

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.	
6. If Indian, Allottee or Tribe Name	
7. If Unit of CA/Agreement, Name and/or No.	
8. Well Name and No.	
9. API Well No.	
10. Field and Pool or Exploratory Area	
11. Country or Parish, State	

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well	
☐ Oil Well	☐ Gas Well ☐ Other
2. Name of Operator	
3a. Address	3b. Phone No. (include area code)
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description)	

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.)

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)	Title
Signature	Date

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make 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: SESE / 1029 FSL / 348 FEL / TWSP: 23S / RANGE: 27E / SECTION: 8 / LAT: 32.3149739 / LONG: -104.2048194 (TVD: 0 feet, MD: 0 feet)

PPP: NWSE / 2332 FSL / 2601 FWL / TWSP: 23S / RANGE: 27E / SECTION: 7 / LAT: 32.3184591 / LONG: -104.2292778 (TVD: 8777 feet, MD: 16583 feet)

PPP: NWSW / 2347 FSL / 0 FWL / TWSP: 23S / RANGE: 27E / SECTION: 8 / LAT: 32.3185713 / LONG: -104.220763 (TVD: 8864 feet, MD: 13950 feet)

PPP: NESW / 2398 FSL / 2573 FEL / TWSP: 23S / RANGE: 27E / SECTION: 8 / LAT: 32.3187159 / LONG: -104.2121676 (TVD: 8953 feet, MD: 11294 feet)

PPP: NESE / 2434 FSL / 330 FEL / TWSP: 23S / RANGE: 27E / SECTION: 8 / LAT: 32.3188376 / LONG: -104.2049079 (TVD: 9013 feet, MD: 9467 feet)

BHL: NWSW / 1980 FSL / 330 FWL / TWSP: 23S / RANGE: 27E / SECTION: 7 / LAT: 32.3183618 / LONG: -104.2366299 (TVD: 8701 feet, MD: 18855 feet)

CONFIDENTIAL

District I

1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-9720

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 30-015-49857	² Pool Code 98220	³ Pool Name PURPLE SAGE; WOLFCAMP GAS
⁴ Property Code 334795	⁵ Property Name CROSSBOW WC FED COM	⁶ Well Number 702H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3159'

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
P	8	23S	27E		1029	SOUTH	378	EAST	EDDY

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
L 3	7	23S	27E		1980	SOUTH	330	WEST	EDDY

¹² Dedicated Acres 1275.84	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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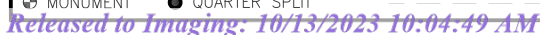
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 576067.11' / Y: 482596.20' B - X: 578729.17' / Y: 482610.00' C - X: 581392.87' / Y: 482621.61' D - X: 581420.97' / Y: 477316.49' E - X: 578797.24' / Y: 477303.91' F - X: 576149.45' / Y: 477299.91' G - X: 570884.96' / Y: 477243.10' H - X: 570879.74' / Y: 479890.39' I - X: 570883.00' / Y: 482551.56'	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 534885.23' / Y: 482537.25' B - X: 537547.25' / Y: 482551.01' C - X: 540210.92' / Y: 482562.59' D - X: 540238.91' / Y: 477257.61' E - X: 537615.22' / Y: 477245.06' F - X: 534967.46' / Y: 477241.09' G - X: 529703.05' / Y: 477184.35' H - X: 529697.88' / Y: 479831.57' I - X: 529701.19' / Y: 482492.66'	SURFACE HOLE LOCATION 1029' FSL 378' FEL, SECTION 8 NAD 83, SPCS NM EAST X: 581037.53' / Y: 478343.67' LAT: 32.31497400N / LON: 104.20482258W NAD 27, SPCS NM EAST X: 539855.50' / Y: 478284.76' LAT: 32.31485515N / LON: 104.20432227W	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>Nicole Lee</i> 4/24/2023 Signature Date Nicole Lee Printed Name njlee@marathonoil.com E-mail Address
LAST TAKE/ BHL 330' KOP/ FIRST TAKE SHL 330' 378' LAST TAKE POINT/BOTTOM HOLE LOCATION 1980' FSL 330' FWL, SECTION 7 NAD 83, SPCS NM EAST X: 571211.05' / Y: 479226.73' LAT: 32.31742981N / LON: 104.23662871W NAD 27, SPCS NM EAST X: 530029.17' / Y: 479167.92' LAT: 32.31731142N / LON: 104.23612715W FIRST TAKE POINT 1980' FSL 330' FEL, SECTION 8 NAD 83, SPCS NM EAST X: 581080.49' / Y: 479294.88' LAT: 32.31758862N / LON: 104.20467982W NAD 27, SPCS NM EAST X: 539898.47' / Y: 479235.95' LAT: 32.31746978N / LON: 104.20417945W SHEET 1 OF 3 JOB No. R3795_005 REV 3 TCS 4/21/2023			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. APRIL 24, 2023 Date of Survey Signature and Seal of Professional Surveyor: LLOYD P. SHORT 21653 Certificate Number

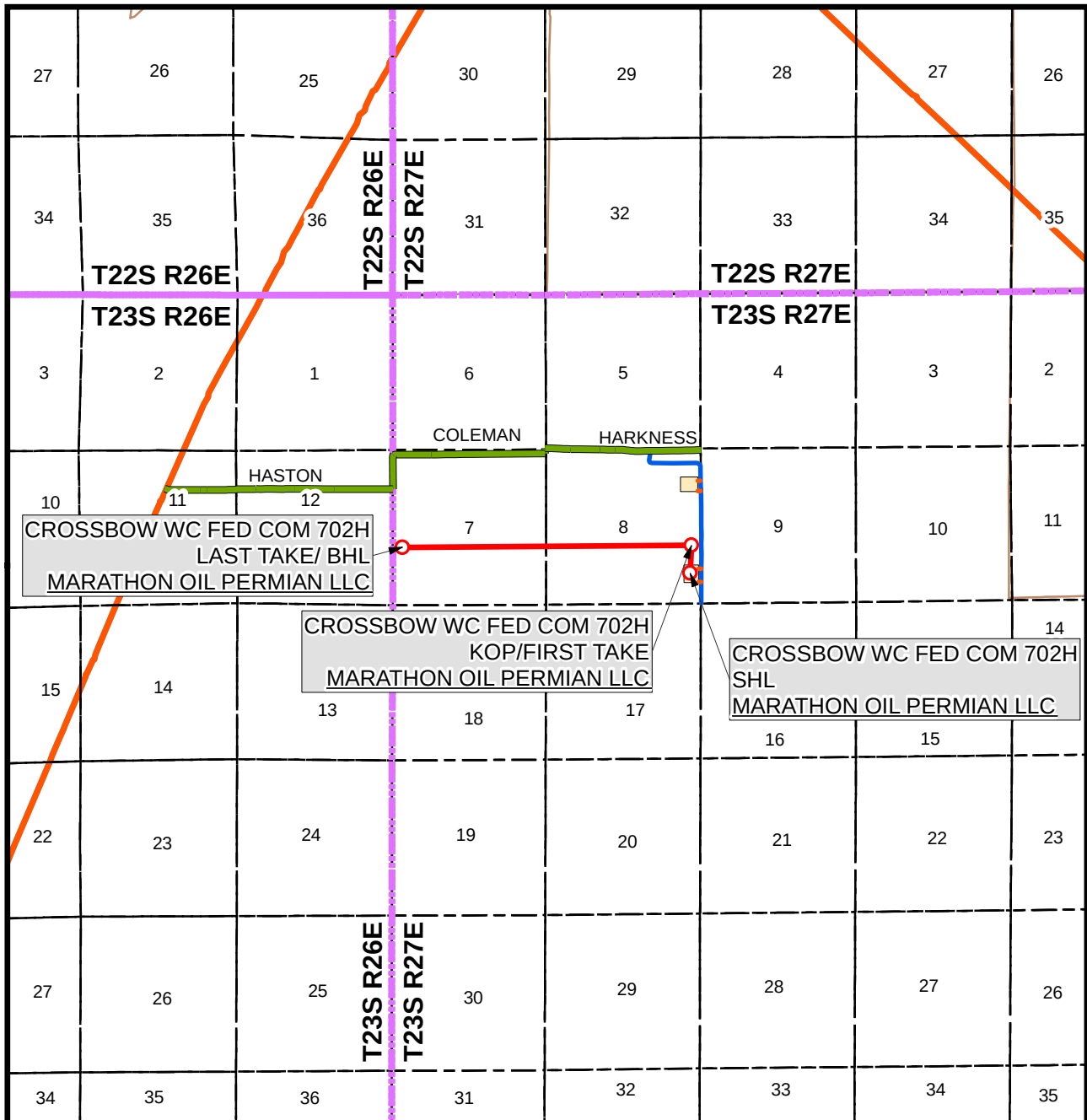
Distances/areas relative to NAD 83 Combined Scale Factor: 0.99976256 Convergence Angle: 00°03'50.20794"

☐ Horizontal Spacing Unit

U.S.G.S. TOPOGRAPHIC MAP: OTIS, N.M.



PUBLIC ACCESS ROAD MAP



SEC. 8 TWP. 23-S RGE. 27-E
 SURVEY: N.M.P.M.
 COUNTY: EDDY
 OPERATOR: MARATHON OIL PERMIAN LLC
 DESCRIPTION: 1029' FSL & 378' FEL
 ELEVATION: 3159'
 LEASE: CROSSBOW FED COM
 U.S.G.S. TOPOGRAPHIC MAP: OTIS, NM.

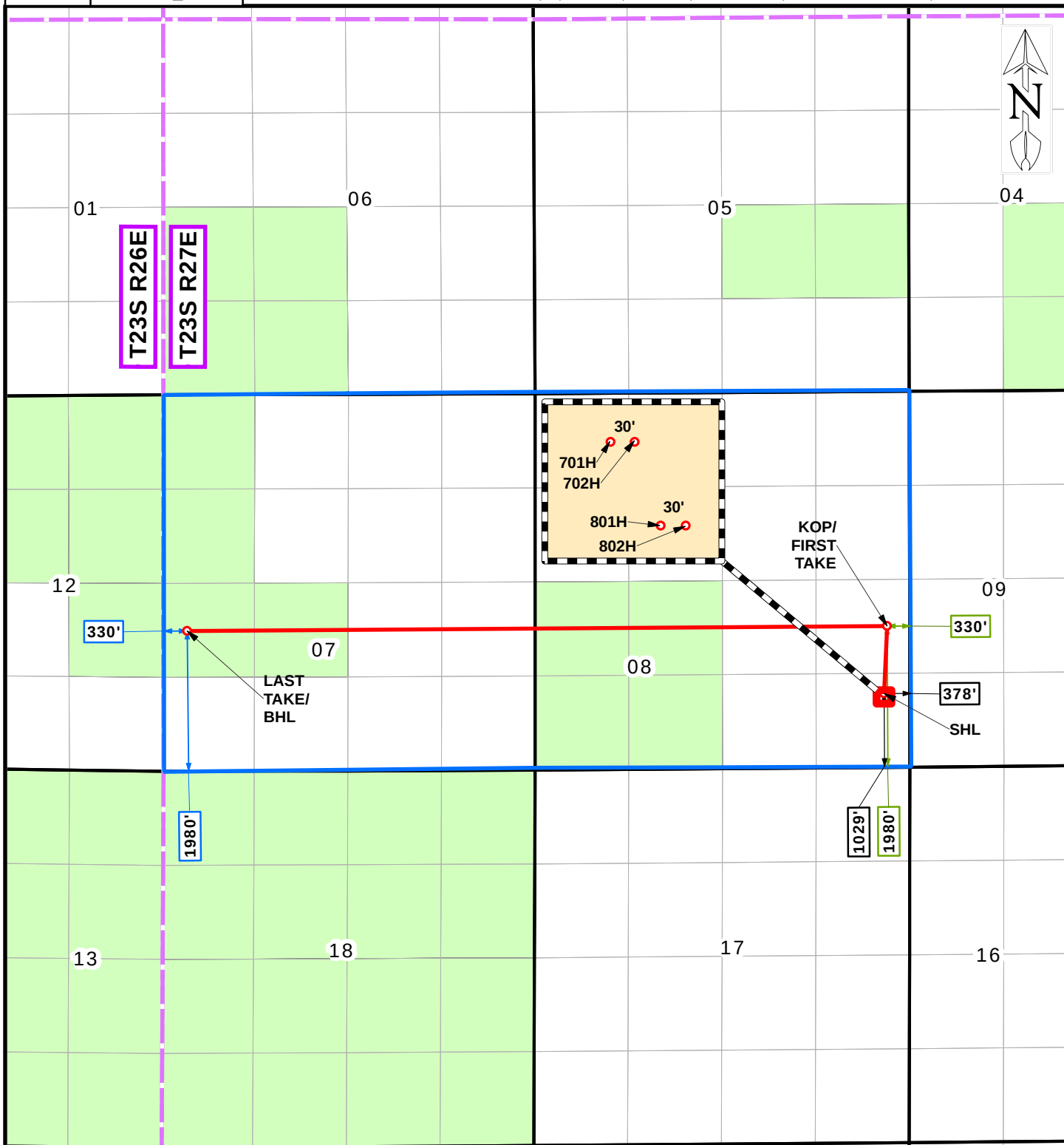
1" = 1 MILE



SHEET 2 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 510 TRENTON ST.
 WEST MONROE, LA 71291
 318-323-6900 OFFICE
 JOB No. R3795_004

JOB No. R3795_004 SECTIONS 7, 8, T-23-S, R-27-E, N.M.P.M., EDDY COUNTY, NEW MEXICO



1,000 0 1,000 2,000

1 inch = 170 feet

LEGEND

- SUBJECT WELL / DRILL LINE
- SURVEY/SECTION LINE
- LEASE LINE
- OTHER WELLS / DRILL LINES
- TOWNSHIP / RANGE LINE
- BLM LEASE
- DRILL LINE HOLES



MarathonOil
Permian LLC

WELL NAME

CROSSBOW WC
FED COM 702H

3	04/21/2023	UPDATED HSU	TCS	MWS
REV.	DATE	DESCRIPTION	BY	CHKD
SHEET 3 OF 3		510 TRENTON ST. WEST MONROE, LA 71291 (318) 323-6900		
DRAWN BY: TCS				
DATE DRAWN: 4/21/2023				
CHECKED BY: MWS				

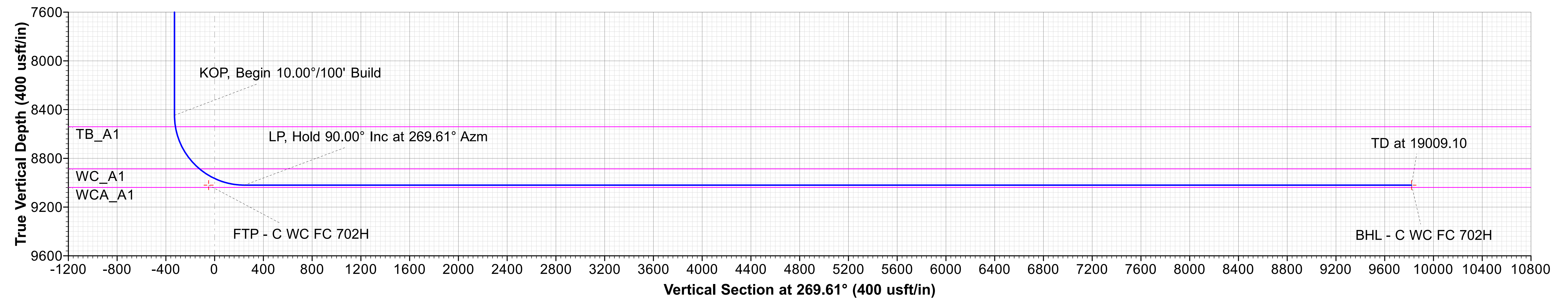
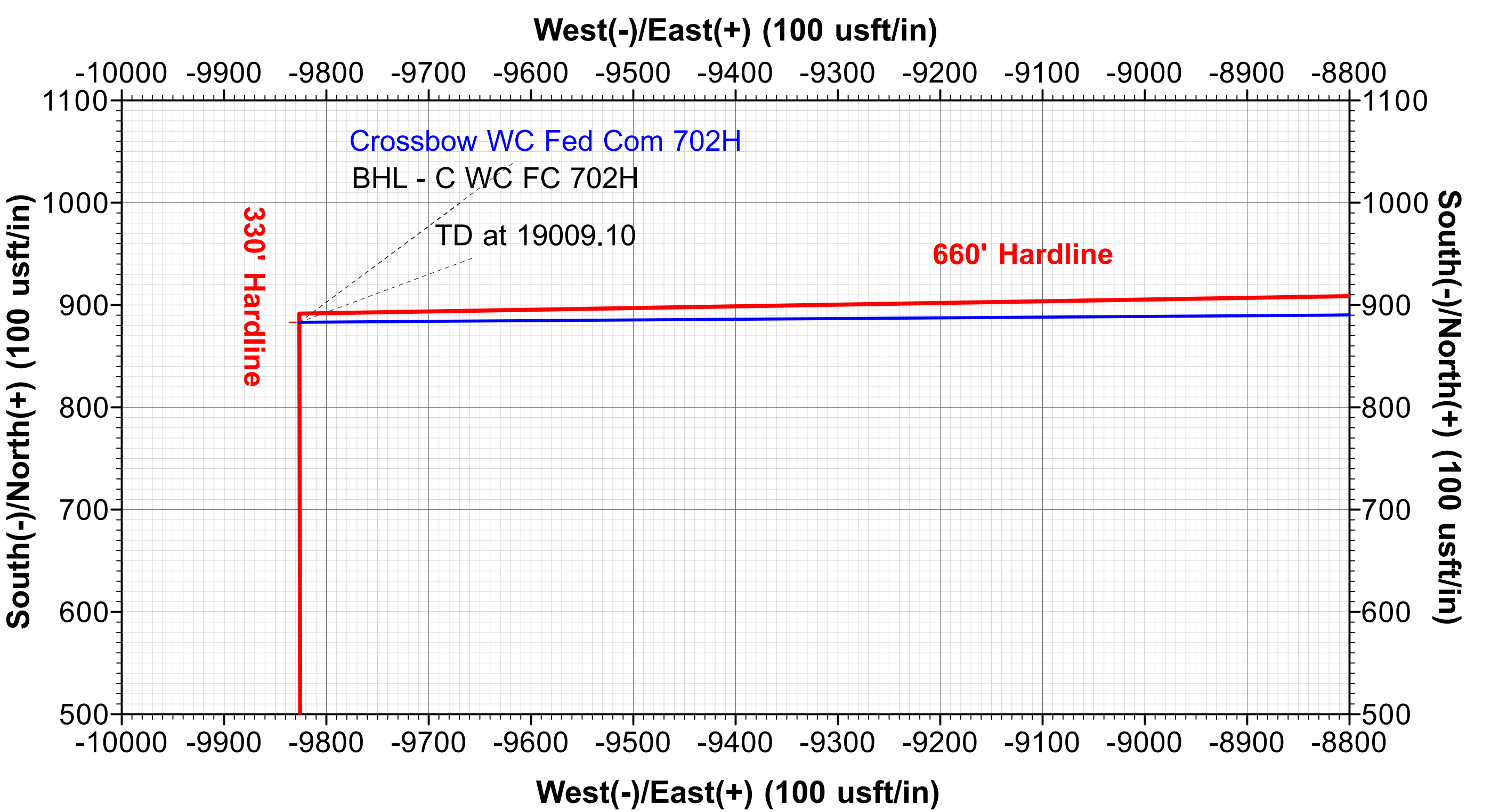
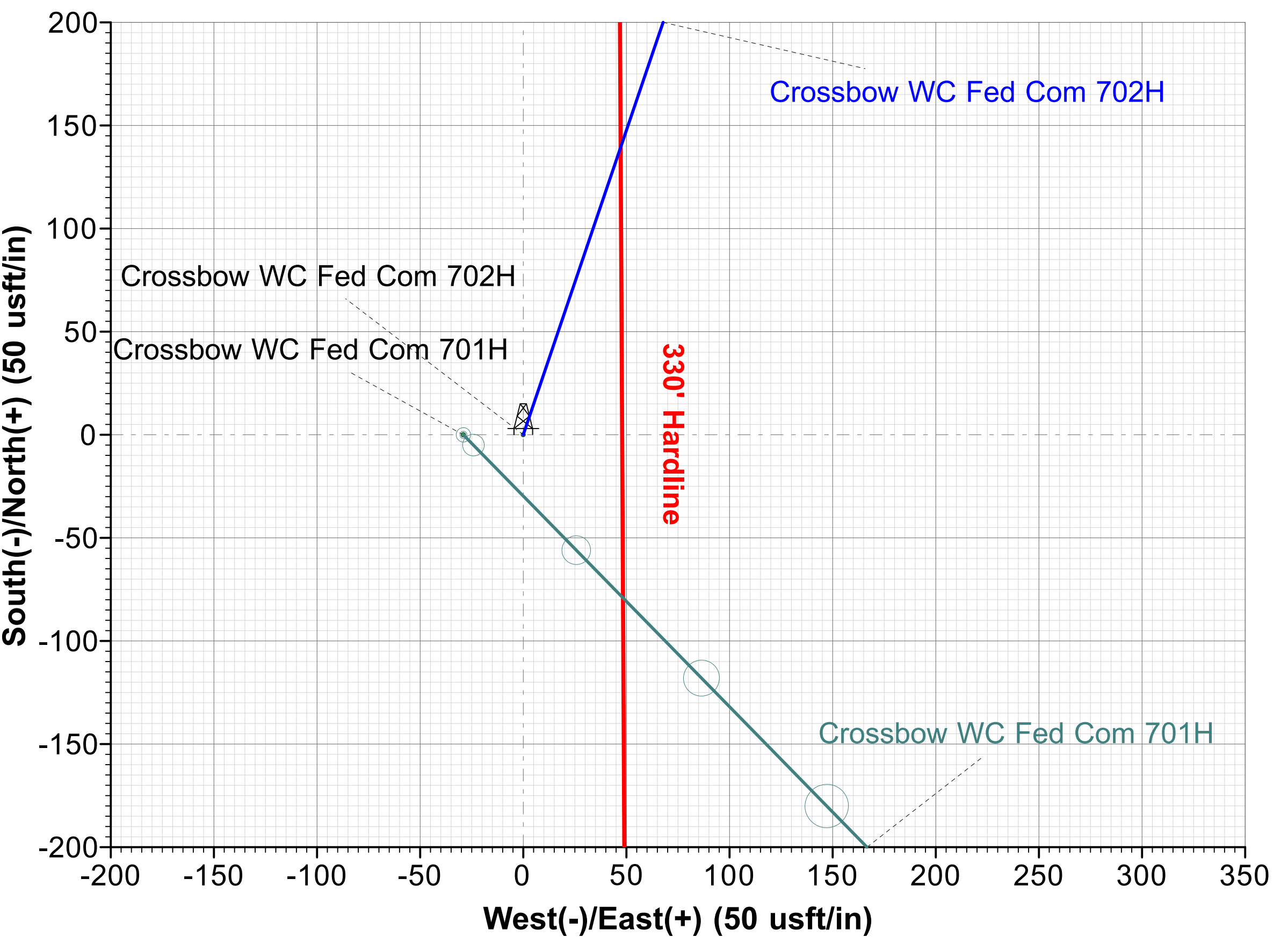
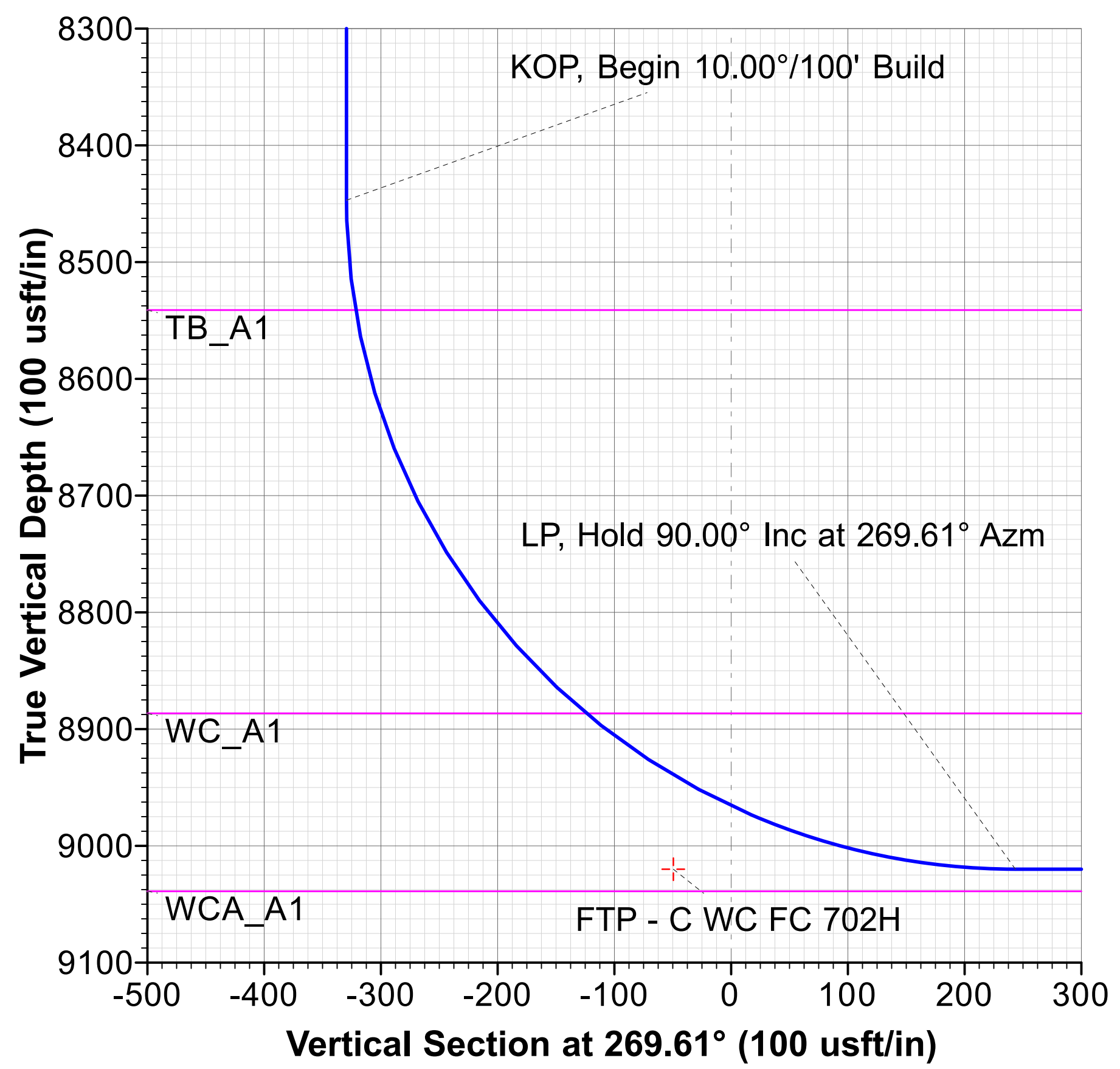
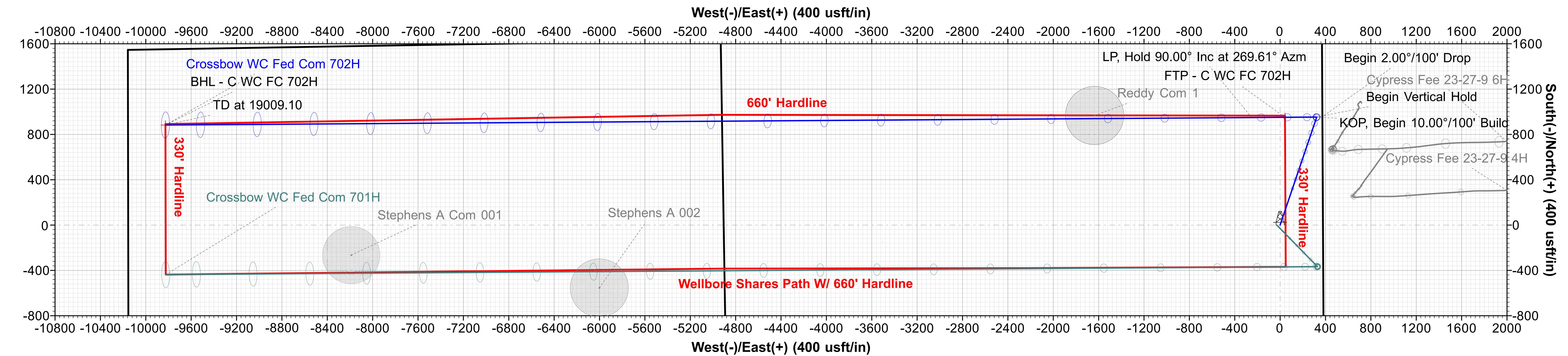
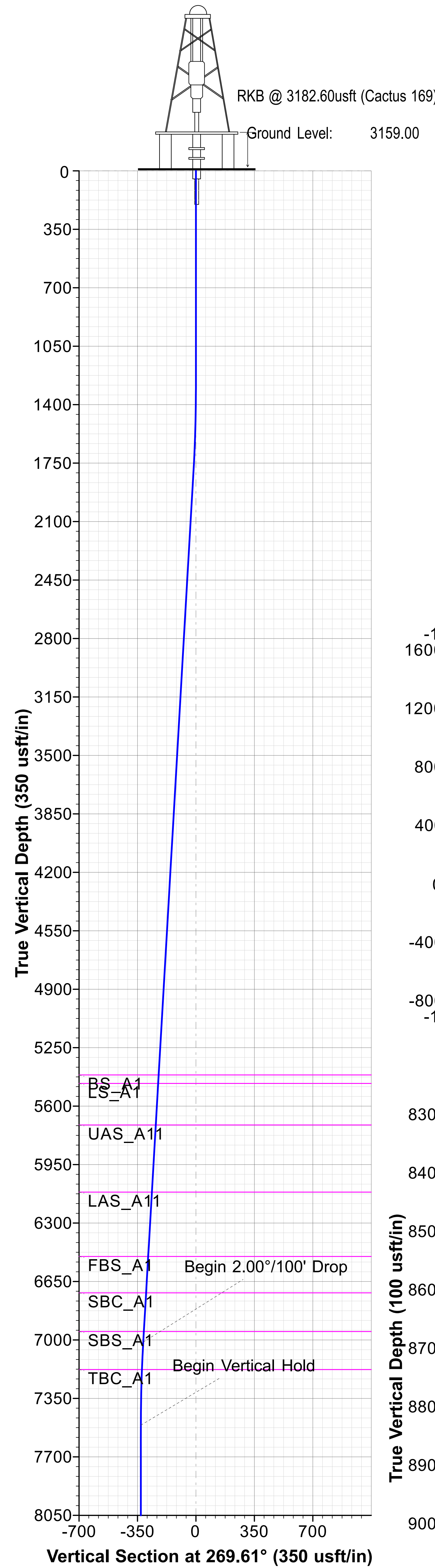
WELL DETAILS											
					Ground Level:		3159.00				
+N/-S		+E/-W		Northing		Easting		Latitude		Longitude	
0.00		0.00		478284.76		539855.50		32° 18' 53.478507 N		104° 12' 15.560124 W	
SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00		
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.000	0.00		KOP, Begin 2.00°/100' Build
3	1799.87	10.00	18.72	1797.33	41.20	13.96	2.00	18.719	-14.24		Hold 10.00° Inc at 18.72° Azm
4	7095.61	10.00	18.72	7012.67	911.92	309.00	0.00	0.000	-315.20		Begin 2.00°/100' Drop
5	7595.48	0.00	0.00	7510.00	953.12	322.96	2.00	180.000	-329.44		Begin Vertical Hold
6	8532.52	0.00	0.00	8447.04	953.12	322.96	0.00	0.000	-329.44		KOP, Begin 10.00°/100' Build
7	9432.52	90.00	269.61	9020.00	949.17	-249.98	10.00	269.605	243.51		LP, Hold 90.00° Inc at 269.61° Azm
8	19009.10	90.00	269.61	9020.00	883.16	-9826.33	0.00	0.000	9820.09	BHL - C WC FC 702H	TD at 19009.10

LEGEND

Stephens A 002, OH, Surveys V0
Crossbow WC Fed Com 701H, OH, Plan 1 04-21-23 V0
Reddy Com 1, OH, Surveys V0
Cypress Fee 23-27-9 4H, OH, Surveys V0
Stephens A Com 001, OH, Surveys V0
Cypress Fee 23-27-9 6H, OH, Surveys V0
Plan 1 04-21-23

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BHL - C WC FC 702H	9020.00	883.16	-9826.33	479167.92	530029.17	32° 19' 2.321076 N	104° 14' 10.057769 W
FTP - C WC FC 702H	9020.00	951.19	42.97	479235.95	539898.47	32° 19' 2.891173 N	104° 12' 15.046034 W



Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well Crossbow WC Fed Com 702H, Grid North
Latitude: 32° 18' 53.478507 N
Longitude: 104° 12' 15.560124 W
Grid East: 539855.50
Grid North: 478284.76
Scale Factor: 1.000
Geomagnetic Model: MVHD
Sample Date: 20-Jun-23
Magnetic Declination: 6.877°
Dip Angle from Horizontal: 59.909°
Magnetic Field Strength: 47448.44046727nT
To convert a Magnetic Direction to a Grid Direction, Add 6.808°
To convert a Magnetic Direction to a True Direction, Add 6.877° East
To convert a True Direction to a Grid Direction, Subtract 0.069°



Marathon Oil Permian LLC

Eddy County, NM (NAD27-NME)

Crossbow

Crossbow WC Fed Com 702H

OH

Plan: Plan 1 04-21-23

Standard Planning Report

21 April, 2023





Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 702H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3182.60usft (Cactus 169)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3182.60usft (Cactus 169)
Site:	Crossbow	North Reference:	Grid
Well:	Crossbow WC Fed Com 702H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-21-23		

Project	Eddy County, NM (NAD27-NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Crossbow		
Site Position:		Northing:	478,284.74 usft
From:	Map	Easting:	539,826.49 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 18' 53.478654 N
		Longitude:	104° 12' 15.898180 W

Well	Crossbow WC Fed Com 702H		
Well Position	+N/-S	0.00 usft	Northing: 478,284.76 usft
	+E/-W	0.00 usft	Easting: 539,855.50 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.069 °	Ground Level:	3,159.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	6/20/23	6.877	59.909	47,448.44046726

Design	Plan 1 04-21-23				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	269.61	

Plan Survey Tool Program	Date	4/21/23			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	19,009.10 Plan 1 04-21-23 (OH)	MWD+IFR1+MS		
			OWSG Rev. 2 MWD + IFR1		

Plan Sections											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000		
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.000		
1,799.87	10.00	18.72	1,797.33	41.20	13.96	2.00	2.00	0.00	18.719		
7,095.61	10.00	18.72	7,012.67	911.92	309.00	0.00	0.00	0.00	0.000		
7,595.48	0.00	0.00	7,510.00	953.12	322.96	2.00	-2.00	0.00	180.000		
8,532.52	0.00	0.00	8,447.04	953.12	322.96	0.00	0.00	0.00	0.000		
9,432.52	90.00	269.61	9,020.00	949.17	-249.98	10.00	10.00	0.00	269.605		
19,009.10	90.00	269.61	9,020.00	883.16	-9,826.33	0.00	0.00	0.00	0.000	BHL - C WC FC 70:	



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 702H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3182.60usft (Cactus 169)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3182.60usft (Cactus 169)
Site:	Crossbow	North Reference:	Grid
Well:	Crossbow WC Fed Com 702H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-21-23		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
1,400.00	2.00	18.72	1,399.98	1.65	0.56	-0.57	2.00	2.00	0.00
1,500.00	4.00	18.72	1,499.84	6.61	2.24	-2.28	2.00	2.00	0.00
1,600.00	6.00	18.72	1,599.45	14.86	5.04	-5.14	2.00	2.00	0.00
1,700.00	8.00	18.72	1,698.70	26.41	8.95	-9.13	2.00	2.00	0.00
1,799.87	10.00	18.72	1,797.33	41.20	13.96	-14.24	2.00	2.00	0.00
Hold 10.00° Inc at 18.72° Azm									
1,800.00	10.00	18.72	1,797.47	41.22	13.97	-14.25	0.00	0.00	0.00
1,900.00	10.00	18.72	1,895.95	57.66	19.54	-19.93	0.00	0.00	0.00
2,000.00	10.00	18.72	1,994.43	74.10	25.11	-25.61	0.00	0.00	0.00
2,100.00	10.00	18.72	2,092.91	90.55	30.68	-31.30	0.00	0.00	0.00
2,200.00	10.00	18.72	2,191.39	106.99	36.25	-36.98	0.00	0.00	0.00
2,300.00	10.00	18.72	2,289.87	123.43	41.82	-42.66	0.00	0.00	0.00
2,400.00	10.00	18.72	2,388.35	139.87	47.40	-48.35	0.00	0.00	0.00
2,500.00	10.00	18.72	2,486.84	156.31	52.97	-54.03	0.00	0.00	0.00
2,600.00	10.00	18.72	2,585.32	172.76	58.54	-59.71	0.00	0.00	0.00
2,700.00	10.00	18.72	2,683.80	189.20	64.11	-65.40	0.00	0.00	0.00
2,800.00	10.00	18.72	2,782.28	205.64	69.68	-71.08	0.00	0.00	0.00
2,900.00	10.00	18.72	2,880.76	222.08	75.25	-76.76	0.00	0.00	0.00
3,000.00	10.00	18.72	2,979.24	238.52	80.82	-82.45	0.00	0.00	0.00
3,100.00	10.00	18.72	3,077.73	254.97	86.39	-88.13	0.00	0.00	0.00
3,200.00	10.00	18.72	3,176.21	271.41	91.97	-93.81	0.00	0.00	0.00
3,300.00	10.00	18.72	3,274.69	287.85	97.54	-99.49	0.00	0.00	0.00
3,400.00	10.00	18.72	3,373.17	304.29	103.11	-105.18	0.00	0.00	0.00
3,500.00	10.00	18.72	3,471.65	320.73	108.68	-110.86	0.00	0.00	0.00
3,600.00	10.00	18.72	3,570.13	337.18	114.25	-116.54	0.00	0.00	0.00
3,700.00	10.00	18.72	3,668.62	353.62	119.82	-122.23	0.00	0.00	0.00
3,800.00	10.00	18.72	3,767.10	370.06	125.39	-127.91	0.00	0.00	0.00
3,900.00	10.00	18.72	3,865.58	386.50	130.97	-133.59	0.00	0.00	0.00
4,000.00	10.00	18.72	3,964.06	402.94	136.54	-139.28	0.00	0.00	0.00
4,100.00	10.00	18.72	4,062.54	419.39	142.11	-144.96	0.00	0.00	0.00
4,200.00	10.00	18.72	4,161.02	435.83	147.68	-150.64	0.00	0.00	0.00
4,300.00	10.00	18.72	4,259.51	452.27	153.25	-156.33	0.00	0.00	0.00
4,400.00	10.00	18.72	4,357.99	468.71	158.82	-162.01	0.00	0.00	0.00
4,500.00	10.00	18.72	4,456.47	485.15	164.39	-167.69	0.00	0.00	0.00
4,600.00	10.00	18.72	4,554.95	501.59	169.96	-173.37	0.00	0.00	0.00
4,700.00	10.00	18.72	4,653.43	518.04	175.54	-179.06	0.00	0.00	0.00
4,800.00	10.00	18.72	4,751.91	534.48	181.11	-184.74	0.00	0.00	0.00
4,900.00	10.00	18.72	4,850.39	550.92	186.68	-190.42	0.00	0.00	0.00
5,000.00	10.00	18.72	4,948.88	567.36	192.25	-196.11	0.00	0.00	0.00
5,100.00	10.00	18.72	5,047.36	583.80	197.82	-201.79	0.00	0.00	0.00
5,200.00	10.00	18.72	5,145.84	600.25	203.39	-207.47	0.00	0.00	0.00
5,300.00	10.00	18.72	5,244.32	616.69	208.96	-213.16	0.00	0.00	0.00
5,400.00	10.00	18.72	5,342.80	633.13	214.54	-218.84	0.00	0.00	0.00
5,471.45	10.00	18.72	5,413.17	644.88	218.52	-222.90	0.00	0.00	0.00
BS_A1									
5,500.00	10.00	18.72	5,441.28	649.57	220.11	-224.52	0.00	0.00	0.00
5,523.15	10.00	18.72	5,464.08	653.38	221.40	-225.84	0.00	0.00	0.00
LS_A1									
5,600.00	10.00	18.72	5,539.77	666.01	225.68	-230.21	0.00	0.00	0.00
5,700.00	10.00	18.72	5,638.25	682.46	231.25	-235.89	0.00	0.00	0.00
5,775.77	10.00	18.72	5,712.86	694.91	235.47	-240.20	0.00	0.00	0.00



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 702H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3182.60usft (Cactus 169)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3182.60usft (Cactus 169)
Site:	Crossbow	North Reference:	Grid
Well:	Crossbow WC Fed Com 702H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-21-23		

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)
UAS_A11									
5,800.00	10.00	18.72	5,736.73	698.90	236.82	-241.57	0.00	0.00	0.00
5,900.00	10.00	18.72	5,835.21	715.34	242.39	-247.26	0.00	0.00	0.00
6,000.00	10.00	18.72	5,933.69	731.78	247.96	-252.94	0.00	0.00	0.00
6,100.00	10.00	18.72	6,032.17	748.22	253.53	-258.62	0.00	0.00	0.00
6,183.65	10.00	18.72	6,114.55	761.98	258.19	-263.38	0.00	0.00	0.00
LAS_A11									
6,200.00	10.00	18.72	6,130.66	764.67	259.11	-264.30	0.00	0.00	0.00
6,300.00	10.00	18.72	6,229.14	781.11	264.68	-269.99	0.00	0.00	0.00
6,400.00	10.00	18.72	6,327.62	797.55	270.25	-275.67	0.00	0.00	0.00
6,500.00	10.00	18.72	6,426.10	813.99	275.82	-281.35	0.00	0.00	0.00
6,575.11	10.00	18.72	6,500.07	826.34	280.00	-285.62	0.00	0.00	0.00
FBS_A1									
6,600.00	10.00	18.72	6,524.58	830.43	281.39	-287.04	0.00	0.00	0.00
6,700.00	10.00	18.72	6,623.06	846.88	286.96	-292.72	0.00	0.00	0.00
6,796.10	10.00	18.72	6,717.70	862.68	292.32	-298.18	0.00	0.00	0.00
SBC_A1									
6,800.00	10.00	18.72	6,721.54	863.32	292.53	-298.40	0.00	0.00	0.00
6,900.00	10.00	18.72	6,820.03	879.76	298.11	-304.09	0.00	0.00	0.00
7,000.00	10.00	18.72	6,918.51	896.20	303.68	-309.77	0.00	0.00	0.00
7,031.41	10.00	18.72	6,949.44	901.37	305.43	-311.56	0.00	0.00	0.00
SBS_A1									
7,095.61	10.00	18.72	7,012.67	911.92	309.00	-315.20	0.00	0.00	0.00
Begin 2.00°/100' Drop									
7,100.00	9.91	18.72	7,016.99	912.64	309.25	-315.45	2.00	-2.00	0.00
7,200.00	7.91	18.72	7,115.78	927.31	314.22	-320.52	2.00	-2.00	0.00
7,262.13	6.67	18.72	7,177.41	934.77	316.75	-323.10	2.00	-2.00	0.00
TBC_A1									
7,300.00	5.91	18.72	7,215.05	938.70	318.08	-324.46	2.00	-2.00	0.00
7,400.00	3.91	18.72	7,314.68	946.81	320.82	-327.26	2.00	-2.00	0.00
7,500.00	1.91	18.72	7,414.54	951.61	322.45	-328.92	2.00	-2.00	0.00
7,595.48	0.00	0.00	7,510.00	953.12	322.96	-329.44	2.00	-2.00	0.00
Begin Vertical Hold									
8,532.52	0.00	0.00	8,447.04	953.12	322.96	-329.44	0.00	0.00	0.00
KOP, Begin 10.00°/100' Build									
8,600.00	6.75	269.61	8,514.37	953.09	318.99	-325.47	10.00	10.00	0.00
8,627.07	9.46	269.61	8,541.17	953.07	315.18	-321.66	10.00	10.00	0.00
TB_A1									
8,700.00	16.75	269.61	8,612.15	952.95	298.66	-305.14	10.00	10.00	0.00
8,800.00	26.75	269.61	8,704.91	952.70	261.65	-268.13	10.00	10.00	0.00
8,900.00	36.75	269.61	8,789.84	952.34	209.10	-215.58	10.00	10.00	0.00
9,000.00	46.75	269.61	8,864.36	951.88	142.60	-149.08	10.00	10.00	0.00
9,033.42	50.09	269.61	8,886.53	951.70	117.61	-124.09	10.00	10.00	0.00
WC_A1									
9,100.00	56.75	269.61	8,926.19	951.34	64.18	-70.65	10.00	10.00	0.00
9,200.00	66.75	269.61	8,973.46	950.73	-23.80	17.33	10.00	10.00	0.00
9,300.00	76.75	269.61	9,004.74	950.08	-118.64	112.17	10.00	10.00	0.00
9,400.00	86.75	269.61	9,019.08	949.39	-217.48	211.01	10.00	10.00	0.00
9,432.52	90.00	269.61	9,020.00	949.17	-249.98	243.51	10.00	10.00	0.00
LP, Hold 90.00° Inc at 269.61° Azm									
9,500.00	90.00	269.61	9,020.00	948.71	-317.46	311.00	0.00	0.00	0.00
9,600.00	90.00	269.61	9,020.00	948.02	-417.46	411.00	0.00	0.00	0.00



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 702H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3182.60usft (Cactus 169)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3182.60usft (Cactus 169)
Site:	Crossbow	North Reference:	Grid
Well:	Crossbow WC Fed Com 702H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-21-23		

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)
9,700.00	90.00	269.61	9,020.00	947.33	-517.46	511.00	0.00	0.00	0.00
9,800.00	90.00	269.61	9,020.00	946.64	-617.45	611.00	0.00	0.00	0.00
9,900.00	90.00	269.61	9,020.00	945.95	-717.45	711.00	0.00	0.00	0.00
10,000.00	90.00	269.61	9,020.00	945.26	-817.45	811.00	0.00	0.00	0.00
10,100.00	90.00	269.61	9,020.00	944.57	-917.45	911.00	0.00	0.00	0.00
10,200.00	90.00	269.61	9,020.00	943.88	-1,017.44	1,011.00	0.00	0.00	0.00
10,300.00	90.00	269.61	9,020.00	943.19	-1,117.44	1,111.00	0.00	0.00	0.00
10,400.00	90.00	269.61	9,020.00	942.50	-1,217.44	1,211.00	0.00	0.00	0.00
10,500.00	90.00	269.61	9,020.00	941.81	-1,317.44	1,311.00	0.00	0.00	0.00
10,600.00	90.00	269.61	9,020.00	941.12	-1,417.43	1,411.00	0.00	0.00	0.00
10,700.00	90.00	269.61	9,020.00	940.43	-1,517.43	1,511.00	0.00	0.00	0.00
10,800.00	90.00	269.61	9,020.00	939.74	-1,617.43	1,611.00	0.00	0.00	0.00
10,900.00	90.00	269.61	9,020.00	939.06	-1,717.43	1,711.00	0.00	0.00	0.00
11,000.00	90.00	269.61	9,020.00	938.37	-1,817.42	1,811.00	0.00	0.00	0.00
11,100.00	90.00	269.61	9,020.00	937.68	-1,917.42	1,911.00	0.00	0.00	0.00
11,200.00	90.00	269.61	9,020.00	936.99	-2,017.42	2,011.00	0.00	0.00	0.00
11,300.00	90.00	269.61	9,020.00	936.30	-2,117.42	2,111.00	0.00	0.00	0.00
11,400.00	90.00	269.61	9,020.00	935.61	-2,217.42	2,211.00	0.00	0.00	0.00
11,500.00	90.00	269.61	9,020.00	934.92	-2,317.41	2,311.00	0.00	0.00	0.00
11,600.00	90.00	269.61	9,020.00	934.23	-2,417.41	2,411.00	0.00	0.00	0.00
11,700.00	90.00	269.61	9,020.00	933.54	-2,517.41	2,511.00	0.00	0.00	0.00
11,800.00	90.00	269.61	9,020.00	932.85	-2,617.41	2,611.00	0.00	0.00	0.00
11,900.00	90.00	269.61	9,020.00	932.16	-2,717.40	2,711.00	0.00	0.00	0.00
12,000.00	90.00	269.61	9,020.00	931.47	-2,817.40	2,811.00	0.00	0.00	0.00
12,100.00	90.00	269.61	9,020.00	930.78	-2,917.40	2,911.00	0.00	0.00	0.00
12,200.00	90.00	269.61	9,020.00	930.09	-3,017.40	3,011.00	0.00	0.00	0.00
12,300.00	90.00	269.61	9,020.00	929.41	-3,117.39	3,111.00	0.00	0.00	0.00
12,400.00	90.00	269.61	9,020.00	928.72	-3,217.39	3,211.00	0.00	0.00	0.00
12,500.00	90.00	269.61	9,020.00	928.03	-3,317.39	3,311.00	0.00	0.00	0.00
12,600.00	90.00	269.61	9,020.00	927.34	-3,417.39	3,411.00	0.00	0.00	0.00
12,700.00	90.00	269.61	9,020.00	926.65	-3,517.38	3,511.00	0.00	0.00	0.00
12,800.00	90.00	269.61	9,020.00	925.96	-3,617.38	3,611.00	0.00	0.00	0.00
12,900.00	90.00	269.61	9,020.00	925.27	-3,717.38	3,711.00	0.00	0.00	0.00
13,000.00	90.00	269.61	9,020.00	924.58	-3,817.38	3,811.00	0.00	0.00	0.00
13,100.00	90.00	269.61	9,020.00	923.89	-3,917.38	3,911.00	0.00	0.00	0.00
13,200.00	90.00	269.61	9,020.00	923.20	-4,017.37	4,011.00	0.00	0.00	0.00
13,300.00	90.00	269.61	9,020.00	922.51	-4,117.37	4,111.00	0.00	0.00	0.00
13,400.00	90.00	269.61	9,020.00	921.82	-4,217.37	4,211.00	0.00	0.00	0.00
13,500.00	90.00	269.61	9,020.00	921.13	-4,317.37	4,311.00	0.00	0.00	0.00
13,600.00	90.00	269.61	9,020.00	920.44	-4,417.36	4,411.00	0.00	0.00	0.00
13,700.00	90.00	269.61	9,020.00	919.76	-4,517.36	4,511.00	0.00	0.00	0.00
13,800.00	90.00	269.61	9,020.00	919.07	-4,617.36	4,611.00	0.00	0.00	0.00
13,900.00	90.00	269.61	9,020.00	918.38	-4,717.36	4,711.00	0.00	0.00	0.00
14,000.00	90.00	269.61	9,020.00	917.69	-4,817.35	4,811.00	0.00	0.00	0.00
14,100.00	90.00	269.61	9,020.00	917.00	-4,917.35	4,911.00	0.00	0.00	0.00
14,200.00	90.00	269.61	9,020.00	916.31	-5,017.35	5,011.00	0.00	0.00	0.00
14,300.00	90.00	269.61	9,020.00	915.62	-5,117.35	5,111.00	0.00	0.00	0.00
14,400.00	90.00	269.61	9,020.00	914.93	-5,217.34	5,211.00	0.00	0.00	0.00
14,500.00	90.00	269.61	9,020.00	914.24	-5,317.34	5,311.00	0.00	0.00	0.00
14,600.00	90.00	269.61	9,020.00	913.55	-5,417.34	5,411.00	0.00	0.00	0.00
14,700.00	90.00	269.61	9,020.00	912.86	-5,517.34	5,511.00	0.00	0.00	0.00
14,800.00	90.00	269.61	9,020.00	912.17	-5,617.33	5,611.00	0.00	0.00	0.00
14,900.00	90.00	269.61	9,020.00	911.48	-5,717.33	5,711.00	0.00	0.00	0.00
15,000.00	90.00	269.61	9,020.00	910.79	-5,817.33	5,811.00	0.00	0.00	0.00



Phoenix Planning Report



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Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3182.60usft (Cactus 169)
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Design:	Plan 1 04-21-23		

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)
15,100.00	90.00	269.61	9,020.00	910.11	-5,917.33	5,911.00	0.00	0.00	0.00
15,200.00	90.00	269.61	9,020.00	909.42	-6,017.33	6,011.00	0.00	0.00	0.00
15,300.00	90.00	269.61	9,020.00	908.73	-6,117.32	6,111.00	0.00	0.00	0.00
15,400.00	90.00	269.61	9,020.00	908.04	-6,217.32	6,211.00	0.00	0.00	0.00
15,500.00	90.00	269.61	9,020.00	907.35	-6,317.32	6,311.00	0.00	0.00	0.00
15,600.00	90.00	269.61	9,020.00	906.66	-6,417.32	6,411.00	0.00	0.00	0.00
15,700.00	90.00	269.61	9,020.00	905.97	-6,517.31	6,511.00	0.00	0.00	0.00
15,800.00	90.00	269.61	9,020.00	905.28	-6,617.31	6,611.00	0.00	0.00	0.00
15,900.00	90.00	269.61	9,020.00	904.59	-6,717.31	6,711.00	0.00	0.00	0.00
16,000.00	90.00	269.61	9,020.00	903.90	-6,817.31	6,811.00	0.00	0.00	0.00
16,100.00	90.00	269.61	9,020.00	903.21	-6,917.30	6,911.00	0.00	0.00	0.00
16,200.00	90.00	269.61	9,020.00	902.52	-7,017.30	7,011.00	0.00	0.00	0.00
16,300.00	90.00	269.61	9,020.00	901.83	-7,117.30	7,111.00	0.00	0.00	0.00
16,400.00	90.00	269.61	9,020.00	901.14	-7,217.30	7,211.00	0.00	0.00	0.00
16,500.00	90.00	269.61	9,020.00	900.46	-7,317.29	7,311.00	0.00	0.00	0.00
16,600.00	90.00	269.61	9,020.00	899.77	-7,417.29	7,411.00	0.00	0.00	0.00
16,700.00	90.00	269.61	9,020.00	899.08	-7,517.29	7,511.00	0.00	0.00	0.00
16,800.00	90.00	269.61	9,020.00	898.39	-7,617.29	7,611.00	0.00	0.00	0.00
16,900.00	90.00	269.61	9,020.00	897.70	-7,717.28	7,711.00	0.00	0.00	0.00
17,000.00	90.00	269.61	9,020.00	897.01	-7,817.28	7,811.00	0.00	0.00	0.00
17,100.00	90.00	269.61	9,020.00	896.32	-7,917.28	7,911.00	0.00	0.00	0.00
17,200.00	90.00	269.61	9,020.00	895.63	-8,017.28	8,011.00	0.00	0.00	0.00
17,300.00	90.00	269.61	9,020.00	894.94	-8,117.28	8,111.00	0.00	0.00	0.00
17,400.00	90.00	269.61	9,020.00	894.25	-8,217.27	8,211.00	0.00	0.00	0.00
17,500.00	90.00	269.61	9,020.00	893.56	-8,317.27	8,311.00	0.00	0.00	0.00
17,600.00	90.00	269.61	9,020.00	892.87	-8,417.27	8,411.00	0.00	0.00	0.00
17,700.00	90.00	269.61	9,020.00	892.18	-8,517.27	8,511.00	0.00	0.00	0.00
17,800.00	90.00	269.61	9,020.00	891.49	-8,617.26	8,611.00	0.00	0.00	0.00
17,900.00	90.00	269.61	9,020.00	890.80	-8,717.26	8,711.00	0.00	0.00	0.00
18,000.00	90.00	269.61	9,020.00	890.12	-8,817.26	8,811.00	0.00	0.00	0.00
18,100.00	90.00	269.61	9,020.00	889.43	-8,917.26	8,911.00	0.00	0.00	0.00
18,200.00	90.00	269.61	9,020.00	888.74	-9,017.25	9,011.00	0.00	0.00	0.00
18,300.00	90.00	269.61	9,020.00	888.05	-9,117.25	9,111.00	0.00	0.00	0.00
18,400.00	90.00	269.61	9,020.00	887.36	-9,217.25	9,211.00	0.00	0.00	0.00
18,500.00	90.00	269.61	9,020.00	886.67	-9,317.25	9,311.00	0.00	0.00	0.00
18,600.00	90.00	269.61	9,020.00	885.98	-9,417.24	9,411.00	0.00	0.00	0.00
18,700.00	90.00	269.61	9,020.00	885.29	-9,517.24	9,511.00	0.00	0.00	0.00
18,800.00	90.00	269.61	9,020.00	884.60	-9,617.24	9,611.00	0.00	0.00	0.00
18,900.00	90.00	269.61	9,020.00	883.91	-9,717.24	9,711.00	0.00	0.00	0.00
19,000.00	90.00	269.61	9,020.00	883.22	-9,817.24	9,811.00	0.00	0.00	0.00
19,009.10	90.00	269.61	9,020.00	883.16	-9,826.33	9,820.09	0.00	0.00	0.00
TD at 19009.10									



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 702H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3182.60usft (Cactus 169)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3182.60usft (Cactus 169)
Site:	Crossbow	North Reference:	Grid
Well:	Crossbow WC Fed Com 702H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 1 04-21-23		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
BHL - C WC FC 702H	0.00	0.00	9,020.00	883.16	-9,826.33	479,167.92	530,029.17	32° 19' 2.321076 N	4° 14' 10.057769 W
- plan hits target center									
- Point									
FTP - C WC FC 702H	0.00	0.00	9,020.00	951.19	42.97	479,235.95	539,898.47	32° 19' 2.891173 N	4° 12' 15.046034 W
- plan misses target center by 70.57usft at 9163.17usft MD (8957.84 TVD, 950.96 N, 9.55 E)									
- Point									

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,471.45	5,413.17	BS_A1		0.000	269.61
5,523.15	5,464.08	LS_A1		0.000	269.61
5,775.77	5,712.86	UAS_A11		0.000	269.61
6,183.65	6,114.55	LAS_A11		0.000	269.61
6,575.11	6,500.07	FBS_A1		0.000	269.61
6,796.10	6,717.70	SBC_A1		0.000	269.61
7,031.41	6,949.44	SBS_A1		0.000	269.61
7,262.13	7,177.41	TBC_A1		0.000	269.61
8,627.07	8,541.17	TB_A1		0.000	269.61
9,033.42	8,886.53	WC_A1		0.000	269.61

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,300.00	1,300.00	0.00	0.00	KOP, Begin 2.00°/100' Build
1,799.87	1,797.33	41.20	13.96	Hold 10.00° Inc at 18.72° Azm
7,095.61	7,012.67	911.92	309.00	Begin 2.00°/100' Drop
7,595.48	7,510.00	953.12	322.96	Begin Vertical Hold
8,532.52	8,447.04	953.12	322.96	KOP, Begin 10.00°/100' Build
9,432.52	9,020.00	949.17	-249.98	LP, Hold 90.00° Inc at 269.61° Azm
19,009.10	9,020.00	883.16	-9,826.33	TD at 19009.10

MARATHON OIL PERMIAN, LLC.
DRILLING AND OPERATIONS PLAN



WELL NAME & NUMBER:

CROSSBOW WC FED COM 702H

LOCATION:

SECTION **8**
EDDYTOWNSHIP **23S**
COUNTY,RANGE **27E**
NEW MEXICO**Section 1:****GEOLOGICAL FORMATIONS**

Name of Surface Formation:

Permian

Elevation:

3159 feet

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler	N/A	N/A	#VALUE!	Anhydrite	Brine	No
Salado	N/A	N/A	#VALUE!	Salt/Anhydrite	Brine	No
Castile	473	500	2686	Salt/Anhydrite	Brine	No
Base of Salt (BX)	1729	1756	1430	Salt/Anhydrite	Brine	No
Lamar	1955	1982	1204	Sandstone/Shale	None	No
Bell Canyon	2094	2121	1065	Sandstone	Oil	No
Cherry Canyon	2867	2894	292	Sandstone	Oil	No
Brushy Canyon	3895	3922	-736	Sandstone	Oil	No
Bone Spring Lime	5389	5416	-2230	Limestone	None	No
Upper Avalon Shale	5389	5416	-2230	Shale	Oil	Yes
1st Bone Spring Sand	6439	6466	-3280	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	6917	6944	-3758	Limestone/Shale	None	No
2nd Bone Spring Sand	6917	6944	-3758	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	8531	8558	-5372	Limestone	Oil	No
3rd Bone Spring Sand	8531	8558	-5372	Sandstone	Oil	Yes
Wolfcamp	8874	8901	-5715	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	9024	9051	-5865	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	9190	9217	-6031	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp C	9485	9512	-6326	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp D	9738	9765	-6579	Sandstone/Shale/Carbonates	Natural Gas / Oil	No

Section 2:**BLOWOUT PREVENTER TESTING PROCEDURE**

Pressure Rating (PSI):

10M

Rating Depth:

10000

Equipment:

13 5/8 BOP Annular (5,000 psi WP) and BOP Stack (10,000 psi WP) will be installed and tested before drilling all holes.

Requesting Variance?

Yes

Variance Request:

A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.

Testing Procedure:

BOP/BOPE will be tested to 250 psi low and a high of 100% WP for the Annular and 5,000psi for the BOP Stack before drilling the intermediate hole, 10,000psi for the BOP Stacking before drilling the production hole. Testing will be conducted by an independent service company per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the Equipment Description above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams and Blind rams will be operationally checked on each trip out of the hole, but not to exceed more than once per day. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics.

Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. A multibowl wellhead is being used. 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. See attached schematic.

Marathon Oil Permian LLC.

Drilling & Operations Plan - Page 2 of 4

Section 3:**CASING PROGRAM**

String Type	Hole Size	Casing Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Weight (lbs/ft)	Grade	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	17.5	13.375	0	400	0	400	3159	2759	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	8432	0	8347	3159	-5188	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	19009	0	9020	3159	-5861	23	P110HC	TLW	2.53	1.26	BUOY	2.22	BUOY	2.22
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h												Safety Factors will Meet or Exceed					

Casing Condition: New
Casing Standard: API
Tapered String? No

Yes or No

Is casing new? If used, attach certification as required in Onshore Order #1.	Yes
Does casing meet API specifications? If no, attach casing specification sheet.	Yes
Is premium or uncommon casing planned? If yes attach casing specification sheet.	No
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Yes
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Yes
Is well located within Capitan Reef?	No
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is proposed well within the designated four string boundary?	
Is well located in R-111-P and SOPA?	No
If yes, are the first three strings cemented to surface?	
Is the second string set 100' to 600' below the base of salt?	
Is well located in SOPA but not in R-111-P?	No
If yes, are the first 2 strings cemented to surface and third string cement tied back 500' into previous casing?	
Is well located in high Cave/Karst?	No
If yes, are there two strings cemented to surface?	
If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	No
If yes, are there three strings cemented to surface?	

Section 4:**CEMENT PROGRAM**

String Type	Lead/Tail	Top MD	Bottom MD	Quantity (sks)	Yield (ft³/sks)	Density (ppg)	Slurry Volume (ft³)	Excess (%)	Cement Type	Additives
Surface	Lead	0	250	125	2.12	12.5	266	25	Class C	Extender, Accelerator, LCM
Surface	Tail	250	400	99	1.32	14.8	130	25	Class C	Accelerator
Intermediate	Lead	0	7932	1436	2.18	12.4	3130	25	Class C	Extender, Accelerator, LCM
Intermediate	Tail	7932	8432	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	8132	19009	2085	1.68	13	3503	25	Class H	Retarder, Extender, Fluid Loss, Suspension Agent

Stage tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Stage tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Pilot Hole? No
Pilot Hole Depth: N/A
KOP Depth: N/A
Plugging Procedure for Pilot Hole: N/A

Plug Top	Plug Bottom	Excess (%)	Quantity (sx)	Density (ppg)	Yield (ft³/sks)	Water gal/sk	Slurry Description and Cement Type

Marathon Oil Permian LLC.

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Section 5:**CIRCULATING MEDIUM**

Mud System Type: Closed
Will an air or gas system be used? No

Describe what will be on location to control well or mitigate other conditions:

The necessary mud products for additional weight and fluid loss control will be on location at all times.

Describe the mud monitoring system utilized:

Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT.

Circulating Medium Table:

Top Depth	Bottom Depth	Mud Type	Min. Weight (ppg)	Max Weight (ppg)
0	400	Water Based Mud	8.4	8.8
400	8432	Brine or Oil Based Mud	9.2	10.2
8432	19009	Oil Based Mud	10.5	12.5

Section 6:**TESTING, LOGGING, CORING****List of production tests including testing procedures, equipment and safety measures:**

GR from TD to surface (horizontal well - vertical portion of hole)

List of open and cased hole logs run in the well:

GR while drilling from Intermediate casing shoe to TD.

Coring operation description for the well:

Run gamma-ray (GR) and corrected neutron log (CNL) or analogous to surface for future development of the area, one per shared well pad not to exceed 200' radial distance.

Section 7:**ANTICIPATED PRESSURE**

Anticipated Bottom Hole Pressure: 5863 PSI
Anticipated Bottom Hole Temperature: 195 °F
Anticipated Abnormal Pressure? No
Anticipated Abnormal Temperature? No

Potential Hazards:

H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. See attached H2S Contingency Plan.

Section 8:**OTHER INFORMATION****Auxiliary Well Control and Monitoring Equipment:**

A Kelly cock will be in the drill string at all times. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.

Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. If Hydrogen Sulfide is encountered, measured amounts and formations will be reported to the BLM.

Anticipated Starting Date and Duration of Operations:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.

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 211845

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 211845
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Original COA's still apply	10/13/2023