K

Received by OCD:	: 1/30/2023 4	:22:37 PM						Page 1 of
Form 3160-5 (June 2019)	BUR	UNITED STATES PARTMENT OF THE IN REAU OF LAND MANA	TERIOR GEMENT			O Expi	DRM APPRO MB No. 1004 res: October (MNM108503	-0137 31, 2021
	not use this	NOTICES AND REPOF form for proposals to Use Form 3160-3 (AP	drill or to	o re-enter ar		6. If Indian, Allottee or	Tribe Name	
	SUBMIT IN	TRIPLICATE - Other instruc	tions on pag	e 2		7. If Unit of CA/Agree	ment, Name a	nd/or No.
1. Type of Well	ell 🗌 Gas V			8. Well Name and No.	CABALLO 2	3 FED/506H		
2. Name of Operator	EOG RESOUR	CES INCORPORATED				9. API Well No. 30025	50736	
		BBY 2, HOUSTON, TX 77(b. Phone No. 713) 651-700	(include area cod)0	de)	10. Field and Pool or E RED HILLS; LOWE	xploratory Ai	
4. Location of Well (A SEC 23/T25S/R33	-	R.,M., or Survey Description)				11. Country or Parish, LEA/NM	State	
	12. CHE	ECK THE APPROPRIATE BO	X(ES) TO INI	DICATE NATUR	E OF NOT	ICE, REPORT OR OTH	ER DATA	
TYPE OF SUE	BMISSION			T	YPE OF AC	TION		
the proposal is to the Bond under w completion of the completed. Final is ready for final EOG respectf the following of API #: 30-025 Change BHL 1 to T-25-S, R-3	eport ment Notice d or Completed (deepen directions which the work wi i nvolved operati Abandonment No inspection.) ully requests an changes: -50736 from T-25-S, R- 33-E, Sec 14, 25	Acidize Alter Casing Casing Repair Change Plans Convert to Injection Operation: Clearly state all perti ally or recomplete horizontally, ill be perfonned or provide the I ions. If the operation results in a otices must be filed only after al amendment to our approved 33-E, Sec 14, 2540' FSL, 11 541' FSL, 660' FWL, Lea Co. rogram to current design.	New Plug Plug inent details, in give subsurfa Bond No. on ff a multiple com Il requirements d APD for thi	aulic Fracturing Construction and Abandon Back ncluding estimatice locations and ile with BLM/BI upletion or recom s, including recla s well to reflect	Reci Reci Recu Tem Wat ed starting c measured a A. Requirec upletion in a umation, hav	nd true vertical depths o d subsequent reports must new interval, a Form 31	Well In Well In Worker Well In Worker Well In Worker Well In Well I	markers and zones. Attach in 30 days following filed once testing has been
14. I hereby certify the STAR HARRELL /		s true and correct. Name <i>(Print</i> 9161	ted/Typed)	Regulato	ory Special			
Signature				Date		12/21/20	22	
		THE SPACE	FOR FED	ERAL OR S	TATE OF	FICE USE		
	·	38-4722 / Approved ched. Approval of this notice do	hes not warran	Title	GINEER	Γ	ate	01/30/2023
conditions of approve	, 11 uiry, are attac	mea. reprised of this house ut	so not wanall	~				

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.

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: TR M / 434 FSL / 350 FWL / TWSP: 25S / RANGE: 33E / SECTION: 23 / LAT: 32.1099714 / LONG: -103.5505266 (TVD: 0 feet, MD: 0 feet) PPP: TR M / 100 FSL / 30 FWL / TWSP: 25S / RANGE: 33E / SECTION: 23 / LAT: 32.1090515 / LONG: -103.5480091 (TVD: 10262 feet, MD: 10332 feet) BHL: TR L / 2540 FSL / 1130 FWL / TWSP: 25S / RANGE: 33E / SECTION: 14 / LAT: 32.1302742 / LONG: -103.5480061 (TVD: 10527 feet, MD: 18154 feet) District I 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District III 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 ¹API Number ²Pool Code ³Pool Name 30-025-50736 51020 Red Hills; Lower Bone Spring ⁴Property Code Property Name Well Number 38481 CABALLO 23 FED 506H ⁸Operator Name OGRID No. ⁹Elevation 3341 7377 EOG RESOURCES, INC. ¹⁰Surface Location UL or lot no. Section Township Rang Lot Idn Feet from the North/South line Feet from the East/West line County 23 25-S33-E 434' SOUTH 350' WEST LEA Μ ¹¹Bottom Hole Location If Different From Surface UL or lot no. Township Lot Idn Feet from the North/South line Feet from the East/West line County Section Rang 660' 2541' SOUTH L 14 25-S33-E WEST LEA ²Dedicated Acres ³Joint or Infill ⁴Consolidation Code ⁵Order No. 480.00

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.



Seog resources Caballo 23 Fed 506H

Revised Permit Information 11/30/2022:

Well Name: Caballo 23 Fed 506H

Location: SHL: 434' FSL & 350' FWL, Section 23, T-25-S, R-33-E, Lea Co., N.M. BHL: 2541' FSL & 660' FWL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

Casing Program A:

Hole	Interv	al MD	Interva	l TVD	Csg			
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
16"	0	1,070	0	1,070	13-3/8"	54.5#	J-55	STC
11"	0	4,020	0	4,000	9-5/8"	40#	J-55	LTC
11"	4,020	5,050	4,000	5,030	9-5/8"	40#	HCK-55	LTC
6-3/4"	0	18,113	0	10,527	5-1/2"	17#	HCP-110	LTC

Variance is requested to waive the centralizer requirements for the 9-5/8" casing in the 11" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 11" 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 Onshore Order #2 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.

	l l l l l l l l l l l l l l l l l l l	Wt.	Yld	
		ννι.	Tiu	Slurry Description
Depth	No. Sacks	ppg	Ft3/sk	
1,070'	320	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk
,	020	10.0	1.70	Cello-Flake (TOC @ Surface)
13-3/8''				
	100	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium
				Metasilicate (TOC @ 870')
5,030'	470	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC
9-5/8''				@ Surface)
	170	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 4,020')
18,113'	360	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3%
5-1/2''				Microbond (TOC @ 4,530')
	570	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 @ 10070')

Cementing Program:

Caballo 23 Fed 506H

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.

Mud Program:

Depth (TVD)	Туре	Weight (ppg)	Viscosity	Water Loss
0-1,070'	Fresh - Gel	8.6-8.8	28-34	N/c
1,070' - 5,030'	Brine	8.6-8.8	28-34	N/c
5,030' - 18,113'	Oil Base	8.8-9.5	58-68	N/c - 6

Wellhead & Offline Cementing:

EOG Resources Inc. (EOG) respectfully requests a variance from the minimum standards for well control equipment testing of Onshore Order No. 2 (item III.A.2.a.i) to allow a testing schedule of the blow out preventer (BOP) and blow out prevention equipment (BOPE) along with Batch Drilling & Offline cement operations to include the following:

- Full BOPE test at first installation on the pad.
- Full BOPE test every 21 days per Onshore Order No. 2.
- Function test BOP elements per Onshore Order No. 2.
- Break testing BOP and BOPE coupled with batch drilling operations and option to offline cement and/or remediate (if needed) any surface or intermediate sections, according to attached offline cementing support documentation.
- After the well section is secured, the BOP will be disconnected from the wellhead and walked with the rig to another well on the pad.
- TA cap will also be installed per Wellhead vendor procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.
- See attached "EOG BLM Variance 3a -Offline Cement Intermediate Operational Procedure"

Caballo 23 Fed 506H



Seog resources Caballo 23 Fed 506H

Revised Permit Information 11/30/2022:

Well Name: Caballo 23 Fed 506H

Location: SHL: 434' FSL & 350' FWL, Section 23, T-25-S, R-33-E, Lea Co., N.M. BHL: 2541' FSL & 660' FWL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

Casing Program B:

Hole	Interv	al MD	Interva	Interval TVD				
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
13-1/2"	0	1,070	0	1,070	10-3/4"	40.5#	J-55	STC
9-7/8"	0	4,020	0	4,000	8-5/8"	32#	J-55	BTC-SC
9-7/8"	4,020	5,050	4,000	5,030	8-5/8"	32#	P110-EC	BTC-SC
6-3/4"	0	18,113	0	10,527	5-1/2"	17#	HCP-110	LTC

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description
1,070' 10-3/4''	360	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello- Flake (TOC @ Surface)
	110	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 870')
5,030' ^{8-5/8''}	340	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	160	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 4,020')
18,113' _{5-1/2''}	560	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 4,530')
	590	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 @ 10070')

Seog resources Caballo 23 Fed 506H

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			

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- See attached "EOG BLM Variance 3a -Offline Cement Intermediate Operational Procedure"

Caballo 23 Fed 506H



GEOLOGIC NAME OF SURFACE FORMATION:

Permian

ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	954'
Tamarisk Anhydrite	1,045'
Top of Salt	1,342'
Base of Salt	4,934'
Lamar	5,041'
Bell Canyon	5,079'
Cherry Canyon	6,117'
Brushy Canyon	7,702'
Bone Spring Lime	9,235'
Leonard (Avalon) Shale	9,261'
1st Bone Spring Sand	10,195'
2nd Bone Spring Shale	10,392'
2nd Bone Spring Sand	10,741'
3rd Bone Spring Carb	11,220'
3rd Bone Spring Sand	11,813'
TD	10,527'

ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0-400'	Fresh Water
Bell Canyon	5,079'	Oil
Cherry Canyon	6,117'	Oil
Brushy Canyon	7,702'	Oil
Leonard (Avalon) Shale	9,261'	Oil
1st Bone Spring Sand	10,195'	Oil
2nd Bone Spring Shale	10,392'	Oil
2nd Bone Spring Sand	10,741'	Oil



Midland

Lea County, NM (NAD 83 NME) Caballo 23 Fed #506H

OH

Plan: Plan #0.2

Standard Planning Report

21 December, 2022



Cogic							
Database: Company: Project: Site: Well: Wellbore: Design:	PEDM Midland Lea County, NI Caballo 23 Feo #506H OH Plan #0.2		·	TVD Referen MD Referen North Refer	ce:	Well #506H kb = 25' @ 336 kb = 25' @ 336 Grid Minimum Curv	66.0usft
	Lea County, NM US State Plane 1	983	1E)	System Datu	m:	Mean Sea Level	
Oco Datam.	North American D New Mexico East						
Site	Caballo 23 Fed						
Site Position: From: Position Uncertainty:	Мар	0.0 usft	Northing: Easting: Slot Radius:	785,11	9.00 usft Latitud 7.00 usft Longit 3/16 "		32° 6' 34.558 N 103° 32' 45.566 W
Well	#506H						
Well Position	+N/-S +E/-W	0.0 usft 0.0 usft	Northing: Easting:		404,624.00 usft 783,711.00 usft	Latitude: Longitude:	32° 6' 35.896 N 103° 33' 1.901 W
Position Uncertainty Grid Convergence:		0.0 usft 0.42 °	Wellhead Elev	vation:	usft	Ground Level:	3,341.0 usft
Wellbore	ОН						
Magnetics	Model Nam	e	Sample Date	Declinatio (°)	on	Dip Angle (°)	Field Strength (nT)
	IGRF	2020	9/9/2021		6.50	59.79	47,404.78958329
Design	Plan #0.2						
Audit Notes: Version:			Phase:	PLAN	Tie On De	pth:	0.0
Vertical Section:		์ (เ	rom (TVD) ısft)	+N/-S (usft)	+E/-W (usft)	D	irection (°)
		(0.0	0.0	0.0		1.99
Plan Survey Tool Pro	gram	Date 12/21	/2022				
Depth From (usft)	Depth To (usft) S	urvey (Wellb	ore)	Tool Name	Rem	arks	
1 0.0	18,112.8 P	lan #0.2 (OH))	EOG MWD+IFR MWD + IFR1	1		



Database:	PEDM	Local Co-ordinate Reference:	Well #506H
Company:	Midland	TVD Reference:	kb = 25' @ 3366.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3366.0usft
Site:	Caballo 23 Fed	North Reference:	Grid
Well:	#506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН		
Design:	Plan #0.2		

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	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,529.9	4.60	140.76	1,529.7	-7.1	5.8	2.00	2.00	0.00	140.76	
7,451.6	4.60	140.76	7,432.3	-374.9	306.2	0.00	0.00	0.00	0.00	
7,681.6	0.00	0.01	7,662.0	-382.0	312.0	2.00	-2.00	0.00	180.00	
10,069.1	0.00	0.01	10,049.5	-382.0	312.0	0.00	0.00	0.00	0.00	KOP(Caballo 23 Fee
10,289.5	26.46	0.00	10,262.2	-332.0	312.0	12.00	12.00	0.00	0.00	FTP(Caballo 23 Fed
10,819.0	90.00	359.58	10,526.9	95.5	309.9	12.00	12.00	-0.08	-0.46	
18,112.8	90.00	359.58	10,527.0	7,389.0	257.0	0.00	0.00	0.00	0.00	PBHL(Caballo 23 Fe

Released to Imaging: 2/2/2023 10:14:10 AM



Database:	PEDM	Local Co-ordinate Reference:	Well #506H
Company:	Midland	TVD Reference:	kb = 25' @ 3366.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3366.0usft
Site:	Caballo 23 Fed	North Reference:	Grid
Well:	#506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН	-	
Design:	Plan #0.2		

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	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	2.00	140.76	1,400.0	-1.4	1.1	-1.3	2.00	2.00	0.00
1,500.0	4.00	140.76	1,499.8	-5.4	4.4	-5.2	2.00	2.00	0.00
1,529.9	4.60	140.76	1,529.7	-7.1	5.8	-6.9	2.00	2.00	0.00
1,600.0	4.60	140.76	1,599.5	-11.5	9.4	-11.2	0.00	0.00	0.00
1,700.0	4.60	140.76	1,699.2	-17.7	14.5	-17.2	0.00	0.00	0.00
1,800.0	4.60	140.76	1,798.9	-23.9	19.5	-23.2	0.00	0.00	0.00
1,900.0	4.60	140.76	1,898.6	-30.1	24.6	-29.2	0.00	0.00	0.00
2,000.0	4.60	140.76	1,998.2	-36.3	29.7	-35.3	0.00	0.00	0.00
2,100.0	4.60	140.76	2,097.9	-42.5	34.7	-41.3	0.00	0.00	0.00
2,200.0	4.60	140.76	2,197.6	-48.8	39.8	-47.3	0.00	0.00	0.00
2,300.0	4.60	140.76	2,297.3	-55.0	44.9	-53.4	0.00	0.00	0.00
2,400.0	4.60	140.76	2,397.0	-61.2	50.0	-59.4	0.00	0.00	0.00
2,500.0	4.60	140.76	2,496.6	-67.4	55.0	-65.4	0.00	0.00	0.00
2,600.0	4.60	140.76	2,596.3	-73.6	60.1	-71.5	0.00	0.00	0.00
2,700.0	4.60	140.76	2,696.0	-79.8	65.2	-77.5	0.00	0.00	0.00
2,800.0	4.60	140.76	2,795.7	-86.0	70.2	-83.5	0.00	0.00	0.00
2,900.0	4.60	140.76	2,895.3	-92.2	75.3	-89.5	0.00	0.00	0.00
3,000.0	4.60	140.76	2,995.0	-98.4	80.4	-95.6	0.00	0.00	0.00
3,100.0	4.60	140.76	3,094.7	-104.6	85.5	-101.6	0.00	0.00	0.00
3,200.0	4.60	140.76	3,194.4	-110.8	90.5	-107.6	0.00	0.00	0.00
3,300.0	4.60	140.76	3,294.1	-117.1	95.6	-113.7	0.00	0.00	0.00
3,400.0	4.60	140.76	3,393.7	-123.3	100.7	-119.7	0.00	0.00	0.00
3,500.0	4.60	140.76	3,493.4	-129.5	105.8	-125.7	0.00	0.00	0.00
3,600.0	4.60	140.76	3,593.1	-135.7	110.8	-131.8	0.00	0.00	0.00
3,700.0	4.60	140.76	3,692.8	-141.9	115.9	-137.8	0.00	0.00	0.00
3,800.0	4.60	140.76	3,792.4	-148.1	121.0	-143.8	0.00	0.00	0.00
3,900.0	4.60	140.76	3,892.1	-154.3	126.0	-149.8	0.00	0.00	0.00
4,000.0	4.60	140.76	3,991.8	-160.5	131.1	-155.9	0.00	0.00	0.00
4,100.0	4.60	140.76	4,091.5	-166.7	136.2	-161.9	0.00	0.00	0.00
4,200.0	4.60	140.76	4,191.2	-172.9	141.3	-167.9	0.00	0.00	0.00
4,300.0	4.60	140.76	4,290.8	-179.2	146.3	-174.0	0.00	0.00	0.00
4,400.0	4.60	140.76	4,390.5	-185.4	151.4	-180.0	0.00	0.00	0.00
4,500.0	4.60	140.76	4,490.2	-191.6	156.5	-186.0	0.00	0.00	0.00
4,600.0	4.60	140.76	4,589.9	-197.8	161.5	-192.0	0.00	0.00	0.00
4,700.0	4.60	140.76	4,689.5	-204.0	166.6	-198.1	0.00	0.00	0.00
4,800.0	4.60	140.76	4,789.2	-210.2	171.7	-204.1	0.00	0.00	0.00
4,900.0	4.60	140.76	4,888.9	-216.4	176.8	-210.1	0.00	0.00	0.00
5,000.0	4.60	140.76	4,988.6	-222.6	181.8	-216.2	0.00	0.00	0.00
5,100.0	4.60	140.76	5,088.3	-228.8	186.9	-222.2	0.00	0.00	0.00
5,200.0	4.60	140.76	5,187.9	-235.0	192.0	-228.2	0.00	0.00	0.00
0,200.0	1.00	. 10.70	0,101.0	200.0	102.0		0.00	0.00	0.00

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COMPASS 5000.16 Build 100



Database:	PEDM	Local Co-ordinate Reference:	Well #506H
Company:	Midland	TVD Reference:	kb = 25' @ 3366.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3366.0usft
Site:	Caballo 23 Fed	North Reference:	Grid
Well:	#506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Desian:	Plan #0.2		

Planned Survey

Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	4.60	140.76	5,287.6	-241.2	197.0	-234.3	0.00	0.00	0.00
5,400.0	4.60	140.76	5,387.3	-247.5	202.1	-240.3	0.00	0.00	0.00
5,500.0	4.60	140.76	5,487.0	-253.7	207.2	-246.3	0.00	0.00	0.00
5,600.0	4.60	140.76	5,586.7	-259.9	212.3	-252.3	0.00	0.00	0.00
5,700.0	4.60	140.76	5,686.3	-266.1	217.3	-258.4	0.00	0.00	0.00
5,800.0	4.60	140.76	5,786.0	-272.3	222.4	-264.4	0.00	0.00	0.00
5,900.0	4.60	140.76	5,885.7	-278.5	227.5	-270.4	0.00	0.00	0.00
6,000.0	4.60	140.76	5,985.4	-284.7	232.5	-276.5	0.00	0.00	0.00
6,100.0	4.60	140.76	6,085.0	-290.9	237.6	-282.5	0.00	0.00	0.00
6,200.0	4.60	140.76	6,184.7	-297.1	242.7	-288.5	0.00	0.00	0.00
6,300.0	4.60	140.76	6,284.4	-303.3	247.8	-294.6	0.00	0.00	0.00
6,400.0	4.60	140.76	6,384.1	-309.6	252.8	-300.6	0.00	0.00	0.00
,	4.60	140.76	,	-309.0	252.8	-306.6	0.00	0.00	0.00
6,500.0 6,600.0	4.60	140.76	6,483.8 6,583.4	-315.8 -322.0	257.9 263.0	-306.6 -312.6	0.00	0.00	0.00
6,700.0	4.60	140.76		-322.0 -328.2	263.0 268.0	-312.6 -318.7	0.00	0.00	0.00
6,700.0	4.60	140.76	6,683.1 6,782.8	-328.2 -334.4	268.0	-318.7 -324.7	0.00	0.00	0.00
6,900.0	4.60	140.76	6,882.5	-340.6	278.2	-330.7	0.00	0.00	0.00
7,000.0	4.60	140.76	6,982.1	-346.8	283.3	-336.8	0.00	0.00	0.00
7,100.0	4.60	140.76	7,081.8	-353.0	288.3	-342.8	0.00	0.00	0.00
7,200.0	4.60	140.76	7,181.5	-359.2	293.4	-348.8	0.00	0.00	0.00
7,300.0	4.60	140.76	7,281.2	-365.4	298.5	-354.8	0.00	0.00	0.00
7,400.0	4.60	140.76	7,380.9	-371.7	303.5	-360.9	0.00	0.00	0.00
7,451.6	4.60	140.76	7,432.3	-374.9	306.2	-364.0	0.00	0.00	0.00
7,500.0	3.63	140.76	7,480.6	-377.5	308.4	-366.6	2.00	-2.00	0.00
7,600.0	1.63	140.76	7,580.5	-381.1	311.3	-370.1	2.00	-2.00	0.00
7,681.6	0.00	0.01	7,662.0	-382.0	312.0	-370.9	2.00	-2.00	0.00
7,700.0	0.00	0.00	7,680.4	-382.0	312.0	-370.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,780.4	-382.0	312.0	-370.9	0.00	0.00	0.00
7,900.0	0.00	0.00	7,880.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,000.0	0.00	0.00	7,980.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,100.0	0.00	0.00	8,080.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,200.0	0.00	0.00	8,180.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,300.0	0.00	0.00	8,280.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,400.0	0.00	0.00	8,380.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,500.0	0.00	0.00	8,480.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,600.0	0.00	0.00	8,580.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,700.0	0.00	0.00	8,680.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,800.0	0.00	0.00	8,780.4	-382.0	312.0	-370.9	0.00	0.00	0.00
8,900.0	0.00	0.00	8,880.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,000.0	0.00	0.00	8,980.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,100.0	0.00	0.00	9,080.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,200.0	0.00	0.00	9,180.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,300.0	0.00	0.00	9,280.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,400.0	0.00	0.00	9,380.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,500.0	0.00	0.00	9,480.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,600.0	0.00	0.00	9,580.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,700.0	0.00	0.00	9,680.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,800.0	0.00	0.00	9,780.4	-382.0	312.0	-370.9	0.00	0.00	0.00
9,900.0	0.00	0.00	9,880.4	-382.0	312.0	-370.9	0.00	0.00	0.00
10,000.0	0.00	0.00	9,980.4	-382.0	312.0	-370.9	0.00	0.00	0.00
10,069.1	0.00	0.01	10,049.5	-382.0	312.0	-370.9	0.00	0.00	0.00
10,075.0	0.71	0.00	10,055.4	-382.0	312.0	-370.9	12.00	12.00	0.00
10,075.0	3.71	0.00	10,055.4	-382.0 -381.0	312.0	-370.9	12.00	12.00	0.00
10,125.0	6.71	0.00	10,080.4	-361.0	312.0	-367.7	12.00	12.00	0.00

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.



Database:	PEDM	Local Co-ordinate Reference:	Well #506H
Company:	Midland	TVD Reference:	kb = 25' @ 3366.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3366.0usft
Site:	Caballo 23 Fed	North Reference:	Grid
Well:	#506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	ОН		
Design:	Plan #0.2		

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)
10,150.0	9.71	0.00	10,130.1	-375.2	312.0	-364.1	12.00	12.00	0.00
10,175.0	12.71	0.00	10,154.6	-370.3	312.0	-359.2	12.00	12.00	0.00
10,170.0									
10,200.0	15.71	0.00	10,178.8	-364.2	312.0	-353.1	12.00	12.00	0.00
10,225.0	18.72	0.00	10,202.7	-356.8	312.0	-345.7	12.00	12.00	0.00
10,250.0	21.72	0.00	10,226.1	-348.1	312.0	-337.1	12.00	12.00	0.00
10,275.0	24.72	0.00	10,249.1	-338.3	312.0	-327.2	12.00	12.00	0.00
10,289.5	26.46	0.00	10,262.2	-332.0	312.0	-321.0	12.00	12.00	0.00
10,300.0	27 72	359.98	10,271.5	-327.2	312.0	-316.2	12.00	12.00	-0.21
	27.72 30.72	359.93	10,293.4	-327.2	312.0	-304.0	12.00	12.00	-0.21
10,325.0									
10,350.0	33.72	359.89	10,314.5	-301.7	312.0	-290.7	12.00	12.00	-0.15
10,375.0	36.72	359.86	10,334.9	-287.3	311.9	-276.3	12.00	12.00	-0.13
10,400.0	39.72	359.83	10,354.6	-271.8	311.9	-260.8	12.00	12.00	-0.11
10,425.0	42.72	359.81	10,373.4	-255.3	311.8	-244.4	12.00	12.00	-0.10
10,450.0	45.72	359.79	10,391.3	-237.9	311.8	-226.9	12.00	12.00	-0.09
10,475.0	48.72	359.77	10,408.3	-219.6	311.7	-208.6	12.00	12.00	-0.08
10,500.0	51.72	359.75	10,424.3	-200.4	311.6	-189.4	12.00	12.00	-0.07
10,525.0	54.72	359.73	10,439.2	-180.3	311.5	-169.4	12.00	12.00	-0.07
10,550.0	57.72	359.72	10,453.1	-159.6	311.4	-148.6	12.00	12.00	-0.06
10,575.0	60.72	359.70	10,465.9	-138.1	311.3	-127.2	12.00	12.00	-0.06
10,600.0	63.72	359.69	10,477.6	-116.0	311.2	-105.1	12.00	12.00	-0.06
10,625.0	66.72	359.67	10,488.1	-93.3	311.1	-82.4	12.00	12.00	-0.05
10,650.0	69.72	359.66	10,497.3	-70.1	310.9	-59.2	12.00	12.00	-0.05
10,675.0	72.72	359.65	10,505.4	-46.4	310.8	-35.6	12.00	12.00	-0.05
10,700.0	75.72	359.64	10,512.2	-22.3	310.7	-11.5	12.00	12.00	-0.05
10,725.0	78.72	359.63	10,517.7	2.0	310.5	12.8	12.00	12.00	-0.05
10,750.0	81.72	359.61	10,522.0	26.7	310.3	37.4	12.00	12.00	-0.04
10,775.0	84.72	359.60	10,524.9	51.5	310.2	62.2	12.00	12.00	-0.04
10,800.0	87.72	359.59	10,526.6	76.4	310.0	87.2	12.00	12.00	-0.04
10,819.0	90.00	359.58	10,526.9	95.5	309.9	106.2	12.00	12.00	-0.04
10,900.0	90.00	359.58	10,526.9	176.4	309.3	187.1	0.00	0.00	0.00
11,000.0	90.00	359.58	10,526.9	276.4	308.5	287.0	0.00	0.00	0.00
11,100.0	90.00	359.58	10,526.9	376.4	307.8	386.9	0.00	0.00	0.00
11,200.0	90.00	359.58	10,526.9	476.4	307.1	486.8	0.00	0.00	0.00
11,300.0	90.00	359.58	10,526.9	576.4	306.4	586.7	0.00	0.00	0.00
11,400.0	90.00	359.58	10,526.9	676.4	305.6	686.6	0.00	0.00	0.00
11,500.0	90.00	359.58	10,527.0	776.4	304.9	786.5	0.00	0.00	0.00
11,600.0	90.00	359.58	10,527.0	876.4	304.2	886.4	0.00	0.00	0.00
11,700.0	90.00	359.58	10,527.0	976.4	303.5	986.4	0.00	0.00	0.00
11,800.0	90.00	359.58	10,527.0	1,076.4	302.7	1,086.3	0.00	0.00	0.00
11,900.0	90.00	359.58	10,527.0	1,176.4	302.0	1,186.2	0.00	0.00	0.00
12,000.0	90.00	359.58	10,527.0	1,276.4	301.3	1,286.1	0.00	0.00	0.00
12,100.0	90.00	359.58	10,527.0	1,376.4	300.6	1,386.0	0.00	0.00	0.00
12,200.0	90.00	359.58	10,527.0	1,476.4	299.8	1,485.9	0.00	0.00	0.00
12,300.0	90.00	359.58	10,527.0	1,576.4	299.1	1,585.8	0.00	0.00	0.00
12,400.0	90.00	359.58	10,527.0	1,676.4	298.4	1,685.7	0.00	0.00	0.00
12,500.0	90.00	359.58	10,527.0	1,776.4	297.7	1,785.6	0.00	0.00	0.00
12,600.0	90.00	359.58	10,527.0	1,876.4	297.0	1,885.6	0.00	0.00	0.00
12,700.0	90.00	359.58	10,527.0	1,976.4	296.2	1,985.5	0.00	0.00	0.00
12,800.0	90.00	359.58	10,527.0	2,076.4	295.5	2,085.4	0.00	0.00	0.00
12,900.0	90.00	359.58	10,527.0	2,176.4	294.8	2,185.3	0.00	0.00	0.00
13,000.0	90.00	359.58	10,527.0	2,276.4	294.1	2,285.2	0.00	0.00	0.00
13,100.0	90.00	359.58	10,527.0	2,376.4	293.3	2,385.1	0.00	0.00	0.00
13,200.0	90.00	359.58	10,527.0	2,476.4	292.6	2,485.0	0.00	0.00	0.00
13,300.0	90.00	359.58	10,527.0	2,576.4	291.9	2,584.9	0.00	0.00	0.00

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COMPASS 5000.16 Build 100

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Database:	PEDM	Local Co-ordinate Reference:	Well #506H
Company:	Midland	TVD Reference:	kb = 25' @ 3366.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 25' @ 3366.0usft
Site:	Caballo 23 Fed	North Reference:	Grid
Well:	#506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.2		

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)
13,400.0	90.00	359.58	10,527.0	2,676.4	291.2	2,684.9	0.00	0.00	0.00
13,500.0	90.00	359.58	10,527.0	2,776.3	290.4	2,784.8	0.00	0.00	0.00
13,600.0	90.00	359.58	10,527.0	2,876.3	289.7	2,884.7	0.00	0.00	0.00
13,700.0	90.00	359.58	10,527.0	2,976.3	289.0	2,984.6	0.00	0.00	0.00
13,800.0	90.00	359.58	10,527.0	3,076.3	288.3	2,904.0	0.00	0.00	0.00
13,900.0	90.00	359.58	10,527.0	3,176.3	287.5	3,184.4	0.00	0.00	0.00
14,000.0	90.00	359.58	10,527.0	3,276.3	286.8	3,284.3	0.00	0.00	0.00
14,100.0	90.00	359.58	10,527.0	3,376.3	286.1	3,384.2	0.00	0.00	0.00
14,200.0	90.00	359.58	10,527.0	3,476.3	285.4	3,484.1	0.00	0.00	0.00
14,300.0	90.00 90.00	359.58 359.58	10,527.0 10,527.0	3,576.3 3,676.3	284.6 283.9	3,584.1 3,684.0	0.00 0.00	0.00 0.00	0.00 0.00
14,400.0	90.00	359.58 359.58	10,527.0	3,070.3	283.2	3,084.0 3,783.9	0.00	0.00	0.00
14,500.0 14,600.0	90.00	359.58	10,527.0	3,876.3	283.2	3,883.8	0.00	0.00	0.00
14,700.0	90.00	359.58	10,527.0	3,976.3	281.7	3,983.7	0.00	0.00	0.00
14,800.0	90.00	359.58	10,527.0	4,076.3	281.0	4,083.6	0.00	0.00	0.00
14,900.0	90.00	359.58	10,527.0	4,176.3	280.3	4,183.5	0.00	0.00	0.00
15,000.0	90.00	359.58 359.58	10,527.0 10,527.0	4,276.3	279.6	4,283.4 4,383.4	0.00 0.00	0.00	0.00 0.00
15,100.0	90.00			4,376.3	278.8	,		0.00	
15,200.0	90.00	359.58	10,527.0	4,476.3	278.1	4,483.3	0.00	0.00	0.00
15,300.0	90.00	359.58	10,527.0	4,576.3	277.4	4,583.2	0.00	0.00	0.00
15,400.0	90.00	359.58	10,527.0	4,676.3	276.7	4,683.1	0.00	0.00	0.00
15,500.0	90.00	359.58	10,527.0	4,776.3	275.9	4,783.0	0.00	0.00	0.00
15,600.0	90.00	359.58	10,527.0	4,876.3	275.2	4,882.9	0.00	0.00	0.00
15,700.0	90.00	359.58	10,527.0	4,976.3	274.5	4,982.8	0.00	0.00	0.00
15,800.0	90.00	359.58	10,527.0	5,076.3	273.8	5,082.7	0.00	0.00	0.00
15,900.0	90.00	359.58	10,527.0	5,176.3	273.0	5,182.6	0.00	0.00	0.00
16,000.0	90.00	359.58	10,527.0	5,276.3	272.3	5,282.6	0.00	0.00	0.00
16,100.0	90.00	359.58	10,527.0	5,376.3	271.6	5,382.5	0.00	0.00	0.00
16,200.0	90.00	359.58	10,527.0	5,476.3	270.9	5,482.4	0.00	0.00	0.00
16,300.0	90.00	359.58	10,527.0	5,576.3	270.1	5,582.3	0.00	0.00	0.00
16,400.0	90.00	359.58	10,527.0	5,676.3	269.4	5,682.2	0.00	0.00	0.00
16,500.0	90.00	359.58	10,527.0	5,776.3	268.7	5,782.1	0.00	0.00	0.00
16,600.0	90.00	359.58	10,527.0	5,876.3	268.0	5,882.0	0.00	0.00	0.00
16,700.0	90.00	359.58	10,527.0	5,976.3	267.2	5,981.9	0.00	0.00	0.00
16,800.0	90.00	359.58	10,527.0	6,076.3	266.5	6,081.9	0.00	0.00	0.00
16,900.0	90.00	359.58	10,527.0	6,176.3	265.8	6,181.8	0.00	0.00	0.00
17,000.0	90.00	359.58	10,527.0	6,276.3	265.1	6,281.7	0.00	0.00	0.00
17,100.0	90.00	359.58	10,527.0	6,376.3	264.3	6,381.6	0.00	0.00	0.00
17,200.0	90.00	359.58	10,527.0	6,476.3	263.6	6,481.5	0.00	0.00	0.00
17,300.0	90.00	359.58	10,527.0	6,576.2	262.9	6,581.4	0.00	0.00	0.00
17,400.0	90.00	359.58	10,527.0	6,676.2	262.2	6,681.3	0.00	0.00	0.00
17,500.0	90.00	359.58	10,527.0	6,776.2	261.4	6,781.2	0.00	0.00	0.00
17,600.0	90.00	359.58	10,527.0	6,876.2	260.7	6,881.1	0.00	0.00	0.00
17,700.0	90.00	359.58	10,527.0	6,976.2	260.0	6,981.1	0.00	0.00	0.00
17,800.0	90.00	359.58	10,527.0	7,076.2	259.3	7,081.0	0.00	0.00	0.00
17,900.0	90.00	359.58	10,527.0	7,176.2	258.5	7,180.9	0.00	0.00	0.00
18,000.0	90.00	359.58	10,527.0	7,276.2	257.8	7,280.8	0.00	0.00	0.00
18,100.0	90.00	359.58	10,527.0	7,376.2	257.1	7,380.7	0.00	0.00	0.00
18,112.8	90.00	359.58	10,527.0	7,389.0	257.0	7,393.5	0.00	0.00	0.00
10,112.0		000.00	10,021.0	1,000.0	201.0	1,000.0	0.00	0.00	0.00



Database: Company: Project: Site: Well: Wellbore: Design:	PEDM Midland Lea County, NM (NAD 83 NME) Caballo 23 Fed #506H OH Plan #0.2			Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:			Well #506H kb = 25' @ 3366.0usft kb = 25' @ 3366.0usft Grid Minimum Curvature		
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
KOP(Caballo 23 Fed #5 - plan hits target ce - Point		0.01	10,049.5	-382.0	312.0	404,242.00	784,02	3.00 32° 6' 32.094 N	103° 32' 58.306 W
FTP(Caballo 23 Fed #5 - plan hits target ce - Point		0.00	10,262.2	-332.0	312.0	404,292.00	784,02	3.00 32° 6' 32.589 N	103° 32' 58.302 W
PBHL(Caballo 23 Fed # - plan hits target ce - Point		0.00	10,527.0	7,389.0	257.0	412,013.00	783,96	3.00 32° 7' 48.994 N	103° 32' 58.288 W

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Lea County, NM (NAD 83 NME) West(-)/East(+) 300 1200 900 7500 Caballo 23 Fed #506H - - - -_____ Caballo 23 Fed/#506H/Plan # 7200-Plan #0.2 **Azimuths to Grid North** - - - - -True North: -0.42° 6900 Magnetic North: 6.08° · – – + + – – **Magnetic Field** Strength: 47404.8nT 6600-Dip Angle: 59.79° Date: 9/9/2021 -----· – – – – – · Model: IGRF2020 - - -PROJECT DETAILS: Lea County, NM (NAD 83 NME) 6300 Geodetic System: US State Plane 1983 Datum: North American Datum 1983 Ellipsoid: GRS 1980 6000 Zone: New Mexico Eastern Zone To convert a Magnetic Direction to a Grid Direction, Add 6.08° To convert a Magnetic Direction to a True Direction, Add 6.50° East To convert a True Direction to a Grid Direction, Subtract 0.42° System Datum: Mean Sea Level 5700

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6300-

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ng Easting .00 783711.00	Latittude 32° 6' 35.896 N	Longitude 103° 33' 1.901 W
ng Easting		L 103

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
1300.0	0.00	0.00	1300.0	0.0	0.0	0.00	0.00	0.0	
1529.9	4.60	140.76	1529.7	-7.1	5.8	2.00	140.76	-6.9	
7451.6	4.60	140.76	7432.3	-374.9	306.2	0.00	0.00	-364.0	
7681.6	0.00	0.00	7662.0	-382.0	312.0	2.00	180.00	-370.9	
10069.1	0.00	0.00	10049.5	-382.0	312.0	0.00	0.00	-370.9	KOP(Caballo 2
10289.5	26.46	0.00	10262.2	-332.0	312.0	12.00	0.00	-321.0	FTP(Caballo 2
10819.0	90.00	359.58	10526.9		309.9	12.00	-0.46	106.2	v
18112.8	90.00	359.58	10527.0	7389.0	257.0	0.00	0.00	7393.5	PBHL(Caballo
	0.0 1300.0 1529.9 7451.6 7681.6 10069.1 10289.5 10819.0	$\begin{array}{cccc} 0.0 & 0.00 \\ 1300.0 & 0.00 \\ 1529.9 & 4.60 \\ 7451.6 & 4.60 \\ 7681.6 & 0.00 \\ 10069.1 & 0.00 \\ 10289.5 & 26.46 \\ 10819.0 & 90.00 \end{array}$	$\begin{array}{ccccccc} 0.0 & 0.00 & 0.00 \\ 1300.0 & 0.00 & 0.00 \\ 1529.9 & 4.60 & 140.76 \\ 7451.6 & 4.60 & 140.76 \\ 7681.6 & 0.00 & 0.00 \\ 10069.1 & 0.00 & 0.00 \\ 10289.5 & 26.46 & 0.00 \\ 10819.0 & 90.00 & 359.58 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.00.000.000.00.01300.00.000.001300.00.01529.94.60140.761529.7-7.17451.64.60140.767432.3-374.97681.60.000.007662.0-382.010069.10.000.0010049.5-382.010289.526.460.0010262.2-332.010819.090.00359.5810526.995.5	0.00.000.000.00.00.01300.00.000.001300.00.00.01529.94.60140.761529.7-7.15.87451.64.60140.767432.3-374.9306.27681.60.000.007662.0-382.0312.010069.10.000.0010049.5-382.0312.010289.526.460.0010262.2-332.0312.010819.090.00359.5810526.995.5309.9	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$



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	-3	350		0	3	50	70)0	105	0	1400	1	750	2100		2450	2800	3150	3500)	3850	4200	4	550	4900	5250		5600	595	50	6300	6	650	70	JO	735	0

Lea County, NM (NAD 83 NME) Caballo 23 Fed #506H OH Plan #0.2 11:32, December 21 2022

Vertical Section at 1.99°



Salt Section Annular Clearance Variance Request

Daniel Moose

Current Design (Salt Strings)

0.422" Annular clearance requirement

- Casing collars shall have a minimum clearance of 0.422 inches on all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.

- 12.25" Hole x 9.625"40# J55/HCK55 LTC Casing
 - 1.3125" Clearance to casing OD
 - 0.8125" Clearance to coupling OD
- 9.875" Hole x 8.75" 38.5# P110 Sprint-SF Casing
 - 0.5625" Clearance to casing OD
 - 0.433" Clearance to coupling OD

Annular Clearance Variance Request

EOG request permission to allow deviation from the 0.422" annulus clearance requirement for the intermediate (salt) section from Onshore Order #2 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

Volumetric Hole Size Calculation

Hole Size Calculations Off Cement Volumes

- Known volume of cement pumped
- Known volume of cement returned to surface
- Must not have had any losses
- Must have bumped plug

Average Hole Size

- 12.25" Hole
 - 12.88" Hole
 - 5.13% diameter increase
 - 10.52% area increase
 - 0.63" Average enlargement
 - 0.58" Median enlargement
 - 179 Well Count
- 9.875" Hole
 - 10.30" Hole
 - 4.24% diameter increase
 - 9.64% area increase
 - 0.42" Average enlargement
 - 0.46" Median enlargement
 - 11 Well Count



Caliper Hole Size (12.25")

Average Hole Size

- 12.25" Bit
 - 12.76" Hole
 - 4.14% diameter increase
 - 8.44% area increase
 - 0.51" Average enlargement
 - 0.52" Median enlargement
 - Brine



Modelo 10 Fed Com #501H



Whirling Wind 11 Fed Com #744H

Caliper Hole Size (9.875")

Average Hole Size

- 9.875" Hole
 - 11.21" Hole
 - 13.54% diameter increase
 - 28.92% area increase
 - 1.33" Average enlargement
 - 1.30" Median enlargement
 - EnerLite





Design A

Proposed 11" Hole with 9.625" 40# J55/HCK55 LTC Casing

- 11" Bit + 0.52" Average hole enlargement = 11.52" Hole Size
 - 0.9475" Clearance to casing OD

$$=\frac{11.52 - 9.625}{2}$$
475" Clearance to

• 0.4 coupling OD $=\frac{11.52-10.625}{}$

- Previous Shoe 13.375" 54.5# J55 STC
 - 0.995" Clearance to coupling OD (~1,200' overlap)

$$=\frac{12.615-10.625}{2}$$



Design B







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Casing Spec Sheets

PERFORMANCE DATA

API LTC		
Technical	Data	Sheet

9.625 in 40.00 lbs/ft

K55 HC

Tubular Parameters

Size	9.625	in	Minimum Yield	55	ksi
Nominal Weight	40.00	lbs/ft	Minimum Tensile	95	ksi
Grade	K55 HC		Yield Load	629	kips
PE Weight	38.94	lbs/ft	Tensile Load	1088	kips
Wall Thickness	0.395	in	Min. Internal Yield Pressure	3,950	psi
Nominal ID	8.835	in	Collapse Pressure	3600	psi
Drift Diameter	8.750	in		•	•
Nom. Pipe Body Area	11.454	in²			

Connection Parameters

10.625	in
10.500	in
8	tpi
3.50	turns
4.750	in
3,950	psi
	10.500 8 3.50 4.750

Pipe Body and API Connections Performance Data

13.375	54.50/0.380	J55

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USC 💽 Metric

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Mechantcal Properties	Ptpe	BTC	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Pipe	втс	LTC	STC	
Outside Diameter	13.375	14.375	-	14.375	in.
Wall Thickness	0.380	-	-	-	in.
Inside Diameter	12.615	12.615	-	12.615	in.
Standard Drift	12.459	12.459	-	12.459	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	54.50	-	-	-	lbs/ft
Plain End Weight	52.79	-	-	-	lbs/ft
Performance	Ptpe	BTC	LTC	STC	
Minimum Collapse Pressure	1,130	1,130	-	1,130	psi
Minimum Internal Yield Pressure	2,740	2,740	-	2,740	psi
Minimum Pipe Body Yield Strength	853.00	-	-	-	1000 lbs
Joint Strength	-	909	-	514	1000 lbs
Reference Length	-	11,125	-	6,290	ft
Make-Up Data	Ptpe	BTC	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque	-	-	-	3,860	ft-lbs
Maximum Make-Up Torque	-	-	-	6,430	ft-lbs

Casing Spec Sheets

Pipe Body and API Connections Performance Data

10.750 40.50/0.350 J55					PD
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Mechanical Properties	Ptpe	BTC	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-		psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Pipe	втс	LTC	STC	
Outside Diameter	10.750	11.750	-	11.750	in.
Wall Thickness	0.350	-	-		in.
Inside Diameter	10.050	10.050		10.050	in.
Standard Drift	9.894	9.894	-	9.894	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	40.50	-	-	-	lbs/ft
Plain End Weight	38.91	-	-		lbs/ft
Performance	Ptpe	втс	LTC	STC	
Minimum Collapse Pressure	1,580	1,580	-	1,580	psi
Minimum Internal Yield Pressure	3,130	3,130	-	3,130	psi
Minimum Pipe Body Yield Strength	629.00	-	-		1000 lbs
Joint Strength	-	700	-	420	1000 lbs
Reference Length	-	11,522	-	6,915	ft
Make-Up Data	Ptpe	втс	LTC	STC	
Make-Up Loss		4.81		3.50	in.
Minimum Make-Up Torque		-		3,150	ft-lbs
Maximum Make-Up Torque	-	-	-	5,250	fl-lbs

O.D. (API 5CT,	10th Ed. Co	onnect	ion Data	a She					
8.62	Nominal	(lb/ft) 32.00 31.13	WALL (i 0.352	· 1	J55	* API DRIF 7.796	· 1	RBV 87						
	Material Proper	ties (PE)			I	Pipe Body	Data (I	PE)						
	Pipe					Geom	etry							
	um Yield Strength:	55	ksi	No	Nominal ID:			7.92 i						
	um Yield Strength:		ksi	No	minal Area	i:		9.149 i	in ²					
Minim	um Tensile Strength		ksi	*Sp	pecial/Alt. [7.875 i	nch					
	Coupling	•		-		Perforn								
	um Yield Strength:		ksi		•	eld Strength	n:	503						
	um Yield Strength:		ksi		llapse Res			2,530						
Minim	Minimum Tensile Strength: 75 ksi (API Historical)								osi					
	API Connectio		AI	PI Connect	ion To	rque								
Coupling OD: 9.625" STC Performance				STC Torque (ft-lbs)										
STC Ir	iternal Pressure:	3,930	psi	Mir	n: 2,793	Opti:	3,724	Max:	4,65					
STC J	oint Strength:	372	kips											
	LTC Perform	nance		LTC Torque (ft-lbs)										
LTC In	ternal Pressure:	3,930	psi	Mir	n: 3,130	Opti:	4,174	Max:	5,21					
	oint Strength:		kips											
SC-B	C Performance - C	pig OD =	9.125"			BTC Torqu	ıe (ft-lk	os)						
	ternal Pressure:	3,930	psi	1	follow API gu	idelines regar	ding pos	sitional ma	ke up					
BTC Ir	oint Strength:	503	kips											
	bint Strength.				Drift is specific	d on order								
	oint Strength.	*Alt. Drift will	be used unle	CSS ALL	Drift is specific	u on order.	**If above API connections do not suit your needs, VAM® premium connections are available up to 100% of pipe body ratings.							

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Seog resources Offline Intermediate Cementing Procedure

Cement Program

1. No changes to the cement program will take place for offline cementing.

Summarized Operational Procedure for Intermediate Casing

- 1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment back pressure valves.
 - a. Float equipment is equipped with two back pressure valves rated to a minimum of 5,000 psi.
- 2. Land production casing on mandrel hanger through BOP.
 - a. If casing is unable to be landed with a mandrel hanger, then the **casing will be cemented online**.
- 3. Break circulation and confirm no restrictions.
 - a. Ensure no blockage of float equipment and appropriate annular returns.
 - b. Perform flow check to confirm well is static.
- 4. Set pack-off
 - a. If utilizing a fluted/ported mandrel hanger, ensure well is static on the annulus and inside the casing by filling the pipe with kill weight fluid, remove landing joint, and set annular packoff through BOP. Pressure test to 5,000 psi for 10 min.
 - b. If utilizing a solid mandrel hanger, ensure well is static on the annulus and inside the casing by filling the pipe with kill weight fluid. Pressure test seals to 5,000 psi for 10 min. Remove landing joint through BOP.
- 5. After confirmation of both annular barriers and the two casing barriers, install TA plug and pressure test to 5,000 psi for 10 min. Notify the BLM with intent to proceed with nipple down and offline cementing.
 - a. Minimum 4 hrs notice.
- 6. With the well secured and BLM notified, nipple down BOP and secure on hydraulic carrier or cradle.
 - a. Note, if any of the barriers fail to test, the BOP stack will not be nippled down until after the cement job has concluded and both lead and tail slurry have reached 500 psi.
- 7. Skid/Walk rig off current well.
- 8. Confirm well is static before removing TA Plug.
 - a. Cementing operations will not proceed until well is under control. (If well is not static, notify BLM and proceed to kill)
 - b. Casing outlet valves will provide access to both the casing ID and annulus. Rig or third party pump truck will kill well prior to cementing.
 - c. Well control plan can be seen in Section B, Well Control Procedures.
 - d. If need be, rig can be moved back over well and BOP nippled back up for any further remediation.

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2/24/2022

Seog resources

Offline Intermediate Cementing Procedure

- e. Diagram for rig positioning relative to offline cementing can be seen in Figure 4.
- 9. Rig up return lines to take returns from wellhead to pits and rig choke.
 - a. Test all connections and lines from wellhead to choke manifold to 5,000 psi high for 10 min.
 - b. If either test fails, perform corrections and retest before proceeding.
 - c. Return line schematics can be seen in Figure 3.
- 10. Remove TA Plug from the casing.
- 11. Install offline cement tool.
 - a. Current offline cement tool schematics can be seen in Figure 1 (Cameron) and Figure 2 (Cactus).
- 12. Rig up cement head and cementing lines.
 - a. Pressure test cement lines against cement head to 80% of casing burst for 10 min.
- 13. Break circulation on well to confirm no restrictions.
 - a. If gas is present on circulation, well will be shut in and returns rerouted through gas buster.
 - b. Max anticipated time before circulating with cement truck is 6 hrs.
- 14. Pump cement job as per plan.
 - a. At plug bump, test casing to 0.22 psi/ft or 1500 psi, whichever is greater.
 - b. If plug does not bump on calculated, shut down and wait 8 hrs or 500 psi compressive strength, whichever is greater before testing casing.
- 15. Confirm well is static and floats are holding after cement job.
 - a. With floats holding and backside static:
 - i. Remove cement head.
 - b. If floats are leaking:
 - i. Shut-in well and WOC (Wait on Cement) until tail slurry reaches 500 psi compressive strength and the casing is static prior to removing cement head.
 - c. If there is flow on the backside:
 - i. Shut in well and WOC until tail slurry reaches 500 psi compressive strength. Ensure that the casing is static prior to removing cement head.
- 16. Remove offline cement tool.
- 17. Install night cap with pressure gauge for monitoring.
- 18. Test night cap to 5,000 psi for 10 min.

Example Well Control Plan Content

A. Well Control Component Table

The table below, which covers the cementing of the <u>5M MASP (Maximum Allowable Surface Pressure) portion of the well</u>, outlines the well control component rating in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the BOP nippled up to the wellhead.

Intermediate hole section, 5M requirement

Component	RWP
Pack-off	10M
Casing Wellhead Valves	10M
Annular Wellhead Valves	5M
TA Plug	10M
Float Valves	5M
2" 1502 Lo-Torque Valves	15M

B. Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level tasks prescribed to assure a proper shut-in while circulating and cementing through the Offline Cement Adapter.

General Procedure While Circulating

- 1. Sound alarm (alert crew).
- 2. Shut down pumps.
- 3. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 4. Confirm shut-in.
- 5. Notify tool pusher/company representative.

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Offline Intermediate Cementing Procedure

- 6. Read and record the following:
 - a. SICP (Shut in Casing Pressure) and AP (Annular Pressure)
 - b. Pit gain
 - c. Time
 - d. Regroup and identify forward plan to continue circulating out kick via rig choke and mud/gas separator. Circulate and adjust mud density as needed to control well.

General Procedure While Cementing

- 1. Sound alarm (alert crew).
- 2. Shut down pumps.
- 3. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 4. Confirm shut-in.
- 5. Notify tool pusher/company representative.
- 6. Open rig choke and begin pumping again taking returns through choke manifold and mud/gas separator.
- 7. Continue to place cement until plug bumps.
- 8. At plug bump close rig choke and cement head.
- 9. Read and record the following
 - a. SICP and AP
 - b. Pit gain
 - c. Time
 - d. Shut-in annulus valves on wellhead

General Procedure After Cementing

- 1. Sound alarm (alert crew).
- 2. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 3. Confirm shut-in.
- 4. Notify tool pusher/company representative.
- 5. Read and record the following:
 - a. SICP and AP
 - b. Pit gain
 - c. Time
 - d. Shut-in annulus valves on wellhead

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Figure 1: Cameron TA Plug and Offline Adapter Schematic



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Offline Intermediate Cementing Procedure





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*** All Lines 10M rated working pressure

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CONDITIONS

Operator:	OGRID:
EOG RESOURCES INC	7377
P.O. Box 2267	Action Number:
Midland, TX 79702	180890
	Action Type:
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CONDITIONS

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