

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

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.

5. Lease Serial No.	NMNM118727
6. If Indian, Allottee or Tribe Name	

SUBMIT IN TRIPLICATE - Other instructions on page 2		7. If Unit of CA/Agreement, Name and/or No.
1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		8. Well Name and No. ORRTANNA 20 FED/407H
2. Name of Operator EOG RESOURCES INCORPORATED		9. API Well No. 3002547128
3a. Address 1111 BAGBY SKY LOBBY 2, HOUSTON, TX 770	3b. Phone No. (include area code) (713) 651-7000	10. Field and Pool or Exploratory Area BRADLEY/BONE SPRING
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description) SEC 20/T26S/R33E/NMP		11. Country or Parish, State LEA/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	
	☐ 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 recompleate 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 perfonned 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 detennined that the site is ready for final inspection.)

EOG respectfully requests an amendment to our approved APD for this well to reflect the following changes:

Orrtanna 20 Fed 407H API #: 30-025-47128

Change BHL from T-26-S, R-33-E, Sec 20, 100' FNL, 430' FEL, Lea Co., NM,
to T-26-S, R-33-E, Sec 20, 100' FNL, 1345' FEL, Lea Co., N.M.

EOG requests approval to use alternate casing designs listed in the Blanket Casing Design (EOG BLM Variance 5a/b - Alternate Shallow Casing Designs.pdf) document. A separate sundry has been approved for this change (Sundry ID# 2777940).

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) STAR HARRELL / Ph: (432) 848-9161	Title Regulatory Specialist
Signature (Electronic Submission)	Date 03/25/2024

THE SPACE FOR FEDERAL OR STATE OFFICE USE		
Approved by KEITH P IMMATTY / Ph: (575) 988-4722 / Approved	Title ENGINEER	Date 04/05/2024
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 CARLSBAD	

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)

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c) and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

Additional Information

Location of Well

0. SHL: SWSE / 676 FSL / 1514 FEL / TWSP: 26S / RANGE: 33E / SECTION: 20 / LAT: 32.0236234 / LONG: -103.5906298 (TVD: 0 feet, MD: 0 feet)

PPP: SESE / 100 FSL / 1255 FEL / TWSP: 26S / RANGE: 33E / SECTION: 20 / LAT: 32.0220399 / LONG: -103.5897903 (TVD: 10374 feet, MD: 10407 feet)

BHL: NENE / 100 FNL / 430 FEL / TWSP: 26S / RANGE: 33E / SECTION: 20 / LAT: 32.035997 / LONG: -103.5898023 (TVD: 10713 feet, MD: 15620 feet)

CONFIDENTIAL

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



Orrtanna 20 Fed 407H

Revised Permit Information 03/19/2024:

Well Name: Orrtanna 20 Fed 407H; FKA Orrtanna 20 Fed 505H

Location: SHL: 676' FSL & 1514' FEL, Section 20, T-26-S, R-33-E, Lea Co., N.M.

BHL: 100' FNL & 1345' FEL, Section 20, T-26-S, R-33-E, Lea Co., N.M.

1. CASING PROGRAM:

Hole Size	Interval MD		Interval TVD		Csg OD	Weight	Grade	Conn
	From (ft)	To (ft)	From (ft)	To (ft)				
13-1/2"	0	1,030	0	1,030	10-3/4"	40.5#	J-55	STC
9-7/8"	0	4,790	0	4,760	8-5/8"	32#	J-55	BTC-SC
6-3/4"	0	15,302	0	10,344	5-1/2"	20#	P110-EC	DWC/C IS MS

Variance is requested to waive the centralizer requirements for the 8-5/8" casing in the 9-7/8" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 9-7/8" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive any centralizer requirements for the 5-1/2" casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

EOG requests permission to allow deviation from the 0.422" annulus clearance requirement for the intermediate (salt) section from Title 43 CFR Part 3170 under the following conditions:

- The variance is not applicable within the Potash Boundaries or Capitan Reef areas.
- Operator takes responsibility to get casing to set point in the event that the clearance causes stuck pipe issues.

2. CEMENTING PROGRAM:

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /sk	Slurry Description
1,030' 10-3/4"	270	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	140	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 830')
4,760' 8-5/8"	290	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	130	14.8	1.32	Tail: Class C + 10% NaCl + 3% MagOx (TOC @ 3,840')
15,302' 5-1/2"	340	10.5	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 4,260')
	390	13.2	1.52	Tail: Class H + 5% NEX-020 + 0.2% NAC-102 + 0.15% NAS-725 + 0.5% NFL-549 + 0.2% NFP-703 + 1% NBE-737 + 0.3% NRT-241 (TOC @ 9910')



Orrtanna 20 Fed 407H

Additive	Purpose
Bentonite Gel	Lightweight/Lost circulation prevention
Calcium Chloride	Accelerator
Cello-flake	Lost circulation prevention
Sodium Metasilicate	Accelerator
MagOx	Expansive agent
Pre-Mag-M	Expansive agent
Sodium Chloride	Accelerator
FL-62	Fluid loss control
Halad-344	Fluid loss control
Halad-9	Fluid loss control
HR-601	Retarder
Microbond	Expansive Agent

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

3. MUD PROGRAM:

Depth (TVD)	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,030'	Fresh - Gel	8.6-8.8	28-34	N/c
1,030' – 4,760'	Brine	9.0-10.5	28-34	N/c
4,760' – 15,302'	Oil Base	8.8-9.5	58-68	N/c - 6

4. VARIANCE REQUESTS:

EOG requests the additional variance(s) in the attached document(s):

Variances requested include (supporting documents attached):

- BOP Break Testing for 5M Intermediate Intervals (EOG BLM Variance 3a_b)
- Offline Cementing for Surface and Intermediate Intervals (EOG BLM Variance 3a_b)
- Salt Interval Washout Annular Clearance (EOG BLM Variance 4a)
- EOG requests approval to use alternate casing designs listed in the Blanket Casing Design (EOG BLM Variance 5a/b - Alternate Shallow Casing Designs.pdf) document.



Orrtanna 20 Fed 407H

5. TUBING REQUIREMENTS

EOG respectfully requests an exception to the following NMOCD rule:

- 19.15.16.10 Casing AND TUBING REQUIREMENTS:
J (3): "The operator shall set tubing as near the bottom as practical and tubing perforations shall not be more than 250 feet above top of pay zone."

With horizontal flowing and gas lifted wells an end of tubing depth placed at or slightly above KOP is a conservative way to ensure the tubing stays clean from debris, plugging, and allows for fewer well interventions post offset completion. The deeper the tubulars are run into the curve, the higher the probability is that the tubing will become stuck in sand and or well debris as the well produces over time. An additional consideration for EOT placement during artificial lift installations is avoiding the high dog leg severity and inclinations found in the curve section of the wellbore to help improve reliability and performance. Dog leg severity and inclinations tend not to hamper gas lifted or flowing wells, but they do effect other forms of artificial lift like rod pump or ESP (electric submersible pump). Keeping the EOT above KOP is an industry best practice for those respective forms of artificial lift.



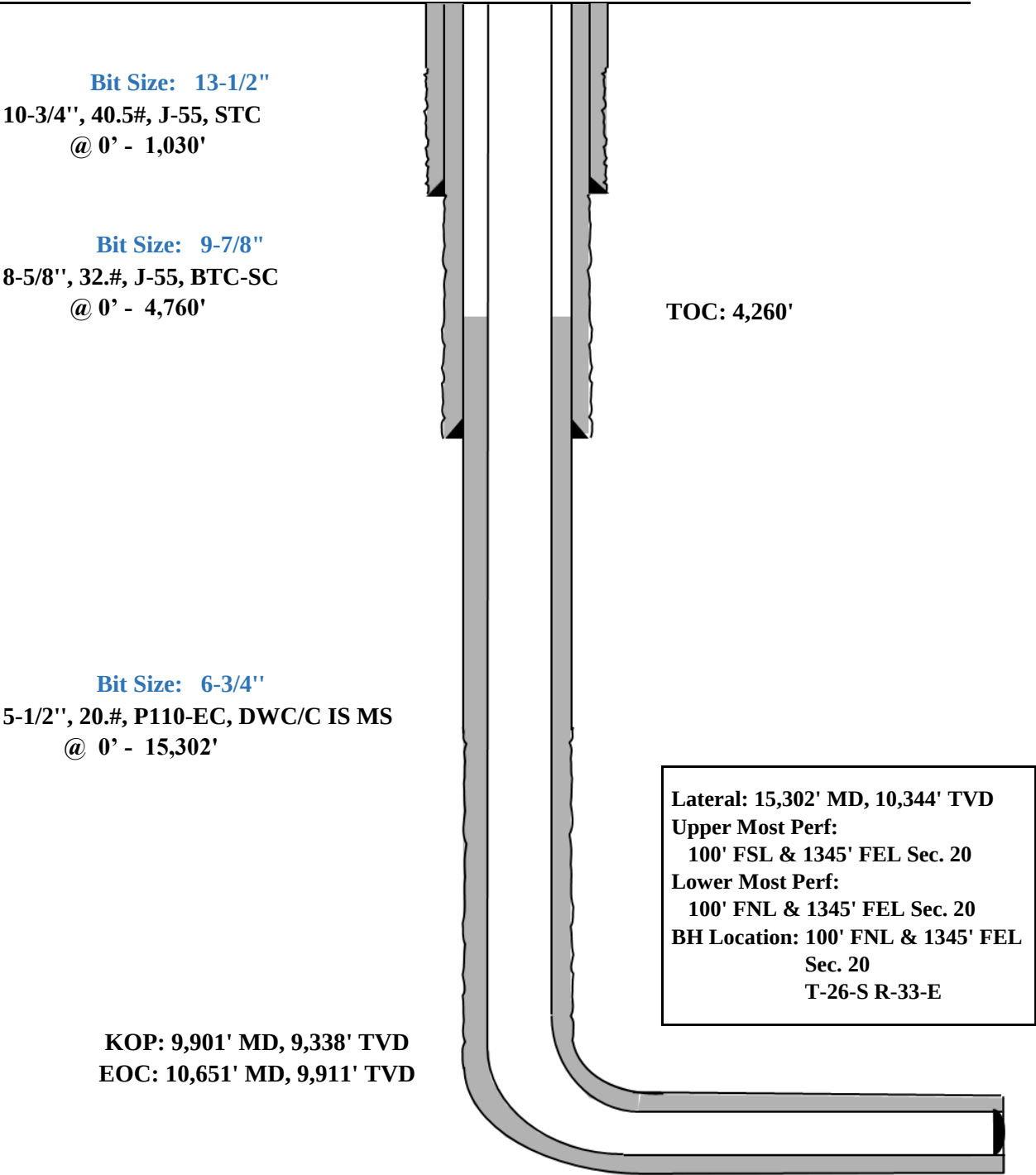
Orrtanna 20 Fed 407H

676' FSL
1514' FEL
Section 20
T-26-S, R-33-E

Revised Wellbore

API: 30-025-47128

KB: 3288'
GL: 3263'





Orrtanna 20 Fed 407H

GEOLOGIC NAME OF SURFACE FORMATION:

Permian

ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	907'
Tamarisk Anhydrite	1,000'
Top of Salt	1,244'
Base of Salt	4,655'
Lamar	4,817'
Bell Canyon	4,840'
Cherry Canyon	5,914'
Brushy Canyon	7,510'
Bone Spring Lime	9,007'
Leonard (Avalon) Shale	9,039'
1st Bone Spring Sand	9,970'
2nd Bone Spring Shale	10,175'
2nd Bone Spring Sand	10,499'
3rd Bone Spring Carb	10,935'
3rd Bone Spring Sand	11,617'
Wolfcamp	12,068'
TD	10,344'

ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 400'	Fresh Water
Bell Canyon	4,840'	Oil
Cherry Canyon	5,914'	Oil
Brushy Canyon	7,510'	Oil
Leonard (Avalon) Shale	9,039'	Oil
1st Bone Spring Sand	9,970'	Oil
2nd Bone Spring Shale	10,175'	Oil
2nd Bone Spring Sand	10,499'	Oil

Midland

Lea County, NM (NAD 83 NME)
Orrtanna 20 Fed
#407H

OH

Plan: Plan #0.3

Standard Planning Report

21 March, 2024

Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #407H
Company:	Midland	TVD Reference:	KB = 25' @ 3288.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3288.0usft
Site:	Orrtanna 20 Fed	North Reference:	Grid
Well:	#407H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.3		

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Orrtanna 20 Fed				
Site Position:		Northing:	373,025.00 usft	Latitude:	32° 1' 24.126 N
From:	Map	Easting:	770,593.00 usft	Longitude:	103° 35' 36.933 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "		

Well	#407H					
Well Position	+N/-S	0.0 usft	Northing:	373,124.00 usft	Latitude:	32° 1' 25.043 N
	+E/-W	0.0 usft	Easting:	771,511.00 usft	Longitude:	103° 35' 26.262 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,263.0 usft	
Grid Convergence:	0.39 °					

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/16/2019	6.69	59.84	47,579.15583850

Design	Plan #0.3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	1.70

Plan Survey Tool Program	Date	3/21/2024		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	15,301.5	Plan #0.3 (OH)	MWD
				OWSG MWD - Standard

Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #407H
Company:	Midland	TVD Reference:	KB = 25' @ 3288.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3288.0usft
Site:	Orrtanna 20 Fed	North Reference:	Grid
Well:	#407H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.3		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,508.5	6.17	164.44	1,507.9	-16.0	4.5	2.00	2.00	0.00	164.44	
7,235.9	6.17	164.44	7,202.1	-609.0	169.5	0.00	0.00	0.00	0.00	
7,544.4	0.00	0.00	7,510.0	-625.0	174.0	2.00	-2.00	0.00	180.00	
9,900.9	0.00	0.00	9,866.5	-625.0	174.0	0.00	0.00	0.00	0.00	KOP(Orrtanna 20 Fec
10,121.3	26.46	0.00	10,079.2	-575.0	174.0	12.00	12.00	0.00	0.00	FTP(Orrtanna 20 Fed
10,650.8	90.00	359.54	10,343.9	-147.5	171.6	12.00	12.00	-0.09	-0.52	
15,301.5	90.00	359.54	10,344.0	4,503.0	134.0	0.00	0.00	0.00	0.00	PBHL(Orrtanna 20 Fe

Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #407H
Company:	Midland	TVD Reference:	KB = 25' @ 3288.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3288.0usft
Site:	Orrtanna 20 Fed	North Reference:	Grid
Well:	#407H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.3		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	2.00	164.44	1,300.0	-1.7	0.5	-1.7	2.00	2.00	0.00
1,400.0	4.00	164.44	1,399.8	-6.7	1.9	-6.7	2.00	2.00	0.00
1,508.5	6.17	164.44	1,507.9	-16.0	4.5	-15.8	2.00	2.00	0.00
1,600.0	6.17	164.44	1,598.9	-25.5	7.1	-25.2	0.00	0.00	0.00
1,700.0	6.17	164.44	1,698.3	-35.8	10.0	-35.5	0.00	0.00	0.00
1,800.0	6.17	164.44	1,797.7	-46.2	12.9	-45.8	0.00	0.00	0.00
1,900.0	6.17	164.44	1,897.1	-56.5	15.7	-56.0	0.00	0.00	0.00
2,000.0	6.17	164.44	1,996.6	-66.9	18.6	-66.3	0.00	0.00	0.00
2,100.0	6.17	164.44	2,096.0	-77.2	21.5	-76.6	0.00	0.00	0.00
2,200.0	6.17	164.44	2,195.4	-87.6	24.4	-86.8	0.00	0.00	0.00
2,300.0	6.17	164.44	2,294.8	-97.9	27.3	-97.1	0.00	0.00	0.00
2,400.0	6.17	164.44	2,394.2	-108.3	30.1	-107.4	0.00	0.00	0.00
2,500.0	6.17	164.44	2,493.7	-118.6	33.0	-117.6	0.00	0.00	0.00
2,600.0	6.17	164.44	2,593.1	-129.0	35.9	-127.9	0.00	0.00	0.00
2,700.0	6.17	164.44	2,692.5	-139.4	38.8	-138.1	0.00	0.00	0.00
2,800.0	6.17	164.44	2,791.9	-149.7	41.7	-148.4	0.00	0.00	0.00
2,900.0	6.17	164.44	2,891.3	-160.1	44.6	-158.7	0.00	0.00	0.00
3,000.0	6.17	164.44	2,990.8	-170.4	47.4	-168.9	0.00	0.00	0.00
3,100.0	6.17	164.44	3,090.2	-180.8	50.3	-179.2	0.00	0.00	0.00
3,200.0	6.17	164.44	3,189.6	-191.1	53.2	-189.5	0.00	0.00	0.00
3,300.0	6.17	164.44	3,289.0	-201.5	56.1	-199.7	0.00	0.00	0.00
3,400.0	6.17	164.44	3,388.4	-211.8	59.0	-210.0	0.00	0.00	0.00
3,500.0	6.17	164.44	3,487.9	-222.2	61.9	-220.3	0.00	0.00	0.00
3,600.0	6.17	164.44	3,587.3	-232.5	64.7	-230.5	0.00	0.00	0.00
3,700.0	6.17	164.44	3,686.7	-242.9	67.6	-240.8	0.00	0.00	0.00
3,800.0	6.17	164.44	3,786.1	-253.3	70.5	-251.0	0.00	0.00	0.00
3,900.0	6.17	164.44	3,885.6	-263.6	73.4	-261.3	0.00	0.00	0.00
4,000.0	6.17	164.44	3,985.0	-274.0	76.3	-271.6	0.00	0.00	0.00
4,100.0	6.17	164.44	4,084.4	-284.3	79.2	-281.8	0.00	0.00	0.00
4,200.0	6.17	164.44	4,183.8	-294.7	82.0	-292.1	0.00	0.00	0.00
4,300.0	6.17	164.44	4,283.2	-305.0	84.9	-302.4	0.00	0.00	0.00
4,400.0	6.17	164.44	4,382.7	-315.4	87.8	-312.6	0.00	0.00	0.00
4,500.0	6.17	164.44	4,482.1	-325.7	90.7	-322.9	0.00	0.00	0.00
4,600.0	6.17	164.44	4,581.5	-336.1	93.6	-333.2	0.00	0.00	0.00
4,700.0	6.17	164.44	4,680.9	-346.4	96.4	-343.4	0.00	0.00	0.00
4,800.0	6.17	164.44	4,780.3	-356.8	99.3	-353.7	0.00	0.00	0.00
4,900.0	6.17	164.44	4,879.8	-367.2	102.2	-363.9	0.00	0.00	0.00
5,000.0	6.17	164.44	4,979.2	-377.5	105.1	-374.2	0.00	0.00	0.00
5,100.0	6.17	164.44	5,078.6	-387.9	108.0	-384.5	0.00	0.00	0.00
5,200.0	6.17	164.44	5,178.0	-398.2	110.9	-394.7	0.00	0.00	0.00
5,300.0	6.17	164.44	5,277.4	-408.6	113.7	-405.0	0.00	0.00	0.00

Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #407H
Company:	Midland	TVD Reference:	KB = 25' @ 3288.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3288.0usft
Site:	Orrtanna 20 Fed	North Reference:	Grid
Well:	#407H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.3		

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)
5,400.0	6.17	164.44	5,376.9	-418.9	116.6	-415.3	0.00	0.00	0.00
5,500.0	6.17	164.44	5,476.3	-429.3	119.5	-425.5	0.00	0.00	0.00
5,600.0	6.17	164.44	5,575.7	-439.6	122.4	-435.8	0.00	0.00	0.00
5,700.0	6.17	164.44	5,675.1	-450.0	125.3	-446.1	0.00	0.00	0.00
5,800.0	6.17	164.44	5,774.5	-460.3	128.2	-456.3	0.00	0.00	0.00
5,900.0	6.17	164.44	5,874.0	-470.7	131.0	-466.6	0.00	0.00	0.00
6,000.0	6.17	164.44	5,973.4	-481.0	133.9	-476.9	0.00	0.00	0.00
6,100.0	6.17	164.44	6,072.8	-491.4	136.8	-487.1	0.00	0.00	0.00
6,200.0	6.17	164.44	6,172.2	-501.8	139.7	-497.4	0.00	0.00	0.00
6,300.0	6.17	164.44	6,271.6	-512.1	142.6	-507.6	0.00	0.00	0.00
6,400.0	6.17	164.44	6,371.1	-522.5	145.5	-517.9	0.00	0.00	0.00
6,500.0	6.17	164.44	6,470.5	-532.8	148.3	-528.2	0.00	0.00	0.00
6,600.0	6.17	164.44	6,569.9	-543.2	151.2	-538.4	0.00	0.00	0.00
6,700.0	6.17	164.44	6,669.3	-553.5	154.1	-548.7	0.00	0.00	0.00
6,800.0	6.17	164.44	6,768.8	-563.9	157.0	-559.0	0.00	0.00	0.00
6,900.0	6.17	164.44	6,868.2	-574.2	159.9	-569.2	0.00	0.00	0.00
7,000.0	6.17	164.44	6,967.6	-584.6	162.8	-579.5	0.00	0.00	0.00
7,100.0	6.17	164.44	7,067.0	-594.9	165.6	-589.8	0.00	0.00	0.00
7,200.0	6.17	164.44	7,166.4	-605.3	168.5	-600.0	0.00	0.00	0.00
7,235.9	6.17	164.44	7,202.1	-609.0	169.5	-603.7	0.00	0.00	0.00
7,300.0	4.89	164.44	7,265.9	-615.0	171.2	-609.6	2.00	-2.00	0.00
7,400.0	2.89	164.44	7,365.7	-621.5	173.0	-616.1	2.00	-2.00	0.00
7,500.0	0.89	164.44	7,465.6	-624.7	173.9	-619.2	2.00	-2.00	0.00
7,544.4	0.00	0.00	7,510.0	-625.0	174.0	-619.5	2.00	-2.00	0.00
7,600.0	0.00	0.00	7,565.6	-625.0	174.0	-619.5	0.00	0.00	0.00
7,700.0	0.00	0.00	7,665.6	-625.0	174.0	-619.5	0.00	0.00	0.00
7,800.0	0.00	0.00	7,765.6	-625.0	174.0	-619.5	0.00	0.00	0.00
7,900.0	0.00	0.00	7,865.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,000.0	0.00	0.00	7,965.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,100.0	0.00	0.00	8,065.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,200.0	0.00	0.00	8,165.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,300.0	0.00	0.00	8,265.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,400.0	0.00	0.00	8,365.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,500.0	0.00	0.00	8,465.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,600.0	0.00	0.00	8,565.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,700.0	0.00	0.00	8,665.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,800.0	0.00	0.00	8,765.6	-625.0	174.0	-619.5	0.00	0.00	0.00
8,900.0	0.00	0.00	8,865.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,000.0	0.00	0.00	8,965.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,100.0	0.00	0.00	9,065.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,200.0	0.00	0.00	9,165.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,300.0	0.00	0.00	9,265.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,400.0	0.00	0.00	9,365.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,500.0	0.00	0.00	9,465.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,600.0	0.00	0.00	9,565.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,700.0	0.00	0.00	9,665.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,800.0	0.00	0.00	9,765.6	-625.0	174.0	-619.5	0.00	0.00	0.00
9,900.9	0.00	0.00	9,866.5	-625.0	174.0	-619.5	0.00	0.00	0.00
9,925.0	2.90	0.00	9,890.6	-624.4	174.0	-618.9	12.00	12.00	0.00
9,950.0	5.90	0.00	9,915.5	-622.5	174.0	-617.0	12.00	12.00	0.00
9,975.0	8.90	0.00	9,940.3	-619.3	174.0	-613.8	12.00	12.00	0.00
10,000.0	11.90	0.00	9,964.9	-614.7	174.0	-609.3	12.00	12.00	0.00
10,025.0	14.90	0.00	9,989.2	-609.0	174.0	-603.5	12.00	12.00	0.00
10,050.0	17.90	0.00	10,013.2	-601.9	174.0	-596.5	12.00	12.00	0.00

Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #407H
Company:	Midland	TVD Reference:	KB = 25' @ 3288.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3288.0usft
Site:	Orrtanna 20 Fed	North Reference:	Grid
Well:	#407H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,075.0	20.90	0.00	10,036.8	-593.6	174.0	-588.2	12.00	12.00	0.00
10,100.0	23.90	0.00	10,059.9	-584.1	174.0	-578.6	12.00	12.00	0.00
10,121.3	26.46	0.00	10,079.2	-575.0	174.0	-569.6	12.00	12.00	0.00
10,125.0	26.90	359.99	10,082.5	-573.3	174.0	-567.9	12.00	12.00	-0.24
10,150.0	29.90	359.94	10,104.5	-561.5	174.0	-556.0	12.00	12.00	-0.21
10,175.0	32.90	359.89	10,125.8	-548.4	174.0	-543.0	12.00	12.00	-0.18
10,200.0	35.90	359.86	10,146.4	-534.3	173.9	-528.9	12.00	12.00	-0.15
10,225.0	38.90	359.82	10,166.3	-519.1	173.9	-513.7	12.00	12.00	-0.13
10,250.0	41.90	359.79	10,185.3	-502.9	173.8	-497.5	12.00	12.00	-0.12
10,275.0	44.90	359.77	10,203.5	-485.8	173.8	-480.4	12.00	12.00	-0.10
10,300.0	47.90	359.75	10,220.7	-467.7	173.7	-462.3	12.00	12.00	-0.09
10,325.0	50.90	359.72	10,237.0	-448.7	173.6	-443.3	12.00	12.00	-0.08
10,350.0	53.90	359.70	10,252.3	-428.9	173.5	-423.5	12.00	12.00	-0.08
10,375.0	56.90	359.69	10,266.5	-408.3	173.4	-403.0	12.00	12.00	-0.07
10,400.0	59.90	359.67	10,279.6	-387.0	173.3	-381.7	12.00	12.00	-0.07
10,425.0	62.90	359.65	10,291.5	-365.1	173.2	-359.7	12.00	12.00	-0.06
10,450.0	65.90	359.64	10,302.3	-342.5	173.0	-337.2	12.00	12.00	-0.06
10,475.0	68.90	359.63	10,311.9	-319.4	172.9	-314.2	12.00	12.00	-0.06
10,500.0	71.90	359.61	10,320.3	-295.9	172.7	-290.6	12.00	12.00	-0.05
10,525.0	74.90	359.60	10,327.5	-271.9	172.5	-266.7	12.00	12.00	-0.05
10,550.0	77.90	359.59	10,333.3	-247.6	172.4	-242.4	12.00	12.00	-0.05
10,575.0	80.90	359.57	10,337.9	-223.1	172.2	-217.9	12.00	12.00	-0.05
10,600.0	83.90	359.56	10,341.2	-198.3	172.0	-193.1	12.00	12.00	-0.05
10,625.0	86.90	359.55	10,343.2	-173.4	171.8	-168.2	12.00	12.00	-0.05
10,650.8	90.00	359.54	10,343.9	-147.5	171.6	-142.4	12.00	12.00	-0.05
10,700.0	90.00	359.54	10,343.9	-98.4	171.2	-93.3	0.00	0.00	0.00
10,800.0	90.00	359.54	10,343.9	1.6	170.4	6.7	0.00	0.00	0.00
10,900.0	90.00	359.54	10,343.9	101.6	169.6	106.6	0.00	0.00	0.00
11,000.0	90.00	359.54	10,344.0	201.6	168.8	206.5	0.00	0.00	0.00
11,100.0	90.00	359.54	10,344.0	301.6	168.0	306.5	0.00	0.00	0.00
11,200.0	90.00	359.54	10,344.0	401.6	167.2	406.4	0.00	0.00	0.00
11,300.0	90.00	359.54	10,344.0	501.6	166.4	506.3	0.00	0.00	0.00
11,400.0	90.00	359.54	10,344.0	601.6	165.6	606.2	0.00	0.00	0.00
11,500.0	90.00	359.54	10,344.0	701.6	164.7	706.2	0.00	0.00	0.00
11,600.0	90.00	359.54	10,344.0	801.6	163.9	806.1	0.00	0.00	0.00
11,700.0	90.00	359.54	10,344.0	901.6	163.1	906.0	0.00	0.00	0.00
11,800.0	90.00	359.54	10,344.0	1,001.6	162.3	1,006.0	0.00	0.00	0.00
11,900.0	90.00	359.54	10,344.0	1,101.6	161.5	1,105.9	0.00	0.00	0.00
12,000.0	90.00	359.54	10,344.0	1,201.6	160.7	1,205.8	0.00	0.00	0.00
12,100.0	90.00	359.54	10,344.0	1,301.6	159.9	1,305.7	0.00	0.00	0.00
12,200.0	90.00	359.54	10,344.0	1,401.6	159.1	1,405.7	0.00	0.00	0.00
12,300.0	90.00	359.54	10,344.0	1,501.6	158.3	1,505.6	0.00	0.00	0.00
12,400.0	90.00	359.54	10,344.0	1,601.5	157.5	1,605.5	0.00	0.00	0.00
12,500.0	90.00	359.54	10,344.0	1,701.5	156.7	1,705.5	0.00	0.00	0.00
12,600.0	90.00	359.54	10,344.0	1,801.5	155.8	1,805.4	0.00	0.00	0.00
12,700.0	90.00	359.54	10,344.0	1,901.5	155.0	1,905.3	0.00	0.00	0.00
12,800.0	90.00	359.54	10,344.0	2,001.5	154.2	2,005.2	0.00	0.00	0.00
12,900.0	90.00	359.54	10,344.0	2,101.5	153.4	2,105.2	0.00	0.00	0.00
13,000.0	90.00	359.54	10,344.0	2,201.5	152.6	2,205.1	0.00	0.00	0.00
13,100.0	90.00	359.54	10,344.0	2,301.5	151.8	2,305.0	0.00	0.00	0.00
13,200.0	90.00	359.54	10,344.0	2,401.5	151.0	2,404.9	0.00	0.00	0.00
13,300.0	90.00	359.54	10,344.0	2,501.5	150.2	2,504.9	0.00	0.00	0.00
13,400.0	90.00	359.54	10,344.0	2,601.5	149.4	2,604.8	0.00	0.00	0.00
13,500.0	90.00	359.54	10,344.0	2,701.5	148.6	2,704.7	0.00	0.00	0.00

Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #407H
Company:	Midland	TVD Reference:	KB = 25' @ 3288.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	KB = 25' @ 3288.0usft
Site:	Orrtanna 20 Fed	North Reference:	Grid
Well:	#407H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.3		

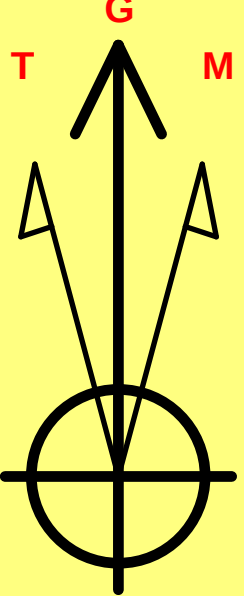
Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,600.0	90.00	359.54	10,344.0	2,801.5	147.8	2,804.7	0.00	0.00	0.00	
13,700.0	90.00	359.54	10,344.0	2,901.5	147.0	2,904.6	0.00	0.00	0.00	
13,800.0	90.00	359.54	10,344.0	3,001.5	146.1	3,004.5	0.00	0.00	0.00	
13,900.0	90.00	359.54	10,344.0	3,101.5	145.3	3,104.4	0.00	0.00	0.00	
14,000.0	90.00	359.54	10,344.0	3,201.5	144.5	3,204.4	0.00	0.00	0.00	
14,100.0	90.00	359.54	10,344.0	3,301.5	143.7	3,304.3	0.00	0.00	0.00	
14,200.0	90.00	359.54	10,344.0	3,401.5	142.9	3,404.2	0.00	0.00	0.00	
14,300.0	90.00	359.54	10,344.0	3,501.5	142.1	3,504.2	0.00	0.00	0.00	
14,400.0	90.00	359.54	10,344.0	3,601.5	141.3	3,604.1	0.00	0.00	0.00	
14,500.0	90.00	359.54	10,344.0	3,701.5	140.5	3,704.0	0.00	0.00	0.00	
14,600.0	90.00	359.54	10,344.0	3,801.5	139.7	3,803.9	0.00	0.00	0.00	
14,700.0	90.00	359.54	10,344.0	3,901.5	138.9	3,903.9	0.00	0.00	0.00	
14,800.0	90.00	359.54	10,344.0	4,001.5	138.1	4,003.8	0.00	0.00	0.00	
14,900.0	90.00	359.54	10,344.0	4,101.5	137.2	4,103.7	0.00	0.00	0.00	
15,000.0	90.00	359.54	10,344.0	4,201.5	136.4	4,203.7	0.00	0.00	0.00	
15,100.0	90.00	359.54	10,344.0	4,301.5	135.6	4,303.6	0.00	0.00	0.00	
15,200.0	90.00	359.54	10,344.0	4,401.5	134.8	4,403.5	0.00	0.00	0.00	
15,301.5	90.00	359.54	10,344.0	4,503.0	134.0	4,505.0	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape								Longitude		
KOP(Orrtanna 20 Fed #1 - plan hits target center - Point	0.00	0.00	9,866.5	-625.0	174.0	372,499.00	771,685.00	32° 1' 18.847 N 103° 35' 24.291 W		
FTP(Orrtanna 20 Fed #5 - plan hits target center - Point	0.00	0.00	10,079.2	-575.0	174.0	372,549.00	771,685.00	32° 1' 19.342 N 103° 35' 24.287 W		
PBHL(Orrtanna 20 Fed # - plan hits target center - Point	0.00	0.00	10,344.0	4,503.0	134.0	377,627.00	771,645.00	32° 2' 9.594 N 103° 35' 24.345 W		

Lea County, NM (NAD 83 NME)

Orrtanna 20 Fed #407H

Plan #0.3



Azimuths to Grid North
True North: -0.39°
Magnetic North: 6.30°

Magnetic Field
Strength: 47579.2nT
Dip Angle: 59.84°
Date: 10/16/2019
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.30°
To convert a Magnetic Direction to a True Direction, Add 6.69° East
To convert a True Direction to a Grid Direction, Subtract 0.39°

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

WELL DETAILS: #407H

KB = 25' @ 3288.0usft 3263.0
Northing Easting Latitude Longitude
373124.00 771511.00 32° 1' 25.043 N 103° 35' 26.262 W

SECTION DETAILS

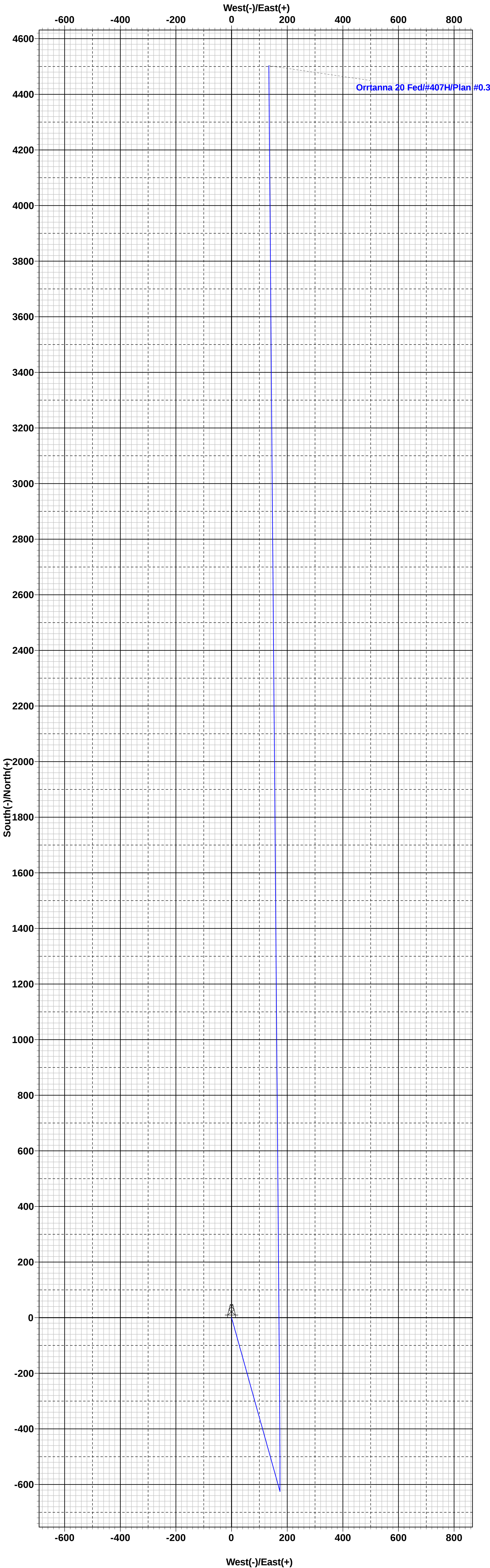
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1508.5	6.17	164.44	1507.9	-16.0	4.5	2.00	164.44	-15.8	
4	7235.9	6.17	164.44	7202.1	-609.0	169.5	0.00	0.00	-603.7	
5	7544.4	0.00	0.00	7510.0	-625.0	174.0	2.00	180.00	-619.5	
6	9900.9	0.00	0.00	9866.5	-625.0	174.0	0.00	0.00	-619.5	KOP(Orrtanna 20 Fed #505H)
7	10121.3	26.46	0.00	10079.2	-575.0	174.0	12.00	0.00	-569.6	FTP(Orrtanna 20 Fed #505H)
8	10650.8	90.00	359.54	10343.9	-147.5	171.6	12.00	-0.52	-142.4	
9	15301.5	90.00	359.54	10344.0	4503.0	134.0	0.00	0.00	4505.0	PBHL(Orrtanna 20 Fed #505H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP(Orrtanna 20 Fed #505H)	9866.5	-625.0	174.0	372499.00	771685.00
FTP(Orrtanna 20 Fed #505H)	10079.2	-575.0	174.0	372549.00	771685.00
PBHL(Orrtanna 20 Fed #505H)	10344.0	4503.0	134.0	377627.00	771645.00



Vertical Section at 1.70°

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 334132

CONDITIONS

Operator: EOG RESOURCES INC 5509 Champions Drive Midland, TX 79706	OGRID: 7377
	Action Number: 334132
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	ALL PRIOR COA'S APPLY.	7/12/2024