

Form 3160-5
(June 2019)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No. NMNM108503

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator EOG RESOURCES INCORPORATED

3a. Address 1111 BAGBY SKY LOBBY 2, HOUSTON, TX 77030 3b. Phone No. (include area code) (713) 651-7000

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC 14/T25S/R33E/NMP

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No. ANTERO 14 FED COM/509H

9. API Well No. 30-025-50662

10. Field and Pool or Exploratory Area
RED HILLS; LOWER BONE SPRING11. Country or Parish, State
LEA/NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION				
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off	
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity	
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other	
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon		
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal		

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

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

Antero 14 Fed Com 408H (FKA 509H) API #: 30-025-*****

Change name from 509H to Antero 14 Fed Com 408H.

Change SHL from T-25-S, R-33-E, Sec 14, 2524' FSL, 408' FEL, Lea Co., NM, to T-25-S, R-33-E, Sec 14, 2582' FSL, 408' FWL, Lea Co., N.M.

Change BHL from T-25-S, R-33-E, Sec 11, 100' FNL, 1254' FEL, Lea Co., NM, to T-25-S, R-33-E, Sec 11, 100' FNL, 430' FWL, Lea Co., N.M.

Change target formation to Second Bone Spring Shale.

Update casing and cement program to current design.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)
ERIC BRORMAN / Ph: (432) 556-1276

Title Engineering Associate

Signature

Date

11/04/2022

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

CHRISTOPHER WALLS / Ph: (575) 234-2234 / Approved

Title Petroleum Engineer

Date 11/08/2022

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

Office CARLSBAD

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

GENERAL INSTRUCTIONS

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

SPECIFIC INSTRUCTIONS

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

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

NOTICES

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

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

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

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

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

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

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

Response to this request is mandatory.

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

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

Additional Information

Location of Well

0. SHL: TR H / 2524 FNL / 408 FEL / TWSP: 25S / RANGE: 33E / SECTION: 14 / LAT: 32.1308651 / LONG: -103.5359256 (TVD: 0 feet, MD: 0 feet)

PPP: TR P / 0 FSL / 1254 FEL / TWSP: 25S / RANGE: 33E / SECTION: 11 / LAT: 32.1378013 / LONG: -103.5386597 (TVD: 11150 feet, MD: 13591 feet)

PPP: TR H / 2539 FNL / 1254 FEL / TWSP: 25S / RANGE: 33E / SECTION: 14 / LAT: 32.1308235 / LONG: -103.5401494 (TVD: 10885 feet, MD: 10951 feet)

BHL: TR A / 100 FNL / 1254 FEL / TWSP: 25S / RANGE: 33E / SECTION: 11 / LAT: 32.1520463 / LONG: -103.538665 (TVD: 11150 feet, MD: 18773 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 Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

FORM C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-50662	² Pool Code 51020	³ Pool Name Red Hills; Lower Bone Spring
⁴ Property Code 326481	⁵ Property Name ANTERO 14 FED COM	⁶ Well Number 408H
⁷ OGRID No. 7377	⁸ Operator Name EOG RESOURCES, INC.	⁹ Elevation 3360'

¹⁰Surface Location

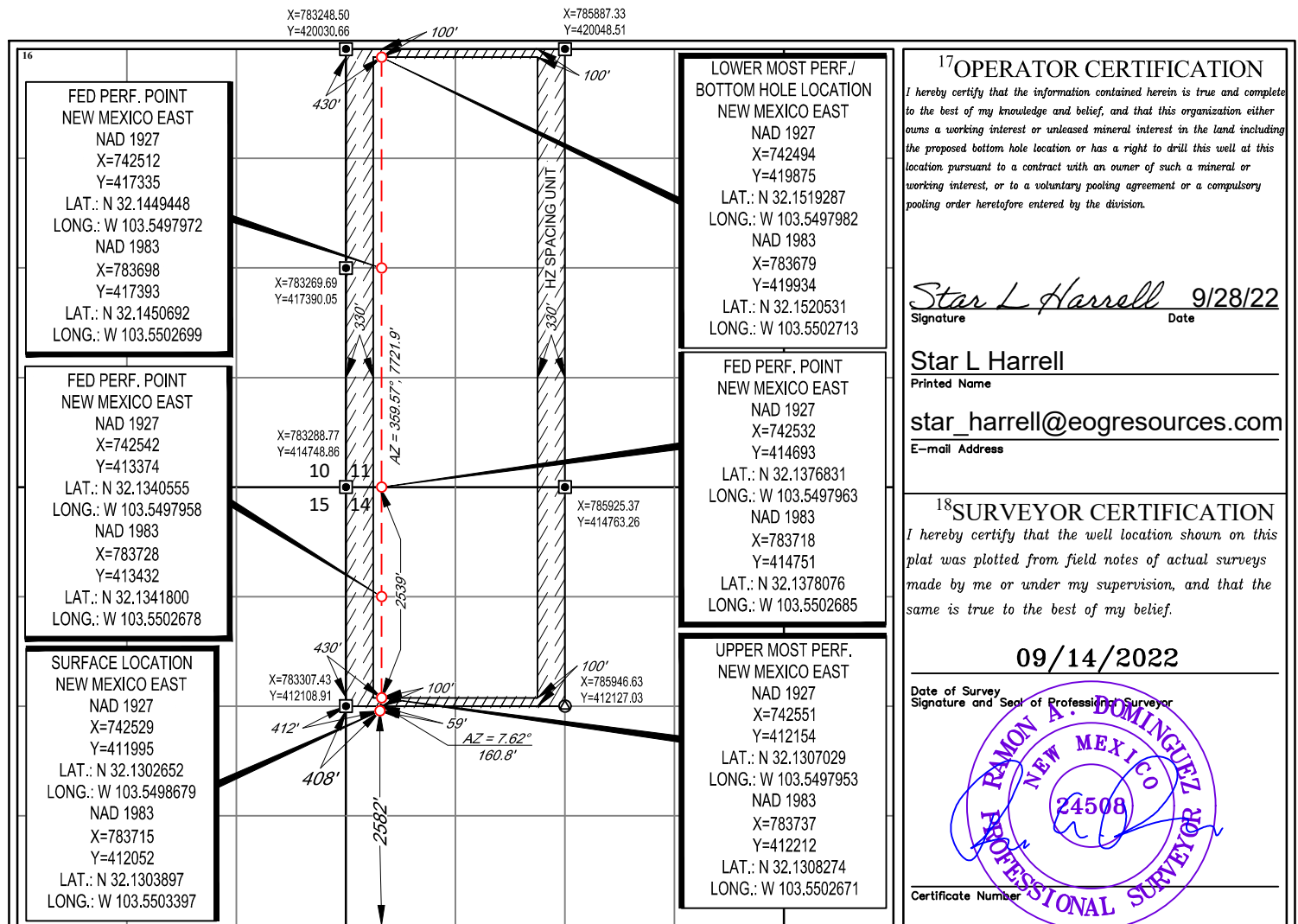
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	14	25-S	33-E	-	2582'	SOUTH	408'	WEST	LEA

¹¹Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	11	25-S	33-E	-	100'	NORTH	430'	WEST	LEA

¹² Dedicated Acres 480	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.





Antero 14 Fed Com 408H

Revised Permit Information 09/08/2022:

Well Name: Antero 14 Fed Com 408H

Location: SHL: 2582' FSL & 408' FWL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

BHL: 100' FNL & 430' FWL, Section 11, T-25-S, R-33-E, Lea Co., N.M.

Casing Program A:

Hole Size	Interval MD		Interval TVD		Csg OD	Weight	Grade	Conn
	From (ft)	To (ft)	From (ft)	To (ft)				
16"	0	1,290	0	1,290	13-3/8"	54.5#	J-55	STC
12-1/4"	0	4,001	0	4,000	9-5/8"	40#	J-55	LTC
12-1/4"	4,001	4,991	4,000	4,990	9-5/8"	40#	HCK-55	LTC
7-7/8"	0	18,184	0	10,615	5-1/2"	17#	HCP-110	LTC

Variance is requested to waive the centralizer requirements for the 9-5/8" casing in the 12-1/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 12-1/4" 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 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.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description
1,290' 13-3/8"	390	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl ₂ + 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 @ 1,090')
4,990' 9-5/8"	730	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	320	14.8	1.32	Tail: Class C + 10% NaCl + 3% MagOx (TOC @ 3,990')
18,184' 5-1/2"	660	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 4,490')
	1170	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')

**Antero 14 Fed Com 408H**

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 – 1,290'	Fresh - Gel	8.6-8.8	28-34	N/c
1,290' – 4,990'	Brine	8.6-8.8	28-34	N/c
4,990' – 18,184'	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"

eogresources
 Antero 14 Fed Com 408H

2582' FSL
 408' FWL
 Section 14
 T-25-S, R-33-E

Revised Wellbore A:

KB: 3385'
 GL: 3360'

API: 30-025-*****

Bit Size: 16"
 13-3/8", 54.5#, J-55, STC
 @ 0' - 1,290'

Bit Size: 12-1/4"
 9-5/8", 40#, J-55, LTC
 @ 0' - 4,000'
 9-5/8", 40#, HCK-55, LTC
 @ 4,000' - 4,990'

TOC: 4,490'

Bit Size: 7-7/8"
 5-1/2", 17#, HCP-110, LTC
 @ 0' - 18,184'

Lateral: 18,184' MD, 10,615' TVD
 Upper Most Perf:
 2539' FNL & 430' FWL Sec. 14
 Lower Most Perf:
 100' FNL & 430' FWL Sec. 11
 BH Location: 100' FNL & 430' FWL
 Sec. 11
 T-25-S R-33-E

KOP: 10,139' MD, 10,138' TVD
 EOC: 10,889' MD, 10,615' TVD



Antero 14 Fed Com 408H

Revised Permit Information 09/08/2022:

Well Name: Antero 14 Fed Com 408H

Location: SHL: 2582' FSL & 408' FWL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

BHL: 100' FNL & 430' FWL, Section 11, T-25-S, R-33-E, Lea Co., N.M.

Casing Program B:

Hole Size	Interval MD		Interval TVD		Csg OD	Weight	Grade	Conn
	From (ft)	To (ft)	From (ft)	To (ft)				
13-1/2"	0	1,290	0	1,290	10-3/4"	40.5#	J-55	STC
9-7/8"	0	4,991	0	4,990	8-3/4"	38.5#	P110-EC	VAM Sprint-SF
6-3/4"	0	18,184	0	10,615	5-1/2"	17#	HCP-110	LTC

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description
1,290' 10-3/4"	420	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl ₂ + 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 @ 1,090')
4,990' 8-3/4"	320	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	100	14.8	1.32	Tail: Class C + 10% NaCl + 3% MagOx (TOC @ 3,990')
18,184' 5-1/2"	560	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 4,490')
	590	13.2	1.52	Tail: Class H + 5% NEX-020 + 0.2% NAC-102 + 0.15% NAS-725 + 0.5% NFL-549 + 0.2% NFP-703 + 1% NBE-737 + 0.3% NRT-241 (TOC @ 10140')

eog resources
Antero 14 Fed Com 408H

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

eogresources
Antero 14 Fed Com 408H

2582'

408'

Section 14

T-25-S, R-33-E

Revised Wellbore B:

KB: 3385'

GL: 3360'

API: 30-025-*****

Bit Size: 13-1/2"
10-3/4", 40.5#, J-55, STC
@ 0' - 1,290'

Bit Size: 9-7/8"
8-3/4", 38.5#, P110-EC, VAM Sprint-SF
@ 0' - 4,990'

5-1/2", 17#, HCP-110, LTC
@ 0' - 18,184'

TOC: 4,490'

Lateral: 18,184' MD, 10,615' TVD
Upper Most Perf:
2539' FNL & 430' FWL Sec. 14
Lower Most Perf:
100' FNL & 430' FWL Sec. 11
BH Location: 100' FNL & 430' FWL
Sec. 11
T-25-S R-33-E

KOP: 10,139' MD, 10,138' TVD
EOC: 10,889' MD, 10,615' TVD



Midland

Lea County, NM (NAD 83 NME)

Antero 14 Fed Com

#408H

OH

Plan: Plan #0.1 RT

Standard Planning Report

27 September, 2022



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #408H
Company:	Midland	TVD Reference:	kb = 26' @ 3386.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 26' @ 3386.0usft
Site:	Antero 14 Fed Com	North Reference:	Grid
Well:	#408H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

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

Site	Antero 14 Fed Com				
Site Position:		Northing:	412,174.00 usft	Latitude:	32° 7' 50.590 N
From:	Map	Easting:	783,931.00 usft	Longitude:	103° 32' 58.705 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "		

Well	#408H					
Well Position	+N/-S	0.0 usft	Northing:	412,052.00 usft	Latitude:	32° 7' 49.398 N
	+E/-W	0.0 usft	Easting:	783,715.00 usft	Longitude:	103° 33' 1.227 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,360.0 usft
Grid Convergence:		0.42 °				

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	9/26/2022	6.38	59.77	47,307.51173411

Design	Plan #0.1 RT				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	359.74	

Plan Survey Tool Program	Date	9/27/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.0	18,183.6 Plan #0.1 RT (OH)	EOG MWD+IFR1		
			MWD + IFR1		



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #408H
Company:	Midland	TVD Reference:	kb = 26' @ 3386.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 26' @ 3386.0usft
Site:	Antero 14 Fed Com	North Reference:	Grid
Well:	#408H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,367.9	1.36	11.31	1,367.9	0.8	0.2	2.00	2.00	0.00	11.31	
6,030.4	1.36	11.31	6,029.1	109.2	21.8	0.00	0.00	0.00	0.00	
6,098.3	0.00	0.00	6,097.0	110.0	22.0	2.00	-2.00	0.00	180.00	
10,138.8	0.00	0.00	10,137.5	110.0	22.0	0.00	0.00	0.00	0.00	KOP(Antero 14 Fed C
10,359.3	26.46	0.00	10,350.2	160.0	22.0	12.00	12.00	0.00	0.00	FTP(Antero 14 Fed C
10,888.8	90.00	359.53	10,614.9	587.4	19.6	12.00	12.00	-0.09	-0.53	
11,681.4	90.00	359.53	10,615.0	1,380.0	13.0	0.00	0.00	0.00	0.00	Fed Perf 1(Antero 14
13,000.4	90.00	359.61	10,615.0	2,699.0	3.0	0.01	0.00	0.01	84.42	Fed Perf 2(Antero 14
15,642.5	90.00	359.53	10,615.0	5,341.0	-17.0	0.00	0.00	0.00	-95.67	Fed Perf 3(Antero 14
18,183.6	90.00	359.62	10,615.0	7,882.0	-36.0	0.00	0.00	0.00	85.01	PBHL(Antero 14 Fed



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #408H
Company:	Midland	TVD Reference:	kb = 26' @ 3386.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 26' @ 3386.0usft
Site:	Antero 14 Fed Com	North Reference:	Grid
Well:	#408H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

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
1,367.9	1.36	11.31	1,367.9	0.8	0.2	0.8	2.00	2.00	0.00
1,400.0	1.36	11.31	1,400.0	1.5	0.3	1.5	0.00	0.00	0.00
1,500.0	1.36	11.31	1,500.0	3.9	0.8	3.9	0.00	0.00	0.00
1,600.0	1.36	11.31	1,599.9	6.2	1.2	6.2	0.00	0.00	0.00
1,700.0	1.36	11.31	1,699.9	8.5	1.7	8.5	0.00	0.00	0.00
1,800.0	1.36	11.31	1,799.9	10.8	2.2	10.8	0.00	0.00	0.00
1,900.0	1.36	11.31	1,899.8	13.2	2.6	13.2	0.00	0.00	0.00
2,000.0	1.36	11.31	1,999.8	15.5	3.1	15.5	0.00	0.00	0.00
2,100.0	1.36	11.31	2,099.8	17.8	3.6	17.8	0.00	0.00	0.00
2,200.0	1.36	11.31	2,199.8	20.1	4.0	20.1	0.00	0.00	0.00
2,300.0	1.36	11.31	2,299.7	22.5	4.5	22.4	0.00	0.00	0.00
2,400.0	1.36	11.31	2,399.7	24.8	5.0	24.8	0.00	0.00	0.00
2,500.0	1.36	11.31	2,499.7	27.1	5.4	27.1	0.00	0.00	0.00
2,600.0	1.36	11.31	2,599.6	29.4	5.9	29.4	0.00	0.00	0.00
2,700.0	1.36	11.31	2,699.6	31.8	6.4	31.7	0.00	0.00	0.00
2,800.0	1.36	11.31	2,799.6	34.1	6.8	34.1	0.00	0.00	0.00
2,900.0	1.36	11.31	2,899.6	36.4	7.3	36.4	0.00	0.00	0.00
3,000.0	1.36	11.31	2,999.5	38.7	7.7	38.7	0.00	0.00	0.00
3,100.0	1.36	11.31	3,099.5	41.1	8.2	41.0	0.00	0.00	0.00
3,200.0	1.36	11.31	3,199.5	43.4	8.7	43.4	0.00	0.00	0.00
3,300.0	1.36	11.31	3,299.5	45.7	9.1	45.7	0.00	0.00	0.00
3,400.0	1.36	11.31	3,399.4	48.0	9.6	48.0	0.00	0.00	0.00
3,500.0	1.36	11.31	3,499.4	50.4	10.1	50.3	0.00	0.00	0.00
3,600.0	1.36	11.31	3,599.4	52.7	10.5	52.6	0.00	0.00	0.00
3,700.0	1.36	11.31	3,699.3	55.0	11.0	55.0	0.00	0.00	0.00
3,800.0	1.36	11.31	3,799.3	57.3	11.5	57.3	0.00	0.00	0.00
3,900.0	1.36	11.31	3,899.3	59.7	11.9	59.6	0.00	0.00	0.00
4,000.0	1.36	11.31	3,999.3	62.0	12.4	61.9	0.00	0.00	0.00
4,100.0	1.36	11.31	4,099.2	64.3	12.9	64.3	0.00	0.00	0.00
4,200.0	1.36	11.31	4,199.2	66.6	13.3	66.6	0.00	0.00	0.00
4,300.0	1.36	11.31	4,299.2	69.0	13.8	68.9	0.00	0.00	0.00
4,400.0	1.36	11.31	4,399.1	71.3	14.3	71.2	0.00	0.00	0.00
4,500.0	1.36	11.31	4,499.1	73.6	14.7	73.6	0.00	0.00	0.00
4,600.0	1.36	11.31	4,599.1	75.9	15.2	75.9	0.00	0.00	0.00
4,700.0	1.36	11.31	4,699.1	78.3	15.7	78.2	0.00	0.00	0.00
4,800.0	1.36	11.31	4,799.0	80.6	16.1	80.5	0.00	0.00	0.00
4,900.0	1.36	11.31	4,899.0	82.9	16.6	82.8	0.00	0.00	0.00
5,000.0	1.36	11.31	4,999.0	85.2	17.0	85.2	0.00	0.00	0.00
5,100.0	1.36	11.31	5,098.9	87.6	17.5	87.5	0.00	0.00	0.00
5,200.0	1.36	11.31	5,198.9	89.9	18.0	89.8	0.00	0.00	0.00



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #408H
Company:	Midland	TVD Reference:	kb = 26' @ 3386.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 26' @ 3386.0usft
Site:	Antero 14 Fed Com	North Reference:	Grid
Well:	#408H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

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	1.36	11.31	5,298.9	92.2	18.4	92.1	0.00	0.00	0.00	
5,400.0	1.36	11.31	5,398.9	94.6	18.9	94.5	0.00	0.00	0.00	
5,500.0	1.36	11.31	5,498.8	96.9	19.4	96.8	0.00	0.00	0.00	
5,600.0	1.36	11.31	5,598.8	99.2	19.8	99.1	0.00	0.00	0.00	
5,700.0	1.36	11.31	5,698.8	101.5	20.3	101.4	0.00	0.00	0.00	
5,800.0	1.36	11.31	5,798.7	103.9	20.8	103.8	0.00	0.00	0.00	
5,900.0	1.36	11.31	5,898.7	106.2	21.2	106.1	0.00	0.00	0.00	
6,000.0	1.36	11.31	5,998.7	108.5	21.7	108.4	0.00	0.00	0.00	
6,030.4	1.36	11.31	6,029.1	109.2	21.8	109.1	0.00	0.00	0.00	
6,098.3	0.00	0.00	6,097.0	110.0	22.0	109.9	2.00	-2.00	0.00	
6,100.0	0.00	0.00	6,098.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,200.0	0.00	0.00	6,198.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,300.0	0.00	0.00	6,298.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,398.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,498.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,598.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,698.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,798.7	110.0	22.0	109.9	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,898.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,000.0	0.00	0.00	6,998.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,100.0	0.00	0.00	7,098.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,200.0	0.00	0.00	7,198.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,300.0	0.00	0.00	7,298.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,398.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,498.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,598.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,698.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,798.7	110.0	22.0	109.9	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,898.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,998.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,100.0	0.00	0.00	8,098.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,200.0	0.00	0.00	8,198.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,300.0	0.00	0.00	8,298.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,398.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,498.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,598.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,698.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,798.7	110.0	22.0	109.9	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,898.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,998.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,100.0	0.00	0.00	9,098.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,200.0	0.00	0.00	9,198.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,300.0	0.00	0.00	9,298.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,400.0	0.00	0.00	9,398.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,500.0	0.00	0.00	9,498.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,600.0	0.00	0.00	9,598.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,700.0	0.00	0.00	9,698.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,800.0	0.00	0.00	9,798.7	110.0	22.0	109.9	0.00	0.00	0.00	
9,900.0	0.00	0.00	9,898.7	110.0	22.0	109.9	0.00	0.00	0.00	
10,000.0	0.00	0.00	9,998.7	110.0	22.0	109.9	0.00	0.00	0.00	
10,100.0	0.00	0.00	10,098.7	110.0	22.0	109.9	0.00	0.00	0.00	
10,138.8	0.00	0.00	10,137.5	110.0	22.0	109.9	0.00	0.00	0.00	
10,150.0	1.34	0.00	10,148.7	110.1	22.0	110.0	12.00	12.00	0.00	
10,175.0	4.34	0.00	10,173.6	111.4	22.0	111.3	12.00	12.00	0.00	



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #408H
Company:	Midland	TVD Reference:	kb = 26' @ 3386.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 26' @ 3386.0usft
Site:	Antero 14 Fed Com	North Reference:	Grid
Well:	#408H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

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	7.34	0.00	10,198.5	113.9	22.0	113.8	12.00	12.00	0.00
10,225.0	10.34	0.00	10,223.2	117.8	22.0	117.7	12.00	12.00	0.00
10,250.0	13.34	0.00	10,247.7	122.9	22.0	122.8	12.00	12.00	0.00
10,275.0	16.34	0.00	10,271.8	129.3	22.0	129.2	12.00	12.00	0.00
10,300.0	19.34	0.00	10,295.6	136.9	22.0	136.8	12.00	12.00	0.00
10,325.0	22.34	0.00	10,319.0	145.8	22.0	145.7	12.00	12.00	0.00
10,350.0	25.34	0.00	10,341.9	155.9	22.0	155.8	12.00	12.00	0.00
10,359.3	26.46	0.00	10,350.2	160.0	22.0	159.9	12.00	12.00	0.00
10,375.0	28.34	359.96	10,364.2	167.2	22.0	167.1	12.00	12.00	-0.23
10,400.0	31.34	359.91	10,385.8	179.7	22.0	179.6	12.00	12.00	-0.20
10,425.0	34.34	359.87	10,406.8	193.2	22.0	193.1	12.00	12.00	-0.17
10,450.0	37.34	359.84	10,427.1	207.9	21.9	207.8	12.00	12.00	-0.14
10,475.0	40.34	359.80	10,446.6	223.5	21.9	223.4	12.00	12.00	-0.13
10,500.0	43.34	359.78	10,465.2	240.2	21.8	240.1	12.00	12.00	-0.11
10,525.0	46.34	359.75	10,482.9	257.9	21.7	257.7	12.00	12.00	-0.10
10,550.0	49.34	359.73	10,499.7	276.4	21.7	276.3	12.00	12.00	-0.09
10,575.0	52.34	359.71	10,515.5	295.8	21.6	295.7	12.00	12.00	-0.08
10,600.0	55.34	359.69	10,530.2	315.9	21.5	315.8	12.00	12.00	-0.08
10,625.0	58.34	359.67	10,543.9	336.9	21.3	336.8	12.00	12.00	-0.07
10,650.0	61.34	359.66	10,556.5	358.5	21.2	358.4	12.00	12.00	-0.07
10,675.0	64.34	359.64	10,567.9	380.7	21.1	380.6	12.00	12.00	-0.06
10,700.0	67.34	359.62	10,578.1	403.5	20.9	403.4	12.00	12.00	-0.06
10,725.0	70.34	359.61	10,587.1	426.8	20.8	426.7	12.00	12.00	-0.06
10,750.0	73.34	359.60	10,594.9	450.6	20.6	450.5	12.00	12.00	-0.05
10,775.0	76.34	359.58	10,601.4	474.7	20.4	474.6	12.00	12.00	-0.05
10,800.0	79.34	359.57	10,606.7	499.2	20.3	499.1	12.00	12.00	-0.05
10,825.0	82.34	359.56	10,610.7	523.8	20.1	523.7	12.00	12.00	-0.05
10,850.0	85.34	359.55	10,613.4	548.7	19.9	548.6	12.00	12.00	-0.05
10,875.0	88.34	359.53	10,614.7	573.7	19.7	573.6	12.00	12.00	-0.05
10,888.8	90.00	359.53	10,614.9	587.4	19.6	587.3	12.00	12.00	-0.05
10,900.0	90.00	359.53	10,614.9	598.6	19.5	598.6	0.00	0.00	0.00
11,000.0	90.00	359.53	10,615.0	698.6	18.6	698.6	0.00	0.00	0.00
11,100.0	90.00	359.53	10,615.0	798.6	17.8	798.6	0.00	0.00	0.00
11,200.0	90.00	359.53	10,615.0	898.6	17.0	898.6	0.00	0.00	0.00
11,300.0	90.00	359.53	10,615.0	998.6	16.2	998.6	0.00	0.00	0.00
11,400.0	90.00	359.53	10,615.0	1,098.6	15.3	1,098.6	0.00	0.00	0.00
11,500.0	90.00	359.53	10,615.0	1,198.6	14.5	1,198.5	0.00	0.00	0.00
11,600.0	90.00	359.53	10,615.0	1,298.6	13.7	1,298.5	0.00	0.00	0.00
11,681.4	90.00	359.53	10,615.0	1,380.0	13.0	1,379.9	0.00	0.00	0.00
11,700.0	90.00	359.53	10,615.0	1,398.6	12.8	1,398.5	0.01	0.00	0.01
11,800.0	90.00	359.53	10,615.0	1,498.6	12.0	1,498.5	0.01	0.00	0.01
11,900.0	90.00	359.54	10,615.0	1,598.6	11.2	1,598.5	0.01	0.00	0.01
12,000.0	90.00	359.55	10,615.0	1,698.6	10.4	1,698.5	0.01	0.00	0.01
12,100.0	90.00	359.55	10,615.0	1,798.6	9.6	1,798.5	0.01	0.00	0.01
12,200.0	90.00	359.56	10,615.0	1,898.6	8.9	1,898.5	0.01	0.00	0.01
12,300.0	90.00	359.56	10,615.0	1,998.6	8.1	1,998.5	0.01	0.00	0.01
12,400.0	90.00	359.57	10,615.0	2,098.6	7.3	2,098.5	0.01	0.00	0.01
12,500.0	90.00	359.58	10,615.0	2,198.6	6.6	2,198.5	0.01	0.00	0.01
12,600.0	90.00	359.58	10,615.0	2,298.6	5.8	2,298.5	0.01	0.00	0.01
12,700.0	90.00	359.59	10,615.0	2,398.6	5.1	2,398.5	0.01	0.00	0.01
12,800.0	90.00	359.59	10,615.0	2,498.6	4.4	2,498.5	0.01	0.00	0.01
12,900.0	90.00	359.60	10,615.0	2,598.6	3.7	2,598.5	0.01	0.00	0.01
13,000.4	90.00	359.61	10,615.0	2,699.0	3.0	2,699.0	0.01	0.00	0.01
13,100.0	90.00	359.60	10,615.0	2,798.6	2.3	2,798.5	0.00	0.00	0.00



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #408H
Company:	Midland	TVD Reference:	kb = 26' @ 3386.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 26' @ 3386.0usft
Site:	Antero 14 Fed Com	North Reference:	Grid
Well:	#408H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

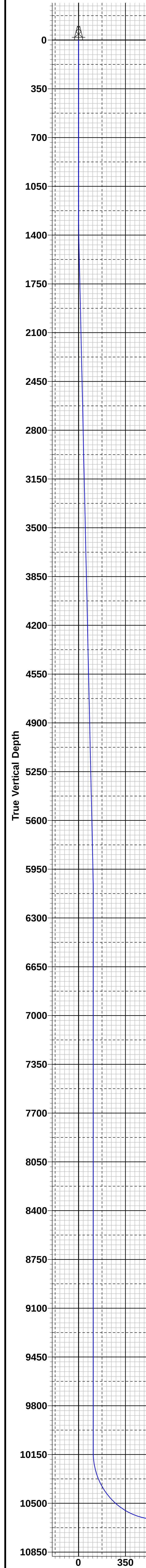
Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,200.0	90.00	359.60	10,615.0	2,898.6	1.6	2,898.5	0.00	0.00	0.00	
13,300.0	90.00	359.60	10,615.0	2,998.6	0.9	2,998.5	0.00	0.00	0.00	
13,400.0	90.00	359.59	10,615.0	3,098.6	0.2	3,098.5	0.00	0.00	0.00	
13,500.0	90.00	359.59	10,615.0	3,198.6	-0.5	3,198.5	0.00	0.00	0.00	
13,600.0	90.00	359.59	10,615.0	3,298.6	-1.2	3,298.5	0.00	0.00	0.00	
13,700.0	90.00	359.58	10,615.0	3,398.6	-1.9	3,398.5	0.00	0.00	0.00	
13,800.0	90.00	359.58	10,615.0	3,498.6	-2.7	3,498.5	0.00	0.00	0.00	
13,900.0	90.00	359.58	10,615.0	3,598.6	-3.4	3,598.5	0.00	0.00	0.00	
14,000.0	90.00	359.58	10,615.0	3,698.6	-4.1	3,698.5	0.00	0.00	0.00	
14,100.0	90.00	359.57	10,615.0	3,798.6	-4.9	3,798.5	0.00	0.00	0.00	
14,200.0	90.00	359.57	10,615.0	3,898.6	-5.6	3,898.5	0.00	0.00	0.00	
14,300.0	90.00	359.57	10,615.0	3,998.6	-6.4	3,998.5	0.00	0.00	0.00	
14,400.0	90.00	359.56	10,615.0	4,098.5	-7.1	4,098.5	0.00	0.00	0.00	
14,500.0	90.00	359.56	10,615.0	4,198.5	-7.9	4,198.5	0.00	0.00	0.00	
14,600.0	90.00	359.56	10,615.0	4,298.5	-8.7	4,298.5	0.00	0.00	0.00	
14,700.0	90.00	359.56	10,615.0	4,398.5	-9.5	4,398.5	0.00	0.00	0.00	
14,800.0	90.00	359.55	10,615.0	4,498.5	-10.2	4,498.5	0.00	0.00	0.00	
14,900.0	90.00	359.55	10,615.0	4,598.5	-11.0	4,598.5	0.00	0.00	0.00	
15,000.0	90.00	359.55	10,615.0	4,698.5	-11.8	4,698.5	0.00	0.00	0.00	
15,100.0	90.00	359.54	10,615.0	4,798.5	-12.6	4,798.5	0.00	0.00	0.00	
15,200.0	90.00	359.54	10,615.0	4,898.5	-13.4	4,898.5	0.00	0.00	0.00	
15,300.0	90.00	359.54	10,615.0	4,998.5	-14.2	4,998.5	0.00	0.00	0.00	
15,400.0	90.00	359.53	10,615.0	5,098.5	-15.0	5,098.5	0.00	0.00	0.00	
15,500.0	90.00	359.53	10,615.0	5,198.5	-15.8	5,198.5	0.00	0.00	0.00	
15,600.0	90.00	359.53	10,615.0	5,298.5	-16.7	5,298.5	0.00	0.00	0.00	
15,642.5	90.00	359.53	10,615.0	5,341.0	-17.0	5,341.0	0.00	0.00	0.00	
15,700.0	90.00	359.53	10,615.0	5,398.5	-17.5	5,398.5	0.00	0.00	0.00	
15,800.0	90.00	359.53	10,615.0	5,498.5	-18.3	5,498.5	0.00	0.00	0.00	
15,900.0	90.00	359.54	10,615.0	5,598.5	-19.1	5,598.5	0.00	0.00	0.00	
16,000.0	90.00	359.54	10,615.0	5,698.5	-19.9	5,698.5	0.00	0.00	0.00	
16,100.0	90.00	359.54	10,615.0	5,798.5	-20.7	5,798.5	0.00	0.00	0.00	
16,200.0	90.00	359.55	10,615.0	5,898.5	-21.5	5,898.5	0.00	0.00	0.00	
16,300.0	90.00	359.55	10,615.0	5,998.5	-22.3	5,998.5	0.00	0.00	0.00	
16,400.0	90.00	359.55	10,615.0	6,098.5	-23.1	6,098.5	0.00	0.00	0.00	
16,500.0	90.00	359.56	10,615.0	6,198.5	-23.8	6,198.5	0.00	0.00	0.00	
16,600.0	90.00	359.56	10,615.0	6,298.5	-24.6	6,298.5	0.00	0.00	0.00	
16,700.0	90.00	359.56	10,615.0	6,398.5	-25.4	6,398.5	0.00	0.00	0.00	
16,800.0	90.00	359.57	10,615.0	6,498.5	-26.1	6,498.5	0.00	0.00	0.00	
16,900.0	90.00	359.57	10,615.0	6,598.5	-26.9	6,598.5	0.00	0.00	0.00	
17,000.0	90.00	359.57	10,615.0	6,698.5	-27.6	6,698.5	0.00	0.00	0.00	
17,100.0	90.00	359.58	10,615.0	6,798.5	-28.4	6,798.5	0.00	0.00	0.00	
17,200.0	90.00	359.58	10,615.0	6,898.5	-29.1	6,898.5	0.00	0.00	0.00	
17,300.0	90.00	359.59	10,615.0	6,998.5	-29.8	6,998.5	0.00	0.00	0.00	
17,400.0	90.00	359.59	10,615.0	7,098.5	-30.6	7,098.5	0.00	0.00	0.00	
17,500.0	90.00	359.59	10,615.0	7,198.5	-31.3	7,198.5	0.00	0.00	0.00	
17,600.0	90.00	359.60	10,615.0	7,298.5	-32.0	7,298.5	0.00	0.00	0.00	
17,700.0	90.00	359.60	10,615.0	7,398.4	-32.7	7,398.5	0.00	0.00	0.00	
17,800.0	90.00	359.60	10,615.0	7,498.4	-33.4	7,498.5	0.00	0.00	0.00	
17,900.0	90.00	359.61	10,615.0	7,598.4	-34.1	7,598.5	0.00	0.00	0.00	
18,000.0	90.00	359.61	10,615.0	7,698.4	-34.8	7,698.5	0.00	0.00	0.00	
18,100.0	90.00	359.61	10,615.0	7,798.4	-35.4	7,798.5	0.00	0.00	0.00	
18,183.6	90.00	359.62	10,615.0	7,882.0	-36.0	7,882.1	0.00	0.00	0.00	



Planning Report

Database:	PEDM	Local Co-ordinate Reference:	Well #408H
Company:	Midland	TVD Reference:	kb = 26' @ 3386.0usft
Project:	Lea County, NM (NAD 83 NME)	MD Reference:	kb = 26' @ 3386.0usft
Site:	Antero 14 Fed Com	North Reference:	Grid
Well:	#408H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

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(Antero 14 Fed Con - plan hits target center - Point	0.00	0.00	10,137.5	110.0	22.0	412,162.00	783,737.00	32° 7' 50.485 N	103° 33' 0.962 W
FTP(Antero 14 Fed Corr - plan hits target center - Point	0.00	0.00	10,350.2	160.0	22.0	412,212.00	783,737.00	32° 7' 50.980 N	103° 33' 0.958 W
Fed Perf 1(Antero 14 Fe - plan hits target center - Point	0.00	0.00	10,615.0	1,380.0	13.0	413,432.00	783,728.00	32° 8' 3.053 N	103° 33' 0.959 W
Fed Perf 2(Antero 14 Fe - plan hits target center - Point	0.00	0.00	10,615.0	2,699.0	3.0	414,751.00	783,718.00	32° 8' 16.105 N	103° 33' 0.964 W
PBHL(Antero 14 Fed Co - plan hits target center - Point	0.00	0.00	10,615.0	7,882.0	-36.0	419,934.00	783,679.00	32° 9' 7.395 N	103° 33' 0.979 W
Fed Perf 3(Antero 14 Fe - plan hits target center - Point	0.00	0.00	10,615.0	5,341.0	-17.0	417,393.00	783,698.00	32° 8' 42.250 N	103° 33' 0.973 W



To convert a Magnetic Direction to a Grid Direction, Add 5.96°
 To convert a Magnetic Direction to a True Direction, Add 6.38° East
 To convert a True Direction to a Grid Direction, Subtract 0.42°

Lea County, NM (NAD 83 NME)
 Antero 14 Fed Com #408H
 Plan #0.1 RT

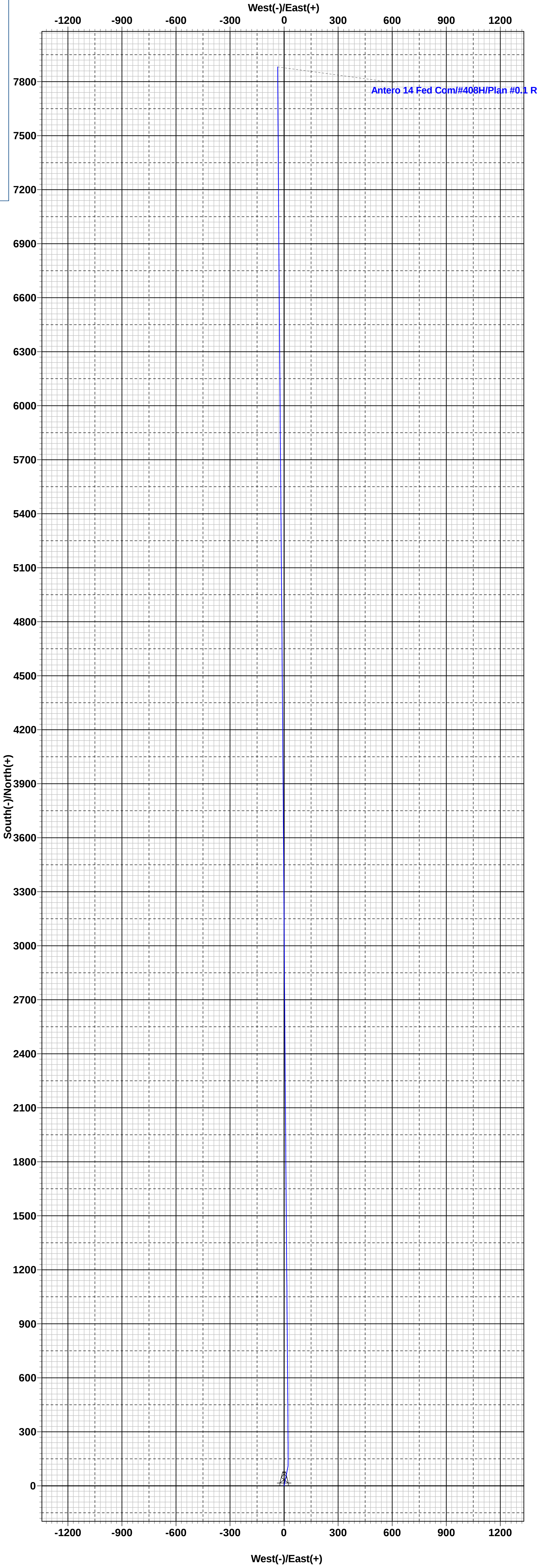
PROJECT DETAILS: Lea County, NM (NAD 83 NME)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level

WELL DETAILS: #408H			
		3360.0	
Northing 412052.00	kb = 26' @ 3386.0usft Easting 783715.00	Latitude 32° 7' 49.398 N	Longitude 103° 33' 1.227 W

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1300.0	0.00	0.00	1300.0	0.0	0.0	0.00	0.00	0.0	
3	1367.9	1.36	11.31	1367.9	0.8	0.2	2.00	11.31	0.8	
4	6030.4	1.36	11.31	6029.1	109.2	21.8	0.00	0.00	109.1	
5	6098.3	0.00	0.00	6097.0	110.0	22.0	2.00	180.00	109.9	
6	10138.8	0.00	0.00	10137.5	110.0	22.0	0.00	0.00	109.9	KOP(Antero 14 Fed Com #408H)
7	10359.3	26.46	0.00	10350.2	160.0	22.0	12.00	0.00	159.9	FTP(Antero 14 Fed Com #408H)
8	10888.8	90.00	359.53	10614.9	587.4	19.6	12.00	-0.53	587.3	
9	11681.4	90.00	359.53	10615.0	1380.0	13.0	0.00	0.00	1379.9	Fed Perf 1(Antero 14 Fed Com #408H)
10	13000.4	90.00	359.61	10615.0	2699.0	3.0	0.01	84.42	2699.0	Fed Perf 2(Antero 14 Fed Com #408H)
11	15642.5	90.00	359.53	10615.0	5341.0	-17.0	0.00	-95.67	5341.0	Fed Perf 3(Antero 14 Fed Com #408H)
12	18183.6	90.00	359.62	10615.0	7882.0	-36.0	0.00	85.01	7882.1	PBHL(Antero 14 Fed Com #408H)

CASING DETAILS
No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)					
Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP(Antero 14 Fed Com #408H)	10137.5	110.0	22.0	412162.00	783737.00
FTP(Antero 14 Fed Com #408H)	10350.2	160.0	22.0	412212.00	783737.00
Fed Perf 1(Antero 14 Fed Com #408H)	10615.0	1380.0	13.0	413432.00	783728.00
Fed Perf 2(Antero 14 Fed Com #408H)	10615.0	2699.0	3.0	414751.00	783718.00
Fed Perf 3(Antero 14 Fed Com #408H)	10615.0	5341.0	-17.0	417393.00	783698.00
PBHL(Antero 14 Fed Com #408H)	10615.0	7882.0	-36.0	419934.00	783679.00



Vertical Section at 359.74°



Offline Intermediate Cementing Procedure

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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 nipped 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 nipped back up for any further remediation.



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



Offline Intermediate Cementing Procedure

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Example Well Control Plan Content

A. Well Control Component Table

The table below, which covers the cementing of the **5M MASP (Maximum Allowable Surface Pressure) portion of the well**, 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 nipped 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.



Offline Intermediate Cementing Procedure

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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

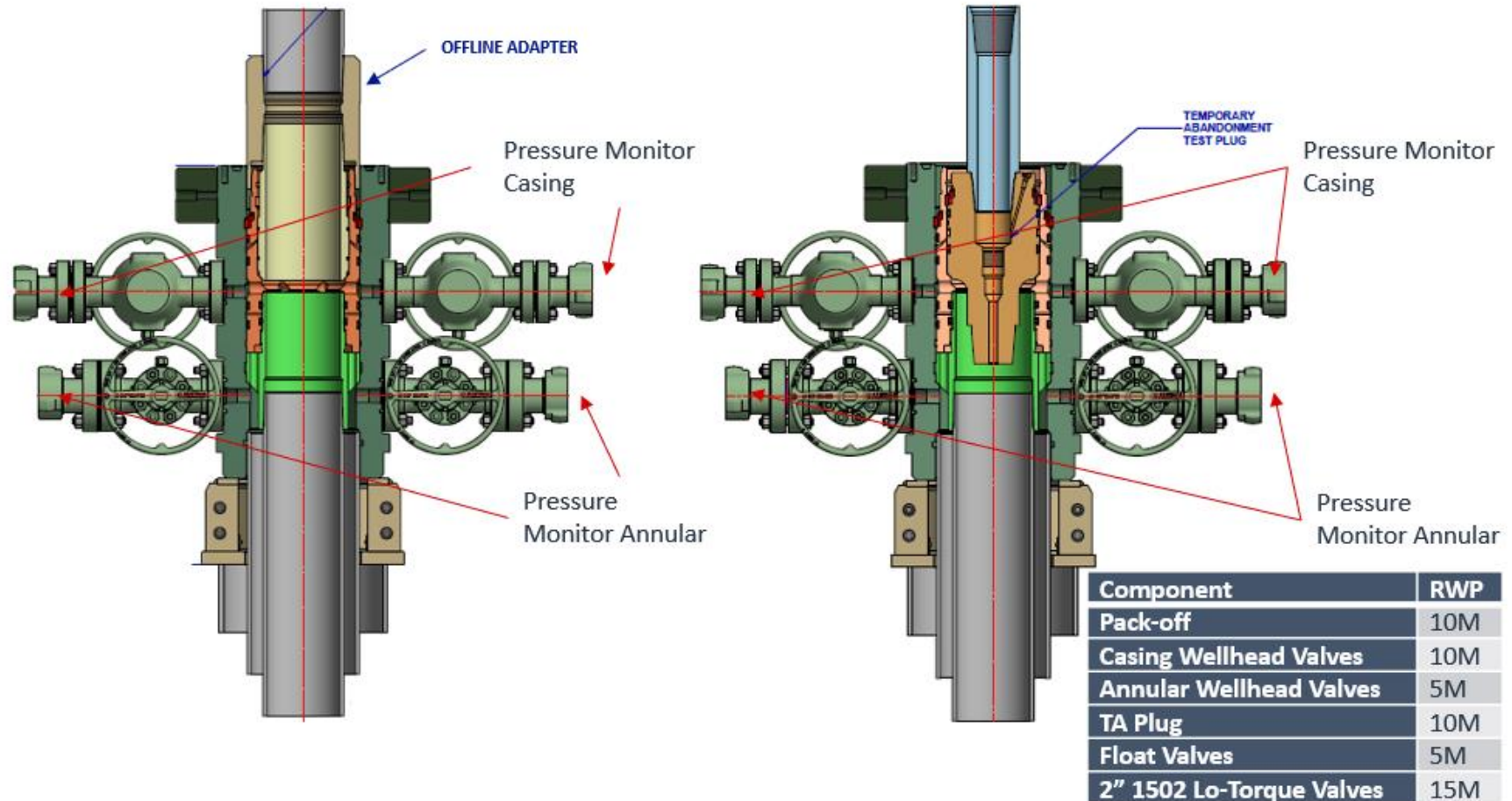
1. Sound alarm (alert crew).
2. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
3. Confirm shut-in.
4. Notify tool pusher/company representative.
5. Read and record the following:
 - a. SICP and AP
 - b. Pit gain
 - c. Time
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



Offline Intermediate Cementing Procedure

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Figure 1: Cameron TA Plug and Offline Adapter Schematic

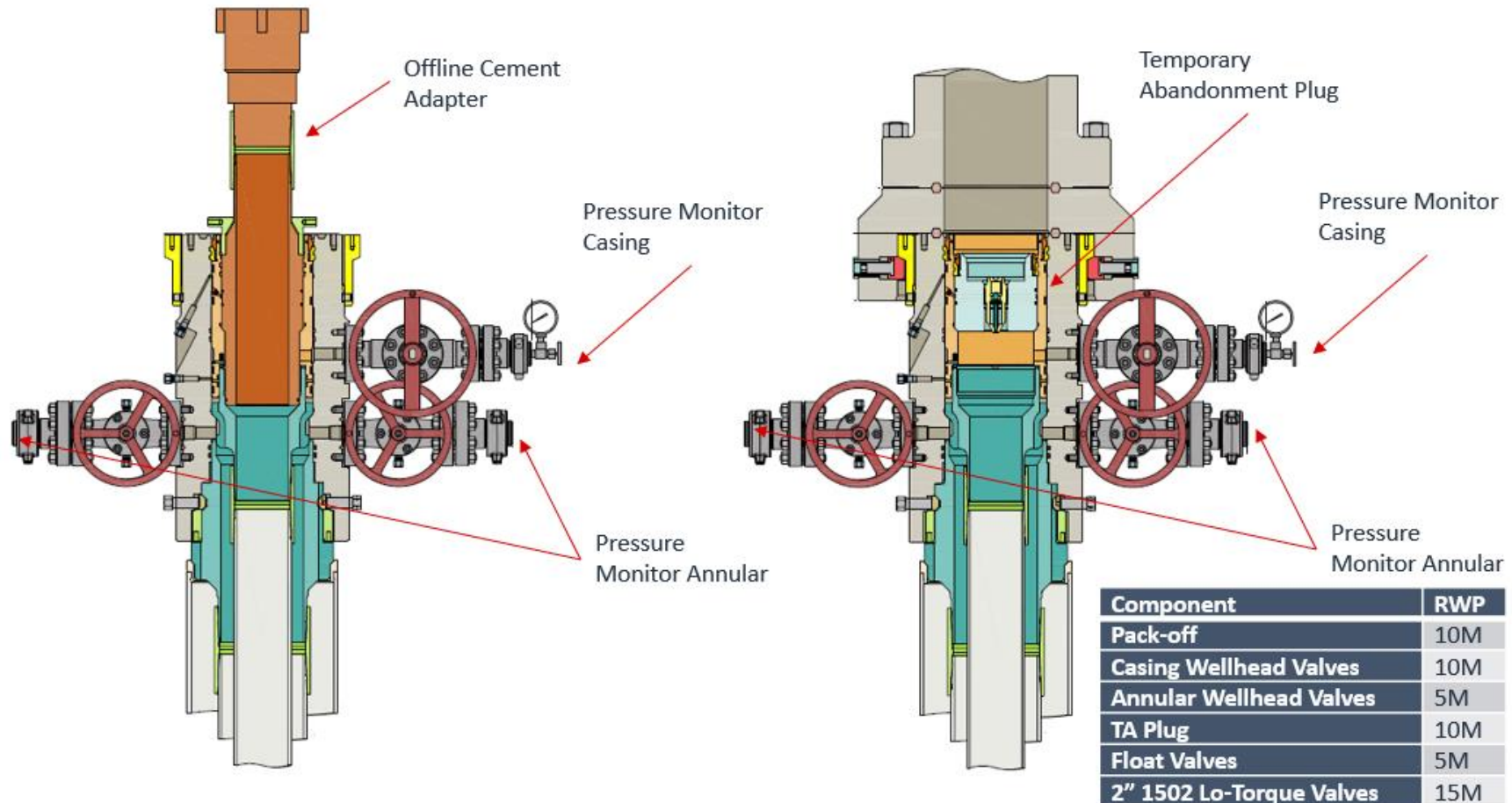




Offline Intermediate Cementing Procedure

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Figure 2: Cactus TA Plug and Offline Adapter Schematic

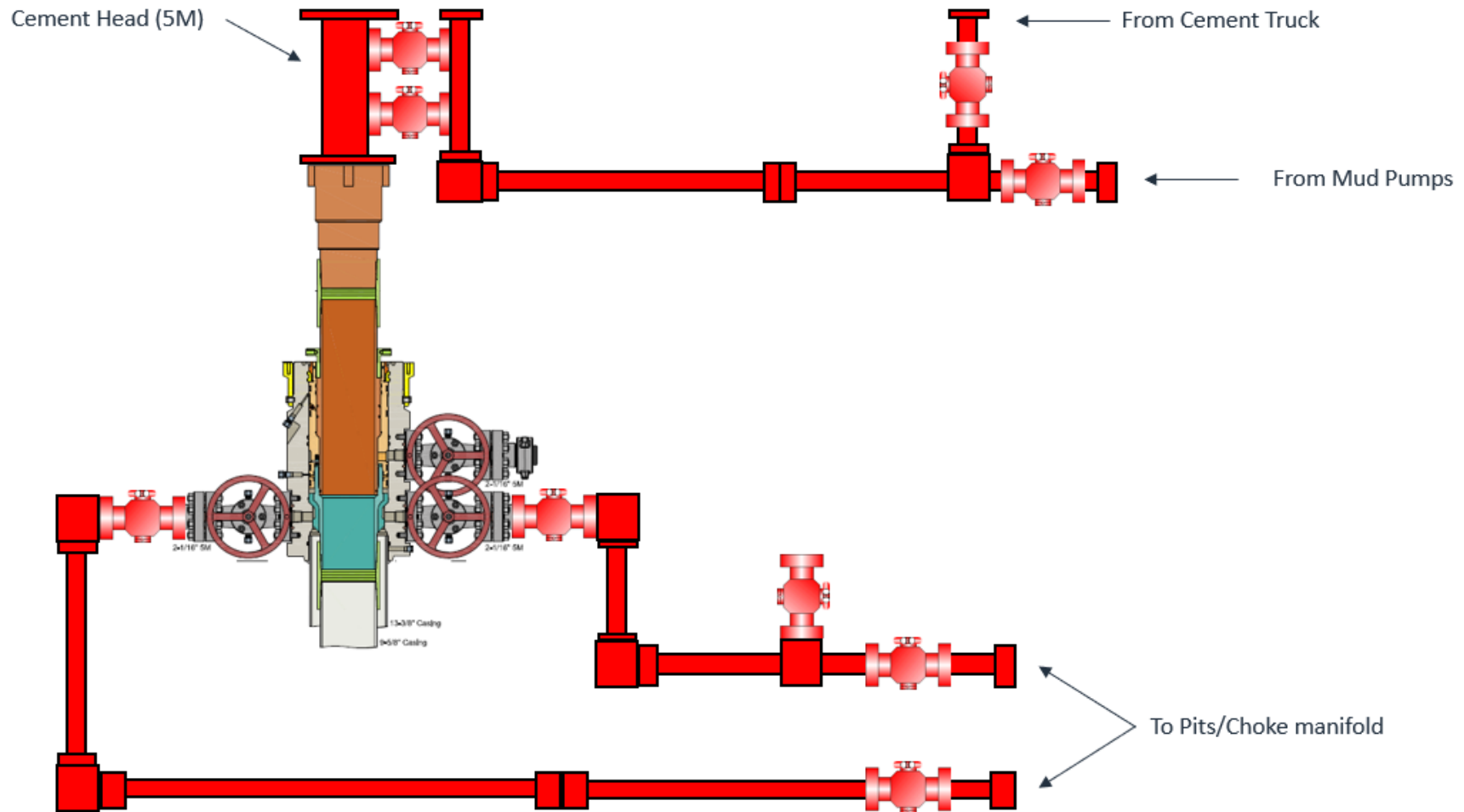




Offline Intermediate Cementing Procedure

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Figure 3: Back Yard Rig Up



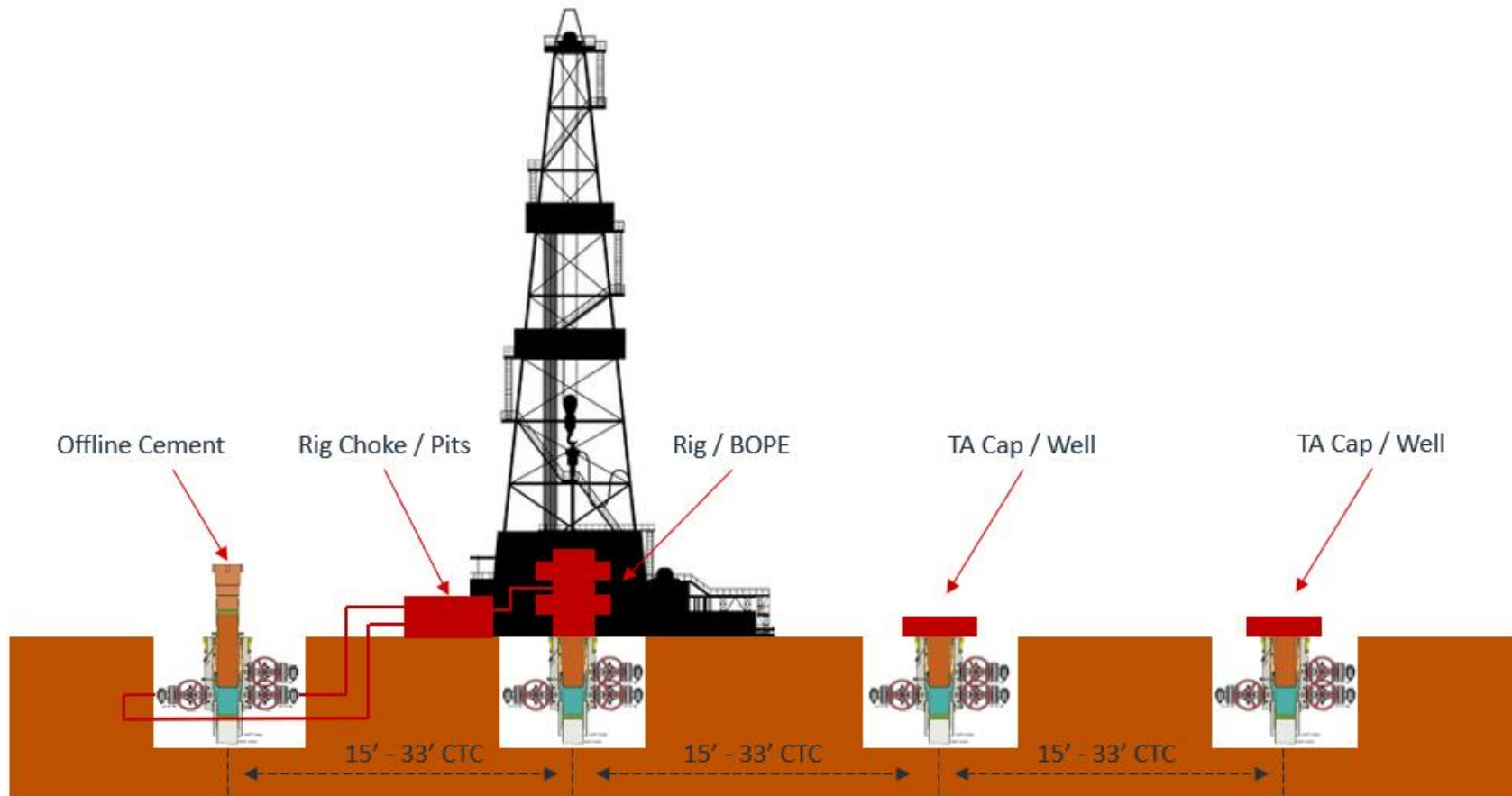
*** All Lines 10M rated working pressure



Offline Intermediate Cementing Procedure

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Figure 4: Rig Placement Diagram



District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 157210

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 157210
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	11/10/2022