

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTCarlsbad Field
FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM113419
2. Name of Operator MARATHON OIL PERMIAN LLC Contact: MELISSA SZUDERA E-Mail: mszudera@marathonoil.com		6. If Indian, Allottee or Tribe Name
3a. Address 5555 SAN FELIPE STREET HOUSTON, TX 77056	3b. Phone No. (include area code) Ph: 713-296-3179	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 14 T25S R34E SWNW 2450FNL 642FWL 32.130890 N Lat, 103.446747 W Lon		8. Well Name and No. ENDER WIGGINS 14 TB FC 3H
		9. API Well No. 30-025-45188-00-X1
		10. Field and Pool or Exploratory Area FAIRVIEW MILLS-WOLFCAMP
		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 recompletable 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 request to make the following changes to the approved APD:

-Change BHL
From: 330' FNL 330' FWL
To: 100' FNL 825' FWL

- Change production casing set depth, Int 2, Int 1, & Surface
-Change cement volumes due to change in casing depths and slurry yields.

Please see attachments.

-Change Int 2 casing weight

14. I hereby certify that the foregoing is true and correct. Electronic Submission #461047 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 04/11/2019 (19PP1543SE)	
Name (Printed/Typed) MELISSA SZUDERA	Title REGULATORY COMPLIANCE REP
Signature (Electronic Submission)	Date 04/11/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>DYLAN ROSSMANGO</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>04/12/2019</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 ****

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code 97369	³ Pool Name RED HILLS; BONE SPRING EAST
⁴ Property Code	⁵ Property Name ENDER WIGGINS 14 TB FC	⁶ Well Number 3H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3332'

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
E	14	25S	34E		2450	NORTH	642	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
D	11	25S	34E		100	NORTH	825	WEST	LEA

¹² Dedicated Acres 240.0	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.

Defining Well SHEET 1 OF 3 JOB No. R3816.003 REV 4 BM 12/3/2018	CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 814924.62' / Y: 420254.79' B - X: 816249.28' / Y: 420262.05' C - X: 816317.87' / Y: 412344.58' D - X: 814995.64' / Y: 412337.40'	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 773738.70' / Y: 420196.54' B - X: 775063.31' / Y: 420203.78' C - X: 775131.55' / Y: 412286.52' D - X: 773809.54' / Y: 412279.35'	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. <i>[Signature]</i> 2/19/2019 Signature Date Adrian Covarrubias Printed Name E-mail Address
	LAST TAKE POINT/BOTTOM HOLE LOCATION 100' FNL 825' FWL, SECTION 11 NAD 83, SPCS NM EAST X: 815750.48' / Y: 420159.32' LAT: 32.15189895N / LON: -103.44664571W NAD 27, SPCS NM EAST X: 774564.54' / Y: 420101.08' LAT: 32.15186478N / LON: -103.44617623W		
	FIRST TAKE POINT 2539' FNL 825' FWL, SECTION 14 NAD 83, SPCS NM EAST X: 815819.88' / Y: 412441.88' LAT: 32.13077612N / LON: -103.44662681W NAD 27, SPCS NM EAST X: 774633.57' / Y: 412383.82' LAT: 32.13065083N / LON: -103.44615862W		
	KICK OFF POINT 2539' FNL 825' FWL, SECTION 14 NAD 83, SPCS NM EAST X: 815819.88' / Y: 412441.88' LAT: 32.13077612N / LON: -103.44662681W NAD 27, SPCS NM EAST X: 774633.57' / Y: 412383.82' LAT: 32.13065083N / LON: -103.44615862W		
SURFACE HOLE LOCATION 2450' FNL 642' FWL, SECTION 14 NAD 83, SPCS NM EAST X: 815636.44' / Y: 412530.57' LAT: 32.13102405N / LON: -103.44721698W NAD 27, SPCS NM EAST X: 774450.14' / Y: 412472.51' LAT: 32.13089878N / LON: -103.44674875W			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. DECEMBER 5, 2018 Date of Survey Signature and Seal of Professional Surveyor <i>[Signature]</i> Certificate Number LLOYD P. SHORT 21653

Marathon Oil Permian, LLC

Ender Wiggins 14 TB FC 3H

API# 30-025-45188

Lea County, New Mexico

Drilling Program Changes

1. Casing Changes:

- Change production casing set depth

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	<u>17 1/2</u>	<u>13 3/8</u>	<u>0</u>	<u>116.30</u>	<u>0</u>	<u>116.30</u>	<u>54.5</u>	<u>J55</u>	<u>STC</u>	<u>1.125</u>	<u>1.125</u>	<u>1.8</u>
Intermediate I	<u>12 1/4</u>	<u>9 5/8</u>	<u>0</u>	<u>116.30</u>	<u>0</u>	<u>116.30</u>	<u>29</u>	<u>J55</u>	<u>LTC</u>	<u>1.125</u>	<u>1.125</u>	<u>1.8</u>
Intermediate II	<u>8 3/4</u>	<u>7</u>	<u>0</u>	<u>116.30</u>	<u>0</u>	<u>116.30</u>	<u>29</u>	<u>P110</u>	<u>BTC</u>	<u>1.125</u>	<u>1.125</u>	<u>1.8</u>
Production Liner	<u>6 1/8</u>	<u>4 1/2</u>	<u>116.30</u>	<u>19915</u>	<u>116.30</u>	<u>17331</u>	<u>13.5</u>	<u>P110</u>	<u>BTC</u>	<u>1.125</u>	<u>1.125</u>	<u>1.8</u>

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 depths and slurry yields

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity (sls)	Yield (ft3/sls)	Density (ppg)	Slurry Volume (ft3)	Excess (%)	Cement Type	Additives
Surface	Lead	-	0	0.00	0.00	0.00	13.5	0.00	100	Class C	3 lbm/sk granular LCM + 0.1250 lbm/sk Poly-E-Flake
Surface	Tail	-	0.00	0.00	0.00	0.00	14.8	0.00	0	Class C	0.00
Intermediate I	Lead	-	0	0.00	0.00	0.00	12.8	0.00	0	Class C	0.02 Gal/Sk Defoamer + 0.5% Extender + 1% Accelerator
Intermediate I	Tail	-	0.00	0.00	0	1.33	14.8	0	0	Class C	0.00
Intermediate II	Lead	-	0.00	0.00	0.00	0.00	11	0.00	70	Class C	0.85% retarder + 10% extender + 0.02 gal/sk defoamer + 2.0%
Intermediate II	Tail	-	0.00	0.00	0.00	0.00	0	195	30	Class H	3% extender + 0.00% retarder
Production Liner	Tail	-	0.00	0.00	0.00	1.22	14.5	0.00	30	Class H	3.5% extender + 0.00% retarder



Marathon Oil Permian LLC

GL+KB 25' @ 3357.0usft (PD 601)

GL=3332.0

Project: Lea County, NM (NAD 27)
Site: Ender Wiggins 14
Well: TB FC 3H
Wellbore: Wellbore #1
Design: Plan 1
Rig: PD 601

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001



Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.15°
Magnetic Field
Strength: 47812.7nT
Dip Angle: 59.75°
Date: 4/19/2019
Model: HDGM_2019

WELL DETAILS

N-S	+E-W	Northing	Easting	Latitude	Longitude
0.0	0.0	412472.51	774450.14	32° 7' 51.236 N	103° 26' 48.296 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	Start Nudge
2650.2	3.00	115.82	2650.2	-1.7	3.5	2.00	115.82	-1.7	Hold
6505.2	3.00	115.82	6499.8	-89.7	185.5	0.00	0.00	-91.5	Drop vertical
6655.4	0.00	0.00	6650.0	-91.4	189.0	2.00	180.00	-93.3	Hold vertical
11922.0	0.00	0.00	11916.5	-91.4	189.0	0.00	0.00	-93.3	KOP, Build and turn
12676.1	90.50	359.45	12394.0	390.1	184.3	12.00	359.45	388.3	Landing point
19915.1	90.50	359.45	12331.4	7628.5	114.4	0.00	0.00	7627.1	TD at 19915.14

CASING DETAILS

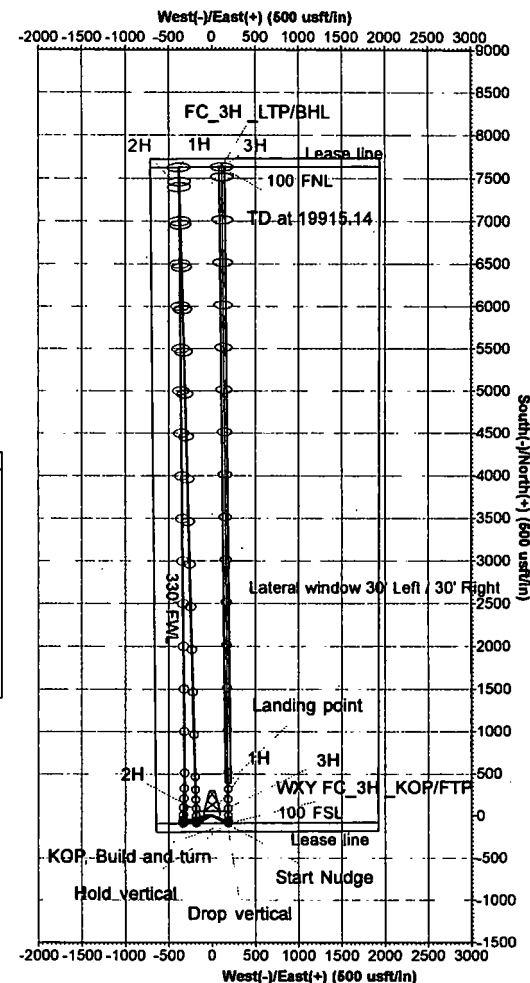
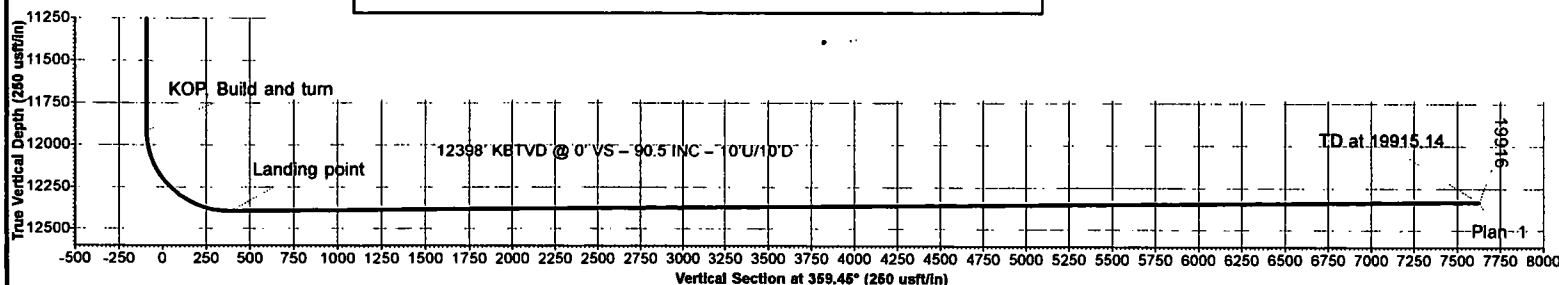
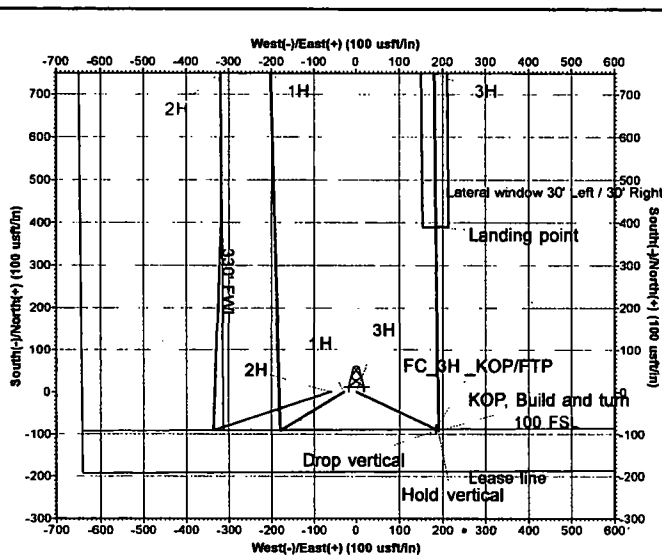
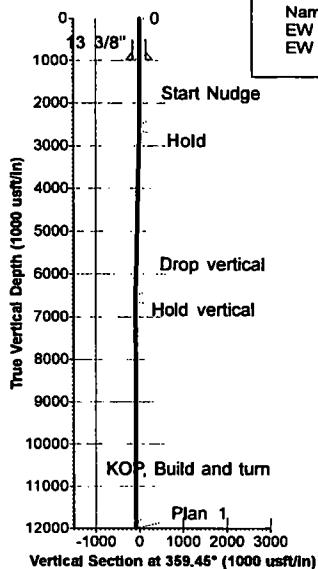
TVD	MD	Name	Size
1000.0	1000.0	13 3/8"	13-3/8"

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
EW 14 WXY FC_3H_KOP/FTP	0.0	-88.7	183.0	412383.82	774633.17	32° 7' 50.343 N	103° 26' 48.176 W
EW 14 WXY FC_3H_LTP/BHL	0.0	7628.5	114.4	420101.06	774564.54	32° 9' 6.713 N	103° 26' 48.234 W

FORMATION TOP DETAILS

TVDPth	MDPth	Formation	DipAngle	DipDir
881.0	881.0	Rueder	-0.50	359.45
1367.0	1367.0	Salado	-0.50	359.45
3568.2	3567.5	Casida	-0.50	359.45
5090.5	5093.9	Base Salt	-0.50	359.45
5374.6	5378.4	Lamar	-0.50	359.45
5406.8	5410.4	Ball Canyon Sa.	-0.50	359.45
6714.8	6720.3	Cherry Canyon Sa.	-0.50	359.45
8015.8	8021.3	Brushy Canyon Sa.	-0.50	359.45
9304.8	9310.3	Bone Spring	-0.50	359.45
9617.8	9623.3	Bone Spring Hard Lm.	-0.50	359.45
10351.8	10357.3	1st Bone Spg	-0.50	359.45
10558.8	10564.3	Base 1st Bone Spg sand	-0.50	359.45
10829.8	10835.3	2nd Bone Spg sand	-0.50	359.45
11397.8	11403.3	Base 2nd Bone Spg sand	-0.50	359.45
11972.8	11978.4	3rd Bone Spring Sa.	-0.50	359.45
12351.4	12458.7	Lowered 3rd Bone Spring Sa.	-0.50	359.45



Marathon Oil Permian LLC

Lea County, NM (NAD 27) Ender Wiggins 14

API#

TB FC 3H

Wellbore #1

Plan: Plan 1

Sperry Drilling Services Combo Report

08 April, 2019

Well Coordinates: 32.13089877
-103.44674875

NAD 1927 (NADCON CONUS)
New Mexico East 3001
.412,472.51 N
774,450.14 E

Ground Level: 3,332.00 usft

Local Coordinate Origin:

Centered on Well TB FC 3H

Viewing Datum:

GL+KB 25' @ 3357.00usft (PD 601)

TVDs to System:

N

North Reference:

Grid

Unit System:

Midcon (2 decimal)

Version: 5000.15 Build: 91

Report Version: Midcon Combo v1.13

HALLIBURTON

Plan Report for TB FC 3H - Plan 1

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
0.00	0.00	0.00	0.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
861.00	0.00	0.00	861.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	Rustler
900.00	0.00	0.00	900.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	13 3/8"
1,100.00	0.00	0.00	1,100.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,367.00	0.00	0.00	1,367.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	Salado
1,400.00	0.00	0.00	1,400.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,600.00	0.00	0.00	1,600.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,700.00	0.00	0.00	1,700.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,800.00	0.00	0.00	1,800.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
2,300.00	0.00	0.00	2,300.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
2,400.00	0.00	0.00	2,400.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	Start Nudge
2,600.00	2.00	115.82	2,599.98	0.76 S	1.57 E	412,471.75	774,451.71	2.00	-0.78	115.82	
2,650.24	3.00	115.82	2,650.17	1.72 S	3.55 E	412,470.79	774,453.69	2.00	-1.75	0.00	Hold
2,700.00	3.00	115.82	2,699.86	2.85 S	5.89 E	412,469.66	774,456.03	0.00	-2.91	0.00	
2,800.00	3.00	115.82	2,799.73	5.13 S	10.61 E	412,467.38	774,460.75	0.00	-5.24	0.00	
2,900.00	3.00	115.82	2,899.59	7.42 S	15.33 E	412,465.09	774,465.47	0.00	-7.56	0.00	
3,000.00	3.00	115.82	2,999.45	9.70 S	20.05 E	412,462.81	774,470.19	0.00	-9.89	0.00	
3,100.00	3.00	115.82	3,099.31	11.98 S	24.77 E	412,460.53	774,474.91	0.00	-12.22	0.00	
3,200.00	3.00	115.82	3,199.18	14.27 S	29.49 E	412,458.24	774,479.63	0.00	-14.55	0.00	

Plan Report for TB FC 3H - Plan 1

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
3,300.00	3.00	115.82	3,299.04	16.55 S	34.21 E	412,455.96	774,484.35	0.00	-16.88	0.00	
3,400.00	3.00	115.82	3,398.90	18.83 S	38.93 E	412,453.68	774,489.07	0.00	-19.21	0.00	
3,500.00	3.00	115.82	3,498.76	21.12 S	43.64 E	412,451.39	774,493.78	0.00	-21.53	0.00	
3,567.53	3.00	115.82	3,566.20	22.66 S	46.83 E	412,449.85	774,496.97	0.00	-23.11	0.00	Castile
3,600.00	3.00	115.82	3,598.63	23.40 S	48.36 E	412,449.11	774,498.50	0.00	-23.86	0.00	
3,700.00	3.00	115.82	3,698.49	25.68 S	53.08 E	412,446.83	774,503.22	0.00	-26.19	0.00	
3,800.00	3.00	115.82	3,798.35	27.96 S	57.80 E	412,444.55	774,507.94	0.00	-28.52	0.00	
3,900.00	3.00	115.82	3,898.21	30.25 S	62.52 E	412,442.26	774,512.66	0.00	-30.85	0.00	
4,000.00	3.00	115.82	3,998.08	32.53 S	67.24 E	412,439.98	774,517.38	0.00	-33.17	0.00	
4,100.00	3.00	115.82	4,097.94	34.81 S	71.96 E	412,437.70	774,522.10	0.00	-35.50	0.00	
4,200.00	3.00	115.82	4,197.80	37.10 S	76.68 E	412,435.41	774,526.82	0.00	-37.83	0.00	
4,300.00	3.00	115.82	4,297.66	39.38 S	81.39 E	412,433.13	774,531.53	0.00	-40.16	0.00	
4,400.00	3.00	115.82	4,397.53	41.66 S	86.11 E	412,430.85	774,536.25	0.00	-42.49	0.00	
4,500.00	3.00	115.82	4,497.39	43.95 S	90.83 E	412,428.56	774,540.97	0.00	-44.82	0.00	
4,600.00	3.00	115.82	4,597.25	46.23 S	95.55 E	412,426.28	774,545.69	0.00	-47.14	0.00	
4,700.00	3.00	115.82	4,697.11	48.51 S	100.27 E	412,424.00	774,550.41	0.00	-49.47	0.00	
4,800.00	3.00	115.82	4,796.98	50.79 S	104.99 E	412,421.72	774,555.13	0.00	-51.80	0.00	
4,900.00	3.00	115.82	4,896.84	53.08 S	109.71 E	412,419.43	774,559.85	0.00	-54.13	0.00	
5,000.00	3.00	115.82	4,996.70	55.36 S	114.43 E	412,417.15	774,564.57	0.00	-56.46	0.00	
5,093.94	3.00	115.82	5,090.51	57.51 S	118.86 E	412,415.00	774,569.00	0.00	-58.64	0.00	Base Salt
5,100.00	3.00	115.82	5,096.56	57.64 S	119.15 E	412,414.87	774,569.29	0.00	-58.78	0.00	
5,200.00	3.00	115.82	5,196.43	59.93 S	123.86 E	412,412.58	774,574.00	0.00	-61.11	0.00	
5,300.00	3.00	115.82	5,296.29	62.21 S	128.58 E	412,410.30	774,578.72	0.00	-63.44	0.00	
5,378.39	3.00	115.82	5,374.57	64.00 S	132.28 E	412,408.51	774,582.42	0.00	-65.27	0.00	Lamar
5,400.00	3.00	115.82	5,396.15	64.49 S	133.30 E	412,408.02	774,583.44	0.00	-65.77	0.00	
5,410.44	3.00	115.82	5,406.58	64.73 S	133.79 E	412,407.78	774,583.93	0.00	-66.01	0.00	Bell Canyon Ss.
5,500.00	3.00	115.82	5,496.01	66.78 S	138.02 E	412,405.73	774,588.16	0.00	-68.10	0.00	
5,600.00	3.00	115.82	5,595.88	69.08 S	142.74 E	412,403.45	774,592.88	0.00	-70.43	0.00	
5,700.00	3.00	115.82	5,695.74	71.34 S	147.46 E	412,401.17	774,597.60	0.00	-72.75	0.00	
5,800.00	3.00	115.82	5,795.60	73.62 S	152.18 E	412,398.89	774,602.32	0.00	-75.08	0.00	
5,900.00	3.00	115.82	5,895.46	75.91 S	156.90 E	412,396.60	774,607.04	0.00	-77.41	0.00	
6,000.00	3.00	115.82	5,995.33	78.19 S	161.62 E	412,394.32	774,611.76	0.00	-79.74	0.00	
6,100.00	3.00	115.82	6,095.19	80.47 S	166.33 E	412,392.04	774,616.47	0.00	-82.07	0.00	
6,200.00	3.00	115.82	6,195.05	82.76 S	171.05 E	412,389.75	774,621.19	0.00	-84.40	0.00	
6,300.00	3.00	115.82	6,294.91	85.04 S	175.77 E	412,387.47	774,625.91	0.00	-86.72	0.00	
6,400.00	3.00	115.82	6,394.78	87.32 S	180.49 E	412,385.19	774,630.63	0.00	-89.05	0.00	
6,505.19	3.00	115.82	6,499.82	89.72 S	185.45 E	412,382.79	774,635.59	0.00	-91.50	0.00	Drop vertical

HALLIBURTON**Plan Report for TB FC 3H - Plan 1**

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
6,600.00	1.11	115.82	6,594.57	91.21 S	188.52 E	412,381.30	774,638.66	2.00	-93.01	180.00	
6,655.44	0.00	0.00	6,650.00	91.44 S	189.00 E	412,381.07	774,639.14	2.00	-93.25	-180.00	Hold vertical
6,700.00	0.00	0.00	6,694.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
6,720.25	0.00	0.00	6,714.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	Cherry Canyon Ss.
6,800.00	0.00	0.00	6,794.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
6,900.00	0.00	0.00	6,894.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,000.00	0.00	0.00	6,994.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,100.00	0.00	0.00	7,094.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,200.00	0.00	0.00	7,194.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,300.00	0.00	0.00	7,294.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,400.00	0.00	0.00	7,394.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,500.00	0.00	0.00	7,494.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,600.00	0.00	0.00	7,594.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,700.00	0.00	0.00	7,694.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,800.00	0.00	0.00	7,794.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
7,900.00	0.00	0.00	7,894.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,000.00	0.00	0.00	7,994.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,021.25	0.00	0.00	8,015.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	Brushy Canyon Ss.
8,100.00	0.00	0.00	8,094.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,200.00	0.00	0.00	8,194.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,300.00	0.00	0.00	8,294.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,400.00	0.00	0.00	8,394.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,500.00	0.00	0.00	8,494.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,600.00	0.00	0.00	8,594.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,700.00	0.00	0.00	8,694.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,800.00	0.00	0.00	8,794.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
8,900.00	0.00	0.00	8,894.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,000.00	0.00	0.00	8,994.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,100.00	0.00	0.00	9,094.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,200.00	0.00	0.00	9,194.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,300.00	0.00	0.00	9,294.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,310.25	0.00	0.00	9,304.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	Bone Spring
9,400.00	0.00	0.00	9,394.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,500.00	0.00	0.00	9,494.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,600.00	0.00	0.00	9,594.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,623.25	0.00	0.00	9,617.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	Bone Spring Hard Lm.
9,700.00	0.00	0.00	9,694.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	

Plan Report for TB FC 3H - Plan 1

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
9,800.00	0.00	0.00	9,794.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
9,900.00	0.00	0.00	9,894.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,000.00	0.00	0.00	9,994.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,100.00	0.00	0.00	10,094.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,200.00	0.00	0.00	10,194.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,300.00	0.00	0.00	10,294.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,357.25	0.00	0.00	10,351.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	1st Bone Spg.
10,400.00	0.00	0.00	10,394.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,500.00	0.00	0.00	10,494.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,564.25	0.00	0.00	10,558.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	Base 1st Bone Spg sand
10,600.00	0.00	0.00	10,594.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,700.00	0.00	0.00	10,694.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,800.00	0.00	0.00	10,794.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,900.00	0.00	0.00	10,894.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
10,935.25	0.00	0.00	10,929.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	2nd Bone Spg sand
11,000.00	0.00	0.00	10,994.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,100.00	0.00	0.00	11,094.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,200.00	0.00	0.00	11,194.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,300.00	0.00	0.00	11,294.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,400.00	0.00	0.00	11,394.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,403.25	0.00	0.00	11,397.81	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	Base 2nd Bone Spg sand
11,500.00	0.00	0.00	11,494.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,600.00	0.00	0.00	11,594.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,700.00	0.00	0.00	11,694.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,800.00	0.00	0.00	11,794.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,900.00	0.00	0.00	11,894.56	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	
11,921.99	0.00	0.00	11,916.55	91.44 S	189.00 E	412,381.07	774,639.14	0.00	-93.25	0.00	KOP, Build and turn
11,925.00	0.36	359.45	11,919.56	91.43 S	189.00 E	412,381.08	774,639.14	12.01	-93.24	359.45	
11,950.00	3.36	359.45	11,944.55	90.62 S	188.99 E	412,381.89	774,639.13	12.00	-92.43	0.00	
11,975.00	6.36	359.45	11,969.45	88.50 S	188.97 E	412,384.01	774,639.11	12.00	-90.31	0.00	
11,978.35	6.76	359.45	11,972.78	88.12 S	188.97 E	412,384.39	774,639.11	12.00	-89.93	0.00	3rd Bone Spring Ss.
12,000.00	9.36	359.45	11,994.22	85.08 S	188.94 E	412,387.43	774,639.08	12.00	-86.89	0.00	
12,025.00	12.36	359.45	12,018.76	80.37 S	188.89 E	412,392.14	774,639.03	12.00	-82.18	0.00	
12,050.00	15.36	359.45	12,043.03	74.38 S	188.84 E	412,398.13	774,638.98	12.00	-76.19	0.00	
12,075.00	18.36	359.45	12,066.96	67.13 S	188.77 E	412,405.38	774,638.91	12.00	-68.94	0.00	
12,100.00	21.36	359.45	12,090.47	58.64 S	188.68 E	412,413.87	774,638.82	12.00	-60.45	0.00	

Plan Report for TB FC 3H - Plan 1

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
12,125.00	24.36	359.45	12,113.50	48.93 S	188.59 E	412,423.58	774,638.73	12.00	-50.74	0.00	
12,150.00	27.36	359.45	12,135.99	38.03 S	188.48 E	412,434.48	774,638.62	12.00	-39.83	0.00	
12,175.00	30.36	359.45	12,157.89	25.98 S	188.37 E	412,446.55	774,638.51	12.00	-27.77	0.00	
12,200.00	33.36	359.45	12,179.12	12.77 S	188.24 E	412,459.74	774,638.38	12.00	-14.57	0.00	
12,225.00	36.36	359.45	12,199.63	1.52 N	188.10 E	412,474.03	774,638.24	12.00	-0.28	0.00	
12,250.00	39.36	359.45	12,219.36	16.86 N	187.95 E	412,489.37	774,638.09	12.00	15.06	0.00	
12,275.00	42.36	359.45	12,238.27	33.22 N	187.80 E	412,505.73	774,637.94	12.00	31.41	0.00	
12,300.00	45.36	359.45	12,256.29	50.54 N	187.63 E	412,523.05	774,637.77	12.00	48.73	0.00	
12,325.00	48.36	359.45	12,273.38	68.78 N	187.45 E	412,541.29	774,637.59	12.00	66.97	0.00	
12,350.00	51.36	359.45	12,289.50	87.88 N	187.27 E	412,560.39	774,637.41	12.00	86.08	0.00	
12,375.00	54.36	359.45	12,304.59	107.81 N	187.07 E	412,580.32	774,637.21	12.00	106.01	0.00	
12,400.00	57.36	359.45	12,318.62	128.50 N	186.87 E	412,601.01	774,637.01	12.00	126.70	0.00	
12,425.00	60.36	359.45	12,331.54	149.89 N	186.67 E	412,622.40	774,636.81	12.00	148.10	0.00	
12,450.00	63.36	359.45	12,343.33	171.94 N	186.45 E	412,644.45	774,636.59	12.00	170.14	0.00	
12,468.65	65.60	359.45	12,351.37	188.77 N	186.29 E	412,661.28	774,636.43	12.00	186.97	0.00	Lowered 3rd Bone Spring Ss.
12,475.00	66.36	359.45	12,353.95	194.56 N	186.24 E	412,667.07	774,636.38	12.00	192.77	0.00	
12,500.00	69.36	359.45	12,363.37	217.72 N	186.01 E	412,690.23	774,636.15	12.00	215.92	0.00	
12,525.00	72.36	359.45	12,371.57	241.33 N	185.78 E	412,713.84	774,635.92	12.00	239.54	0.00	
12,550.00	75.36	359.45	12,378.52	265.34 N	185.55 E	412,737.85	774,635.69	12.00	263.55	0.00	
12,575.00	78.36	359.45	12,384.20	289.68 N	185.32 E	412,762.19	774,635.46	12.00	287.89	0.00	
12,600.00	81.36	359.45	12,388.60	314.29 N	185.08 E	412,786.80	774,635.22	12.00	312.50	0.00	
12,625.00	84.36	359.45	12,391.70	339.09 N	184.84 E	412,811.60	774,634.98	12.00	337.30	0.00	
12,650.00	87.36	359.45	12,393.51	364.02 N	184.60 E	412,836.53	774,634.74	12.00	362.23	0.00	
12,676.12	90.50	359.45	12,394.00	390.13 N	184.35 E	412,862.64	774,634.49	12.00	388.35	0.00	Landing point
12,700.00	90.50	359.45	12,393.79	414.01 N	184.12 E	412,886.52	774,634.26	0.00	412.23	0.00	
12,800.00	90.50	359.45	12,392.93	514.00 N	183.15 E	412,986.51	774,633.29	0.00	512.22	0.00	
12,900.00	90.50	359.45	12,392.06	614.00 N	182.18 E	413,086.51	774,632.32	0.00	612.22	0.00	
13,000.00	90.50	359.45	12,391.20	713.99 N	181.22 E	413,186.50	774,631.36	0.00	712.21	0.00	
13,100.00	90.50	359.45	12,390.33	813.98 N	180.25 E	413,286.49	774,630.39	0.00	812.21	0.00	
13,200.00	90.50	359.45	12,389.47	913.97 N	179.28 E	413,386.48	774,629.42	0.00	912.21	0.00	
13,300.00	90.50	359.45	12,388.60	1,013.96 N	178.32 E	413,486.47	774,628.46	0.00	1,012.20	0.00	
13,400.00	90.50	359.45	12,387.74	1,113.95 N	177.35 E	413,586.46	774,627.49	0.00	1,112.20	0.00	
13,500.00	90.50	359.45	12,386.87	1,213.95 N	176.39 E	413,686.46	774,626.53	0.00	1,212.20	0.00	
13,600.00	90.50	359.45	12,386.01	1,313.94 N	175.42 E	413,786.45	774,625.56	0.00	1,312.19	0.00	
13,700.00	90.50	359.45	12,385.14	1,413.93 N	174.45 E	413,886.44	774,624.59	0.00	1,412.19	0.00	
13,800.00	90.50	359.45	12,384.28	1,513.92 N	173.49 E	413,986.43	774,623.63	0.00	1,512.18	0.00	
13,900.00	90.50	359.45	12,383.41	1,613.91 N	172.52 E	414,086.42	774,622.66	0.00	1,612.18	0.00	

Plan Report for TB FC 3H - Plan 1

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
14,000.00	90.50	359.45	12,382.55	1,713.90 N	171.55 E	414,186.41	774,621.69	0.00	1,712.18	0.00	
14,100.00	90.50	359.45	12,381.68	1,813.89 N	170.59 E	414,286.40	774,620.73	0.00	1,812.17	0.00	
14,200.00	90.50	359.45	12,380.82	1,913.89 N	169.62 E	414,386.40	774,619.76	0.00	1,912.17	0.00	
14,300.00	90.50	359.45	12,379.96	2,013.88 N	168.66 E	414,486.39	774,618.80	0.00	2,012.17	0.00	
14,400.00	90.50	359.45	12,379.09	2,113.87 N	167.69 E	414,586.38	774,617.83	0.00	2,112.16	0.00	
14,500.00	90.50	359.45	12,378.23	2,213.86 N	166.72 E	414,686.37	774,616.86	0.00	2,212.16	0.00	
14,600.00	90.50	359.45	12,377.36	2,313.85 N	165.76 E	414,786.36	774,615.90	0.00	2,312.15	0.00	
14,700.00	90.50	359.45	12,376.50	2,413.84 N	164.79 E	414,886.35	774,614.93	0.00	2,412.15	0.00	
14,800.00	90.50	359.45	12,375.63	2,513.84 N	163.82 E	414,986.35	774,613.96	0.00	2,512.15	0.00	
14,900.00	90.50	359.45	12,374.77	2,613.83 N	162.86 E	415,086.34	774,613.00	0.00	2,612.14	0.00	
15,000.00	90.50	359.45	12,373.90	2,713.82 N	161.89 E	415,186.33	774,612.03	0.00	2,712.14	0.00	
15,100.00	90.50	359.45	12,373.04	2,813.81 N	160.93 E	415,286.32	774,611.07	0.00	2,812.14	0.00	
15,200.00	90.50	359.45	12,372.17	2,913.80 N	159.96 E	415,386.31	774,610.10	0.00	2,912.13	0.00	
15,300.00	90.50	359.45	12,371.31	3,013.79 N	158.99 E	415,486.30	774,609.13	0.00	3,012.13	0.00	
15,400.00	90.50	359.45	12,370.44	3,113.79 N	158.03 E	415,586.30	774,608.17	0.00	3,112.12	0.00	
15,500.00	90.50	359.45	12,369.58	3,213.78 N	157.06 E	415,686.29	774,607.20	0.00	3,212.12	0.00	
15,600.00	90.50	359.45	12,368.71	3,313.77 N	156.09 E	415,786.28	774,606.23	0.00	3,312.12	0.00	
15,700.00	90.50	359.45	12,367.85	3,413.76 N	155.13 E	415,886.27	774,605.27	0.00	3,412.11	0.00	
15,800.00	90.50	359.45	12,366.98	3,513.75 N	154.16 E	415,986.26	774,604.30	0.00	3,512.11	0.00	
15,900.00	90.50	359.45	12,366.12	3,613.74 N	153.20 E	416,086.25	774,603.34	0.00	3,612.11	0.00	
16,000.00	90.50	359.45	12,365.25	3,713.73 N	152.23 E	416,186.24	774,602.37	0.00	3,712.10	0.00	
16,100.00	90.50	359.45	12,364.39	3,813.73 N	151.26 E	416,286.24	774,601.40	0.00	3,812.10	0.00	
16,200.00	90.50	359.45	12,363.53	3,913.72 N	150.30 E	416,386.23	774,600.44	0.00	3,912.10	0.00	
16,300.00	90.50	359.45	12,362.66	4,013.71 N	149.33 E	416,486.22	774,599.47	0.00	4,012.09	0.00	
16,400.00	90.50	359.45	12,361.80	4,113.70 N	148.36 E	416,586.21	774,598.50	0.00	4,112.09	0.00	
16,500.00	90.50	359.45	12,360.93	4,213.69 N	147.40 E	416,686.20	774,597.54	0.00	4,212.08	0.00	
16,600.00	90.50	359.45	12,360.07	4,313.68 N	146.43 E	416,786.19	774,596.57	0.00	4,312.08	0.00	
16,700.00	90.50	359.45	12,359.20	4,413.68 N	145.47 E	416,886.19	774,595.61	0.00	4,412.08	0.00	
16,800.00	90.50	359.45	12,358.34	4,513.67 N	144.50 E	416,986.18	774,594.64	0.00	4,512.07	0.00	
16,900.00	90.50	359.45	12,357.47	4,613.66 N	143.53 E	417,086.17	774,593.67	0.00	4,612.07	0.00	
17,000.00	90.50	359.45	12,356.61	4,713.65 N	142.57 E	417,186.16	774,592.71	0.00	4,712.07	0.00	
17,100.00	90.50	359.45	12,355.74	4,813.64 N	141.60 E	417,286.15	774,591.74	0.00	4,812.06	0.00	
17,200.00	90.50	359.45	12,354.88	4,913.63 N	140.63 E	417,386.14	774,590.77	0.00	4,912.06	0.00	
17,300.00	90.50	359.45	12,354.01	5,013.63 N	139.67 E	417,486.14	774,589.81	0.00	5,012.05	0.00	
17,400.00	90.50	359.45	12,353.15	5,113.62 N	138.70 E	417,586.13	774,588.84	0.00	5,112.05	0.00	
17,500.00	90.50	359.45	12,352.28	5,213.61 N	137.74 E	417,686.12	774,587.88	0.00	5,212.05	0.00	
17,600.00	90.50	359.45	12,351.42	5,313.60 N	136.77 E	417,786.11	774,586.91	0.00	5,312.04	0.00	

Plan Report for TB FC 3H - Plan 1

Measured Depth (usft)	Inclination (")	Grid Azimuth (")	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (")	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
17,700.00	90.50	359.45	12,350.55	5,413.59 N	135.80 E	417,886.10	774,585.94	0.00	5,412.04	0.00	
17,800.00	90.50	359.45	12,349.69	5,513.58 N	134.84 E	417,986.09	774,584.98	0.00	5,512.04	0.00	
17,900.00	90.50	359.45	12,348.83	5,613.58 N	133.87 E	418,086.09	774,584.01	0.00	5,612.03	0.00	
18,000.00	90.50	359.45	12,347.96	5,713.57 N	132.90 E	418,186.08	774,583.04	0.00	5,712.03	0.00	
18,100.00	90.50	359.45	12,347.10	5,813.56 N	131.94 E	418,286.07	774,582.08	0.00	5,812.02	0.00	
18,200.00	90.50	359.45	12,346.23	5,913.55 N	130.97 E	418,386.06	774,581.11	0.00	5,912.02	0.00	
18,300.00	90.50	359.45	12,345.37	6,013.54 N	130.01 E	418,486.05	774,580.15	0.00	6,012.02	0.00	
18,400.00	90.50	359.45	12,344.50	6,113.53 N	129.04 E	418,586.04	774,579.18	0.00	6,112.01	0.00	
18,500.00	90.50	359.45	12,343.64	6,213.52 N	128.07 E	418,686.03	774,578.21	0.00	6,212.01	0.00	
18,600.00	90.50	359.45	12,342.77	6,313.52 N	127.11 E	418,786.03	774,577.25	0.00	6,312.01	0.00	
18,700.00	90.50	359.45	12,341.91	6,413.51 N	126.14 E	418,886.02	774,576.28	0.00	6,412.00	0.00	
18,800.00	90.50	359.45	12,341.04	6,513.50 N	125.17 E	418,986.01	774,575.31	0.00	6,512.00	0.00	
18,900.00	90.50	359.45	12,340.18	6,613.49 N	124.21 E	419,086.00	774,574.35	0.00	6,611.99	0.00	
19,000.00	90.50	359.45	12,339.31	6,713.48 N	123.24 E	419,185.99	774,573.38	0.00	6,711.99	0.00	
19,100.00	90.50	359.45	12,338.45	6,813.47 N	122.28 E	419,285.98	774,572.42	0.00	6,811.99	0.00	
19,200.00	90.50	359.45	12,337.58	6,913.47 N	121.31 E	419,385.98	774,571.45	0.00	6,911.98	0.00	
19,300.00	90.50	359.45	12,336.72	7,013.46 N	120.34 E	419,485.97	774,570.48	0.00	7,011.98	0.00	
19,400.00	90.50	359.45	12,335.85	7,113.45 N	119.38 E	419,585.96	774,569.52	0.00	7,111.98	0.00	
19,500.00	90.50	359.45	12,334.99	7,213.44 N	118.41 E	419,685.95	774,568.55	0.00	7,211.97	0.00	
19,600.00	90.50	359.45	12,334.13	7,313.43 N	117.45 E	419,785.94	774,567.59	0.00	7,311.97	0.00	
19,700.00	90.50	359.45	12,333.26	7,413.42 N	116.48 E	419,885.93	774,566.62	0.00	7,411.96	0.00	
19,800.00	90.50	359.45	12,332.40	7,513.42 N	115.51 E	419,985.93	774,565.65	0.00	7,511.96	0.00	
19,900.00	90.50	359.45	12,331.53	7,613.41 N	114.55 E	420,085.92	774,564.69	0.00	7,611.96	0.00	
19,915.14	90.50	359.45	12,331.40	7,628.55 N	114.40 E	420,101.06	774,564.54	0.00	7,627.10	0.00	TD at 19915.14

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
2,500.00	2,500.00	0.00	0.00	Start Nudge
2,650.24	2,650.17	-1.72	3.55	Hold
6,505.19	6,499.82	-89.72	185.45	Drop vertical
6,655.44	6,650.00	-91.44	189.00	Hold vertical
11,921.99	11,916.55	-91.44	189.00	KOP, Build and turn
12,676.12	12,394.00	390.13	184.35	Landing point
19,915.14	12,331.40	7,628.55	114.40	TD at 19915.14

Plan Report for TB FC 3H - Plan 1

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	359.45	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	19,915.14	Plan 1	2_MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,000.00	1,000.00	13 3/8"	13-3/8	17-1/2

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	TVDSS (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
861.00	861.00	-2,496.00	Rustler		-0.50	359.45
1,367.00	1,367.00	-1,990.00	Salado		-0.50	359.45
3,567.53	3,566.00	209.00	Castile		-0.50	359.45
5,093.94	5,090.00	1,733.00	Base Salt		-0.50	359.45
5,378.39	5,374.00	2,017.00	Lamar		-0.50	359.45
5,410.44	5,406.00	2,049.00	Bell Canyon Ss.		-0.50	359.45
6,720.25	6,714.00	3,357.00	Cherry Canyon Ss.		-0.50	359.45
8,021.25	8,015.00	4,658.00	Brushy Canyon Ss.		-0.50	359.45
9,310.25	9,304.00	5,947.00	Bone Spring		-0.50	359.45
9,623.25	9,617.00	6,260.00	Bone Spring Hard Lm.		-0.50	359.45
10,357.25	10,351.00	6,994.00	1st Bone Spg.		-0.50	359.45
10,564.25	10,558.00	7,201.00	Base 1st Bone Spg sand		-0.50	359.45
10,935.25	10,929.00	7,572.00	2nd Bone Spg sand		-0.50	359.45
11,403.25	11,397.00	8,040.00	Base 2nd Bone Spg sand		-0.50	359.45
11,978.35	11,972.00	8,615.00	3rd Bone Spring Ss.		-0.50	359.45
12,468.65	12,353.00	8,996.00	Lowered 3rd Bone Spring Ss.		-0.50	359.45

Plan Report for TB FC 3H - Plan 1

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
EW 14 WXY FC_3H_LTP/BHL ()	0.00	0.00	0.00	7,628.55	114.40	420,101.06	774,564.54	32.15186479	-103.44617624
- plan misses target center by 7629.41usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
EW 14 WXY FC_3H_KOP/FTP ()	0.00	0.00	0.00	-88.69	183.03	412,383.82	774,633.17	32.13065085	-103.44615991
- plan misses target center by 203.39usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	0.48 °/100usft	Maximum Dogleg over Survey:	12.00 °/100usft at 12,676.12 usft
Net Tortousity applicable to Plans:	0.48 °/100usft	Directional Difficulty Index:	6.340

Audit Info

North Reference Sheet for Ender Wiggins 14 - TB FC 3H - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to GL+KB 25' @ 3357.00usft (PD 601). Northing and Easting are relative to TB FC 3H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 3001 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -104.33333333°, Longitude Origin: 0.00000000°, Latitude Origin: 0.00000000°

False Easting: 500,000.00usft, False Northing: 0.00usft, Scale Reduction: 0.99999536

Grid Coordinates of Well: 412,472.51 usft N, 774,450.14 usft E

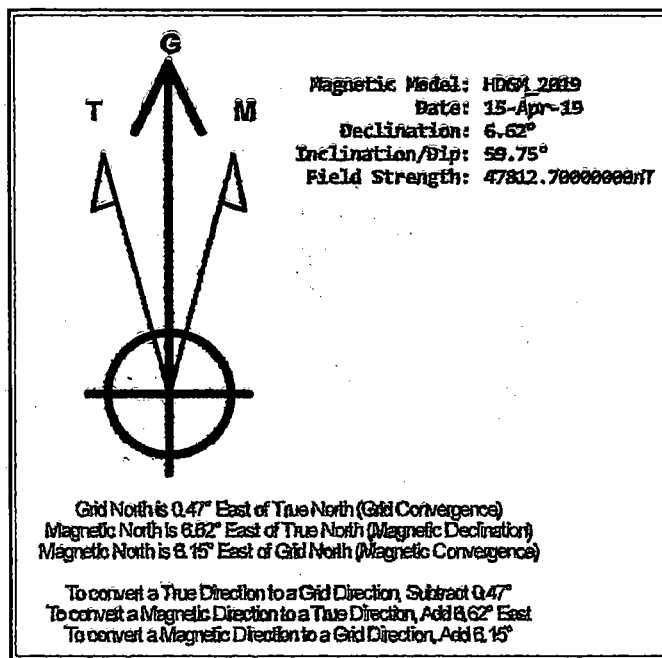
Geographical Coordinates of Well: 32° 07' 51.24" N, 103° 26' 48.30" W

Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 19,915.14usft

the Bottom Hole Displacement is 7,629.40usft in the Direction of 0.86° (Grid).

Magnetic Convergence at surface is: -6.15° (15 April 2019, , HDGM_2019)



**PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL
CHANGE TO APD – EC461047**

OPERATOR'S NAME:	MARATHON OIL PERMIAN LLC
LEASE NO.:	NMNM113419
WELL NAME & NO.:	ENDER WIGGINS 14 TB FC 3H
SURFACE HOLE FOOTAGE:	2450'/N & 642'/W
BOTTOM HOLE FOOTAGE:	100'/N & 330'/W
LOCATION:	SECTION 14, T25S, R34E, NMPM
COUNTY:	LEA, NEW MEXICO

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Other	☒ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

All other previous Conditions of Approval still apply.

A. CASING

1. The 13-3/8" surface casing shall be set at approximately **1000'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface.
 - a. **If cement does not circulate to surface**, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.
 - b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
 - c. If cement falls back, remedial cementing will be done prior to drilling out that string.
 - d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.
2. The 9-5/8" intermediate casing shall be cemented to surface.
 - a. **If cement does not circulate to surface**, see A.1.a, c & d.
 - b. **Operator shall keep at least 2/3 of this casing fluid-filled at all times to meet BLM collapse requirements.**
3. The 7" intermediate casing shall be cemented with at least 200 feet of tie-back into the previous casing string. Operator shall provide method of verification.

4. The 4-1/2" production liner shall be cemented with at least 200 feet of tie-back into the previous casing string. Operator shall provide method of verification.

B. SPECIAL REQUIREMENTS

1. The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
2. The well sign on location shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

DR 4/12/2019