Form 3160-5 (June 2019)

# UNITED STATES DEPARTMENT OF THE INTERIOR

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

BURI	EAU OF LAND MANAGEMEN	1	5. Lease Serial IVO.	NMNM108503			
			6. If Indian, Allottee	e or Tribe Name			
SUBMIT IN 1	TRIPLICATE - Other instructions on p	7. If Unit of CA/Ag	reement, Name and/or No.				
1. Type of Well							
Oil Well Gas W	Vell Other		8. Well Name and N	Io. ANTERO 14 FED COM/407H			
2. Name of Operator EOG RESOURO	CES INCORPORATED		9. API Well No.	30-025-51625			
	BY 2, HOUSTON, TX 77( 3b. Phone N	,	′	10. Field and Pool or Exploratory Area			
		7000		VER BONE SPRING			
4. Location of Well (Footage, Sec., T.,R SEC 14/T25S/R33E/NMP	.,M., or Survey Description)		11. Country or Paris	11. Country or Parish, State			
	CK THE APPROPRIATE BOX(ES) TO I	INDICATE NATURI		THER DATA			
TYPE OF SUBMISSION		TY	PE OF ACTION				
	Acidize De	eenen	Production (Start/Resume	e) Water Shut-Off			
Notice of Intent		ydraulic Fracturing	Reclamation	Well Integrity			
	SRESOURCES INCORPORATED  BY SKY LOBBY 2, HOUSTON, TX 770  BY SKY LOBON, TX 770  BY SKY LOBES 2, HOUSTON, TX 770  BY SKY LOBES 2, HOU		Recomplete	✓ Other			
Subsequent Report							
Final Abandonment Notice	Temporarily Abandon Water Disposal						
completion of the involved operation completed. Final Abandonment Not is ready for final inspection.)  Antero 14 Fed Com 305H (FK)  EOG respectfully requests and this well to reflect the following Change name from Antero 14  Change SHL from T-25-S, R-3 to T-25-S, R-33-E, Sec 14, 262  Change BHL from T-25-S, R-3 to T-25-S, R-33-E, Sec 11, 100 Continued on page 3 additional	ons. If the operation results in a multiple of tices must be filed only after all requirements of the second of th	ompletion or recompents, including reclar and 305H.	oletion in a new interval, a Form	3160-4 must be filed once testing has been			
14. I hereby certify that the foregoing is STAR HARRELL / Ph: (432) 848-9		Regulator	ry Specialist				
		litle					
Signature		Date	06/19/	/2023			
	THE SPACE FOR FE	DERAL OR ST	ATE OFICE USE				
Approved by							
CHRISTOPHER WALLS / Ph: (575	5) 234-2234 / Approved	Title Petro	oleum Engineer	06/26/2023 Date			
	equitable title to those rights in the subject		ARLSBAD				
	3 U.S.C Section 1212, make it a crime for ents or representations as to any matter w		gly and willfully to make to any	department or agency of the United States			

(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**

Change target formation to First Bone Spring Sands.

Update casing and cement program to current design.

### **Location of Well**

0. SHL: TR H / 2562 FNL / 384 FEL / TWSP: 25S / RANGE: 33E / SECTION: 14 / LAT: 32.130761 / LONG: -103.5358471 ( TVD: 0 feet, MD: 0 feet ) PPP: TR P / 0 FSL / 330 FEL / TWSP: 25S / RANGE: 33E / SECTION: 11 / LAT: 32.1378045 / LONG: -103.5356747 ( TVD: 10635 feet, MD: 13020 feet ) PPP: TR H / 2540 FNL / 330 FEL / TWSP: 25S / RANGE: 33E / SECTION: 14 / LAT: 32.1308215 / LONG: -103.5356723 ( TVD: 10370 feet, MD: 10378 feet ) BHL: TR A / 100 FNL / 330 FEL / TWSP: 25S / RANGE: 33E / SECTION: 11 / LAT: 32.1520439 / LONG: -103.5356795 ( TVD: 10635 feet, MD: 18200 feet )

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-0161 Fas: (575) 393-0720

DISTRICT II
81 I S. First St., Artesia, NM 88210
Phone: (575) 484-2183 Fas: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztes, NM 87410
Phone: (505) 334-6178 Fas: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fc, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

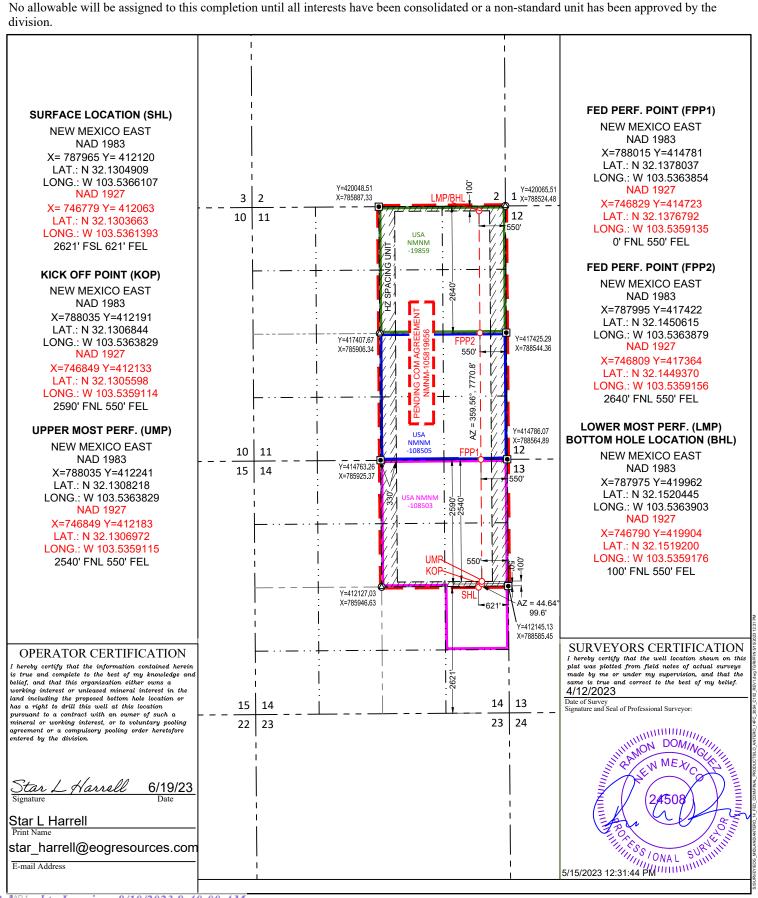
# State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

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

☐ AMENDED REPORT

### WELL LOCATION AND ACREAGE DEDICATION PLAT

1	API Number Pool Code 51020				Red Hills; Lower Bone Spring					
Property C			•		Property Name	-D 00M		Well Number		
32648	) I			А	NTERO 14 FE	ED COM		30	5H	
OGRID N	lo.				Operator Name			Elevation	on	
7377	•			EC	G RESOURC	ES, INC.		33	55'	
	Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
I	14	25-S	33-E	-	2621'	SOUTH	621'	EAST	LEA	
		-	Bott	om Hole l	Location If Dif	erent From Surfac	e	-		
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
Α	11	25-S	33-E	-	100'	NORTH	550'	EAST	LEA	
Dedicated Acres	Joint or	Infill	Consolidated Code Order No.							
480.00			PENDING COM AGREEMENT NMNM-105819656							





### **Revised Permit Information 04/18/2023:**

Well Name: Antero 14 Fed Com 305H

Location: SHL: 2621' FSL & 621' FEL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

BHL: 100' FNL & 550' FEL, Section 11, T-25-S, R-33-E, Lea Co., N.M.

**Casing Program A:** 

Hole	Interv	Interval MD		Interval TVD				
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	4,001	0	4,000	9-5/8"	40#	J-55	LTC
11"	4,001	4,991	4,000	4,990	9-5/8"	40#	HCK-55	LTC
6-3/4"	0	17,982	0	10,415	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:** 

		Wt.	Yld	
Depth	No. Sacks		Ft3/sk	Slurry Description
Бериі	NO. Jacks	РРБ	1 t3/3k	
1,250'	380	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk
13-3/8"				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
	100	1	1.5	Metasilicate (TOC @ 1,050')
				Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC
4,990'	480	12.7	2.22	j , j
9-5/8''				@ Surface)
	170	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,990')
17,982'	350	10.5	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3%
5-1/2''				Microbond (TOC @ 4,490')
	570	13.2	1.52	Tail: Class H + 5% NEX-020 + 0.2% NAC-102 + 0.15% NAS-725 +
				0.5% NFL-549 + 0.2% NFP-703 + 1% NBE-737 + 0.3% NRT-241
				(TOC @ 9940')



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	oe Weight (ppg)		Water Loss
0 – 1,250'	Fresh - Gel	8.6-8.8	28-34	N/c
1,250' – 4,990'	Brine	8.6-8.8	28-34	N/c
4,990' – 17,982'	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"



### **TUBING REQUIREMENTS**

EOG respectively requests an exception to the following NMOCD rule:

• 19.15.16.10 Casing AND TUBING RQUIREMENTS:

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

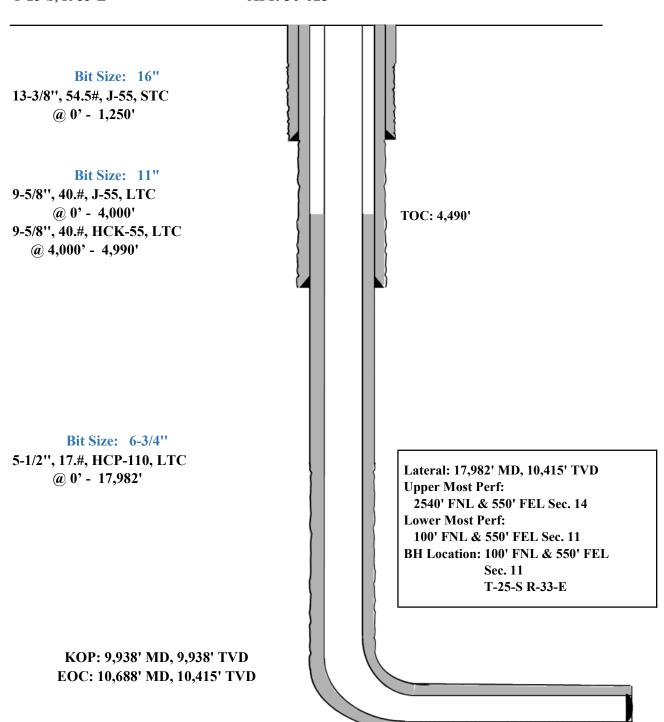
With horizontal flowing and gas lifted wells an end of tubing depth placed at or slightly above KOP is a conservative way to ensure the tubing stays clean from debris, plugging, and allows for fewer well interventions post offset completion. The deeper the tubulars are run into the curve, the higher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



2621' FSL Revised Wellbore A: KB: 3380' 621' FEL GL: 3355'

**Section 14** 

T-25-S, R-33-E API: 30-025-\*\*\*\*





### Revised Permit Information 04/18/2023:

Well Name: Antero 14 Fed Com 305H

Location: SHL: 2621' FSL & 621' FEL, Section 14, T-25-S, R-33-E, Lea Co., N.M.

BHL: 100' FNL & 550' FEL, Section 11, T-25-S, R-33-E, Lea Co., N.M.

**Casing Program B:** 

Hole	Interv	al 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	4,001	0	4,000	8-5/8"	32#	J-55	BTC-SC
9-7/8"	4,001	4,991	4,000	4,990	8-5/8"	32#	P110-EC	BTC-SC
6-3/4"	0	17,982	0	10,415	5-1/2"	17#	HCP-110	LTC

**Cementing Program:** 

Depth	No. Sacks	Wt.	Yld Ft3/sk	Slurry Description
1,250'	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')
4,990' 8-5/8"	340	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)
	160	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,990')
17,982 <sup>'</sup> 5-1/2''	550	10.5	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 @ 9940')



Variance is requested to waive the centralizer requirements for the 8-5/8" casing in the 9-7/8" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 9-7/8" hole interval to maximize cement bond and zonal isolation.

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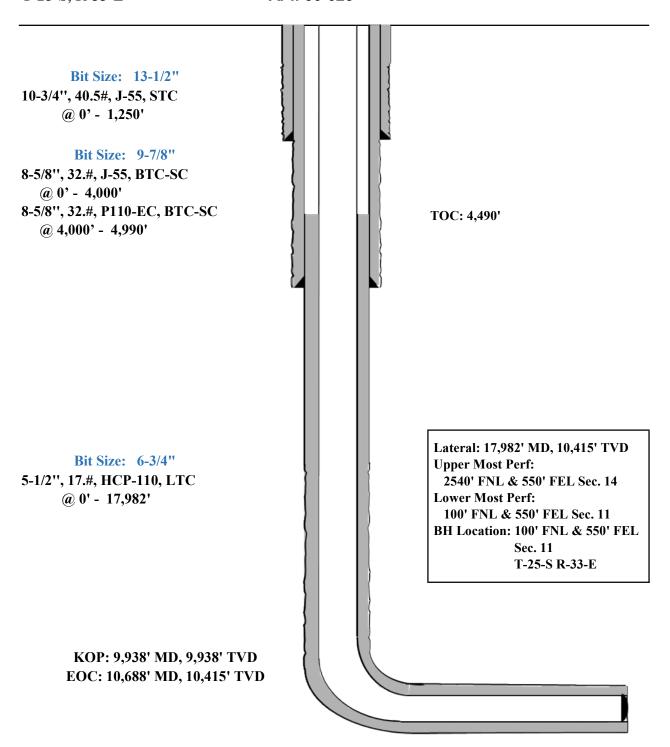
- Full BOPE test at first installation on the pad.
- Full BOPE test every 21 days per Onshore Order No. 2.
- Function test BOP elements per Onshore Order No. 2.
- Break testing BOP and BOPE coupled with batch drilling operations and option to offline cement and/or remediate (if needed) any surface or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



2621' Revised Wellbore B: KB: 3380' GL: 3355'

**Section 14** 

T-25-S, R-33-E API: 30-025-\*\*\*\*\*





### GEOLOGIC NAME OF SURFACE FORMATION:

Permian

### ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	1,155'
Tamarisk Anhydrite	1,225'
Top of Salt	1,505'
Base of Salt	4,890'
Lamar	5,110'
Bell Canyon	5,140'
Cherry Canyon	6,195'
Brushy Canyon	7,685'
Bone Spring Lime	9,260'
Leonard (Avalon) Shale	9,310'
1st Bone Spring Sand	10,240'
2nd Bone Spring Shale	10,451'
2nd Bone Spring Sand	10,800'
TD	10,415'

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

MATED DEI 1115 OF ANTICH ATED I	CINESII VVI	ALEK, OIL O
Upper Permian Sands	0-400'	Fresh Water
Bell Canyon	5,140'	Oil
Cherry Canyon	6,195'	Oil
Brushy Canyon	7,685'	Oil
Leonard (Avalon) Shale	9,310'	Oil
1st Bone Spring Sand	10,240'	Oil
2nd Bone Spring Shale	10,451'	Oil
2nd Bone Spring Sand	10,800'	Oil



### **Midland**

Lea County, NM (NAD 83 NME) Antero 14 Fed Com #305H

OH

Plan: Plan #0.1 RT

## **Standard Planning Report**

17 May, 2023



PEDM Database: Company:

Midland Project: Lea County, NM (NAD 83 NME)

Antero 14 Fed Com Site:

Well: #305H Wellbore: OH Design:

Plan #0.1 RT

**Local Co-ordinate Reference:** 

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

**Survey Calculation Method:** 

Well #305H

kb = 26' @ 3381.0usft kb = 26' @ 3381.0usft

Grid

Minimum Curvature

Project Lea County, NM (NAD 83 NME)

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

System Datum:

Mean Sea Level

Antero 14 Fed Com Site

Northing: 412,174.00 usft Site Position: Latitude: 32° 7' 50.590 N From: Мар Easting: 783,931.00 usft Longitude: 103° 32' 58.705 W

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

Well #305H

**Well Position** +N/-S 0.0 usft Northing: 412,120.00 usft Latitude: 32° 7' 49.763 N +E/-W 0.0 usft Easting: 787,965.00 usft Longitude: 103° 32' 11.799 W

**Position Uncertainty** 0.0 usft Wellhead Elevation: usft **Ground Level:** 3,355.0 usft

0.42° **Grid Convergence:** 

ОН Wellbore

Declination Magnetics **Model Name** Sample Date Dip Angle Field Strength (°) (°) (nT) 47,242.36638818 IGRF2020 5/17/2023 6.30 59.75

Design Plan #0.1 RT

Audit Notes:

Phase: PLAN Tie On Depth: 0.0 Version:

Vertical Section: Depth From (TVD) +N/-S +E/-W Direction (usft) (usft) (usft) (°) 0.07 0.0 0.0 0.0

**Plan Survey Tool Program** Date 5/17/2023

**Depth From** Depth To

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

17,982.1 Plan #0.1 RT (OH) EOG MWD+IFR1 0.0

MWD + IFR1



Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Antero 14 Fed Com

Well: #305H Wellbore: OH

Design: Plan #0.1 RT

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

**Survey Calculation Method:** 

Well #305H

kb = 26' @ 3381.0usft kb = 26' @ 3381.0usft

Grid

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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,546.5	0.93	44.59	1,546.5	0.3	0.3	2.00	2.00	0.00	44.59	
7,639.3	0.93	44.59	7,638.5	70.7	69.7	0.00	0.00	0.00	0.00	
7,685.8	0.00	0.00	7,685.0	71.0	70.0	2.00	-2.00	0.00	180.00	
9,938.3	0.00	0.00	9,937.5	71.0	70.0	0.00	0.00	0.00	0.00	KOP(Antero 14 Fed C
10,158.8	26.46	0.00	10,150.2	121.0	70.0	12.00	12.00	0.00	0.00	FTP(Antero 14 Fed C
10,688.3	90.00	359.52	10,414.9	548.4	67.5	12.00	12.00	-0.09	-0.53	
12,800.9	90.00	359.52	10,415.0	2,661.0	50.0	0.00	0.00	0.00	0.00	Fed Perf 1(Antero 14
15,442.0	90.00	359.61	10,415.0	5,302.0	30.0	0.00	0.00	0.00	88.03	Fed Perf 2(Antero 14
17,982.1	90.00	359.49	10,415.0	7,842.0	10.0	0.00	0.00	0.00	-91.40	PBHL(Antero 14 Fed



Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Antero 14 Fed Com

 Well:
 #305H

 Wellbore:
 OH

 Design:
 Plan #0.1 RT

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

Survey Calculation Method:

Well #305H

kb = 26' @ 3381.0usft kb = 26' @ 3381.0usft

Grid

esign:	Plan #0.1 RT								
lanned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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	0.00	700.0	0.0	0.0	0.0	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
4.500.0	0.00	0.00	4 500 0	2.2	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,546.5	0.93	44.59	1,546.5	0.3	0.3	0.3	2.00	2.00	0.00
1,600.0	0.93	44.59	1,600.0	0.9	0.9	0.9	0.00	0.00	0.00
1,700.0	0.93	44.59	1,700.0	2.0	2.0	2.0	0.00	0.00	0.00
1,800.0	0.93	44.59	1,800.0	3.2	3.2	3.2	0.00	0.00	0.00
1,900.0	0.93	44.59	1,900.0	4.4	4.3	4.4	0.00	0.00	0.00
2,000.0	0.93	44.59	1,999.9	5.5	5.4	5.5	0.00	0.00	0.00
2,100.0	0.93	44.59	2,099.9	6.7	6.6	6.7	0.00	0.00	0.00
2,200.0	0.93	44.59	2,199.9	7.8	7.7	7.8	0.00	0.00	0.00
2,300.0	0.93	44.59	2,299.9	9.0	8.9	9.0	0.00	0.00	0.00
2,400.0	0.93	44.59	2,399.9	10.1	10.0	10.2	0.00	0.00	0.00
2,500.0	0.93	44.59	2,499.9	11.3	11.1	11.3	0.00	0.00	0.00
2,600.0	0.93	44.59	2,599.9	12.5	12.3	12.5	0.00	0.00	0.00
2,700.0	0.93	44.59	2,699.8	13.6	13.4	13.6	0.00	0.00	0.00
			,						
2,800.0	0.93	44.59	2,799.8	14.8	14.6	14.8	0.00	0.00	0.00
2,900.0	0.93	44.59	2,899.8	15.9	15.7	15.9	0.00	0.00	0.00
3,000.0	0.93	44.59	2,999.8	17.1	16.8	17.1	0.00	0.00	0.00
3,100.0	0.93	44.59	3,099.8	18.2	18.0	18.3	0.00	0.00	0.00
3,200.0	0.93	44.59	3,199.8	19.4	19.1	19.4	0.00	0.00	0.00
3,300.0	0.93	44.59	3,299.8	20.5	20.3	20.6	0.00	0.00	0.00
3,400.0	0.93	44.59	3,399.8	21.7	21.4	21.7	0.00	0.00	0.00
3,500.0	0.93	44.59	3,499.7	22.9	22.5	22.9	0.00	0.00	0.00
3,600.0			3,599.7	24.0	23.7	24.0	0.00	0.00	
,	0.93	44.59	,						0.00
3,700.0	0.93	44.59	3,699.7	25.2	24.8	25.2	0.00	0.00	0.00
3,800.0	0.93	44.59	3,799.7	26.3	26.0	26.4	0.00	0.00	0.00
3,900.0	0.93	44.59	3,899.7	27.5	27.1	27.5	0.00	0.00	0.00
4,000.0	0.93	44.59	3,999.7	28.6	28.2	28.7	0.00	0.00	0.00
4,100.0	0.93	44.59	4,099.7	29.8	29.4	29.8	0.00	0.00	0.00
4,200.0	0.93	44.59	4,199.6	31.0	30.5	31.0	0.00	0.00	0.00
4,300.0	0.93	44.59	4,299.6	32.1	31.7	32.2	0.00	0.00	0.00
4,400.0	0.93	44.59	4,399.6	33.3	32.8	33.3	0.00	0.00	0.00
4,500.0	0.93	44.59			33.9			0.00	0.00
			4,499.6	34.4		34.5	0.00		
4,600.0	0.93	44.59	4,599.6	35.6	35.1	35.6	0.00	0.00	0.00
4,700.0	0.93	44.59	4,699.6	36.7	36.2	36.8	0.00	0.00	0.00
4,800.0	0.93	44.59	4,799.6	37.9	37.4	37.9	0.00	0.00	0.00
4,900.0	0.93	44.59	4,899.6	39.1	38.5	39.1	0.00	0.00	0.00
5,000.0	0.93	44.59	4,999.5	40.2	39.6	40.3	0.00	0.00	0.00
5,100.0	0.93	44.59	5,099.5	41.4	40.8	41.4	0.00	0.00	0.00

# eog resources

### **Planning Report**

Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Antero 14 Fed Com

 Well:
 #305H

 Wellbore:
 OH

 Design:
 Plan #0.1 RT

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

**Survey Calculation Method:** 

Well #305H

kb = 26' @ 3381.0usft kb = 26' @ 3381.0usft

Grid

JII.									
nned 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	0.93	44.59	5,299.5	43.7	43.1	43.7	0.00	0.00	0.00
5,400.0	0.93	44.59	5,399.5	44.8	44.2	44.9	0.00	0.00	0.00
5,500.0	0.93	44.59	5,499.5	46.0	45.3	46.0	0.00	0.00	0.00
5,600.0	0.93	44.59	5,599.5	47.1	46.5	47.2	0.00	0.00	0.00
5,700.0	0.93	44.59	5,699.5	48.3	47.6	48.4	0.00	0.00	0.00
5,800.0	0.93	44.59	5,799.4	49.5	48.8	49.5	0.00	0.00	0.00
5,900.0	0.93	44.59	5,899.4	50.6	49.9	50.7	0.00	0.00	0.00
6,000.0	0.93	44.59	5,999.4	51.8	51.0	51.8	0.00	0.00	0.00
6,100.0	0.93	44.59	6,099.4	52.9	52.2	53.0	0.00	0.00	0.00
6,200.0	0.93	44.59	6,199.4	54.1	53.3	54.2	0.00	0.00	0.00
6,300.0	0.93	44.59	6,299.4	55.2	54.5	55.3	0.00	0.00	0.00
6,400.0	0.93	44.59	6,399.4	56.4	55.6	56.5	0.00	0.00	0.00
6,500.0	0.93	44.59	6,499.3	57.6	56.7	57.6	0.00	0.00	0.00
6,600.0	0.93	44.59	6,599.3	58.7	57.9	58.8	0.00	0.00	0.00
6,700.0	0.93	44.59	6,699.3	59.9	59.0	59.9	0.00	0.00	0.00
6,800.0	0.93	44.59	6,799.3	61.0	60.2	61.1	0.00	0.00	0.00
			,						
6,900.0	0.93	44.59	6,899.3	62.2	61.3	62.3	0.00	0.00	0.00
7,000.0 7,100.0	0.93 0.93	44.59 44.59	6,999.3 7,099.3	63.3 64.5	62.4 63.6	63.4 64.6	0.00 0.00	0.00 0.00	0.00 0.00
7,100.0	0.93	44.59 44.59	7,099.3 7,199.3	65.7	64.7	65.7	0.00	0.00	0.00
7,300.0	0.93	44.59	7,199.3	66.8	65.9	66.9	0.00	0.00	0.00
7,400.0	0.93	44.59	7,399.2	68.0	67.0	68.0	0.00	0.00	0.00
7,500.0	0.93	44.59	7,499.2	69.1	68.1	69.2	0.00	0.00	0.00
7,600.0	0.93	44.59	7,599.2	70.3	69.3	70.4	0.00	0.00	0.00
7,639.3	0.93	44.59	7,638.5	70.7	69.7	70.8	0.00	0.00	0.00
7,685.8	0.00	0.00	7,685.0	71.0	70.0	71.1	2.00	-2.00	0.00
7,700.0	0.00	0.00	7,699.2	71.0	70.0	71.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,799.2	71.0	70.0	71.1	0.00	0.00	0.00
7,900.0	0.00	0.00	7,899.2	71.0	70.0	71.1	0.00	0.00	0.00
8,000.0	0.00	0.00	7,999.2	71.0	70.0	71.1	0.00	0.00	0.00
8,100.0	0.00	0.00	8,099.2	71.0	70.0	71.1	0.00	0.00	0.00
8,200.0	0.00	0.00	8,199.2	71.0	70.0	71.1	0.00	0.00	0.00
8,300.0	0.00	0.00	8,299.2	71.0	70.0	71.1	0.00	0.00	0.00
8,400.0	0.00	0.00	8,399.2	71.0	70.0	71.1	0.00	0.00	0.00
8,500.0	0.00	0.00	8,499.2	71.0	70.0	71.1	0.00	0.00	0.00
8,600.0	0.00	0.00	8,599.2	71.0	70.0	71.1	0.00	0.00	0.00
8,700.0	0.00	0.00	8,699.2	71.0	70.0	71.1	0.00	0.00	0.00
8,800.0	0.00	0.00	8,799.2	71.0	70.0	71.1	0.00	0.00	0.00
8,900.0	0.00	0.00	8,899.2	71.0	70.0	71.1	0.00	0.00	0.00
9,000.0	0.00	0.00	8,999.2	71.0	70.0	71.1	0.00	0.00	0.00
9,100.0	0.00	0.00	9,099.2	71.0	70.0	71.1	0.00	0.00	0.00
9,200.0	0.00	0.00	9,199.2	71.0	70.0	71.1	0.00	0.00	0.00
9,300.0	0.00	0.00	9,199.2	71.0 71.0	70.0	71.1	0.00	0.00	0.00
9,400.0	0.00	0.00	9,399.2	71.0	70.0	71.1	0.00	0.00	0.00
9,500.0	0.00	0.00	9,499.2	71.0	70.0	71.1	0.00	0.00	0.00
9,600.0	0.00	0.00	9,599.2	71.0	70.0	71.1	0.00	0.00	0.00
9,700.0	0.00	0.00	9,699.2	71.0	70.0	71.1	0.00	0.00	0.00
9,800.0	0.00	0.00	9,799.2	71.0	70.0	71.1	0.00	0.00	0.00
9,900.0	0.00	0.00	9,899.2	71.0	70.0	71.1	0.00	0.00	0.00
9,938.3	0.00	0.00	9,937.5	71.0	70.0	71.1	0.00	0.00	0.00
	14 Fed Com #30		·						
9,950.0	1.40	0.00	9,949.2	71.1	70.0	71.2	12.00	12.00	0.00
9,975.0	4.40	0.00	9,974.2	72.4	70.0	72.5	12.00	12.00	0.00

# eog resources

### **Planning Report**

Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Antero 14 Fed Com

 Well:
 #305H

 Wellbore:
 OH

 Design:
 Plan #0.1 RT

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #305H

kb = 26' @ 3381.0usft kb = 26' @ 3381.0usft

Grid

Design:	Plan #0.1 RT								
Planned Survey									
riaililea ourvey									
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)
10,000.0	7.40	0.00	9,999.0	75.0	70.0	75.1	12.00	12.00	0.00
10,025.0	10.40	0.00	10,023.7	78.8	70.0	78.9	12.00	12.00	0.00
10,050.0	13.40	0.00	10,048.2	84.0	70.0	84.1	12.00	12.00	0.00
10,075.0	16.40	0.00	10,072.3	90.4	70.0	90.5	12.00	12.00	0.00
10,100.0	19.41	0.00	10,096.1	98.1	70.0	98.2	12.00	12.00	0.00
10,125.0	22.41	0.00	10,119.5	107.0	70.0	107.1	12.00	12.00	0.00
10,150.0	25.41	0.00	10,142.3	117.2	70.0	117.3	12.00	12.00	0.00
10,158.8	26.46	0.00	10,150.2	121.0	70.0	121.1	12.00	12.00	0.00
FTP(Antero 1	14 Fed Com #30	5H)							
10,175.0	28.41	359.96	10,164.6	128.5	70.0	128.6	12.00	12.00	-0.23
10,200.0	31.41	359.91	10,186.3	140.9	70.0	141.0	12.00	12.00	-0.20
10,225.0	34.41	359.87	10,186.3	154.5	70.0	154.6	12.00	12.00	-0.20 -0.17
10,250.0	37.41	359.83	10,207.5	169.2	69.9	169.3	12.00	12.00	-0.17 -0.14
	37.41 40.41					185.0			
10,275.0		359.80	10,247.0	184.9	69.9		12.00	12.00	-0.13 0.11
10,300.0	43.41	359.77	10,265.6	201.6	69.8	201.7	12.00	12.00	-0.11
10,325.0	46.41	359.75	10,283.3	219.2	69.7	219.3	12.00	12.00	-0.10
10,350.0	49.41	359.73	10,300.0	237.8	69.6	237.9	12.00	12.00	-0.09
10,375.0	52.41	359.71	10,315.8	257.2	69.6	257.3	12.00	12.00	-0.08
10,400.0	55.41	359.69	10,330.5	277.4	69.4	277.5	12.00	12.00	-0.08
10,425.0	58.41	359.67	10,344.2	298.3	69.3	298.4	12.00	12.00	-0.07
10.450.0	04.44	250.05	40.050.7	240.0	00.0	220.0	40.00	40.00	0.07
10,450.0	61.41	359.65	10,356.7	319.9	69.2	320.0	12.00	12.00	-0.07
10,475.0	64.41	359.64	10,368.1	342.2	69.1	342.3	12.00	12.00	-0.06
10,500.0	67.41	359.62	10,378.3	365.0	68.9	365.1	12.00	12.00	-0.06
10,525.0	70.41	359.61	10,387.3	388.3	68.8	388.4	12.00	12.00	-0.06
10,550.0	73.41	359.59	10,395.1	412.1	68.6	412.2	12.00	12.00	-0.05
10,575.0	76.41	359.58	10,401.6	436.2	68.4	436.3	12.00	12.00	-0.05
10,600.0	79.41	359.57	10,406.8	460.7	68.2	460.8	12.00	12.00	-0.05
10,625.0	82.41	359.56	10,410.8	485.4	68.1	485.4	12.00	12.00	-0.05
10,650.0	85.41	359.54	10,413.4	510.2	67.9	510.3	12.00	12.00	-0.05
10,675.0	88.40	359.53	10,414.8	535.2	67.7	535.3	12.00	12.00	-0.05
10,688.3	90.00	359.52	10,414.9	548.4	67.5	548.5	12.00	12.00	-0.05
10,700.0	90.00	359.52	10,414.9	560.2	67.4	560.3	0.00	0.00	0.00
10,800.0	90.00	359.52	10,414.9	660.2	66.6	660.2	0.00	0.00	0.00
10,900.0	90.00	359.52	10,415.0	760.2	65.8	760.2	0.00	0.00	0.00
11,000.0	90.00	359.52	10,415.0	860.2	65.0	860.2	0.00	0.00	0.00
11,100.0	90.00	359.52	10,415.0	960.2	64.1	960.2	0.00	0.00	0.00
11,200.0	90.00	359.52	10,415.0	1,060.1	63.3	1,060.2	0.00	0.00	0.00
11,300.0	90.00	359.52	10,415.0	1,160.1	62.5	1,160.2	0.00	0.00	0.00
11,400.0	90.00	359.52	10,415.0	1,260.1	61.6	1,260.2	0.00	0.00	0.00
11,500.0	90.00	359.52	10,415.0	1,360.1	60.8	1,360.2	0.00	0.00	0.00
11,600.0	90.00	359.52	10,415.0	1,460.1	60.0	1,460.2	0.00	0.00	0.00
11,700.0	90.00	359.52	10,415.0	1,560.1	59.1	1,560.2	0.00	0.00	0.00
11,800.0	90.00	359.52	10,415.0	1,660.1	58.3	1,660.2	0.00	0.00	0.00
11,900.0	90.00	359.52	10,415.0	1,760.1	57.5	1,760.2	0.00	0.00	0.00
12,000.0	90.00	359.52	10,415.0	1,860.1	56.7	1,860.2	0.00	0.00	0.00
12,100.0	90.00	359.52	10,415.0	1,960.1	55.8	1,960.2	0.00	0.00	0.00
12,200.0	90.00	359.52	10,415.0	2,060.1	55.0	2,060.2	0.00	0.00	0.00
12,300.0	90.00	359.52	10,415.0	2,160.1	54.2	2,160.2	0.00	0.00	0.00
12,400.0	90.00	359.52	10,415.0	2,260.1	53.3	2,260.2	0.00	0.00	0.00
12,500.0	90.00	359.52	10,415.0	2,360.1	52.5	2,360.2	0.00	0.00	0.00
ŕ									
12,600.0	90.00	359.52	10,415.0	2,460.1	51.7	2,460.2	0.00	0.00	0.00
12,700.0	90.00	359.52	10,415.0	2,560.1	50.8	2,560.2	0.00	0.00	0.00
12,800.9	90.00	359.52	10,415.0	2,661.0	50.0	2,661.1	0.00	0.00	0.00
Fed Perf 1(A	ntero 14 Fed Co	m #305H)							



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kb = 26' @ 3381.0usft kb = 26' @ 3381.0usft

Grid

anned Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
12,900.0	90.00	359.53	10,415.0	2.760.1	49.2	2,760.1	0.00	0.00	0.00
13,000.0	90.00	359.53	10,415.0	2,860.1		2,860.1			
13,000.0	90.00	359.53	10,415.0	2,860.1	48.4	2,860.1	0.00	0.00	0.00
13,100.0	90.00	359.53	10,415.0	2,960.1	47.5	2,960.1	0.00	0.00	0.00
13,200.0	90.00	359.54	10,415.0	3,060.1	46.7	3,060.1	0.00	0.00	0.00
13,300.0	90.00	359.54	10,415.0	3,160.1	45.9	3,160.1	0.00	0.00	0.00
13,400.0	90.00	359.54	10,415.0	3,260.1	45.1	3,260.1	0.00	0.00	0.00
13,500.0	90.00	359.55	10,415.0	3,360.1	44.3	3,360.1	0.00	0.00	0.00
13,300.0	90.00	339.33	10,415.0	3,300.1	44.3	3,300.1	0.00	0.00	0.00
13,600.0	90.00	359.55	10,415.0	3,460.1	43.5	3,460.1	0.00	0.00	0.00
13,700.0	90.00	359.55	10,415.0	3,560.1	42.8	3,560.1	0.00	0.00	0.00
13,800.0	90.00	359.56	10,415.0	3,660.1	42.0	3,660.1	0.00	0.00	0.00
13,900.0	90.00	359.56	10,415.0	3,760.1	41.2	3,760.1	0.00	0.00	0.00
14,000.0	90.00	359.56	10,415.0	3,860.1	40.4	3,860.1	0.00	0.00	0.00
14,100.0	90.00	359.57	10,415.0	3,960.1	39.7	3,960.1	0.00	0.00	0.00
14,200.0	90.00	359.57	10,415.0	4,060.0	38.9	4,060.1	0.00	0.00	0.00
14,300.0	90.00	359.57	10,415.0	4,160.0	38.2	4,160.1	0.00	0.00	0.00
14,400.0	90.00		10,415.0		37.4	4,160.1		0.00	
		359.57		4,260.0			0.00		0.00
14,500.0	90.00	359.58	10,415.0	4,360.0	36.7	4,360.1	0.00	0.00	0.00
14,600.0	90.00	359.58	10,415.0	4,460.0	36.0	4,460.1	0.00	0.00	0.00
14,700.0	90.00	359.58	10,415.0	4,560.0	35.2	4,560.1	0.00	0.00	0.00
14,800.0	90.00	359.59	10,415.0	4,660.0	34.5	4,660.1	0.00	0.00	0.00
14,900.0	90.00	359.59	10,415.0	4,760.0	33.8	4,760.1	0.00	0.00	0.00
15,000.0	90.00	359.59	10,415.0	4,860.0	33.1	4,860.1	0.00	0.00	0.00
15,100.0	90.00	359.60	10,415.0	4,960.0	32.4	4,960.1	0.00	0.00	0.00
15,200.0	90.00	359.60	10,415.0	5,060.0	31.7	5,060.1	0.00	0.00	0.00
15,300.0	90.00	359.60	10,415.0	5,160.0	31.0	5,160.1	0.00	0.00	0.00
15,400.0	90.00	359.61	10,415.0	5,260.0	30.3	5,260.1	0.00	0.00	0.00
15,442.0	90.00	359.61	10,415.0	5,302.0	30.0	5,302.0	0.00	0.00	0.00
			10,415.0	5,302.0	30.0	5,302.0	0.00	0.00	0.00
•	Antero 14 Fed Co	•							
15,500.0	90.00	359.61	10,415.0	5,360.0	29.6	5,360.0	0.00	0.00	0.00
15,600.0	90.00	359.60	10,415.0	5,460.0	28.9	5,460.0	0.00	0.00	0.00
15,700.0	90.00	359.60	10,415.0	5,560.0	28.2	5,560.0	0.00	0.00	0.00
15,800.0	90.00	359.59	10,415.0	5,660.0	27.5	5,660.0	0.00	0.00	0.00
15,900.0	90.00	359.59	10,415.0	5,760.0	26.8	5,760.0	0.00	0.00	0.00
16,000.0	90.00	359.58	10,415.0	5,860.0	26.1	5,860.0	0.00	0.00	0.00
16,100.0	90.00	359.58	10,415.0	5,960.0	25.3	5,960.0	0.00	0.00	0.00
16,200.0	90.00	359.57	10,415.0	6,060.0	24.6	6,060.0	0.00	0.00	0.00
16,300.0	90.00	359.57	10,415.0	6,160.0	23.8	6,160.0	0.00	0.00	0.00
16,400.0	90.00	359.56	10,415.0	6,260.0	23.1	6,260.0	0.00	0.00	0.00
16,500.0	90.00	359.56	10,415.0	6,360.0	22.3	6,360.0	0.00	0.00	0.00
16,600.0	90.00	359.55	10,415.0	6,460.0	21.5	6,460.0	0.00	0.00	0.00
16,700.0	90.00	359.55	10,415.0	6,560.0	20.8	6,560.0	0.00	0.00	0.00
16,800.0	90.00	359.54	10,415.0	6,660.0	20.0	6,660.0	0.00	0.00	0.00
16,900.0	90.00	359.54	10,415.0	6,760.0	19.2	6,760.0	0.00	0.00	0.00
17,000.0	90.00	359.54	10,415.0	6,860.0	18.4	6,860.0	0.00	0.00	0.00
17,100.0	90.00	359.53	10,415.0	6,960.0	17.5	6,960.0	0.00	0.00	0.00
17,200.0	90.00	359.53	10,415.0	7,060.0	16.7	7,060.0	0.00	0.00	0.00
17,300.0	90.00	359.52	10,415.0	7,160.0	15.9	7,160.0	0.00	0.00	0.00
17,400.0	90.00	359.52	10,415.0	7,260.0	15.0	7,260.0	0.00	0.00	0.00
17,700.0	30.00	000.02	10,710.0	1,200.0	10.0	1,200.0	0.00	0.00	0.00
17,500.0	90.00	359.51	10,415.0	7,360.0	14.2	7,360.0	0.00	0.00	0.00
17,600.0	90.00	359.51	10,415.0	7,460.0	13.3	7,460.0	0.00	0.00	0.00
17,700.0	90.00	359.50	10,415.0	7,559.9	12.5	7,560.0	0.00	0.00	0.00
17,800.0	90.00	359.50	10,415.0	7,659.9	11.6	7,660.0	0.00	0.00	0.00
17,900.0	90.00	359.49	10,415.0	7,759.9	10.7	7,759.9	0.00	0.00	0.00
	90.00	559.49	10,415.0	1,109.9	10.7	1,109.9	0.00	0.00	0.00



Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Antero 14 Fed Com

 Well:
 #305H

 Wellbore:
 OH

 Design:
 Plan #0.1 RT

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

Survey Calculation Method:

Well #305H

kb = 26' @ 3381.0usft kb = 26' @ 3381.0usft

Grid

Planned Sur	rvey									
D	asured epth usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1	17,982.1	90.00	359.49	10,415.0	7,842.0	10.0	7,842.0	0.00	0.00	0.00
PB	BHL(Antero	14 Fed Com #3	805H)							

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 cen - Point	0.00 ter	0.00	9,937.5	71.0	70.0	412,191.00	788,035.00	32° 7′ 50.460 N	103° 32' 10.979 W
FTP(Antero 14 Fed Corrupter - plan hits target cenrupter - Point	0.00 ter	0.00	10,150.2	121.0	70.0	412,241.00	788,035.00	32° 7' 50.955 N	103° 32' 10.975 W
PBHL(Antero 14 Fed Co - plan hits target cen - Point	0.00 ter	0.00	10,415.0	7,842.0	10.0	419,962.00	787,975.00	32° 9' 7.360 N	103° 32' 11.008 W
Fed Perf 1(Antero 14 Fe - plan hits target cen - Point	0.00 ter	0.00	10,415.0	2,661.0	50.0	414,781.00	788,015.00	32° 8′ 16.090 N	103° 32' 10.989 W
Fed Perf 2(Antero 14 Fe - plan hits target cen - Point	0.00 ter	0.01	10,415.0	5,302.0	30.0	417,422.00	787,995.00	32° 8' 42.225 N	103° 32' 10.994 W



1400

2450

2800

4200-

7350-

7700-

Released to Imaging: 8/10/2023 9:40:00 AM

T M

Azimuths to Grid North
True North: -0.42°
Magnetic North: 5.87°

Magnetic Field Strength: 47242.4nT Dip Angle: 59.75° Date: 5/17/2023 Model: IGRF2020

To convert a Magnetic Direction to a Grid Direction, Add 5.87°
To convert a Magnetic Direction to a True Direction, Add 6.30° East
To convert a True Direction to a Grid Direction, Subtract 0.42°

Lea County, NM (NAD 83 NME)

Antero 14 Fed Com #305H

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: #305H

3355.0

kb = 26' @ 3381.0usft

 Northing
 Easting
 Latittude
 Longitude

 412120.00
 787965.00
 32° 7' 49.763 N
 103° 32' 11.799 W

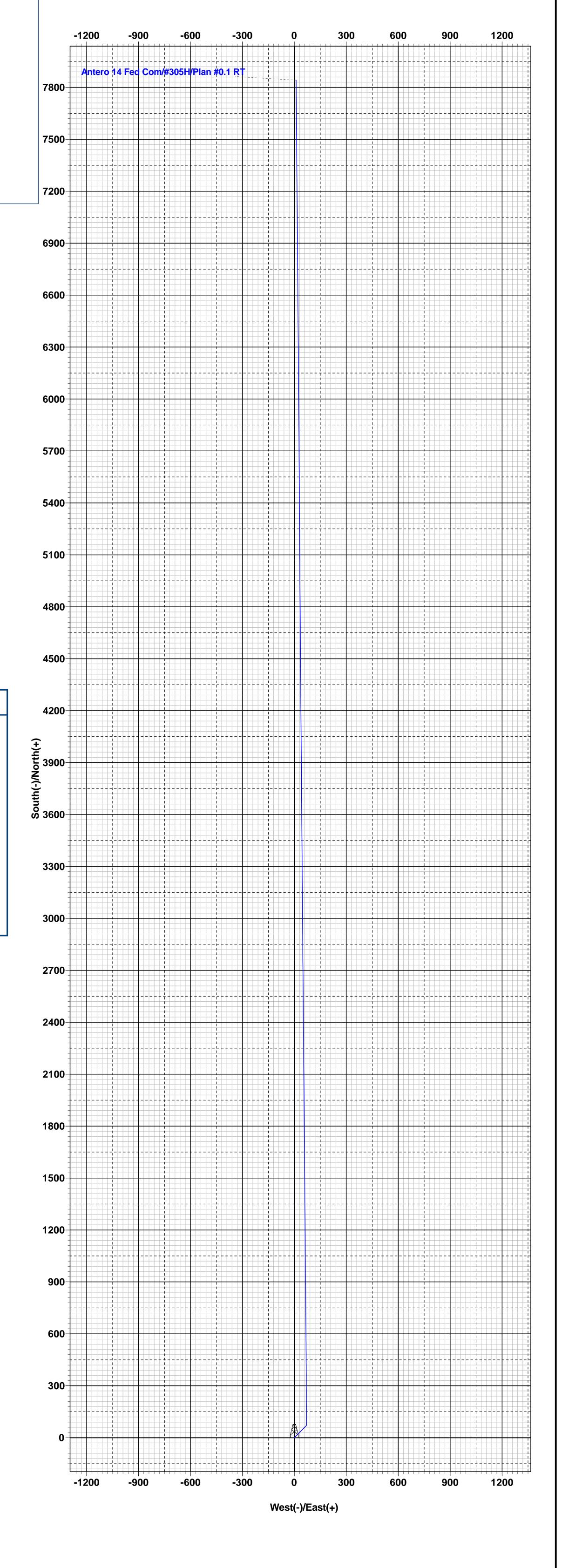
						SI	ECTION	DETAILS		
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	1546.5	0.93	44.59	1546.5	0.3	0.3	2.00	44.59	0.3	
4	7639.3	0.93	44.59	7638.5	70.7	69.7	0.00	0.00	70.8	
5	7685.8	0.00	0.00	7685.0	71.0	70.0	2.00	180.00	71.1	
6	9938.3	0.00	0.00	9937.5	71.0	70.0	0.00	0.00	71.1	KOP(Antero 14 Fed Com #305H)
7	10158.8	26.46	0.00	10150.2	121.0	70.0	12.00	0.00	121.1	FTP(Antero 14 Fed Com #305H)
8	10688.3	90.00	359.52	10414.9	548.4	67.5	12.00	-0.53	548.5	
9	12800.9	90.00	359.52	10415.0	2661.0	50.0	0.00	0.00	2661.1	Fed Perf 1(Antero 14 Fed Com #305H)
10	15442.0	90.00	359.61	10415.0	5302.0	30.0	0.00	88.03	5302.0	Fed Perf 2(Antero 14 Fed Com #305H)
11	17982.1	90.00	359.49	10415.0	7842.0	10.0	0.00	-91.40	7842.0	PBHL(Antero 14 Fed Com #305H)

CASING DETAILS

No casing data is available

WELLBORE TA	arget details	(MAP CO-ORI	DINATES)			
Name	TVD	+N/-S	+E/-W	Northing	<b>Easting</b>	
KOP(Antero 14 Fed Com #305H)	9937.5	71.0	70.0	412191.00	788035.00	
FTP(Antero 14 Fed Com #305H)	10150.2	121.0	70.0	412241.00	788035.00	
Fed Perf 1(Antero 14 Fed Com #305H)	10415.0	2661.0	50.0	414781.00	788015.00	
Fed Perf 2(Antero 14 Fed Com #305H)	10415.0	5302.0	30.0	417422.00	787995.00	
PBHL(Antero 14 Fed Com #305H)	10415.0	7842.0	10.0	419962.00	787975.00	

West(-)/East(+)



9800
10150
Antiero 14 Fed Cont/#305H/Plan #0.4 RT
10500
0 350 700 1050 1400 1750 2100 2450 2800 3150 3500 3850 4200 4550 4900 5250 5600 5950 6300 6650 7000 7350 7700

Vertical Section at 0.07°

Lea County, NM (NAD 83 NME)
Antero 14 Fed Com
#305H
OH
Plan #0.1 RT
12:50, May 17 2023



2/24/2022

### **Cement Program**

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

### **Summarized Operational Procedure for Intermediate Casing**

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



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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.



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### **Example Well Control Plan Content**

### A. Well Control Component Table

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

Intermediate hole section, 5M requirement

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

### **B.** Well Control Procedures

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

### **General Procedure While Circulating**

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

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- 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**

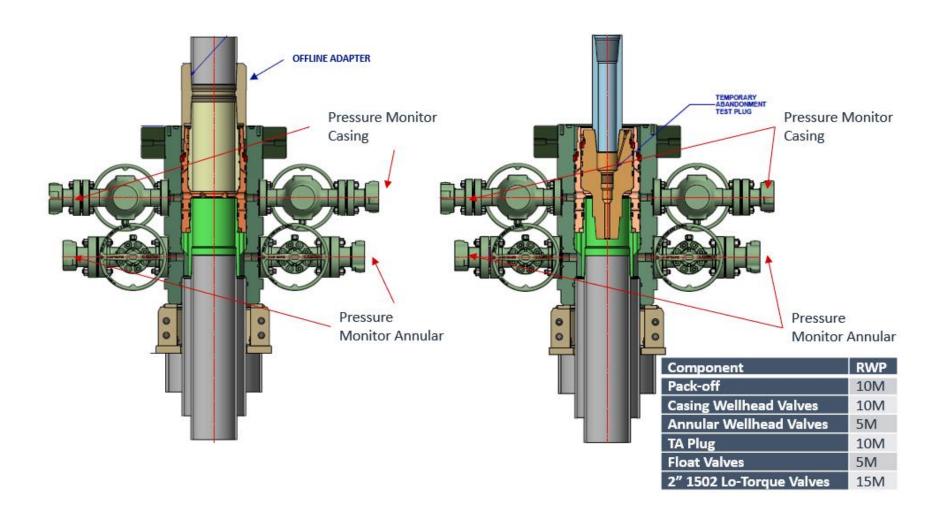
- 1. Sound alarm (alert crew).
- 2. Shut down pumps.
- 3. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 4. Confirm shut-in.
- 5. Notify tool pusher/company representative.
- 6. Open rig choke and begin pumping again taking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



Figure 1: Cameron TA Plug and Offline Adapter Schematic



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Figure 2: Cactus TA Plug and Offline Adapter Schematic

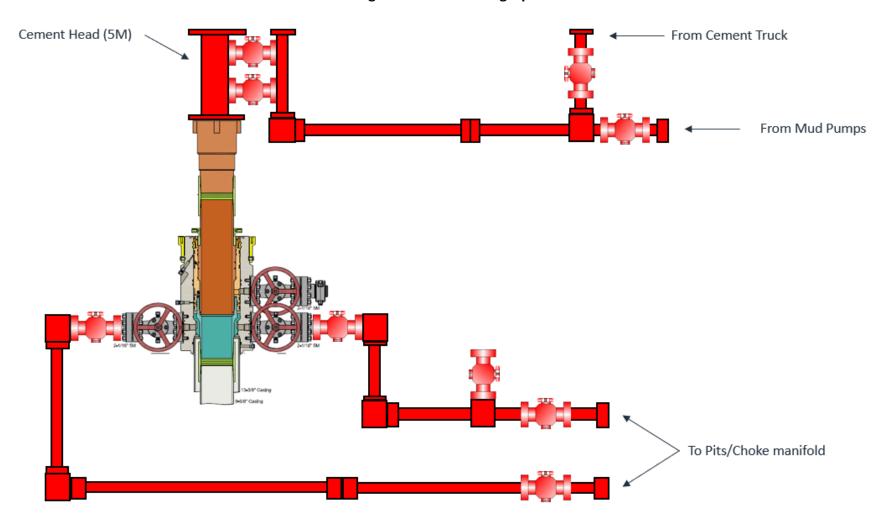


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2/24/2022

Figure 3: Back Yard Rig Up



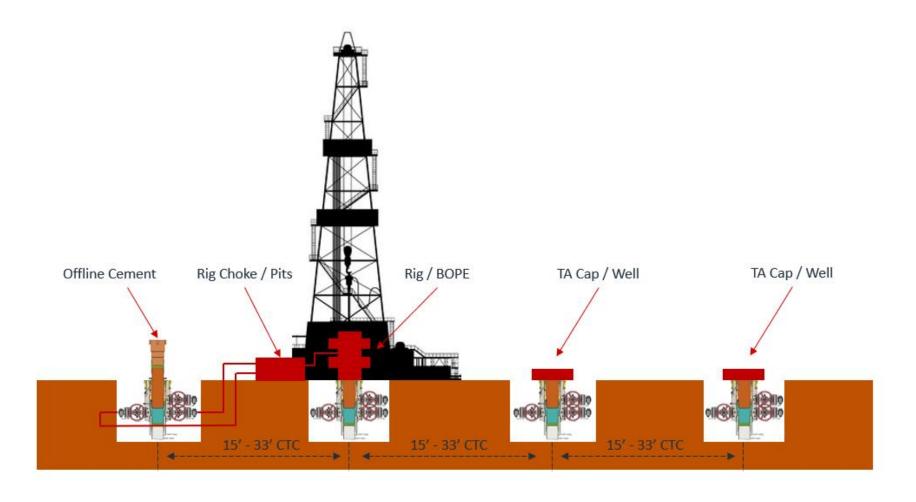
\*\*\* All Lines 10M rated working pressure

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2/24/2022

Figure 4: Rig Placement Diagram



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# Salt Section Annular Clearance Variance Request

**Daniel Moose** 

# **Current Design (Salt Strings)**

### **0.422"** Annular clearance requirement

- Casing collars shall have a minimum clearance of 0.422 inches on all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.
- 12.25" Hole x 9.625"40# J55/HCK55 LTC Casing
  - 1.3125" Clearance to casing OD
  - 0.8125" Clearance to coupling OD
- 9.875" Hole x 8.75" 38.5# P110 Sprint-SF Casing
  - 0.5625" Clearance to casing OD
  - 0.433" Clearance to coupling OD

# **Annular Clearance Variance Request**

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

- The variance is not applicable within the Potash Boundaries or Capitan Reef areas.
- Operator takes responsibility to get casing to set point in the event that the clearance causes stuck pipe issues

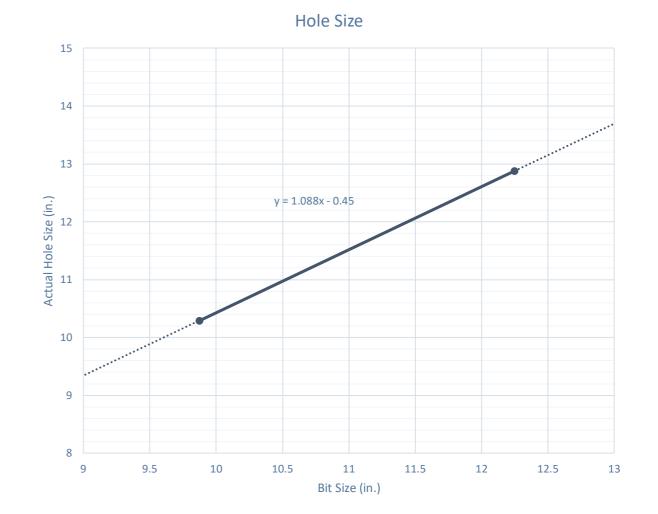
# **Volumetric Hole Size Calculation**

### **Hole Size Calculations Off Cement Volumes**

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

### **Average Hole Size**

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

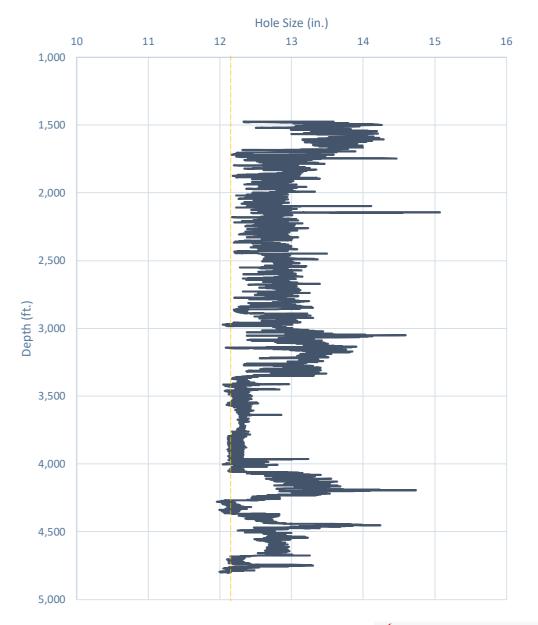


### Modelo 10 Fed Com #501H

# Caliper Hole Size (12.25")

### **Average Hole Size**

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

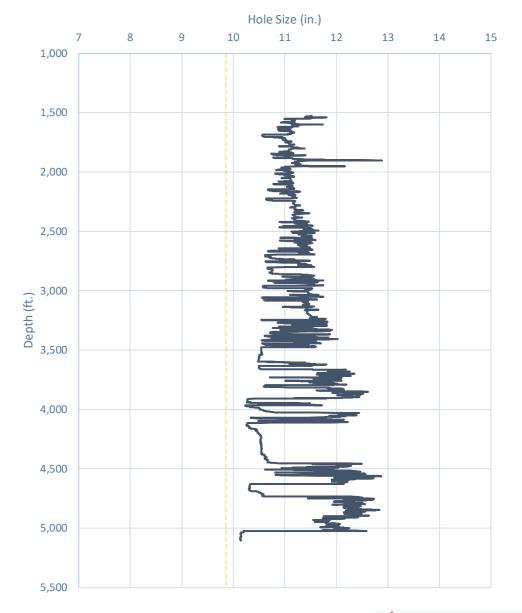


# Caliper Hole Size (9.875")

### **Average Hole Size**

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

### Whirling Wind 11 Fed Com #744H



# **Design A**

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

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

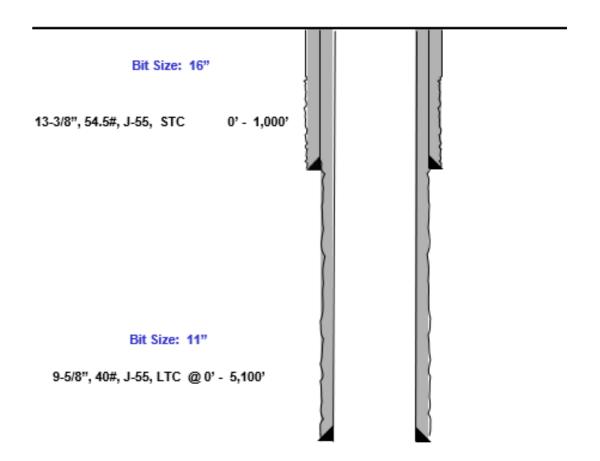
$$=\frac{11.52-9.625}{2}$$

• 0.4475" Clearance to coupling OD

$$=\frac{11.52-10.625}{2}$$

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

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



# **Design B**

# Proposed 9.875" Hole with 8.625" 32# J55/P110 BTC-SC Casing

- 9.875" Bit + 0.42" Average hole enlargement = 10.295" Hole Size
  - 0.835" Clearance to casing OD

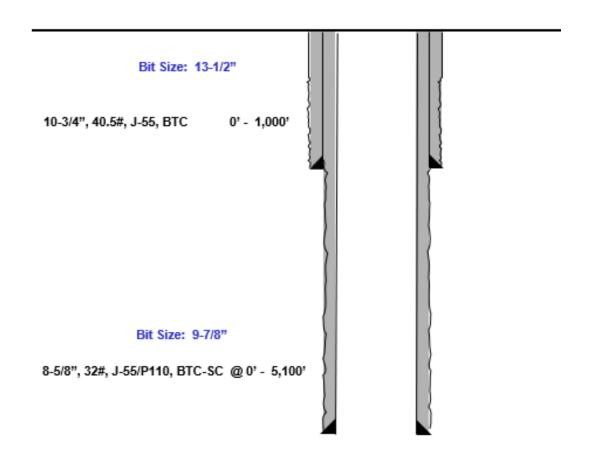
$$=\frac{10.295-8.625}{2}$$

• 0.585" Clearance to coupling OD

$$=\frac{10.295-9.125}{2}$$

- Previous Shoe 10.75" 40.5# J55 STC
  - 0.4625" Clearance to coupling OD (~1,200' overlap)

$$=\frac{10.05-9.125}{2}$$



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# Index

# **Casing Spec Sheets**

### PERFORMANCE DATA

API LTC 9.625 in 40.00 lbs/ft K55 HC Technical Data Sheet

<b>Tubular Parameters</b>					
Size	9.625	in	Minimum Yield	55	ksi
Nominal Weight	40.00	lbs/ft	Minimum Tensile	95	ksi
Grade	K55 HC		Yield Load	629	kips
PE Weight	38.94	lbs/ft	Tensile Load	1088	kips
Wall Thickness	0.395	in	Min. Internal Yield Pressure	3,950	psi
Nominal ID	8.835	in	Collapse Pressure	3600	psi
Drift Diameter	8 750	in		•	1

in²

Connection Parameters							
Connection OD	10.625	in					
Coupling Length	10.500	in					
Threads Per Inch	8	tpi					
Standoff Thread Turns	3.50	turns					
Make-Up Loss	4.750	in					
Min. Internal Yield Pressure	3,950	psi					

11.454

### Pipe Body and API Connections Performance Data

13.375 54.50/0.380 J55 PDF

New Search I)

USC	Metric

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6/8/2015 10:04:37 AM					
Mechanical Properties	Ptpe	втс	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Ptpe	втс	LTC	STC	
Outside Diameter	13.375	14.375	-	14.375	in.
Wall Thickness	0.380	-	-	-	in.
Inside Diameter	12.615	12.615	-	12.615	in.
Standard Drift	12.459	12.459	-	12.459	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	54.50	-	-	-	lbs/ft
Plain End Weight	52.79	-	-	-	lbs/ft
Performance	Pipe	втс	LTC	STC	
Minimum Collapse Pressure	1,130	1,130	-	1,130	psi
Minimum Internal Yield Pressure	2,740	2,740	-	2,740	psi
Minimum Pipe Body Yield Strength	853.00	-	-	-	1000 lbs
Joint Strength		909	-	514	1000 lbs
Reference Length	-	11,125	-	6,290	ft
Make-Up Data	Ptpe	втс	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque	-	-	-	3,860	ft-lbs
Maximum Make-Up Torque	-	-	-	6,430	ft-lbs

Nom. Pipe Body Area

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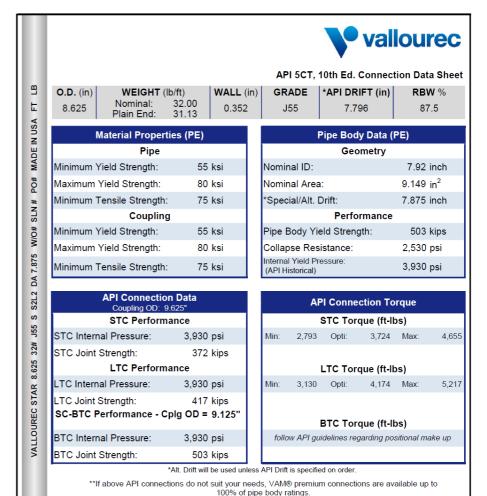
# **Casing Spec Sheets**

### Pipe Body and API Connections Performance Data

10.750 40.50/0.350 J55 PDF

New Search » « Back to Previous List USC Metric

6/8/2015 10:14:05 AM					
Mechanical Properties	Ptpe	втс	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Ptpe	втс	LTC	STC	
Outside Diameter	10.750	11.750	-	11.750	in.
Wall Thickness	0.350	-	-	-	in.
Inside Diameter	10.050	10.050	-	10.050	in.
Standard Drift	9.894	9.894	-	9.894	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	40.50		-		lbs/ft
Plain End Weight	38.91	-	-	-	lbs/ft
Performance	Ptpe	втс	LTC	STC	
Minimum Collapse Pressure	1,580	1,580	-	1,580	psi
Minimum Internal Yield Pressure	3,130	3,130	-	3,130	psi
Minimum Pipe Body Yield Strength	629.00	-	-	-	1000 lbs
Joint Strength		700	-	420	1000 lbs
Reference Length	-	11,522	-	6,915	ft
Make-Up Data	Pipe	втс	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque				3,150	ft-lbs
Maximum Make-Up Torque		-	-	5,250	ft-lbs



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CONDITIONS

Action 232993

### **CONDITIONS**

Operator:	OGRID:
EOG RESOURCES INC	7377
P.O. Box 2267	Action Number:
Midland, TX 79702	232993
	Action Type:
	[C-103] NOI Change of Plans (C-103A)

### CONDITIONS

Create Bv	d Condition	Condition Date
pkau	z IN ADDITION TO PRVIOUS COA. IF ON ANY STRING CEMENT DOES NOT CIRCULATE. A CBL MUST BE RUN ON THAT STRING OF CASING.	8/10/2023
prac	INADDITION TO FRAIDOS COA, IF ON ANY STRING CEWIENT DOES NOT GIRCULATE, A CBE WIGST BE RON ON THAT STRING OF CASING.	0/10/2023