Form 3160-5 (June 2019)

# UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 202

BURI	EAU OF LAND MANAGEMENT	3. Lease Seriai No.	NMNM0438001			
	OTICES AND REPORTS ON W		6. If Indian, Allottee	or Tribe Name		
	orm for proposals to drill or to Use Form 3160-3 (APD) for suc					
SUBMIT IN 1	TRIPLICATE - Other instructions on pag	7. If Unit of CA/Agre	eement, Name and/or No.			
1. Type of Well		0 W-11 N 1 N				
Oil Well Gas W	_	8. Well Name and No	DEEP ELEM 4 FED COM/503H			
2. Name of Operator EOG RESOURCE	CES INCORPORATED		9. API Well No. 300	1548907		
3a. Address 1111 BAGBY SKY LOB	BY 2, HOUSTON, TX 77( 3b. Phone No. (713) 651-70		10. Field and Pool or JENNINGS; BON	Exploratory Area E SPRING, WEST		
4. Location of Well (Footage, Sec., T.,R SEC 4/T26S/R31E/NMP	.,M., or Survey Description)		11. Country or Parish EDDY/NM	ı, State		
12. CHE	CK THE APPROPRIATE BOX(ES) TO IN	DICATE NATURE C	OF NOTICE, REPORT OR OT	HER DATA		
TYPE OF SUBMISSION		TYPE	OF ACTION			
Notice of Intent	Acidize Deep	en [raulic Fracturing [	Production (Start/Resume) Reclamation	Water Shut-Off Well Integrity		
		Construction	Recomplete	Other		
Subsequent Report		and Abandon	Temporarily Abandon	• Outer		
Final Abandonment Notice		Back [	Water Disposal			
completed. Final Abandonment Not is ready for final inspection.)  EOG respectfully requests and the following changes:  Deep Elem 4 Fed Com 751H (  Change name from Deep Elem  Change BHL from T-26-S, R-3	·	s, including reclamates well to reflect  Com 751H.				
14. I hereby certify that the foregoing is	true and correct. Name (Printed/Typed)					
STAR HARRELL / Ph: (432) 848-9	161	Regulatory S	Specialist			
Signature		Date	03/21/2	2023		
	THE SPACE FOR FED	ERAL OR STA	TE OFICE USE			
Approved by						
KEITH P IMMATTY / Ph: (575) 988	3-4722 / Approved	Title ENGIN	IEER	03/21/2023 Date		
Conditions of approval, if any, are attack certify that the applicant holds legal or e which would entitle the applicant to con	ned. Approval of this notice does not warran equitable title to those rights in the subject leduct operations thereon.	office CAR	LSBAD			

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, 3162.3-4.

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

(Form 3160-5, page 2)

# **Additional Information**

#### **Additional Remarks**

Update casing and cement program to current design.

#### **Location of Well**

0. SHL: SWSE / 436 FSL / 2538 FEL / TWSP: 26S / RANGE: 31E / SECTION: 4 / LAT: 32.065958 / LONG: -103.78282 ( TVD: 0 feet, MD: 0 feet ) PPP: NWNE / 100 FNL / 2630 FEL / TWSP: 26S / RANGE: 31E / SECTION: 9 / LAT: 32.064485 / LONG: -103.783118 ( TVD: 9356 feet, MD: 9377 feet ) BHL: SWSE / 100 FSL / 2630 FEL / TWSP: 26S / RANGE: 31E / SECTION: 16 / LAT: 32.035736 / LONG: -103.783165 ( TVD: 9695 feet, MD: 19972 feet )

API Number

DISTRICT II (575) 748-1283 Fax: (575) 748-9720 DISTRICT III Phone: (505) 334-6178 Fax: (505) 334-6170 DISTRICT IV

E-mail Address

Released to Imaging: 3/22/2023 2:24:46 PM ertificate N

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

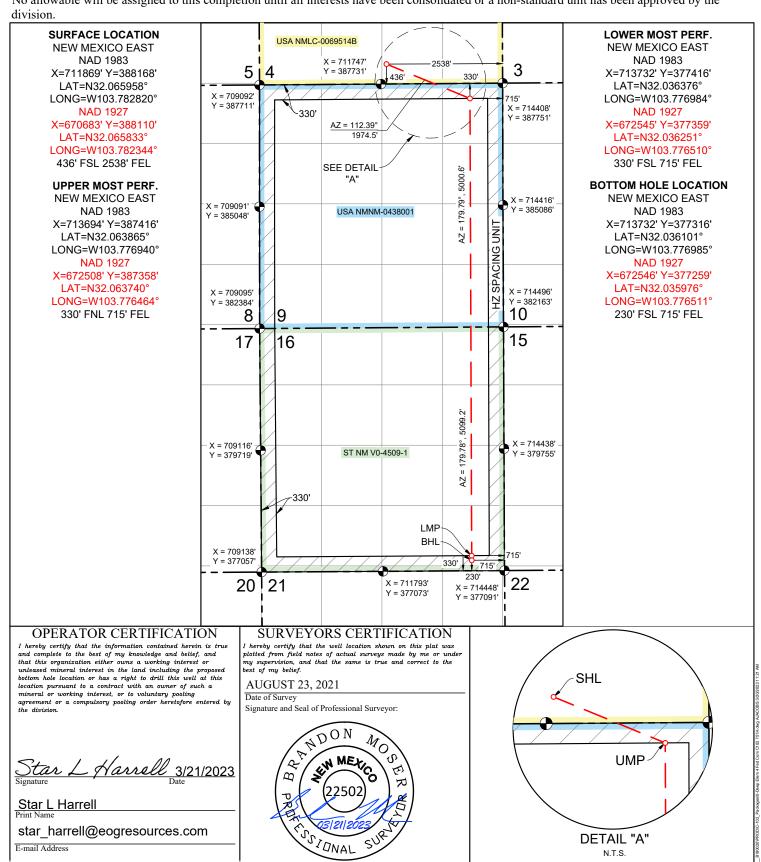
Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

30-015-48	907			97860		Jennings; Bone Spring, West				
Property Co	ode		Property Name W							
32997	0		DEEP ELEM 4 FED COM 751H							
OGRID N	0.				Operator Name	•		Elevati	on	
7377				EC	G RESOURC	ES, INC.		3279	9'	
		!			Surface Loca	ition				
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
0	4	26 S	31 E		436	SOUTH	2538	EAST	EDDY	
			Botte	om Hole	Location If Dif	ferent From Surfac	ee	•		
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
Р	16	26 S	31 E	E 230 SOUTH 715 EAST EDDY						
Dedicated Acres	Joint or	Joint or Infill Consolidated Code Order No.								
1280			PENDING COM AGREEMENT							

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the



BRANDON MOSER, N.M.P.L.S. Job No.: EOG\_B190020



#### **Revised Permit Information 11/30/2022:**

Well Name: Deep Elem 4 Fed Com 751H

Location: SHL: 436' FSL & 2538' FEL, Section 4, T-26-S, R-31-E, Eddy Co., N.M.

BHL: 230' FSL & 715' FEL, Section 16, T-26-S, R-31-E, Eddy Co., N.M.

### **Casing Program:**

Hole	Interval MD		Interval TVD		Csg			
Size	From (ft)	To (ft)	From (ft) To (ft)		OD	Weight	Grade	Conn
12-1/4"	0	1,250	0	1,250	9-5/8"	36#	J-55	LTC
8-3/4"	0	10,372	0	10,150	7-5/8"	29.7#	HCP-110	FXL
6-3/4"	0	9,872	0	9,650	5-1/2"	20#	P110-EC	DWC/C IS MS
6-3/4"	9,872	10,372	9,650	10,150	5-1/2"	20#	P110-EC	Vam Sprint SF
6-3/4"	10,372	22,985	10,150	12,150	5-1/2"	20#	P110-EC	DWC/C IS MS

Variance is requested to waive the centralizer requirements for the 7-5/8" casing in the 8-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 8-3/4 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.

Variance is also requested to waive the annular clearance requirements for the 5-1/2" casing by 7-5/8" casing annulus to the proposed top of cement.

EOG requests permission to allow deviation from the 0.422" annulus clearance requirement from Onshore Order #2 under the following conditions:

- Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casing strings.
- Annular clearance less than 0.422" is acceptable for the production open hole section.

#### **Cementing Program:**

	0 0	Wt.	Yld	Clauma Danasiatian
Depth	No. Sacks	ppg	Ft3/sk	Slurry Description
1,250'	340	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-
9-5/8''				Flake (TOC @ Surface)
	80	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium
				Metasilicate (TOC @ 1,050')
10,150'	480	14.2	1.11	1st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3%
7-5/8''				Microbond (TOC @ 6,080')
	1040	14.8	1.5	2nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-
				M + 6% Bentonite Gel (TOC @ surface)
22,985'	1130	13.2	1.31	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond
5-1/2"				(TOC @ 9,650')



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				

EOG requests variance from minimum standards to pump a two stage cement job on the 7-5/8" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (6,278') and the second stage performed as a 1000 sack bradenhead squeeze with planned cement from the Brushy Canyon to surface. If necessary, a top out consisting of 40 sacks of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. Top will be verified by Echo-meter.

EOG will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

EOG will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

#### **Mud Program:**

<b>Measured Depth</b>	Type Weight (ppg)		Viscosity	Water Loss
0 – 1,250'	Fresh - Gel	8.6-8.8	28-34	N/c
1,250' – 10,150'	Brine	10.0-10.2	28-34	N/c
10,150' – 11,868'	Oil Base	8.7-9.4	58-68	N/c - 6
11,868' – 22,985' Lateral	Oil Base	10.0-14.0	58-68	4 - 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"



# **TUBING REQUIREMENTS**

EOG respectively requests an exception to the following NMOCD rule:

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

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

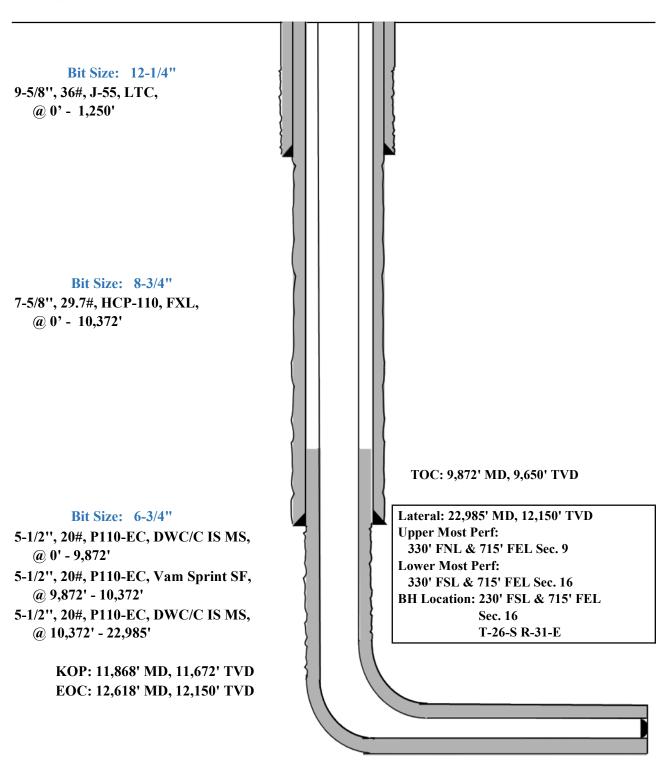
Keeping the EOT above KOP is an industry best practice for those respective forms of artificial lift.



436' FSL Revised Wellbore KB: 3304' 2538' FEL GL: 3279'

**Section 4** 

T-26-S, R-31-E API: 30-015-48907





# **Design B**

#### 4. CASING PROGRAM

Hole	Interv	al MD	Interval TVD		Csg			
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
13"	0	1,250	0	1,250	10-3/4"	40.5#	J-55	STC
9-7/8"	0	10,372	0	10,150	8-3/4"	38.5#	P110-EC	SLIJ II NA
7-7/8"	0	22,985	0	12,150	6"	22.3#	P110-EC	DWC/C IS

Variance is requested to waive the centralizer requirements for the 8-3/4" casing in the 9-7/8" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 9-7/8" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive any centralizer requirements for the 6" casing in the 7-7/8" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 7-7/8" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive the annular clearance requirements for the 6" casing by 8-3/4" casing annulus to the proposed top of cement.

EOG requests permission to allow deviation from the 0.422" annulus clearance requirement from Onshore Order #2 under the following conditions:

- Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casing strings.
- Annular clearance less than 0.422" is acceptable for the production open hole section.

#### **Cementing Program:**

		Wt.	Yld	Slurry Description
Depth	No. Sacks	ppg	Ft3/sk	Sturry Description
1,250'	320	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk
10-3/4"				Cello-Flake (TOC @ Surface)
	70	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2%
				Sodium Metasilicate (TOC @ 1,050')
10,150'	540	14.2	1.11	1st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3%
8-3/4"				Microbond (TOC @ 6,080')
	1180	14.8	1.5	2nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-
				M + 6% Bentonite Gel (TOC @ surface)
22,985'	1850	13.2	1.31	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond
6"				(TOC @ 9,650')



# **Midland**

Eddy County, NM (NAD 83 NME) Deep Elem 4 Fed Com #751H

OH

Plan: Plan #0.2

# **Standard Planning Report**

21 March, 2023



Database: Company:

PEDM

Midland

Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

Well: #751H Wellbore: OH Design: Plan #0.2 **Local Co-ordinate Reference:** 

**TVD Reference:** MD Reference: North Reference:

**Survey Calculation Method:** 

Well #751H

KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

Minimum Curvature

Project

Project:

Eddy County, NM (NAD 83 NME)

Map System: Geo Datum:

US State Plane 1983 North American Datum 1983 New Mexico Eastern Zone

System Datum:

Mean Sea Level

Map Zone:

Site

Well

Deep Elem 4 Fed Com

Site Position: From: Мар Northing: Easting:

388,239.00 usft 713,374.00 usft 13-3/16 "

Latitude: Longitude:

32° 3' 58.075 N 103° 46' 40.657 W

**Position Uncertainty:** 

0.0 usft

Slot Radius:

Northing:

388,168.00 usft

Latitude:

32° 3' 57.449 N

**Position Uncertainty Grid Convergence:** 

**Well Position** 

+E/-W 0.0 usft 0.0 usft

0.0 usft

0.29

Easting: Wellhead Elevation: 711,869.00 usft usft Longitude: **Ground Level:**  103° 46' 58.151 W

3,279.0 usft

Wellbore

ОН

Plan #0.2

#751H

+N/-S

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	7/6/2020	6.74	59.76	47,477.40101168

Design

Audit Notes:

Version:

Phase:

PLAN

Tie On Depth:

0.0

Vertical Section:

Depth From (TVD) (usft) 0.0

+N/-S (usft) 0.0

+E/-W (usft) 0.0

Remarks

Direction (°) 170.26

**Plan Survey Tool Program** 

Date 3/21/2023

**Depth From** (usft)

0.0

Depth To (usft) 22,985.0

Survey (Wellbore)

Plan #0.2 (OH)

**Tool Name** 

EOG MWD+IFR1 MWD + IFR1

3/21/2023 12:52:58PM

Page 2



Database: PEDM

Company: Midland
Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #751H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #751H

KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

										Plan Sections
Target	TFO (°)	Turn Rate (°/100usft)	Build Rate (°/100usft)	Dogleg Rate (°/100usft)	+E/-W (usft)	+N/-S (usft)	Vertical Depth (usft)	Azimuth (°)	Inclination (°)	Measured Depth (usft)
	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
	0.00	0.00	0.00	0.00	0.0	0.0	1,400.0	0.00	0.00	1,400.0
	96.63	0.00	2.00	2.00	144.7	-16.8	2,301.9	96.63	18.35	2,317.5
	0.00	0.00	0.00	0.00	1,155.3	-134.2	5,369.1	96.63	18.35	5,549.0
	180.00	0.00	-2.00	2.00	1,300.0	-151.0	6,271.0	0.00	0.00	6,466.5
KOP (Deep Elem 4 Fe	0.00	0.00	0.00	0.00	1,300.0	-151.0	11,672.5	0.00	0.00	11,868.0
	144.02	0.00	12.00	12.00	1,580.4	-537.2	12,149.9	144.02	89.98	12,617.8
	89.98	4.43	0.00	4.43	1,827.1	-1,291.9	12,150.0	179.78	90.00	13,424.8
LTP (Deep Elem 4 Fe	0.00	0.00	0.00	0.00	1,863.0	-10,752.0	12,150.0	179.78	90.00	22,885.0
PBHL (Deep Elem 4 F	90.00	0.44	0.00	0.44	1,863.0	-10,852.0	12,150.0	180.22	90.00	22,985.0

# eog resources

#### **Planning Report**

Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #751H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #751H

KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

Planned Survey					
Measured Vertical  Depth Inclination Azimuth Depth +N (usft) (°) (°) (usft) (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		0.00	0.00	0.00
100.0 0.00 0.00 100.0	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	0.00	0.00	0.00
400.0 0.00 0.00 400.0	0.0	0.0	0.00	0.00	0.00
500.0	0.0		0.00	0.00	0.00
500.0 0.00 0.00 500.0	0.0		0.00	0.00	0.00
600.0 0.00 0.00 600.0	0.0		0.00	0.00	0.00
700.0 0.00 0.00 700.0	0.0		0.00	0.00	0.00
800.0 0.00 0.00 800.0	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	0.00	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 0.00 0.00 1,400.0	0.0 0.0		0.00	0.00	0.00
1,500.0 2.00 96.63 1,500.0	-0.2 1.7	0.5	2.00	2.00	0.00
1,600.0 4.00 96.63 1,599.8	-0.8 6.9		2.00	2.00	0.00
1,700.0 6.00 96.63 1,699.5	-1.8 15.6		2.00	2.00	0.00
1,800.0 8.00 96.63 1,798.7	-3.2 27.7		2.00	2.00	0.00
1,900.0 10.00 96.63 1,897.5	-5.0 43.2		2.00	2.00	0.00
2,000.0 12.00 96.63 1,995.6	-7.2 62.2		2.00	2.00	0.00
2,100.0 14.00 96.63 2,093.1	-9.8 84.5		2.00	2.00	0.00
2,200.0 16.00 96.63 2,189.6	-12.8 110.2		2.00	2.00	0.00
2,300.0 18.00 96.63 2,285.3	-16.2 139.3		2.00	2.00	0.00
2,300.0 16.00 96.03 2,265.3 2,317.5 18.35 96.63 2,301.9	-16.8 144.7		2.00	2.00	0.00
				0.00	
2,400.0 18.35 96.63 2,380.2			0.00		0.00
2,500.0 18.35 96.63 2,475.1			0.00	0.00	0.00
2,600.0 18.35 96.63 2,570.0			0.00	0.00	0.00
2,700.0 18.35 96.63 2,664.9	-30.7 264.3		0.00	0.00	0.00
2,800.0 18.35 96.63 2,759.9	-34.3 295.6		0.00	0.00	0.00
2,900.0 18.35 96.63 2,854.8	-38.0 326.9		0.00	0.00	0.00
3,000.0 18.35 96.63 2,949.7	-41.6 358.1		0.00	0.00	0.00
3,100.0 18.35 96.63 3,044.6	-45.2 389.4		0.00	0.00	0.00
3,200.0 18.35 96.63 3,139.5	-48.9 420.7		0.00	0.00	0.00
3,300.0 18.35 96.63 3,234.4	-52.5 452.0	128.2	0.00	0.00	0.00
3,400.0 18.35 96.63 3,329.3	-56.1 483.2		0.00	0.00	0.00
3,500.0 18.35 96.63 3,424.3	-59.8 514.5		0.00	0.00	0.00
3,600.0 18.35 96.63 3,519.2	-63.4 545.8		0.00	0.00	0.00
3,700.0 18.35 96.63 3,614.1	-67.0 577.0		0.00	0.00	0.00
3,800.0 18.35 96.63 3,709.0	-70.7 608.3	3 172.6	0.00	0.00	0.00
3,900.0 18.35 96.63 3,803.9	-74.3 639.6		0.00	0.00	0.00
4,000.0 18.35 96.63 3,898.8	<b>-77.9</b> 670.9	190.3	0.00	0.00	0.00
4,100.0 18.35 96.63 3,993.7	-81.6 702.1	199.2	0.00	0.00	0.00
4,200.0 18.35 96.63 4,088.7	-85.2 733.4		0.00	0.00	0.00
4,300.0 18.35 96.63 4,183.6	-88.8 764.7	216.9	0.00	0.00	0.00
4,400.0 18.35 96.63 4,278.5	-92.5 796.0	225.8	0.00	0.00	0.00
4,500.0 18.35 96.63 4,373.4	-96.1 827.2		0.00	0.00	0.00
4,600.0 18.35 96.63 4,468.3	-99.7 858.5		0.00	0.00	0.00
4,700.0 18.35 96.63 4,563.2	-103.4 889.8		0.00	0.00	0.00
4,800.0 18.35 96.63 4,658.2	-107.0 921.1	261.3	0.00	0.00	0.00
4,900.0 18.35 96.63 4,753.1	-110.6 952.3		0.00	0.00	0.00
5,000.0 18.35 96.63 4,848.0	-114.2 983.6		0.00	0.00	0.00
5,100.0 18.35 96.63 4,942.9	-117.9 1,014.9		0.00	0.00	0.00
5,200.0 18.35 96.63 5,037.8	-121.5 1,046.1	296.8	0.00	0.00	0.00



Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #751H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #751H

KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

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)
5,300.0	18.35	96.63	5,132.7	-125.1	1,077.4	305.6	0.00	0.00	0.00
5,400.0	18.35	96.63	5,227.6	-128.8	1,108.7	314.5	0.00	0.00	0.00
5,500.0	18.35	96.63	5,322.6	-132.4	1,140.0	323.4	0.00	0.00	0.00
5,549.0	18.35	96.63	5,369.1	-134.2	1,155.3	327.7	0.00	0.00	0.00
5,600.0 5,700.0	17.33 15.33	96.63 96.63	5,417.6 5,513.6	-136.0 -139.2	1,170.8 1,198.7	332.1 340.1	2.00 2.00	-2.00 -2.00	0.00 0.00
5,800.0	13.33	96.63	5,610.5	-142.1	1,223.3	347.0	2.00	-2.00	0.00
5,900.0	11.33	96.63	5,708.1	-144.6	1,244.5	353.0	2.00	-2.00	0.00
6,000.0	9.33	96.63	5,806.5	-146.6	1,262.3	358.1	2.00	-2.00	0.00
6,100.0	7.33	96.63	5,905.5	-148.3	1,276.7	362.2	2.00	-2.00	0.00
6,200.0	5.33	96.63	6,004.8	-149.6	1,287.7	365.3	2.00	-2.00	0.00
6,300.0	3.33	96.63	6,104.6	-150.4	1,295.2	367.4	2.00	-2.00	0.00
6,400.0	1.33	96.63	6,204.5	-150.9	1,299.2	368.6	2.00	-2.00	0.00
6,466.5	0.00	0.00	6,271.0	-151.0	1,300.0	368.8	2.00	-2.00	0.00
6,500.0 6,600.0	0.00 0.00	0.00 0.00	6,304.5 6,404.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00 0.00	0.00 0.00	0.00 0.00
6,700.0	0.00	0.00	6,504.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
6,800.0 6,900.0	0.00 0.00	0.00 0.00	6,604.5 6,704.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00 0.00	0.00 0.00	0.00 0.00
7,000.0	0.00	0.00	6,804.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,100.0	0.00	0.00	6,904.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,200.0	0.00	0.00	7,004.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,300.0	0.00	0.00	7,104.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,400.0	0.00	0.00	7,204.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,500.0	0.00	0.00	7,304.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,404.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,700.0	0.00	0.00	7,504.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,604.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
7,900.0 8,000.0	0.00 0.00	0.00 0.00	7,704.5 7,804.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00 0.00	0.00 0.00	0.00 0.00
8,100.0	0.00	0.00	7,804.5 7,904.5	-151.0 -151.0	1,300.0	368.8	0.00	0.00	0.00
8,200.0	0.00	0.00	8,004.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
8,300.0 8,400.0	0.00 0.00	0.00 0.00	8,104.5 8,204.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00 0.00	0.00 0.00	0.00 0.00
8,500.0	0.00	0.00	8,304.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,404.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
8,700.0	0.00	0.00	8,504.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
8,800.0	0.00	0.00	8,604.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
8,900.0	0.00	0.00	8,704.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
9,000.0 9,100.0	0.00 0.00	0.00 0.00	8,804.5 8,904.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00 0.00	0.00 0.00	0.00 0.00
9,200.0	0.00	0.00	9,004.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
9,300.0	0.00	0.00	9,104.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
9,400.0	0.00	0.00	9,204.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
9,500.0	0.00	0.00	9,304.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
9,600.0 9,700.0	0.00	0.00 0.00	9,404.5 9,504.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00	0.00	0.00 0.00
9,700.0	0.00	0.00	9,504.5 9,604.5	-151.0 -151.0	1,300.0	368.8	0.00	0.00	0.00
9,900.0	0.00	0.00	9,704.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,000.0	0.00	0.00	9,804.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,100.0	0.00	0.00	9,904.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,200.0	0.00	0.00	10,004.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,300.0	0.00	0.00	10,104.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,400.0	0.00	0.00	10,204.5	-151.0	1,300.0	368.8	0.00	0.00	0.00



Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
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 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
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North Reference:

Survey Calculation Method:

Well #751H

KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

esign:	FIAII #0.2								
lanned 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)
10,500.0	0.00	0.00	10,304.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,600.0	0.00	0.00	10,404.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,700.0	0.00	0.00	10,504.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,800.0	0.00	0.00	10,604.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
10,900.0	0.00	0.00	10,704.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,000.0	0.00	0.00	10,804.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,100.0	0.00	0.00	10,904.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,200.0	0.00	0.00	11,004.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,300.0	0.00	0.00	11,104.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,400.0	0.00	0.00	11,204.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,500.0 11,600.0	0.00 0.00	0.00 0.00	11,304.5 11,404.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00 0.00	0.00 0.00	0.00 0.00
11,700.0	0.00	0.00	11,504.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,800.0	0.00	0.00	11,604.5	-151.0	1,300.0	368.8	0.00	0.00	0.00
11,868.0 11,875.0	0.00 0.83	0.00 144.02	11,672.5 11,679.5	-151.0 -151.0	1,300.0 1,300.0	368.8 368.8	0.00 12.00	0.00 12.00	0.00 0.00
11,900.0	3.84	144.02	11,704.4	-151.0 -151.9	1,300.0	369.7	12.00	12.00	0.00
11,925.0	6.84	144.02	11,729.3	-153.7	1,302.0	371.8	12.00	12.00	0.00
11,950.0 11,975.0	9.84 12.84	144.02 144.02	11,754.1 11,778.6	-156.7 -160.7	1,304.1 1,307.0	375.1 379.5	12.00 12.00	12.00 12.00	0.00 0.00
12,000.0	15.84	144.02	11,802.8	-165.7	1,307.0	379.5 385.0	12.00	12.00	0.00
12,000.0	18.84	144.02	11,826.6	-105.7	1,310.0	391.7	12.00	12.00	0.00
12,050.0 12,075.0	21.84 24.84	144.02 144.02	11,850.1 11,873.0	-178.7 -186.7	1,320.1 1,325.9	399.5 408.4	12.00 12.00	12.00 12.00	0.00 0.00
12,100.0	27.84	144.02	11,895.4	-195.7	1,332.5	418.3	12.00	12.00	0.00
12,125.0	30.84	144.02	11,917.2	-205.6	1,339.7	429.3	12.00	12.00	0.00
12,150.0	33.84	144.02	11,938.3	-216.4	1,347.5	441.3	12.00	12.00	0.00
12,175.0	36.84	144.02	11,958.7	-228.1	1,356.0	454.3	12.00	12.00	0.00
12,200.0	39.84	144.02	11,978.3	-240.7	1,365.1	468.2	12.00	12.00	0.00
12,225.0	42.84	144.02	11,997.1	-254.1	1,374.8	483.0	12.00	12.00	0.00
12,250.0	45.84	144.02	12,015.0	-268.2	1,385.1	498.7	12.00	12.00	0.00
12,275.0	48.84	144.02	12,031.9	-283.1	1,395.9	515.2	12.00	12.00	0.00
12,300.0	51.84	144.02	12,047.9	-298.6	1,407.2	532.4	12.00	12.00	0.00
12,325.0	54.84	144.02	12,062.8	-314.9	1,419.0	550.4	12.00	12.00	0.00
12,350.0	57.84	144.02	12,076.7	-331.7	1,431.2	569.1	12.00	12.00	0.00
12,375.0	60.84	144.02	12,089.4	-349.1	1,443.8	588.4	12.00	12.00	0.00
12,400.0	63.85	144.02	12,101.0	-367.0	1,456.8	608.2	12.00	12.00	0.00
12,425.0	66.85	144.02	12,111.4	-385.4	1,470.2	628.6	12.00	12.00	0.00
12,450.0	69.85	144.02	12,120.7	-404.2	1,483.8	649.4	12.00	12.00	0.00
12,475.0	72.85	144.02	12,128.7	-423.4	1,497.8	670.7	12.00	12.00	0.00
12,500.0	75.85	144.02	12,135.4	-442.9	1,511.9	692.3	12.00	12.00	0.00
12,525.0	78.85	144.02	12,140.9	-462.6	1,526.2	714.2	12.00	12.00	0.00
12,550.0	81.85	144.02	12,145.1	-482.5	1,540.7	736.3	12.00	12.00	0.00
12,575.0	84.85	144.02	12,148.0	-502.6	1,555.3	758.5	12.00	12.00	0.00
12,600.0	87.85	144.02	12,149.6	-522.8	1,569.9	780.9	12.00	12.00	0.00
12,617.8	89.98	144.02	12,149.9	-537.2	1,580.4	796.9	12.00	12.00	0.00
12,700.0	89.99	147.66	12,149.9	-605.2	1,626.5	871.7	4.43	0.00	4.43
12,800.0	89.99	152.09	12,149.9	-691.7	1,676.7	965.4	4.43	0.00	4.43
12,900.0	89.99	156.53	12,150.0	-781.8	1,720.1	1,061.5	4.43	0.00	4.43
13,000.0	89.99	160.96	12,150.0	-875.0	1,756.3	1,159.5	4.43	0.00	4.43
13,100.0	89.99	165.39	12,150.0	-970.7	1,785.2	1,258.7	4.43	0.00	4.43
13,200.0	90.00	169.82	12,150.0	-1,068.3	1,806.7	1,358.6	4.43	0.00	4.43
13,300.0	90.00	174.25	12,150.0	-1,167.3	1,820.6	1,458.5	4.43	0.00	4.43
13,400.0	90.00	178.68	12,150.0	-1,267.1	1,826.7	1,557.9	4.43	0.00	4.43



Database: PEDM Company: Midland

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KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

isign:	1 1011 // 0.2								
anned 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)
13,424.8	90.00	179.78	12,150.0	-1,291.9	1,827.1	1,582.4	4.43	0.00	4.43
13,500.0	90.00	179.78	12,150.0	-1,367.1	1,827.3	1,656.6	0.00	0.00	0.00
13,600.0	90.00	179.78	12,150.0	-1,467.1	1,827.7	1,755.2	0.00	0.00	0.00
13,700.0	90.00	179.78	12,150.0	-1,567.1	1,828.1	1,853.8	0.00	0.00	0.00
13,800.0	90.00	179.78	12,150.0	-1,667.1	1,828.5	1,952.4	0.00	0.00	0.00
13,900.0	90.00	179.78	12,150.0	-1,767.1	1,828.9	2,051.0	0.00	0.00	0.00
14,000.0	90.00	179.78	12,150.0	-1,867.1	1,829.2	2,149.7	0.00	0.00	0.00
14,100.0	90.00	179.78	12,150.0	-1,967.1	1,829.6	2,248.3	0.00	0.00	0.00
14,200.0	90.00	179.78	12,150.0	-2,067.1	1,830.0	2,346.9	0.00	0.00	0.00
14,300.0	90.00	179.78	12,150.0	-2,167.1	1,830.4	2,445.5	0.00	0.00	0.00
14,400.0	90.00	179.78	12,150.0	-2,267.1	1,830.8	2,544.2	0.00	0.00	0.00
14,500.0	90.00	179.78	12,150.0	-2,367.1	1,831.1	2,642.8	0.00	0.00	0.00
14,600.0	90.00	179.78	12,150.0	-2,467.1	1,831.5	2,741.4	0.00	0.00	0.00
14,700.0	90.00	179.78	12,150.0	-2,567.1	1,831.9	2,840.0	0.00	0.00	0.00
14,800.0	90.00	179.78	12,150.0	-2,667.1	1,832.3	2,938.6	0.00	0.00	0.00
14,900.0	90.00	179.78	12,150.0	-2,767.1	1,832.7	3,037.3	0.00	0.00	0.00
15,000.0	90.00	179.78	12,150.0	-2,867.1	1,833.0	3,135.9	0.00	0.00	0.00
15,100.0	90.00	179.78	12,150.0	-2,967.1	1,833.4	3,234.5	0.00	0.00	0.00
15,200.0	90.00	179.78	12,150.0	-3,067.1	1,833.8	3,333.1	0.00	0.00	0.00
15,300.0	90.00	179.78	12,150.0	-3,167.1	1,834.2	3,431.8	0.00	0.00	0.00
15,400.0	90.00	179.78	12,150.0	-3,267.1	1,834.6	3,530.4	0.00	0.00	0.00
15,500.0	90.00	179.78	12,150.0	-3,367.1	1,834.9	3,629.0	0.00	0.00	0.00
15,600.0	90.00	179.78	12,150.0	-3,467.1	1,835.3	3,727.6	0.00	0.00	0.00
15,600.0	90.00	179.70	12,150.0	-3,407.1	1,033.3	3,727.0	0.00	0.00	0.00
15,700.0	90.00	179.78	12,150.0	-3,567.1	1,835.7	3,826.2	0.00	0.00	0.00
15,800.0	90.00	179.78	12,150.0	-3,667.1	1,836.1	3,924.9	0.00	0.00	0.00
15,900.0	90.00	179.78	12,150.0	-3,767.1	1,836.5	4,023.5	0.00	0.00	0.00
16,000.0	90.00	179.78	12,150.0	-3,867.1	1,836.8	4,122.1	0.00	0.00	0.00
16,100.0	90.00	179.78	12,150.0	-3,967.1	1,837.2	4,220.7	0.00	0.00	0.00
16,200.0	90.00	179.78	12,150.0	-4,067.1	1,837.6	4,319.3	0.00	0.00	0.00
16,300.0	90.00	179.78	12,150.0	-4,167.1	1,838.0	4,418.0	0.00	0.00	0.00
16,400.0	90.00	179.78	12,150.0	-4,267.1	1,838.4	4,516.6	0.00	0.00	0.00
16,500.0	90.00	179.78	12,150.0	-4,367.1	1,838.7	4,615.2	0.00	0.00	0.00
16,600.0	90.00	179.78	12,150.0	-4,467.1	1,839.1	4,713.8	0.00	0.00	0.00
10,000.0	90.00	179.70	12,130.0	-4,407.1	1,059.1	4,7 13.0	0.00		0.00
16,700.0	90.00	179.78	12,150.0	-4,567.1	1,839.5	4,812.5	0.00	0.00	0.00
16,800.0	90.00	179.78	12,150.0	-4,667.1	1,839.9	4,911.1	0.00	0.00	0.00
16,900.0	90.00	179.78	12,150.0	-4,767.1	1,840.3	5,009.7	0.00	0.00	0.00
17,000.0	90.00	179.78	12,150.0	-4,867.1	1,840.6	5,108.3	0.00	0.00	0.00
17,100.0	90.00	179.78	12,150.0	-4,967.1	1,841.0	5,206.9	0.00	0.00	0.00
17,200.0	90.00	179.78	12,150.0	-5,067.1	1,841.4	5,305.6	0.00	0.00	0.00
17,300.0	90.00	179.78	12,150.0	-5,167.1	1,841.8	5,404.2	0.00	0.00	0.00
17,400.0	90.00	179.78	12,150.0	-5,267.1	1,842.2	5,502.8	0.00	0.00	0.00
17,500.0	90.00	179.78	12,150.0	-5,367.1	1,842.5	5,601.4	0.00	0.00	0.00
17,600.0	90.00	179.78	12,150.0	-5,467.1	1,842.9	5,700.1	0.00	0.00	0.00
17,700.0	90.00	179.78	12,150.0	-5,567.1	1,843.3	5,798.7	0.00	0.00	0.00
17,800.0	90.00	179.78	12,150.0	-5,667.1	1,843.7	5,897.3	0.00	0.00	0.00
17,900.0	90.00	179.78	12,150.0	-5,767.1	1,844.1	5,995.9	0.00	0.00	0.00
18,000.0	90.00	179.78	12,150.0	-5,867.1	1,844.4	6,094.5	0.00	0.00	0.00
18,100.0	90.00	179.78	12,150.0	-5,967.1	1,844.8	6,193.2	0.00	0.00	0.00
18,200.0	90.00	179.78	12,150.0	-6,067.1	1,845.2	6,291.8	0.00	0.00	0.00
18,300.0	90.00	179.78	12,150.0	-6,167.1	1,845.6	6,390.4	0.00	0.00	0.00
18,400.0	90.00	179.78	12,150.0	-6,267.1	1,846.0	6,489.0	0.00	0.00	0.00
18,500.0	90.00	179.76	12,150.0	-6,267.1 -6,367.1	1,846.3	6,587.6	0.00	0.00	0.00
18,600.0	90.00	179.78	12,150.0	-6,367.1 -6,467.1	1,846.3	6,686.3	0.00	0.00	0.00
10,000.0	90.00	1/9./0	12,100.0	-0,407.1	1,040.7	0,000.3	0.00	0.00	0.00
18,700.0	90.00	179.78	12,150.0	-6,567.1	1,847.1	6,784.9	0.00	0.00	0.00



Database: Company:

Project:

PEDM Midland

Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #751H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #751H

KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

sign:	Plan #0.2								
nned Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
18,800.0	90.00	179.78	12,150.0	-6,667.1	1,847.5	6,883.5	0.00	0.00	0.00
18,900.0	90.00	179.78	12,150.0	-6,767.0	1,847.9	6,982.1	0.00	0.00	0.00
19,000.0	90.00	179.78	12,150.0	-6,867.0	1,848.2	7,080.8	0.00	0.00	0.00
19,100.0	90.00	179.78	12,150.0	-6,967.0	1,848.6	7,179.4	0.00	0.00	0.00
19,200.0	90.00	179.78	12,150.0	-7,067.0	1,849.0	7,278.0	0.00	0.00	0.00
19,300.0	90.00	179.78	12,150.0	-7,167.0	1,849.4	7,376.6	0.00	0.00	0.00
19,400.0	90.00	179.78	12,150.0	-7,267.0	1,849.8	7,475.2	0.00	0.00	0.00
19,500.0	90.00	179.78	12,150.0	-7,367.0	1,850.1	7,573.9	0.00	0.00	0.00
19,600.0	90.00	179.78	12,150.0	-7,467.0	1,850.5	7,672.5	0.00	0.00	0.00
19,700.0	90.00	179.78	12,150.0	-7,567.0	1,850.9	7,771.1	0.00	0.00	0.00
19,800.0	90.00	179.78	12,150.0	-7,667.0	1,851.3	7,869.7	0.00	0.00	0.00
19,900.0	90.00	179.78	12,150.0	-7,767.0	1,851.7	7,968.4	0.00	0.00	0.00
20,000.0	90.00	179.78	12,150.0	-7,867.0	1,852.0	8,067.0	0.00	0.00	0.00
20,100.0	90.00	179.78	12,150.0	-7,967.0	1,852.4	8,165.6	0.00	0.00	0.00
20,200.0	90.00	179.78	12,150.0	-8,067.0	1,852.8	8,264.2	0.00	0.00	0.00
20,300.0	90.00	179.78	12,150.0	-8,167.0	1,853.2	8,362.8	0.00	0.00	0.00
20,400.0	90.00	179.78	12,150.0	-8,267.0	1,853.6	8,461.5	0.00	0.00	0.00
20,500.0	90.00	179.78	12,150.0	-8,367.0	1,853.9	8,560.1	0.00	0.00	0.00
20,600.0	90.00	179.78	12,150.0	-8,467.0	1,854.3	8,658.7	0.00	0.00	0.00
20,700.0	90.00	179.78	12,150.0	-8,567.0	1,854.7	8,757.3	0.00	0.00	0.00
20,800.0	90.00	179.78	12,150.0	-8,667.0	1,855.1	8,856.0	0.00	0.00	0.00
20,900.0	90.00	179.78	12,150.0	-8,767.0	1,855.5	8,954.6	0.00	0.00	0.00
21,000.0	90.00	179.78	12,150.0	-8,867.0	1,855.8	9,053.2	0.00	0.00	0.00
21,100.0	90.00	179.78	12,150.0	-8,967.0	1,856.2	9,151.8	0.00	0.00	0.00
21,200.0	90.00	179.78	12,150.0	-9,067.0	1,856.6	9,250.4	0.00	0.00	0.00
21,300.0	90.00	179.78	12,150.0	-9,167.0	1,857.0	9,349.1	0.00	0.00	0.00
21,400.0	90.00	179.78	12,150.0	-9,267.0	1,857.4	9,447.7	0.00	0.00	0.00
21,500.0	90.00	179.78	12,150.0	-9,367.0	1,857.7	9,546.3	0.00	0.00	0.00
21,600.0	90.00	179.78	12,150.0	-9,467.0	1,858.1	9,644.9	0.00	0.00	0.00
21,700.0	90.00	179.78	12,150.0	-9,567.0	1,858.5	9,743.5	0.00	0.00	0.00
21,800.0	90.00	179.78	12,150.0	-9,667.0	1,858.9	9,842.2	0.00	0.00	0.00
21,900.0	90.00	179.78	12,150.0	-9,767.0	1,859.3	9,940.8	0.00	0.00	0.00
22,000.0	90.00	179.78	12,150.0	-9,867.0	1,859.6	10,039.4	0.00	0.00	0.00
22,100.0	90.00	179.78	12,150.0	-9,967.0	1,860.0	10,138.0	0.00	0.00	0.00
22,200.0	90.00	179.78	12,150.0	-10,067.0	1,860.4	10,236.7	0.00	0.00	0.00
22,300.0	90.00	179.78	12,150.0	-10,167.0	1,860.8	10,335.3	0.00	0.00	0.00
22,400.0	90.00	179.78	12,150.0	-10,267.0	1,861.2	10,433.9	0.00	0.00	0.00
22,500.0	90.00	179.78	12,150.0	-10,367.0	1,861.5	10,532.5	0.00	0.00	0.00
22,600.0	90.00	179.78	12,150.0	-10,467.0	1,861.9	10,631.1	0.00	0.00	0.00
22,700.0	90.00	179.78	12,150.0	-10,567.0	1,862.3	10,729.8	0.00	0.00	0.00
22,800.0	90.00	179.78	12,150.0	-10,667.0	1,862.7	10,828.4	0.00	0.00	0.00
22,885.0	90.00	179.78	12,150.0	-10,752.0	1,863.0	10,912.2	0.00	0.00	0.00
22,900.0	90.00	179.85	12,150.0	-10,767.0	1,863.0	10,927.0	0.44	0.00	0.44
22,985.0	90.00	180.22	12,150.0	-10,852.0	1,863.0	11,010.8	0.44	0.00	0.44



Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #751H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

**Survey Calculation Method:** 

Well #751H

KB = 25' @ 3304.0usft KB = 25' @ 3304.0usft

Grid

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 (Deep Elem 4 Fed - plan hits target cer - Point	0.00 iter	0.00	11,672.5	-151.0	1,300.0	388,017.00	713,169.00	32° 3′ 55.888 N	103° 46' 43.053 W
PBHL (Deep Elem 4 Fec - plan hits target cer - Point		0.00	12,150.0	-10,852.0	1,863.0	377,316.00	713,732.00	32° 2' 9.964 N	103° 46' 37.151 W
FTP (Deep Elem 4 Fed ( - plan misses target - Point		0.00 .2usft at 129	12,150.0 10.3usft MD	-752.0 (12150.0 TVD	1,825.0 ), -791.2 N, 17	387,416.00 (24.1 E)	713,694.00	32° 3′ 49.914 N	103° 46' 36.988 W
LTP (Deep Elem 4 Fed 0 - plan hits target cer - Point		0.00	12,150.0	-10,752.0	1,863.0	377,416.00	713,732.00	32° 2′ 10.954 N	103° 46' 37.145 W



2000

2400

2800-

5200-

7200-

8000-

8400

9600-

10000

10400

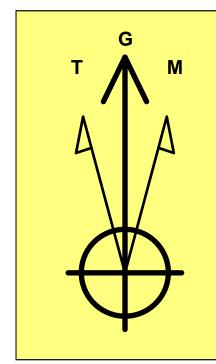
10800

11200

12000

12400

+ + -| -| -| <mark>+</mark> |- |- **|-** | + + + -| -| -| -| -| -



Azimuths to Grid North
True North: -0.29°
Magnetic North: 6.45°
Magnetic Field

Magnetic Field Strength: 47477.4nT Dip Angle: 59.76° Date: 7/6/2020 Model: IGRF2020

To convert a Magnetic Direction to a Grid Direction, Add 6.45° To convert a Magnetic Direction to a True Direction, Add 6.74° East To convert a True Direction to a Grid Direction, Subtract 0.29°

Eddy County, NM (NAD 83 NME)

Deep Elem 4 Fed Com #751H

**Plan #0.2** 

# PROJECT DETAILS: Eddy County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980

Zone: New Mexico Eastern Zone System Datum: Mean Sea Level

\_\_\_\_<del>-</del>

# WELL DETAILS: #751H

3279.0

KB = 25' @ 3304.0usft

 Northing
 Easting
 Latittude
 Longitude

 388168.00
 711869.00
 32° 3' 57.449 N
 103° 46' 58.151 W

							SE	CTION I	DETAILS		
S	ес	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
	1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
	2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
	3	2317.5	18.35	96.63	2301.9	-16.8	144.7	2.00	96.63	41.1	
	4	5549.0	18.35	96.63	5369.1	-134.2	1155.3	0.00	0.00	327.7	
	5	6466.5	0.00	0.00	6271.0	-151.0	1300.0	2.00	180.00	368.8	
	6	11868.0	0.00	0.00	11672.5	-151.0	1300.0	0.00	0.00	368.8	KOP (Deep Elem 4 Fed Com #503H)
	7	12617.8	89.98	144.02	12149.9	-537.2	1580.4	12.00	144.02	796.9	
	8	13424.8	90.00	179.78	12150.0	-1291.9	1827.1	4.43	89.98	1582.4	
	9	22885.0	90.00	179.78	12150.0	-10752.0	1863.0	0.00	0.00	10912.2	LTP (Deep Elem 4 Fed Com #503H)
1	10	22985.0	90.00	180.22	12150.0	-10852.0	1863.0	0.44	90.00	11010.8	PBHL (Deep Elem 4 Fed Com #503H)

CASING DETAILS

No casing data is available

WELLBORE T	WELLBORE TARGET DETAILS (MAP CO-ORDINATES)				
Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP (Deep Elem 4 Fed Com #503H)	11672.5	-151.0	1300.0	388017.00	713169.00
LTP (Deep Elem 4 Fed Com #503H)	12150.0	-10752.0	1863.0	377416.00	713732.00
PBHL (Deep Elem 4 Fed Com #503H)	12150.0	-10852.0	1863.0	377316.00	713732.00
FTP (Deep Elem 4 Fed Com #503H)	12150.0	-752.0	1825.0	387416.00	713694.00

West(-)/East(+) -1200 -2000 -2400 -3200 -4400 -9200 -9600 -10000 -10400 -10800 West(-)/East(+)

Vertical Section at 170.26°

-|-|-|-|-

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Eddy County, NM (NAD 83 NME)
Deep Elem 4 Fed Com
#751H
OH
Plan #0.2
12:50, March 21 2023



2/24/2022

# **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.



2/24/2022

- 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.
  - 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.



2/24/2022

#### **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.

Page | 3



2/24/2022

- 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



2/24/2022

Figure 1: Cameron TA Plug and Offline Adapter Schematic



2/24/2022

Figure 2: Cactus TA Plug and Offline Adapter Schematic

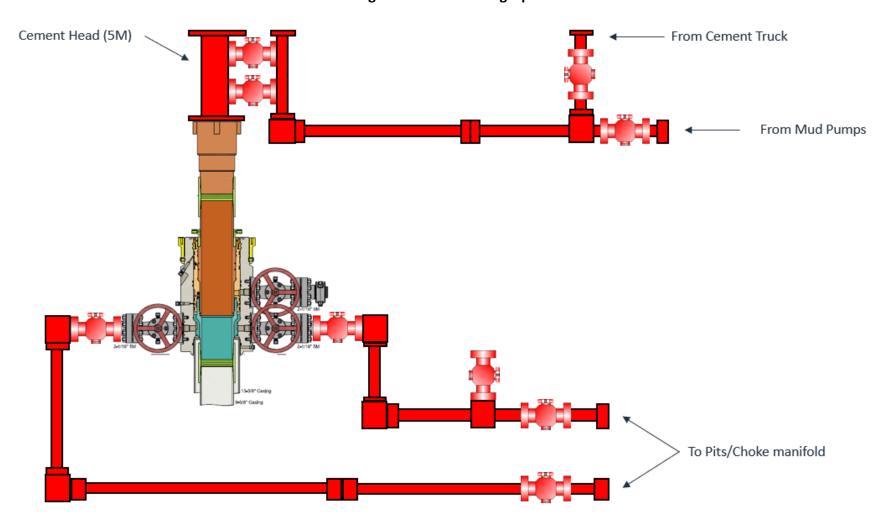


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Figure 3: Back Yard Rig Up



\*\*\* All Lines 10M rated working pressure

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Figure 4: Rig Placement Diagram



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EOG requests variance from minimum standards to pump a two stage cement job on the 8-3/4" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (6,278') and the second stage performed as a 1000 sack bradenhead squeeze with planned cement from the Brushy Canyon to surface. If necessary, a top out consisting of 184 sacks of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. Top will be verified by Echo-meter.

EOG will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

EOG will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

# 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"



436' FSL

**Proposed Wellbore** 

KB: 3304' GL: 3279'

2538' FEL Section 4

T-26-S, R-31-E

API: 30-015-48907

Bit Size: 13" 10-3/4", 40.5#, J-55, STC, @ 0' - 1,250' Bit Size: 9-7/8" 8-3/4" 38.5#, P110-EC, SLIJ II NA, @ 0' - 10,372' TOC: 9,872' MD, 9,650' TVD Lateral: 22,985' MD, 12,150' TVD **Upper Most Perf:** Bit Size: 7-7/8" 330' FNL & 715' FEL Sec. 9 6", 22.3#, P110-EC, DWC/C IS, **Lower Most Perf:** @ 0' - 22,985' 330' FSL & 715' FEL Sec. 16 BH Location: 230' FSL & 715' FEL Sec. 16 T-26-S R-31-E KOP: 11,868' MD, 11,672' TVD EOC: 12,618' MD, 12,150' TVD

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

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 199582

#### **CONDITIONS**

Operator:	OGRID:
EOG RESOURCES INC	7377
P.O. Box 2267	Action Number:
Midland, TX 79702	199582
I I	Action Type:
	[C-103] NOI Change of Plans (C-103A)

#### CONDITIONS

Created By	Condition	Condition Date
kpickford	NSP Will require administrative order for non-standard spacing unit	3/22/2023
kpickford	Adhere to previous NMOCD Conditions of Approval	3/22/2023