Form 3160-5 (June 2019)

### **UNITED STATES** DEPARTMENT OF THE INTERIOR

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

BUREAU OF LAND MANAGEMENT
SUNDRY NOTICES AND REPORTS ON WELLS

BUR	EAU OF LAND MANAGEMEN	5. Lease Serial No.	<ul><li>5. Lease Serial No. NMNM0438001</li><li>6. If Indian, Allottee or Tribe Name</li></ul>		
Do not use this t	IOTICES AND REPORTS ON form for proposals to drill or Use Form 3160-3 (APD) for s	6. If Indian, Allottee			
	TRIPLICATE - Other instructions on p	7. If Unit of CA/Agr	eement, Name and/or No.		
1. Type of Well  Oil Well  Gas V	Well Other		8. Well Name and No	DEEP ELEM 4 FED COM/581H	
2. Name of Operator EOG RESOUR	<del>-</del>		9. API Well No. 300	15/17037	
		No. (include area code			
3a. Address 1111 BAGBY SKY LOE	(713) 651-		′	43309P;/JENNINGS; BONE SPRING	
4. Location of Well (Footage, Sec., T.,F SEC 4/T26S/R31E/NMP	R.,M., or Survey Description)		11. Country or Parish EDDY/NM	ı, State	
12. CHE	CK THE APPROPRIATE BOX(ES) TO	INDICATE NATURE	OF NOTICE, REPORT OR OT	HER DATA	
TYPE OF SUBMISSION		TY	PE OF ACTION		
Notice of Intent	Alter Casing H	eepen ydraulic Fracturing ew Construction	Production (Start/Resume) Reclamation Recomplete	Water Shut-Off Well Integrity Other	
Subsequent Report  Final Abandonment Notice	Change Plans Pl	lug and Abandon	Temporarily Abandon Water Disposal		
completion of the involved operation completed. Final Abandonment Notice is ready for final inspection.)  EOG respectfully requests and the following changes:  API #: 30-015-47937  Change name from Deep Elerth Change BHL from T-26-S, R-3	amendment to our approved APD for a 4 Fed Com 581H to Deep Elem 4 F B1-E, Sec 16, 100' FSL, 332' FEL, Edd 0' FSL, 330' FEL, Eddy Co., N.M.	completion or recomplents, including recland this well to reflect fed Com 590H.	letion in a new interval, a Form	3160-4 must be filed once testing has been	
Continued on page 3 additiona					
STAR HARRELL / Ph: (432) 848-9	true and correct. Name (Printed/Typed) 161		y Specialist		
Signature		01/04/2	2023		
	THE SPACE FOR FE	DERAL OR ST	ATE OFICE USE		
Approved by KEITH P IMMATTY / Ph: (575) 988	3-4722 / Approved	ENG Title	INEER	02/23/2023	
Conditions of approval, if any, are attack	hed. Approval of this notice does not war equitable title to those rights in the subjec	RLSBAD	Date		

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

(Form 3160-5, page 2)

### **Additional Information**

### **Additional Remarks**

Update casing and cement program to current design.

### **Location of Well**

 $0. \ SHL: \ SESE \ / \ 479 \ FSL \ / \ 1252 \ FEL \ / \ TWSP: \ 26S \ / \ RANGE: \ 31E \ / \ SECTION: \ 4 \ / \ LAT: \ 32.066084 \ / \ LONG: \ -103.778671 \ (\ TVD: \ 0 \ feet, \ MD: \ 0 \ feet \ )$   $PPP: \ NENE \ / \ 100 \ FNL \ / \ 332 \ FEL \ / \ TWSP: \ 26S \ / \ RANGE: \ 31E \ / \ SECTION: \ 9 \ / \ LAT: \ 32.064499 \ / \ LONG: \ -103.775702 \ (\ TVD: \ 10177 \ feet, \ MD: \ 10242 \ feet \ )$   $BHL: \ SESE \ / \ 100 \ FSL \ / \ 332 \ FEL \ / \ TWSP: \ 26S \ / \ RANGE: \ 31E \ / \ SECTION: \ 16 \ / \ LAT: \ 32.035746 \ / \ LONG: \ -103.77575 \ (\ TVD: \ 10516 \ feet, \ MD: \ 20838 \ feet \ )$ 

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) 334-6170
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, New Mexico 87505

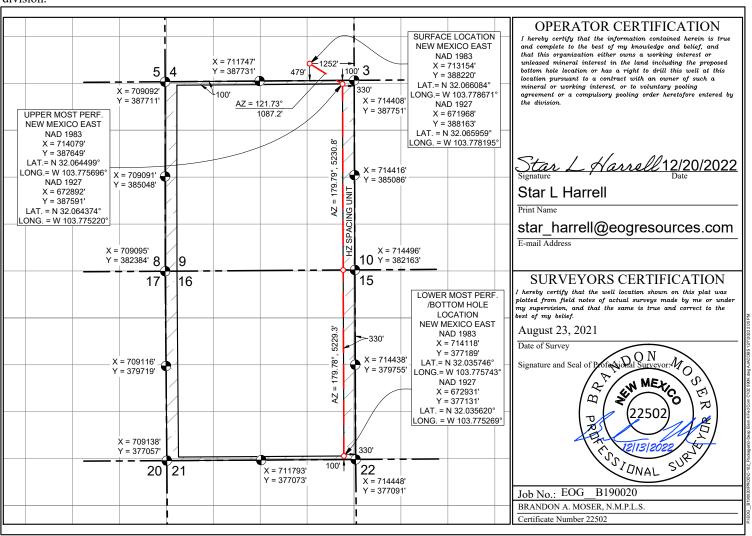
Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

☐ AMENDED REPORT

### WELL LOCATION AND ACREAGE DEDICATION PLAT

	API Number 30-015-47937			Pool Code <b>98760</b>		Jennings; Bone Spring, West			
Property Co	Property Code				Property Name			Well Nur	nber
32997	0			DE	EP ELEM 4 FE	D COM		590H	1
OGRID N	0.				Operator Name			Elevati	on
7377				EO	G RESOURCE	ES, INC.		3280	6'
				Surface Location					
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Р	4	26 S	31 E		479	79 SOUTH 1252 E			EDDY
			Bott	om Hole l	Location If Diff	erent 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		100 SOUTH 330 EAST EDDY				EDDY
Dedicated Acres	Joint or	Infill	Consolidated Co	de Orde	Order No.				
1280.00									

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.



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

Well Name: Deep Elem 4 Fed Com 590H

Location: SHL: 479' FSL & 1252' FEL, Section 4, T-26-S, R-31-E, Eddy Co., N.M.

BHL: 100' FSL & 330' FEL, Section 16, T-26-S, R-31-E, Eddy Co., N.M.

**Casing Program A:** 

Hole	Interv	al MD	Interva	d TVD	Csg			
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
16"	0	1,250	0	1,250	13-3/8"	54.5#	J-55	STC
11"	0	4,051	0	3,960	9-5/8"	40#	J-55	LTC
6-3/4"	0	21,254	0	10,516	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.

**Cementing Program:** 

	Inting 1108	í		1
		Wt.	Yld	Clauma Donomintina
Depth	No. Sacks	ppg	Ft3/sk	Slurry Description
1,250' 13-3/8"	380	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	100	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 1,050')
3,960' 9-5/8"	410	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	140	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,170')
21,254' 5-1/2"	350	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 3,460')
	780	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 @ 10140')



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)	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,250'	Fresh - Gel	8.6-8.8	28-34	N/c
1,250' – 3,960'	Brine	8.6-8.8	28-34	N/c
3,960' – 21,254'	Oil Base	8.8-9.5	58-68	N/c - 6

### Wellhead & Offline Cementing:

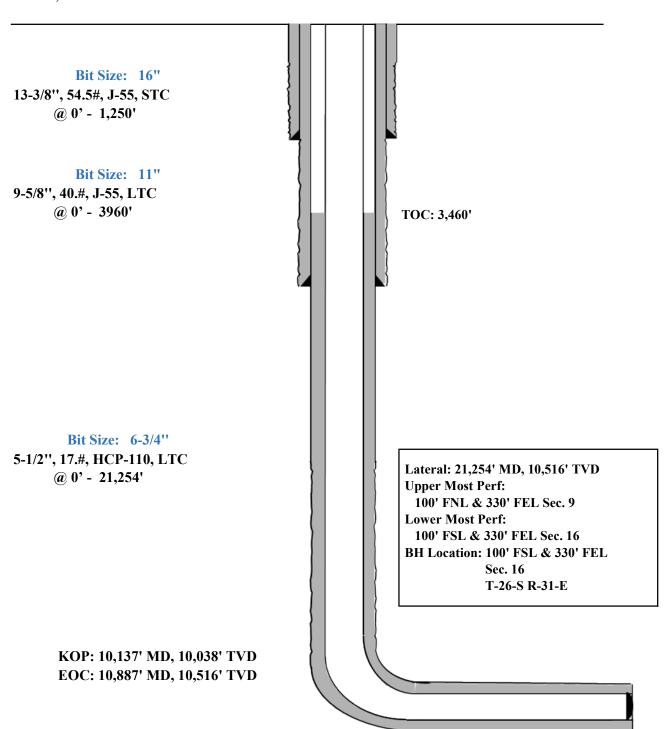
EOG Resources Inc. (EOG) respectfully requests a variance from the minimum standards for well control equipment testing of Onshore Order No. 2 (item III.A.2.a.i) to allow a testing schedule of the blow out preventer (BOP) and blow out prevention equipment (BOPE) along with Batch Drilling & Offline cement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

479' FSL Revised Wellbore A: KB: 3311' 1252' FEL GL: 3286'

**Section 4** 

T-26-S, R-31-E API: 30-025-47937





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

Well Name: Deep Elem 4 Fed Com 590H

Location: SHL: 479' FSL & 1252' FEL, Section 4, T-26-S, R-31-E, Eddy Co., N.M.

BHL: 100' FSL & 330' FEL, Section 16, T-26-S, R-31-E, Eddy Co., N.M.

**Casing Program B:** 

Hole	Interval MD		Interval TVD		Csg			
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
13-1/2"	0	1,250	0	1,250	10-3/4"	40.5#	J-55	STC
9-7/8"	0	4,051	0	3,960	8-5/8"	32#	J-55	BTC-SC
6-3/4"	0	21,254	0	10,516	5-1/2"	17#	HCP-110	LTC

**Cementing Program:** 

	Comercing 1 regrum.							
Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description				
1,250' 10-3/4''	410	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 @ 1,050')				
3,960' 8-5/8''	280	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)				
	130	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,170')				
21,254' 5-1/2''	660	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 3,460')				
	800	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 @ 10140')				



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

### 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:

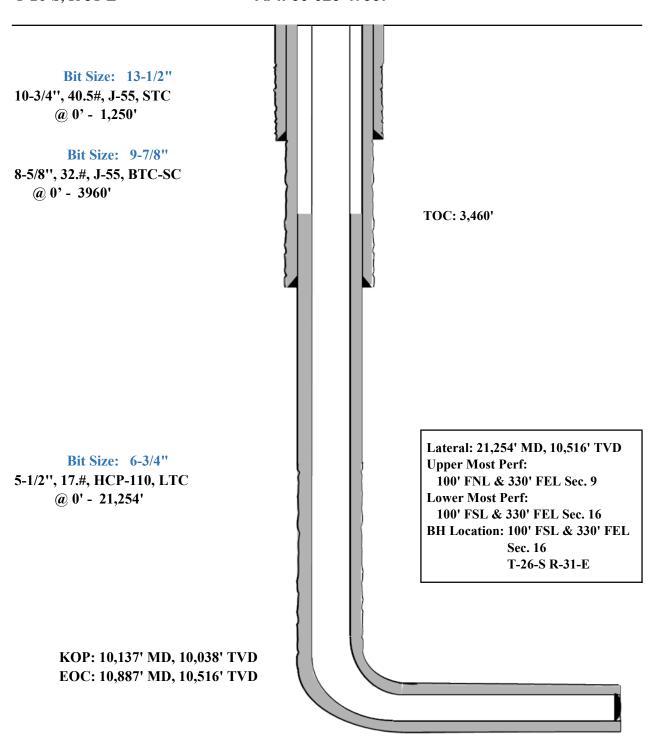
- Full BOPE test at first installation on the pad.
- Full BOPE test every 21 days per Onshore Order No. 2.
- Function test BOP elements per Onshore Order No. 2.
- Break testing BOP and BOPE coupled with batch drilling operations and option to
  offline cement and/or remediate (if needed) any surface 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"



479' Revised Wellbore B: KB: 3311' 1252' GL: 3286'

**Section 4** 

T-26-S, R-31-E API: 30-025-47937





### GEOLOGIC NAME OF SURFACE FORMATION:

Permian

### ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	1,143'
Tamarisk Anhydrite	1,227'
Top of Salt	1,501'
Base of Salt	3,862'
Lamar	4,072'
Bell Canyon	4,095'
Cherry Canyon	5,047'
Brushy Canyon	6,278'
Bone Spring Lime	8,036'
Leonard (Avalon) Shale	8,127'
1st Bone Spring Sand	8,977'
2nd Bone Spring Shale	9,244'
2nd Bone Spring Sand	9,591'
3rd Bone Spring Carb	10,045'
3rd Bone Spring Sand	10,906'
Wolfcamp	11,303'
TD	10,516'

### ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 400'	Fresh Wate
Bell Canyon	4,095'	Oil
Cherry Canyon	5,047'	Oil
Brushy Canyon	6,278'	Oil
Leonard (Avalon) Shale	8,127'	Oil
1st Bone Spring Sand	8,977'	Oil
2nd Bone Spring Shale	9,244'	Oil
2nd Bone Spring Sand	9,591'	Oil



### **Midland**

Eddy County, NM (NAD 83 NME) Deep Elem 4 Fed Com #590H

OH

Plan: Plan #0.2

### **Standard Planning Report**

20 December, 2022



Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #590H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #590H

KB = 25' @ 3311.0usft KB = 25' @ 3311.0usft

Grid

Minimum Curvature

Project Eddy County, NM (NAD 83 NME)

Map System:US State Plane 1983Geo Datum:North American Datum 1983Map Zone:New Mexico Eastern Zone

System Datum:

Mean Sea Level

Site Deep Elem 4 Fed Com

 Site Position:
 Northing:
 388,239.00 usft
 Latitude:
 32° 3′ 58.075 N

 From:
 Map
 Easting:
 713,374.00 usft
 Longitude:
 103° 46′ 40.657 W

Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 "

**Well** #590H

+N/-S **Well Position** 0.0 usft Northing: 388,220.00 usft Latitude: 32° 3' 57.898 N +E/-W 0.0 usft Easting: 713,154.00 usft Longitude: 103° 46' 43.215 W **Position Uncertainty** 0.0 usft Wellhead Elevation: usft **Ground Level:** 3,286.0 usft

Grid Convergence: 0.29 °

Wellbore OH

 Magnetics
 Model Name
 Sample Date
 Declination (°)
 Dip Angle (°)
 Field Strength (nT)

 IGRF2020
 7/6/2020
 6.74
 59.76
 47,477.85769654

Design Plan #0.2

Audit Notes:

Version:Phase:PLANTie On Depth:0.0

 Vertical Section:
 Depth From (TVD) (usft)
 +N/-S +E/-W (usft)
 Direction (usft)

 0.0
 0.0
 0.0
 175.01

Plan Survey Tool Program Date 12/20/2022

Depth From Depth To

(usft) (usft) Survey (Wellbore) Tool Name Remarks

1 0.0 21,254.6 Plan #0.2 (OH) EOG MWD+IFR1

MWD + IFR1

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	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	0.00	
2,025.9	12.52	101.37	2,020.9	-13.4	66.8	2.00	2.00	0.00	101.37	
5,750.6	12.52	101.37	5,657.1	-172.6	858.2	0.00	0.00	0.00	0.00	
6,376.5	0.00	0.00	6,278.0	-186.0	925.0	2.00	-2.00	0.00	180.00	
10,137.0	0.00	0.00	10,038.5	-186.0	925.0	0.00	0.00	0.00	0.00	KOP (Deep Elem 4 Fe
10,887.0	90.00	179.79	10,516.0	-663.5	926.7	12.00	12.00	23.97	179.79	
21,254.6	90.00	179.79	10,516.0	-11,031.0	964.0	0.00	0.00	0.00	0.00	LTP/PBHL (Deep Eler

# **b**eog resources

### Planning Report

Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #590H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #590H

KB = 25' @ 3311.0usft KB = 25' @ 3311.0usft

Grid

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	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	2.00	101.37	1,500.0	-0.3	1.7	0.5	2.00	2.00	0.00
1,600.0	4.00	101.37	1,599.8	-1.4	6.8	2.0	2.00	2.00	0.00
1,700.0	6.00	101.37	1,699.5	-3.1	15.4	4.4	2.00	2.00	0.00
1,800.0	8.00	101.37	1,798.7	-5.5	27.3	7.9	2.00	2.00	0.00
1,900.0	10.00	101.37	1,897.5	-8.6	42.7	12.3	2.00	2.00	0.00
	40.00	404.07	4.005.0		04.4		2.00		
2,000.0	12.00	101.37	1,995.6	-12.3	61.4	17.6	2.00	2.00	0.00
2,025.9	12.52	101.37	2,020.9	-13.4	66.8	19.2	2.00	2.00	0.00
2,100.0	12.52	101.37	2,093.3	-16.6	82.5	23.7	0.00	0.00	0.00
2,200.0	12.52	101.37	2,190.9	-20.9	103.8	29.8	0.00	0.00	0.00
2,300.0	12.52	101.37	2,288.5	-25.1	125.0	35.9	0.00	0.00	0.00
2,400.0	12.52	101.37	2,386.1	-29.4	146.3	42.0	0.00	0.00	0.00
2,500.0	12.52	101.37	2,483.8	-33.7	167.5	48.1	0.00	0.00	0.00
2,600.0	12.52	101.37	2,581.4	-38.0	188.8	54.2	0.00	0.00	0.00
2,700.0	12.52	101.37	2,679.0	-42.2	210.0	60.4	0.00	0.00	0.00
2,800.0	12.52	101.37	2,776.6	-46.5	231.3	66.5	0.00	0.00	0.00
2,900.0	12.52	101.37	2,874.3	-50.8	252.5	72.6	0.00	0.00	0.00
3,000.0	12.52	101.37	2,971.9	-55.0	273.8	72.0 78.7	0.00	0.00	0.00
3,100.0	12.52	101.37	3,069.5	-59.3	295.0	84.8	0.00	0.00	0.00
3,200.0	12.52	101.37	3,167.1	-63.6	316.3	90.9	0.00	0.00	0.00
3,200.0	12.52	101.37	3,264.7	-63.6 -67.9	337.5	90.9	0.00	0.00	0.00
3,400.0	12.52	101.37	3,362.4	-72.1	358.8	103.1	0.00	0.00	0.00
3,500.0	12.52	101.37	3,460.0	-76.4	380.0	109.2	0.00	0.00	0.00
3,600.0	12.52	101.37	3,557.6	-80.7	401.3	115.3	0.00	0.00	0.00
3,700.0	12.52	101.37	3,655.2	-85.0	422.5	121.4	0.00	0.00	0.00
3,800.0	12.52	101.37	3,752.9	-89.2	443.7	127.5	0.00	0.00	0.00
3,900.0	12.52	101.37	3,850.5	-93.5	465.0	133.6	0.00	0.00	0.00
4,000.0	12.52	101.37	3,948.1	-97.8	486.2	139.7	0.00	0.00	0.00
4,100.0	12.52	101.37	4,045.7	-102.0	507.5	145.8	0.00	0.00	0.00
4,200.0	12.52	101.37	4,143.3	-106.3	528.7	151.9	0.00	0.00	0.00
4,300.0	12.52	101.37	4,241.0	-110.6	550.0	158.1	0.00	0.00	0.00
4,400.0	12.52	101.37	4,338.6	-114.9	571.2	164.2	0.00	0.00	0.00
4,500.0	12.52	101.37	4,436.2	-119.1	592.5	170.3	0.00	0.00	0.00
4,600.0	12.52	101.37	4,533.8	-123.4	613.7	176.4	0.00	0.00	0.00
4,700.0	12.52	101.37	4,631.5	-127.7	635.0	182.5	0.00	0.00	0.00
4,800.0	12.52	101.37	4,729.1	-132.0	656.2	188.6	0.00	0.00	0.00
4,900.0	12.52	101.37	4,826.7	-136.2	677.5	194.7	0.00	0.00	0.00
5,000.0	12.52	101.37	4,924.3	-140.5	698.7	200.8	0.00	0.00	0.00
5,100.0	12.52	101.37	5,022.0	-144.8	720.0	206.9	0.00	0.00	0.00
5,200.0	12.52	101.37	5,119.6	-149.0	741.2	213.0	0.00	0.00	0.00

# eog resources

### Planning Report

Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #590H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

**Survey Calculation Method:** 

Well #590H

KB = 25' @ 3311.0usft KB = 25' @ 3311.0usft

Grid

sign:	FIAIT #U.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)
5,300.0	12.52	101.37	5,217.2	-153.3	762.5	219.1	0.00	0.00	0.00
5,400.0	12.52	101.37	5,314.8	-157.6	783.7	225.2	0.00	0.00	0.00
5,500.0	12.52	101.37	5,412.4	-161.9	805.0	231.3	0.00	0.00	0.00
5,600.0	12.52	101.37	5,510.1	-166.1	826.2	237.4	0.00	0.00	0.00
5,700.0	12.52	101.37	5,607.7	-170.4	847.5	243.5	0.00	0.00	0.00
5,750.6	12.52	101.37	5,657.1	-172.6	858.2	246.6	0.00	0.00	0.00
5,800.0	11.53	101.37	5,705.4	-174.6	868.3	249.5	2.00	-2.00	0.00
5,900.0	9.53	101.37	5,803.7	-178.2	886.2	254.7	2.00	-2.00	0.00
6,000.0	7.53	101.37	5,902.6	-181.1	900.8	258.9	2.00	-2.00	0.00
6,100.0	5.53	101.37	6,002.0	-183.4	911.9	262.1	2.00	-2.00	0.00
6,200.0	3.53	101.37	6,101.6	-184.9	919.7	264.3	2.00	-2.00	0.00
6,300.0	1.53	101.37	6,201.5	-185.8	924.0	265.5	2.00	-2.00	0.00
6,376.5	0.00	0.00	6,278.0	-186.0	925.0	265.8	2.00	-2.00	0.00
6,400.0	0.00	0.00	6,301.5	-186.0	925.0	265.8	0.00	0.00	0.00
6,500.0 6,600.0	0.00 0.00	0.00 0.00	6,401.5 6,501.5	-186.0 -186.0	925.0 925.0	265.8 265.8	0.00	0.00 0.00	0.00 0.00
0,000.0	0.00	0.00	0,501.5	-100.0		200.0	0.00	0.00	
6,700.0	0.00	0.00	6,601.5	-186.0	925.0	265.8	0.00	0.00	0.00
6,800.0	0.00	0.00	6,701.5	-186.0	925.0	265.8	0.00	0.00	0.00
6,900.0	0.00	0.00	6,801.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,000.0	0.00	0.00	6,901.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,100.0	0.00	0.00	7,001.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,200.0	0.00	0.00	7,101.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,300.0	0.00	0.00	7,201.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,400.0	0.00	0.00	7,301.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,500.0	0.00	0.00	7,401.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,600.0	0.00	0.00	7,501.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,700.0	0.00	0.00	7,601.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,800.0	0.00	0.00	7,701.5	-186.0	925.0	265.8	0.00	0.00	0.00
7,900.0	0.00	0.00	7,801.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,000.0	0.00	0.00	7,901.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,100.0	0.00	0.00	8,001.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,200.0	0.00	0.00	8,101.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,300.0	0.00	0.00	8,201.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,400.0	0.00	0.00	8,301.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,500.0	0.00	0.00	8,401.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,600.0	0.00	0.00	8,501.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,700.0	0.00	0.00	8,601.5	-186.0	925.0	265.8	0.00	0.00	0.00
8,800.0	0.00	0.00	8,701.5	-186.0	925.0 925.0	265.8	0.00	0.00	0.00
8,900.0	0.00	0.00	8,801.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,000.0	0.00	0.00	8,901.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,100.0	0.00	0.00	9,001.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,200.0	0.00	0.00	9,101.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,300.0	0.00	0.00	9,201.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,400.0	0.00	0.00	9,301.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,500.0	0.00	0.00	9,401.5	-186.0	925.0	265.8 265.8	0.00	0.00	0.00
9,600.0	0.00	0.00	9,501.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,700.0	0.00	0.00	9,601.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,800.0	0.00	0.00	9,701.5	-186.0	925.0	265.8	0.00	0.00	0.00
9,900.0	0.00	0.00	9,801.5	-186.0	925.0	265.8	0.00	0.00	0.00
10,000.0	0.00	0.00	9,901.5	-186.0	925.0	265.8	0.00	0.00	0.00
10,100.0	0.00	0.00	10,001.5	-186.0	925.0	265.8	0.00	0.00	0.00
10,137.0	0.00	0.00	10,038.5	-186.0	925.0	265.8	0.00	0.00	0.00
10,150.0	1.56	179.79	10,051.5	-186.2	925.0	266.0	12.00	12.00	0.00
10,175.0	4.56	179.79	10,076.5	-187.5	925.0	267.3	12.00	12.00	0.00



Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #590H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #590H

KB = 25' @ 3311.0usft KB = 25' @ 3311.0usft

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)
10,200.0	7.56	179.79	10,101.3	-190.2	925.0	270.0	12.00	12.00	0.00
10,225.0	10.56	179.79	10,126.0	-194.1	925.0	273.9	12.00	12.00	0.00
10,250.0	13.56	179.79	10,150.5	-199.3	925.0	279.1	12.00	12.00	0.00
10,275.0	16.56	179.79	10,174.6	-205.8	925.1	285.6	12.00	12.00	0.00
10,300.0	19.56	179.79	10,198.4	-213.6	925.1	293.3	12.00	12.00	0.00
10,325.0	22.56	179.79	10,221.7	-222.5	925.1	302.2	12.00	12.00	0.00
10,350.0	25.56	179.79	10,244.5	-232.7	925.2	312.4	12.00	12.00	0.00
10,375.0	28.56	179.79	10,266.8	-244.1	925.2	323.7	12.00	12.00	0.00
10,400.0	31.56	179.79	10,288.4	-256.6	925.3	336.2	12.00	12.00	0.00
10,425.0	34.56	179.79	10,309.4	-270.3	925.3	349.8	12.00	12.00	0.00
10,450.0 10,475.0	37.56 40.56	179.79 179.79	10,329.6 10,349.0	-285.0 -300.7	925.4 925.4	364.5 380.2	12.00	12.00 12.00	0.00 0.00
							12.00		
10,500.0	43.56	179.79	10,367.5	-317.5	925.5	396.8	12.00	12.00	0.00
10,525.0 10,550.0	46.56 49.56	179.79 179.79	10,385.2 10,401.9	-335.2 -353.8	925.5 925.6	414.5 433.0	12.00 12.00	12.00 12.00	0.00 0.00
10,550.0	52.56	179.79	10,401.9	-353.6 -373.2	925.6 925.7	453.0 452.4	12.00	12.00	0.00
10,600.0	55.56	179.79	10,417.0	-393.5	925.7	472.6	12.00	12.00	0.00
10,625.0	58.56	179.79	10,445.9	-414.4	925.8	493.5	12.00	12.00	0.00
10,650.0	61.56	179.79	10,458.4	-436.1	925.9	515.0	12.00	12.00	0.00
10,675.0	64.56	179.79	10,469.7	-458.4	926.0	537.3	12.00	12.00	0.00
10,700.0	67.56	179.79	10,479.8	-481.2	926.1	560.0	12.00	12.00	0.00
10,725.0	70.56	179.79	10,488.8	-504.6	926.1	583.3	12.00	12.00	0.00
10,750.0	73.56	179.79	10,496.5	-528.4	926.2	607.0	12.00	12.00	0.00
10,775.0	76.56	179.79	10,502.9	-552.5	926.3	631.1	12.00	12.00	0.00
10,800.0	79.56	179.79	10,508.1	-577.0	926.4	655.4	12.00	12.00	0.00
10,825.0	82.56	179.79	10,511.9	-601.7	926.5	680.0	12.00	12.00	0.00
10,850.0	85.56	179.79	10,514.5	-626.5	926.6	704.8	12.00	12.00	0.00
10,875.0	88.56	179.79	10,515.8	-651.5	926.7	729.7	12.00	12.00	0.00
10,887.0	90.00	179.79	10,516.0	-663.5	926.7	741.6	12.00	12.00	0.00
10,900.0	90.00	179.79	10,516.0	-676.5	926.8	754.6	0.00	0.00	0.00
11,000.0	90.00	179.79	10,516.0	-776.5	927.1	854.2	0.00	0.00	0.00
11,100.0	90.00	179.79	10,516.0	-876.5	927.5	953.9	0.00	0.00	0.00
11,200.0	90.00	179.79	10,516.0	-976.5	927.8	1,053.5	0.00	0.00	0.00
11,300.0	90.00	179.79	10,516.0	-1,076.5	928.2	1,153.2	0.00	0.00	0.00
11,400.0 11,500.0	90.00 90.00	179.79 179.79	10,516.0 10,516.0	-1,176.5 -1,276.5	928.6 928.9	1,252.9 1,352.5	0.00 0.00	0.00 0.00	0.00 0.00
11,600.0	90.00	179.79	10,516.0	-1,276.5 -1,376.5	920.9	1,352.5	0.00	0.00	0.00
11,700.0	90.00	179.79 170.70	10,516.0	-1,476.5 1,576.5	929.6	1,551.8 1,651.5	0.00	0.00	0.00
11,800.0 11,900.0	90.00 90.00	179.79 179.79	10,516.0 10,516.0	-1,576.5 -1,676.5	930.0 930.4	1,651.5 1,751.1	0.00 0.00	0.00 0.00	0.00 0.00
12,000.0	90.00	179.79	10,516.0	-1,776.5	930.7	1,850.8	0.00	0.00	0.00
12,100.0	90.00	179.79	10,516.0	-1,876.5	931.1	1,950.4	0.00	0.00	0.00
12,200.0	90.00	179.79	10,516.0	-1,976.5	931.4	2,050.1	0.00	0.00	0.00
12,300.0	90.00	179.79	10,516.0	-2,076.5	931.8	2,149.7	0.00	0.00	0.00
12,400.0	90.00	179.79	10,516.0	-2,176.5	932.2	2,249.4	0.00	0.00	0.00
12,500.0	90.00	179.79	10,516.0	-2,276.5	932.5	2,349.0	0.00	0.00	0.00
12,600.0	90.00	179.79	10,516.0	-2,376.5	932.9	2,448.7	0.00	0.00	0.00
12,700.0	90.00	179.79	10,516.0	-2,476.5	933.2	2,548.3	0.00	0.00	0.00
12,800.0	90.00	179.79	10,516.0	-2,576.5	933.6	2,648.0	0.00	0.00	0.00
12,900.0	90.00	179.79	10,516.0	-2,676.5	934.0	2,747.6	0.00	0.00	0.00
13,000.0	90.00	179.79	10,516.0	-2,776.5	934.3	2,847.3	0.00	0.00	0.00
13,100.0	90.00	179.79	10,516.0	-2,876.5	934.7	2,946.9	0.00	0.00	0.00
13,200.0	90.00	179.79	10,516.0	-2,976.5	935.0	3,046.6	0.00	0.00	0.00
13,300.0	90.00	179.79	10,516.0	-3,076.5	935.4	3,146.2	0.00	0.00	0.00



Database: PEDM Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Site: Deep Elem 4 Fed Com

 Well:
 #590H

 Wellbore:
 OH

 Design:
 Plan #0.2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #590H

KB = 25' @ 3311.0usft KB = 25' @ 3311.0usft

Grid

esign:	FIAII #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	179.79	10,516.0	-3,176.5	935.8	3,245.9	0.00	0.00	0.00
13,500.0	90.00	179.79	10,516.0	-3,276.5	936.1	3,345.5	0.00	0.00	0.00
13,600.0	90.00	179.79	10,516.0	-3,376.5	936.5	3,445.2	0.00	0.00	0.00
13,700.0	90.00	179.79	10,516.0	-3,476.5	936.8	3,544.8	0.00	0.00	0.00
13,800.0	90.00	179.79	10,516.0	-3,576.5	937.2	3,644.5	0.00	0.00	0.00
13,900.0	90.00	179.79	10,516.0	-3,676.5	937.6	3,744.1	0.00	0.00	0.00
14,000.0	90.00	179.79	10,516.0	-3,776.5	937.9	3,843.8	0.00	0.00	0.00
14,100.0	90.00	179.79	10,516.0	-3,876.5	938.3	3,943.4	0.00	0.00	0.00
				,					
14,200.0	90.00	179.79	10,516.0	-3,976.5	938.6	4,043.1	0.00	0.00	0.00
14,300.0	90.00	179.79	10,516.0	-4,076.5	939.0	4,142.7	0.00	0.00	0.00
14,400.0	90.00	179.79	10,516.0	-4,176.5	939.4	4,242.4	0.00	0.00	0.00
14,500.0	90.00	179.79	10,516.0	-4,276.5	939.7	4,342.0	0.00	0.00	0.00
14,600.0	90.00	179.79	10,516.0	-4,376.5	940.1	4,441.7	0.00	0.00	0.00
44 700 0	00.00	170.70	10.540.0	4 470 5	040.4	4 5 4 4 0	0.00	0.00	0.00
14,700.0	90.00	179.79	10,516.0	-4,476.5	940.4	4,541.3	0.00	0.00	0.00
14,800.0	90.00	179.79	10,516.0	-4,576.5	940.8	4,641.0	0.00	0.00	0.00
14,900.0	90.00	179.79	10,516.0	-4,676.5	941.1	4,740.6	0.00	0.00	0.00
15,000.0	90.00	179.79	10,516.0	-4,776.5	941.5	4,840.3	0.00	0.00	0.00
15,100.0	90.00	179.79	10,516.0	-4,876.5	941.9	4,939.9	0.00	0.00	0.00
15,200.0	90.00	179.79	10,516.0	-4,976.5	942.2	5,039.6	0.00	0.00	0.00
15,300.0	90.00	179.79	10,516.0	-5,076.5	942.6	5,139.2	0.00	0.00	0.00
15,400.0	90.00	179.79	10,516.0	-5,176.5	942.9	5,238.9	0.00	0.00	0.00
15,500.0	90.00	179.79	10,516.0	-5,276.5	943.3	5,338.5	0.00	0.00	0.00
15,600.0	90.00	179.79	10,516.0	-5,376.5	943.7	5,438.2	0.00	0.00	0.00
15,700.0	90.00	179.79	10,516.0	-5,476.5	944.0	5,537.8	0.00	0.00	0.00
15,800.0	90.00	179.79	10,516.0	-5,576.5	944.4	5,637.5	0.00	0.00	0.00
15,900.0	90.00	179.79	10,516.0	-5,676.5	944.7	5,737.1	0.00	0.00	0.00
16,000.0	90.00	179.79	10,516.0	-5,776.4	945.1	5,836.8	0.00	0.00	0.00
16,100.0	90.00	179.79	10,516.0	-5,876.4	945.5	5,936.4	0.00	0.00	0.00
16,200.0	90.00	179.79	10,516.0	-5,976.4	945.8	6,036.1	0.00	0.00	0.00
16,300.0	90.00	179.79	10,516.0	-6,076.4	946.2	6,135.8	0.00	0.00	0.00
16,400.0	90.00	179.79	10,516.0	-6,176.4	946.5	6,235.4	0.00	0.00	0.00
16,500.0	90.00	179.79	10,516.0	-6,276.4	946.9	6,335.1	0.00	0.00	0.00
16,600.0	90.00	179.79	10,516.0	-6,376.4	947.3	6,434.7	0.00	0.00	0.00
16,700.0	90.00	179.79	10,516.0	-6,476.4	947.6	6,534.4	0.00	0.00	0.00
16,800.0	90.00	179.79	10,516.0	-6,576.4	948.0	6,634.0	0.00	0.00	0.00
16,900.0	90.00	179.79	10,516.0	-6,676.4	948.3	6,733.7	0.00	0.00	0.00
17,000.0	90.00	179.79	10,516.0	-6,776.4	948.7	6,833.3	0.00	0.00	0.00
17,100.0	90.00	179.79	10,516.0	-6,876.4	949.1	6,933.0	0.00	0.00	0.00
17,200.0	90.00	179.79	10,516.0	-6,976.4	949.4	7,032.6	0.00	0.00	0.00
17,300.0	90.00	179.79	10,516.0	-7,076.4	949.8	7,132.3	0.00	0.00	0.00
17,400.0	90.00	179.79	10,516.0	-7,176.4	950.1	7,231.9	0.00	0.00	0.00
17,500.0	90.00	179.79	10,516.0	-7,276.4	950.5	7,331.6	0.00	0.00	0.00
17,600.0	90.00	179.79	10,516.0	-7,376.4	950.9	7,431.2	0.00	0.00	0.00
17,700.0	90.00	179.79	10,516.0	-7,476.4	951.2	7,530.9	0.00	0.00	0.00
17,800.0	90.00	179.79	10,516.0	-7,576.4	951.6	7,630.5	0.00	0.00	0.00
17,900.0	90.00	179.79	10,516.0	-7,676.4	951.9	7,730.2	0.00	0.00	0.00
18,000.0	90.00	179.79	10,516.0	-7,776.4	952.3	7,829.8	0.00	0.00	0.00
18,100.0	90.00	179.79	10,516.0	-7,876.4	952.7	7,929.5	0.00	0.00	0.00
18,200.0	90.00	179.79	10,516.0	-7,976.4	953.0	8,029.1	0.00	0.00	0.00
18,300.0	90.00	179.79	10,516.0	-8,076.4	953.4	8,128.8	0.00	0.00	0.00
18,400.0	90.00	179.79	10,516.0	-8,176.4	953.7	8,228.4	0.00	0.00	0.00
18,500.0	90.00	179.79	10,516.0	-8,276.4	954.1	8,328.1	0.00	0.00	0.00
18,600.0	90.00	179.79	10,516.0	-8,376.4	954.5	8,427.7	0.00	0.00	0.00
18,700.0	90.00	179.79	10,516.0	-8,476.4	954.8	8,527.4	0.00	0.00	0.00



PEDM Database:

Company: Midland

Project: Eddy County, NM (NAD 83 NME)

Deep Elem 4 Fed Com Site:

Well: #590H Wellbore: ОН Design: Plan #0.2 Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

**Survey Calculation Method:** 

Well #590H

KB = 25' @ 3311.0usft KB = 25' @ 3311.0usft

Grid

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)
18,800.0	90.00	179.79	10,516.0	-8,576.4	955.2	8,627.0	0.00	0.00	0.00
18,900.0	90.00	179.79	10,516.0	-8,676.4	955.5	8,726.7	0.00	0.00	0.00
19,000.0	90.00	179.79	10,516.0	-8,776.4	955.9	8,826.3	0.00	0.00	0.00
19,100.0	90.00	179.79	10,516.0	-8,876.4	956.3	8,926.0	0.00	0.00	0.00
19,200.0	90.00	179.79	10,516.0	-8,976.4	956.6	9,025.6	0.00	0.00	0.00
19,300.0	90.00	179.79	10,516.0	-9,076.4	957.0	9,125.3	0.00	0.00	0.00
19,400.0	90.00	179.79	10,516.0	-9,176.4	957.3	9,224.9	0.00	0.00	0.00
19,500.0	90.00	179.79	10,516.0	-9,276.4	957.7	9,324.6	0.00	0.00	0.00
19,600.0	90.00	179.79	10,516.0	-9,376.4	958.0	9,424.2	0.00	0.00	0.00
19,700.0	90.00	179.79	10,516.0	-9,476.4	958.4	9,523.9	0.00	0.00	0.00
19,800.0	90.00	179.79	10,516.0	-9,576.4	958.8	9,623.5	0.00	0.00	0.00
19,900.0	90.00	179.79	10,516.0	-9,676.4	959.1	9,723.2	0.00	0.00	0.00
20,000.0	90.00	179.79	10,516.0	-9,776.4	959.5	9,822.8	0.00	0.00	0.00
20,100.0	90.00	179.79	10,516.0	-9,876.4	959.8	9,922.5	0.00	0.00	0.00
20,200.0	90.00	179.79	10,516.0	-9,976.4	960.2	10,022.1	0.00	0.00	0.00
20,300.0	90.00	179.79	10,516.0	-10,076.4	960.6	10,121.8	0.00	0.00	0.00
20,400.0	90.00	179.79	10,516.0	-10,176.4	960.9	10,221.4	0.00	0.00	0.00
20,500.0	90.00	179.79	10,516.0	-10,276.4	961.3	10,321.1	0.00	0.00	0.00
20,600.0	90.00	179.79	10,516.0	-10,376.4	961.6	10,420.7	0.00	0.00	0.00
20,700.0	90.00	179.79	10,516.0	-10,476.4	962.0	10,520.4	0.00	0.00	0.00
20,800.0	90.00	179.79	10,516.0	-10,576.4	962.4	10,620.0	0.00	0.00	0.00
20,900.0	90.00	179.79	10,516.0	-10,676.4	962.7	10,719.7	0.00	0.00	0.00
21,000.0	90.00	179.79	10,516.0	-10,776.4	963.1	10,819.3	0.00	0.00	0.00
21,100.0	90.00	179.79	10,516.0	-10,876.4	963.4	10,919.0	0.00	0.00	0.00
21,200.0	90.00	179.79	10,516.0	-10,976.4	963.8	11,018.6	0.00	0.00	0.00
21,254.6	90.00	179.79	10,516.0	-11,031.0	964.0	11,073.0	0.00	0.00	0.00

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 cent - Point	0.00 er	0.00	10,038.5	-186.0	925.0	388,034.00	714,079.00	32° 3′ 56.010 N	103° 46' 32.477 W
FTP (Deep Elem 4 Fed ( - plan misses target o - Point	0.00 center by 9.00	0.00 usft at 10795	10,516.0 .8usft MD (1	-571.0 0507.3 TVD, -	925.0 -572.8 N, 926.4	387,649.00 I E)	714,079.00	32° 3′ 52.200 N	103° 46' 32.500 W
LTP/PBHL (Deep Elem 4 - plan hits target cent - Point	0.00 eer	0.00	10,516.0	-11,031.0	964.0	377,189.00	714,118.00	32° 2' 8.688 N	103° 46' 32.674 W



2450

2800

4200-

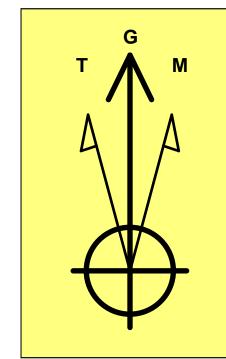
6300

7000

7700

8750

9450-



Azimuths to Grid North
True North: -0.29°
Magnetic North: 6.44°

Magnetic Field Strength: 47477.9nT Dip Angle: 59.76° Date: 7/6/2020 Model: IGRF2020

To convert a Magnetic Direction to a Grid Direction, Add 6.44°
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 #590H

**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

WELL DETAILS: #590H

3286.0

KB = 25' @ 3311.0usft rthing Easting Latittude

 Northing
 Easting
 Latittude
 Longitude

 388220.00
 713154.00
 32° 3' 57.898 N
 103° 46' 43.215 W

						(	SECTION	N DETAILS	3	
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	2025.9	12.52	101.37	2020.9	-13.4	66.8	2.00	101.37	19.2	
4	5750.6	12.52	101.37	5657.1	-172.6	858.2	0.00	0.00	246.6	
5	6376.5	0.00	0.00	6278.0	-186.0	925.0	2.00	180.00	265.8	
6	10137.0	0.00	0.00	10038.5	-186.0	925.0	0.00	0.00	265.8	KOP (Deep Elem 4 Fed Com #581H)
7	10887.0	90.00	179.79	10516.0	-663.5	926.7	12.00	179.79	741.6	
8	21254.6	90.00	179.79	10516.0	-11031.0	964.0	0.00	0.00	11073.0	LTP/PBHL (Deep Elem 4 Fed Com #581H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES) TVD Northing **Easting** KOP (Deep Elem 4 Fed Com #581H) 10038.5 -186.0 388034.00 714079.00 LTP/PBHL (Deep Elem 4 Fed Com #581H) 10516.0 10516.0 -11031.0 -571.0 377189.00 714118.00 FTP (Deep Elem 4 Fed Com #581H) 387649.00 714079.00

West(-)/East(+) -1600 -2000 -2400 -7200 -7600 -8000 -8400 -9600 -10000 -10400 -10800 -11200 West(-)/East(+)

10150 Deep Elem 4 Fed Com/#590H

Vertical Section at 175.01°

Eddy County, NM (NAD 83 NME)
Deep Elem 4 Fed Com
#590H
OH
Plan #0.2

13:31, December 20 2022



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

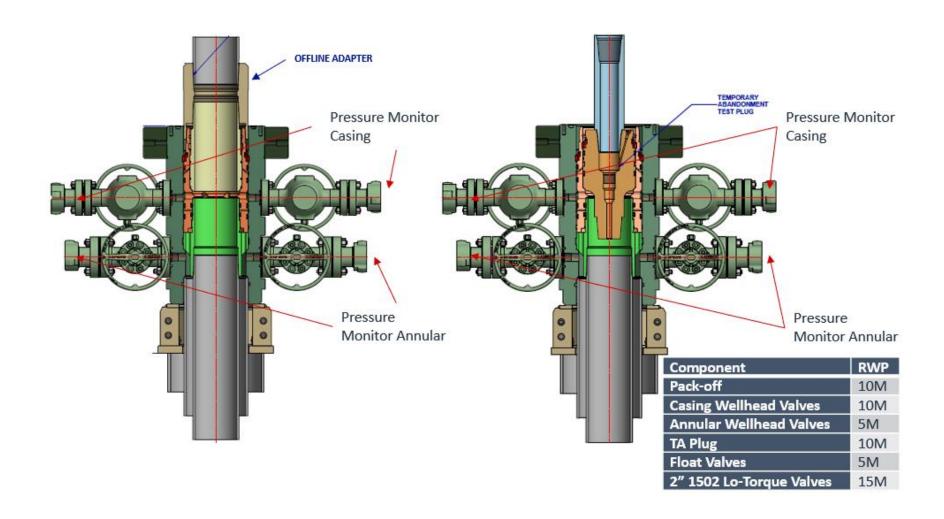
### **General Procedure After Cementing**

- 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

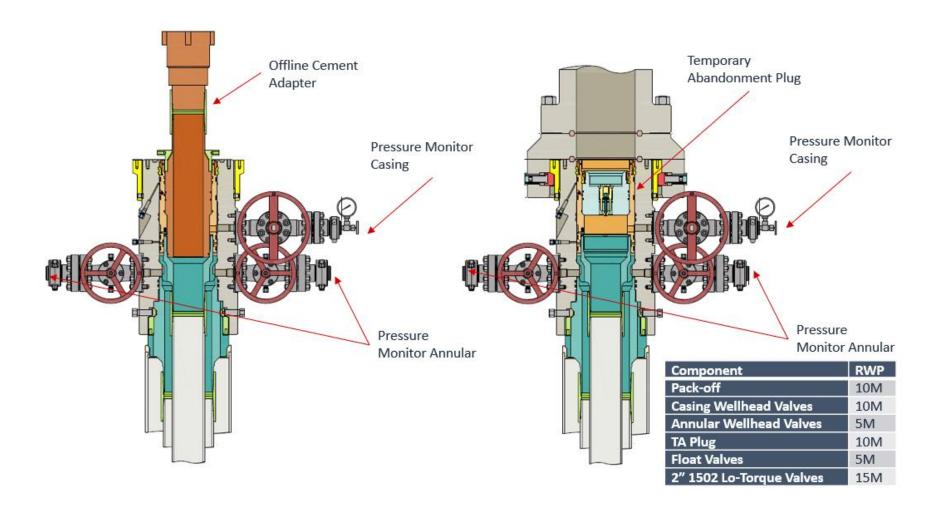
Figure 1: Cameron TA Plug and Offline Adapter Schematic





2/24/2022

Figure 2: Cactus TA Plug and Offline Adapter Schematic

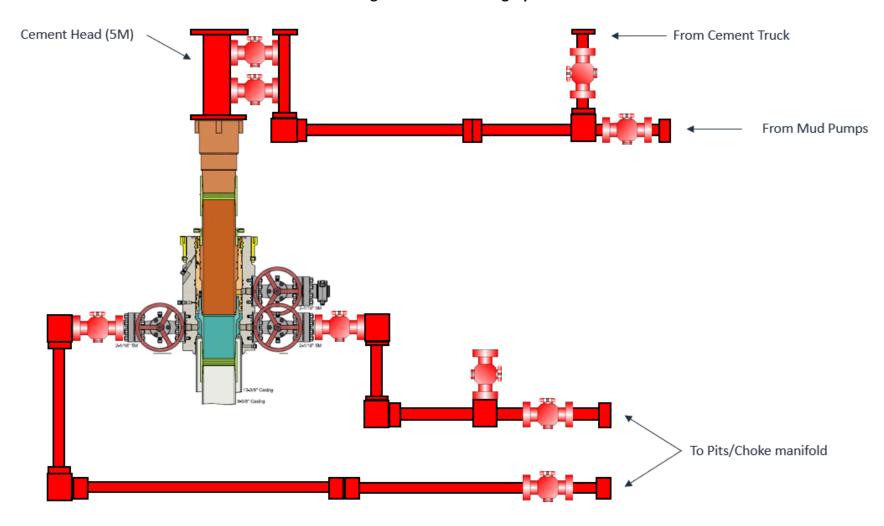


Page | 6



2/24/2022

Figure 3: Back Yard Rig Up



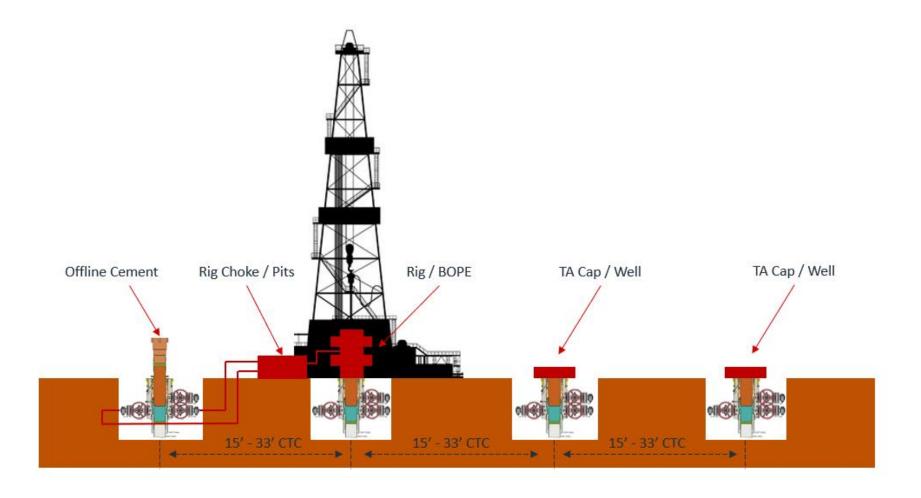
\*\*\* All Lines 10M rated working pressure

Page | 7



2/24/2022

Figure 4: Rig Placement Diagram



Page | 8

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 190287

### **CONDITIONS**

On contain	OORID:
Operator:	OGRID:
EOG RESOURCES INC	7377
P.O. Box 2267	Action Number:
Midland, TX 79702	190287
	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	3/6/2023
kpickford	Adhere to previous NMOCD Conditions of Approval	3/6/2023