B"							0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 638							Totals:	4,875
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		1265	
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	1170	2044	1626	26	10.00	2395	3M

ALT. COLLAPSE SF:
1.01*1.5= 1.52

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.81, b, c, d All > 0.70, OK.

5 1/2	casing inside the	9 5/8	Design Factors			PRODUCTION		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	
"A"	17.00	L 80	LT&C	2.05	1.48	1.71	9,084	
"B"	17.00	L 80	BUTT	6.03	1.26	1.71	5,201	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,196						Totals:	14,285	
B	Segment Design	Factors	would be:	39.45	1.39	if it were a vertical well		
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg	Severity	
		14285	9676	9676	9084	90	9	
The cement volume(s) are intended to achieve a top of				4675	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	1712	2728	2435	12	9.00		