

Carlsbad Field Office
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
OGD ArtesiaFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**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.
NMNM113940

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
PLUCKY BUU FEDERAL COM 5H9. API Well No.
30-015-44144-00-X110. Field and Pool or Exploratory Area
UNDESIGNATED11. County or Parish, State
EDDY COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
EOG Y RESOURCES INCContact: STAN WAGNER
E-Mail: stan_wagner@eogresources.com3a. Address
105 S 4TH STREET
ARTESIA, NM 882103b. Phone No. (include area code)
Ph: 432-686-36894. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 14 T26S R26E SESE 250FSL 660FEL**12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	PD

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 recomple 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 recompletion 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 determined that the site is ready for final inspection.

EOG Y Resources, Inc. requests an amendment to our approved APD for this well to reflect changes in the well name and BHL.

Change well name and number to: Plucky 14 Fed Com 502H.

Change BHL to: 2424' FSL & 330' FEL, 11-26S-26E, Eddy County.

The previously approved pilot hole will not be drilled.
A new drill plan is attached.

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 03 2017

SEE ATTACHED FOR **RECEIVED**
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #378911 verified by the BLM Well Information System For EOG Y RESOURCES INC, sent to the Carlsbad Committed to AFMSS for processing by DEBORAH MCKINNEY on 06/19/2017 (17DLM2042SE)	
Name (Printed/Typed) STAN WAGNER	Title AGENT
Signature (Electronic Submission)	Date 06/14/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>ZOTA STEVENS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>08/01/2017</u>
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 <u>Carlsbad</u>

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)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

RUP 8-3-2017

District I
1625 N. French Dr. Hobbs, NM 88240
Phone (575) 393-6161 Fax (575) 393-6720
District II
811 S. First St. Artesia, NM 88210
Phone (575) 748-1283 Fax (575) 748-9720
District III
1900 Rio Brazos Road, Artec, NM 87410
Phone (505) 334-6178 Fax (505) 334-6170
District IV
1220 S. St. Francis Dr. Santa Fe, NM 87505
Phone (505) 476-3400 Fax (505) 476-3402

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 30-015-44144		² Pool Code 64010	³ Pool Name Welch Bone Spring
⁴ Property Code 317672 318941	⁵ Property Name PLUCKY 14 FED COM		⁶ Well Number #502H
⁷ OGRID No. 25575	⁸ Operator Name EOG Y Resources, Inc.		⁹ Elevation 3364'

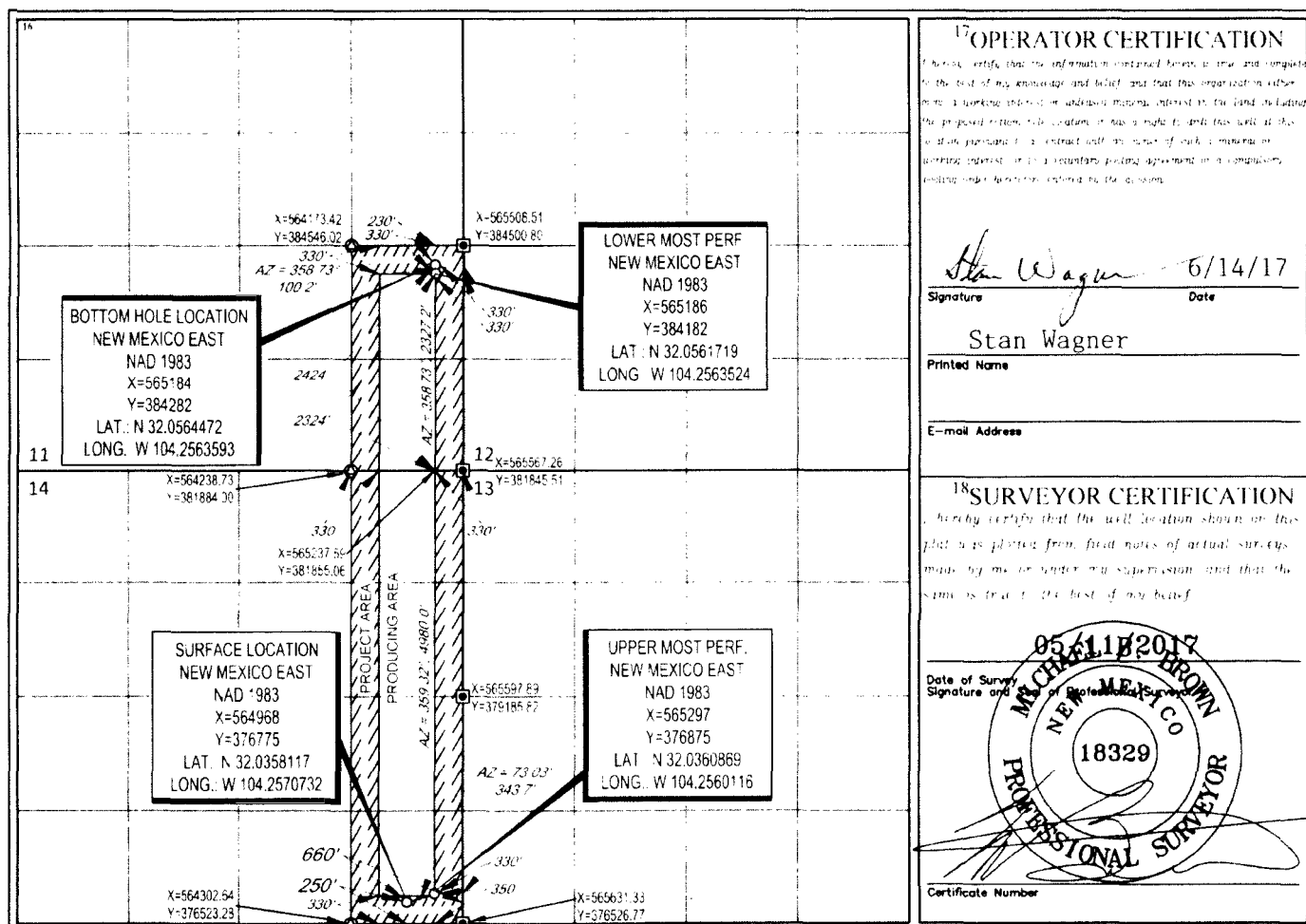
¹⁰Surface Location

U.I. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	14	26-S	26-E	-	250'	SOUTH	660'	EAST	EDDY

U.I. or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	11	26-S	26-E	-	2424'	SOUTH	330'	EAST	EDDY

¹² Dedicated Acres 240.00	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.



EOG RESOURCES, INC.
PLUCKY 14 FED COM NO. 502H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Castille	306'
Top of Salt	1,090'
Base of Salt	1,818'
Lamar	1,931'
Bell Canyon	1,971'
Cherry Canyon	2,861'
Brushy Canyon	3,990'
Bone Spring Lime	5,512'
1 st Bone Spring Sand	6,376'
2 nd Bone Spring Sand	7,269'
TD	7,350'

3. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 300'	Fresh Water
Brushy Canyon	3,990'	Oil
Bone Spring Lime	5,512'	Oil
1 st Bone Spring Sand	6,376'	Oil
2 nd Bone Spring Sand	7,269'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 13.375" casing at 360' and circulating cement back to surface.

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF _{min} Collapse	DF _{min} Burst	DF _{min} Tension
17.5"	0' - 360'	13.375"	54.5#	J55	STC	1.125	1.25	1.60
12.25"	0 - 1,950'	9.625"	40#	J55	LTC	1.125	1.25	1.60
8.75"	0' - 14,865'	5.5"	17#	HCP-110	LTC	1.125	1.25	1.60

EOG RESOURCES, INC.
PLUCKY 14 FED COM NO. 502H

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft ³ /ft	Mix Water Gal/sk	Slurry Description
13-3/8" 360'	325	13.5	1.73	9.13	Lead: Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl ₂ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	200	14.8	1.34	6.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
9-5/8" 1,950'	500	12.7	2.22	12.38	Lead: Class 'C' + 1.50% R-3 + 0.25 lb/sk Cello-Flake + 2.0% Sodium Metasilicate + 10% Salt + 0.005 lb/sk Static Free (TOC @ surface)
	200	14.8	1.38	6.48	Tail: Class 'C' + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
5-1/2" 14,865'	225	10.8	3.67	21.7	Lead: 60:40:0 Class 'C' + 15.00 lb/sk BA-90 + 4.00% MPA-5 + 3.00% SMS + 5.00% A-10 + 1.00% BA-10A + 0.80% ASA-301 + 2.90% R-21 + 8.00 lb/sk LCM-1 + 0.005 lb/sk Static Free (TOC @ 1,450')
	200	11.8	2.38	13.25	Middle: 50:50:10 Class 'H' + 0.80% FL-52 + 0.45% ASA-301 + 0.40% SMS + 2.00% Salt + 3.00 lb/sx LCM-1 + 0.20% R-21 + 0.25 lb/sk Cello Flake + 0.005 lb/sk Static Free
	900	14.2	1.28	5.75	Tail: 50:50:2 Class 'H' + 0.65% FL-52 + 0.20% CD-32 + 0.15% SMS + 2.00% Salt + 0.10% R-3 + 0.005 lb/sk Static Free

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.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 3500/ 250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 3500/ 250 psig. The intermediate casing will be tested to 2000 psi for 30 minutes.

EOG RESOURCES, INC.
PLUCKY 14 FED COM NO. 502H

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 360'	Fresh - Gel	8.6-8.8	28-34	N/c
300' – 1,950'	Brine	8.8-10.0	28-34	N/c
1,950' – 14,865' Lateral	Cut Brine	9.0-10.0	28-34	N/c

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

- (A) A kelly cock will be kept in the drill string at all times.
- (B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- (C) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are not planned for this well.

GR-CCL Will be run in cased hole during completions phase of operations.

EOG RESOURCES, INC.
PLUCKY 14 FED COM NO. 502H

9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:

The estimated bottom-hole temperature (BHT) at TD is 130 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 3822 psig. No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

(A) EOG Resources requests the option to contract a Surface Rig to drill, set surface casing, and cement on the subject well. If the timing between rigs is such that EOG Resources would not be able to preset the surface, the Primary Rig will MIRU and drill the well in its entirety per the APD.

11. WELLHEAD:

A multi-bowl wellhead system will be utilized.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5000 psi.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Stream Flo FBD100 Multi-Bowl WH system has been sent to the NM BLM office in Carlsbad, NM.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

Plucky 14 Fed Com #502H

Eddy County, New Mexico

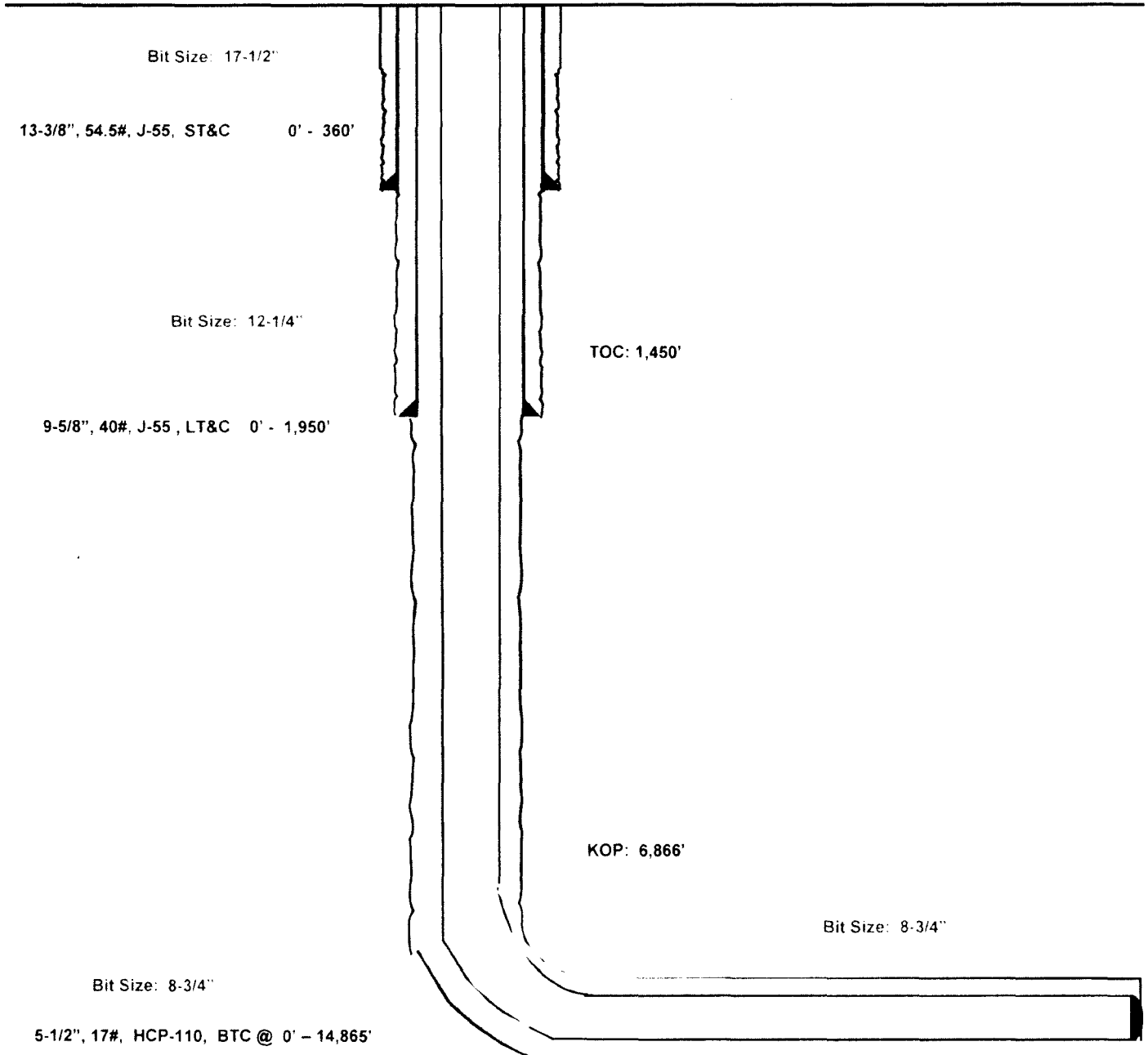
Proposed Wellbore

Revised 6/13/17

API: 30-015-44144

250' FSL
660' FEL
Section 14
T-26-S, R-26-E

KB: 3,389'
GL: 3,364'



Lateral: 14,865' MD, 7,350' TVD
Upper Most Perf:
350' FSL & 330' FEL Sec. 14
Lower Most Perf:
2324' FSL & 330' FEL Sec. 11
BH Location: 2424' FSL & 330' FEL
Section 11
T-26-S, R-26-E



Eddy County, NM (NAD 83 NME)

Plucky 14 Fed Com #502H

Plan #0.1

PROJECT DETAILS Eddy County NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level



Azimuths to Grid North
True North: 0.04°
Magnetic North: 7.21°

Magnetic Field
Strength: 47753.6 nT
Dip Angle: 59.78°
Date: 6/13/2017
Model: IGRF 2015

WELL DETAILS #502H

KB + 25 @ J389.0m
Northing: 376775.00 Easting: 564968.00 Latitude: 32° 2' 8.92" N Longitude: 104° 15' 25.464" W

SECTION DETAILS

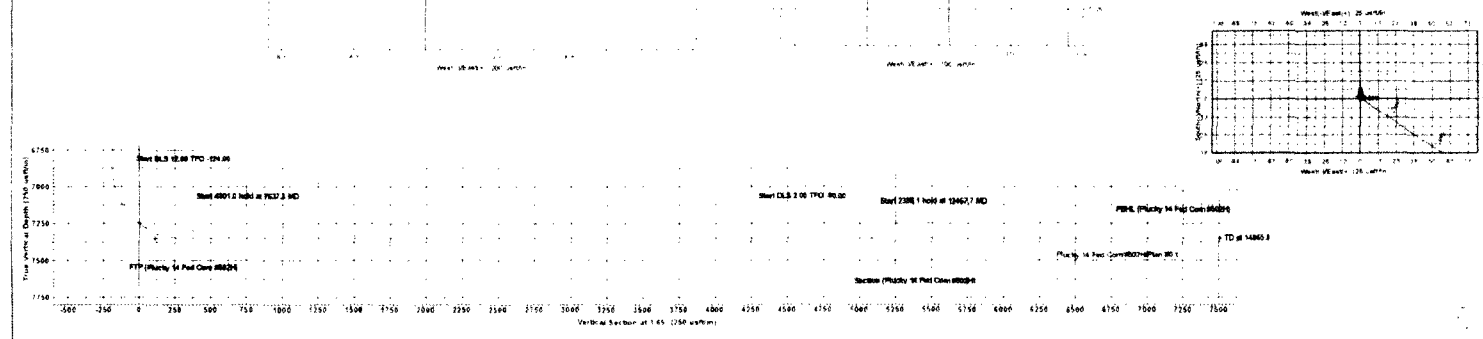
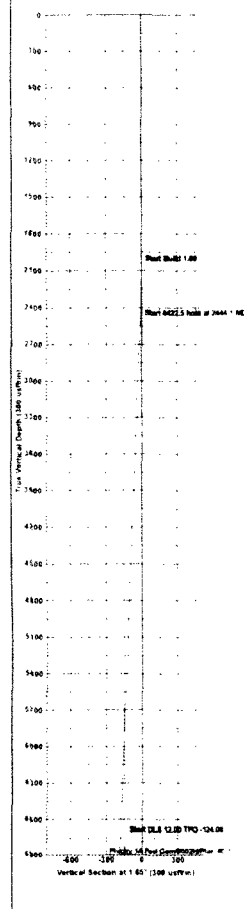
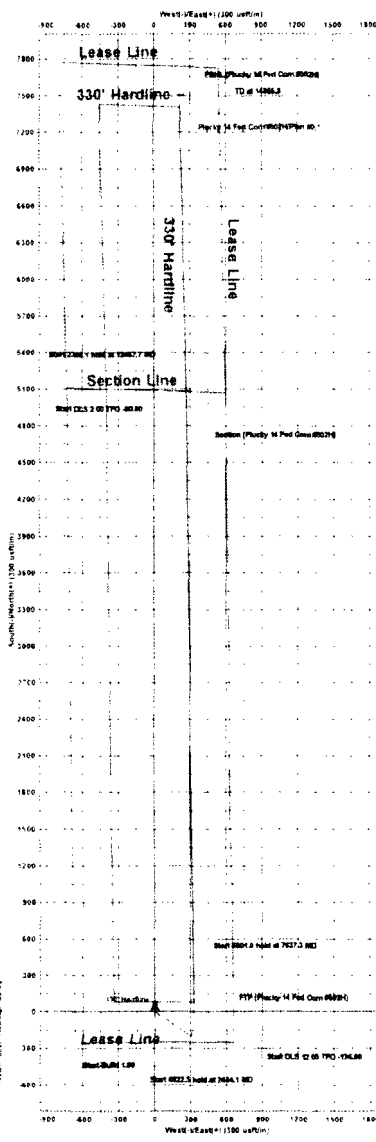
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0
3	2444.1	4.44	123.40	2443.6	-9.5	14.4	1.00	123.40	-9.1
4	6866.6	4.44	123.40	6852.8	-198.0	300.3	0.00	0.00	-189.2
5	7637.3	90.00	359.32	7350.0	279.4	326.6	12.00	-124.00	288.7
6	12438.3	90.00	359.32	7350.0	5080.1	269.6	0.00	0.00	5085.7
7	12467.7	90.00	358.73	7350.0	5109.5	269.1	2.00	-90.00	5115.1
8	14865.8	90.00	358.73	7350.0	7507.0	216.0	0.00	0.00	7510.1

CASING DETAILS

For casing, refer to separate sheets.

WELLBORE TARGET DETAILS (MAP COORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
Section (Plucky 14 Fed Com #502H)	7350.0	5080.1	269.6	381855.08	565337.55
PBHL (Plucky 14 Fed Com #502H)	7350.0	7367.0	216.0	384282.00	565184.00
PTD (Plucky 14 Fed Com #502H)	7350.0	100.0	329.0	376875.00	565297.00





EOG Resources - Midland

Eddy County, NM (NAD 83 NME)

Plucky 14 Fed Com

#502H

OH

Plan: Plan #0.1

Standard Planning Report

14 June, 2017



EOG Resources, Inc.

Planning Report

Database: EDM 5000.14 Single User Db
Company: EOG Resources - Midland
Project: Eddy County, NM (NAD 83 NME)
Site: Plucky 14 Fed Com
Well: #502H
Wellbore: OH
Design: Plan #0 1

Local Co-ordinate Reference: Well #502H
TVD Reference: KB = 25' @ 3389.0usft
MD Reference: KB = 25' @ 3389.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Eddy 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 Plucky 14 Fed Com

Site Position: Northing: 376 775.00 usft Latitude: 32° 2' 8.921 N
From: Map Easting: 564 968.00 usft Longitude: 104° 15' 25.464 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3.16" Grid Convergence: 0.04

Well #502H

Well Position +N/-S 0.0 usft Northing: 376 775.00 usft Latitude: 32° 2' 8.921 N
 +E/-W 0.0 usft Easting: 564 968.00 usft Longitude: 104° 15' 25.464 W
Position Uncertainty 0.0 usft Wellhead Elevation: Ground Level: 3.364.0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/13/2017	7.26	59.78	47 753 64869555

Design Plan #0 1

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	1.65

Plan Survey Tool Program Date 6/13/2017

Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1 0.0	14 865.8	Plan #0 1 (OH)	MWVD	
			MWVD - Standard	

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	
2.000.0	0.00	0.00	2.000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2.444.1	4.44	123.40	2.443.6	-9.5	14.4	1.00	1.00	0.00	123.40	
6.866.6	4.44	123.40	6.852.8	-198.0	300.3	0.00	0.00	0.00	0.00	
7.637.3	90.00	359.32	7.350.0	279.4	326.6	12.00	11.10	-16.10	-124.00	
12.438.3	90.00	359.32	7.350.0	5.080.1	269.6	0.00	0.00	0.00	0.00	Section (Plucky 14 Fe
12.467.7	90.00	358.73	7.350.0	5.109.5	269.1	2.00	0.00	-2.00	-90.00	
14.865.8	90.00	358.73	7.350.0	7.507.0	216.0	0.00	0.00	0.00	0.00	PBHL (Plucky 14 Fed



EOG Resources, Inc.

Planning Report

Database: EDM 5000 14 Single User Db
Company: EOG Resources - Midland
Project: Eddy County, NM (NAD 83 NME)
Site: Plucky 14 Fed Com
Well: #502H
Wellbore: OH
Design: Plan #0.1

Local Co-ordinate Reference: Well #502H
TVD Reference: KB = 25' @ 3389.0usft
MD Reference: KB = 25' @ 3389.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	1.00	123.40	2,100.0	-0.5	0.7	-0.5	1.00	1.00	0.00
2,200.0	2.00	123.40	2,200.0	-1.9	2.9	-1.8	1.00	1.00	0.00
2,300.0	3.00	123.40	2,299.9	-4.3	6.6	-4.1	1.00	1.00	0.00
2,400.0	4.00	123.40	2,399.7	-7.7	11.7	-7.3	1.00	1.00	0.00
2,444.1	4.44	123.40	2,443.6	-9.5	14.4	-9.1	1.00	1.00	0.00
2,500.0	4.44	123.40	2,499.4	-11.9	18.0	-11.3	0.00	0.00	0.00
2,600.0	4.44	123.40	2,599.1	-16.1	24.4	-15.4	0.00	0.00	0.00
2,700.0	4.44	123.40	2,698.8	-20.4	30.9	-19.5	0.00	0.00	0.00
2,800.0	4.44	123.40	2,798.5	-24.6	37.4	-23.6	0.00	0.00	0.00
2,900.0	4.44	123.40	2,898.2	-28.9	43.8	-27.6	0.00	0.00	0.00
3,000.0	4.44	123.40	2,997.9	-33.2	50.3	-31.7	0.00	0.00	0.00
3,100.0	4.44	123.40	3,097.6	-37.4	56.8	-35.8	0.00	0.00	0.00
3,200.0	4.44	123.40	3,197.3	-41.7	63.2	-39.9	0.00	0.00	0.00
3,300.0	4.44	123.40	3,297.0	-45.9	69.7	-43.9	0.00	0.00	0.00
3,400.0	4.44	123.40	3,396.7	-50.2	76.2	-48.0	0.00	0.00	0.00
3,500.0	4.44	123.40	3,496.4	-54.5	82.6	-52.1	0.00	0.00	0.00
3,600.0	4.44	123.40	3,596.1	-58.7	89.1	-56.1	0.00	0.00	0.00
3,700.0	4.44	123.40	3,695.8	-63.0	95.5	-60.2	0.00	0.00	0.00
3,800.0	4.44	123.40	3,795.5	-67.3	102.0	-64.3	0.00	0.00	0.00
3,900.0	4.44	123.40	3,895.2	-71.5	108.5	-68.4	0.00	0.00	0.00
4,000.0	4.44	123.40	3,994.9	-75.8	114.9	-72.4	0.00	0.00	0.00
4,100.0	4.44	123.40	4,094.6	-80.0	121.4	-76.5	0.00	0.00	0.00
4,200.0	4.44	123.40	4,194.3	-84.3	127.9	-80.6	0.00	0.00	0.00
4,300.0	4.44	123.40	4,294.0	-88.6	134.3	-84.7	0.00	0.00	0.00
4,400.0	4.44	123.40	4,393.7	-92.8	140.8	-88.7	0.00	0.00	0.00
4,500.0	4.44	123.40	4,493.4	-97.1	147.3	-92.8	0.00	0.00	0.00
4,600.0	4.44	123.40	4,593.1	-101.4	153.7	-96.9	0.00	0.00	0.00
4,700.0	4.44	123.40	4,692.8	-105.6	160.2	-101.0	0.00	0.00	0.00
4,800.0	4.44	123.40	4,792.5	-109.9	166.7	-105.0	0.00	0.00	0.00
4,900.0	4.44	123.40	4,892.2	-114.1	173.1	-109.1	0.00	0.00	0.00
5,000.0	4.44	123.40	4,991.9	-118.4	179.6	-113.2	0.00	0.00	0.00
5,100.0	4.44	123.40	5,091.6	-122.7	186.1	-117.3	0.00	0.00	0.00
5,200.0	4.44	123.40	5,191.3	-126.9	192.5	-121.3	0.00	0.00	0.00



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Wellbore: OH
Design: Plan #0 1

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MD Reference: KB = 25' @ 3389.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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	4.44	123.40	5,291.0	-131.2	199.0	-125.4	0.00	0.00	0.00
5 400.0	4.44	123.40	5,390.7	-135.5	205.4	-129.5	0.00	0.00	0.00
5 500.0	4.44	123.40	5,490.4	-139.7	211.9	-133.6	0.00	0.00	0.00
5 600.0	4.44	123.40	5,590.1	-144.0	218.4	-137.6	0.00	0.00	0.00
5 700.0	4.44	123.40	5,689.8	-148.2	224.8	-141.7	0.00	0.00	0.00
5 800.0	4.44	123.40	5,789.5	-152.5	231.3	-145.8	0.00	0.00	0.00
5 900.0	4.44	123.40	5,889.2	-156.8	237.8	-149.9	0.00	0.00	0.00
6 000.0	4.44	123.40	5,988.9	-161.0	244.2	-153.9	0.00	0.00	0.00
6 100.0	4.44	123.40	6,088.6	-165.3	250.7	-158.0	0.00	0.00	0.00
6 200.0	4.44	123.40	6,188.3	-169.6	257.2	-162.1	0.00	0.00	0.00
6 300.0	4.44	123.40	6,288.0	-173.8	263.6	-166.2	0.00	0.00	0.00
6 400.0	4.44	123.40	6,387.7	-178.1	270.1	-170.2	0.00	0.00	0.00
6 500.0	4.44	123.40	6,487.4	-182.3	276.6	-174.3	0.00	0.00	0.00
6 600.0	4.44	123.40	6,587.1	-186.6	283.0	-178.4	0.00	0.00	0.00
6 700.0	4.44	123.40	6,686.8	-190.9	289.5	-182.5	0.00	0.00	0.00
6 800.0	4.44	123.40	6,786.5	-195.1	295.9	-186.5	0.00	0.00	0.00
6 866.6	4.44	123.40	6,852.8	-198.0	300.3	-189.2	0.00	0.00	0.00
6 875.0	3.96	111.18	6,861.3	-198.2	300.8	-189.5	12.00	-5.65	-144.97
6 900.0	3.98	66.79	6,886.2	-198.2	302.4	-189.4	12.00	0.08	-177.52
6 925.0	5.83	38.37	6,911.1	-196.9	304.0	-188.1	12.00	7.39	-113.71
6 950.0	8.37	25.24	6,935.9	-194.2	305.6	-185.4	12.00	10.17	-52.51
6 975.0	11.14	18.38	6,960.6	-190.3	307.1	-181.4	12.00	11.08	-27.43
7 000.0	14.01	14.26	6,985.0	-185.1	308.6	-176.1	12.00	11.46	-16.47
7 025.0	16.92	11.53	7 009.0	-178.6	310.1	-169.6	12.00	11.64	-10.93
7 050.0	19.86	9.58	7 032.8	-170.8	311.5	-161.8	12.00	11.75	-7.79
7 075.0	22.81	8.12	7 056.1	-161.8	312.9	-152.8	12.00	11.81	-5.85
7 100.0	25.77	6.98	7 078.8	-151.6	314.2	-142.5	12.00	11.85	-4.57
7 125.0	28.74	6.06	7 101.1	-140.3	315.5	-131.1	12.00	11.88	-3.68
7 150.0	31.72	5.29	7 122.7	-127.7	316.8	-118.6	12.00	11.90	-3.05
7 175.0	34.70	4.65	7 143.6	-114.1	318.0	-104.9	12.00	11.92	-2.57
7 200.0	37.68	4.10	7 163.7	-99.4	319.1	-90.2	12.00	11.93	-2.21
7 225.0	40.66	3.61	7 183.1	-83.6	320.1	-74.4	12.00	11.94	-1.93
7 250.0	43.65	3.19	7 201.7	-66.9	321.1	-57.6	12.00	11.94	-1.71
7 275.0	46.64	2.80	7 219.3	-49.2	322.1	-39.9	12.00	11.95	-1.53
7 300.0	49.63	2.46	7 236.0	-30.6	322.9	-21.3	12.00	11.96	-1.39
7 325.0	52.62	2.14	7 251.7	-11.2	323.7	-1.8	12.00	11.96	-1.27
7 350.0	55.61	1.84	7 266.3	9.1	324.4	18.4	12.00	11.96	-1.17
7 375.0	58.60	1.57	7 279.9	30.1	325.0	39.4	12.00	11.96	-1.09
7 400.0	61.59	1.31	7 292.4	51.7	325.6	61.1	12.00	11.97	-1.03
7 425.0	64.58	1.07	7 303.7	74.0	326.0	83.4	12.00	11.97	-0.97
7 450.0	67.57	0.84	7 313.8	96.9	326.4	106.2	12.00	11.97	-0.92
7 465.9	69.48	0.70	7 319.6	111.6	326.6	121.0	12.00	11.97	-0.89
FTP (Plucky 14 Fed Com #502H)									
7 475.0	70.57	0.62	7 322.7	120.2	326.7	129.6	12.00	11.97	-0.87
7 500.0	73.56	0.41	7 330.4	144.0	326.9	153.3	12.00	11.97	-0.85
7 525.0	76.55	0.20	7 336.9	168.1	327.0	177.5	12.00	11.97	-0.83
7 550.0	79.55	360.00	7 342.1	192.6	327.1	201.9	12.00	11.97	-0.81
7 575.0	82.54	359.80	7 346.0	217.3	327.0	226.6	12.00	11.97	-0.79
7 600.0	85.53	359.61	7 348.5	242.1	326.9	251.4	12.00	11.97	-0.78
7 625.0	88.53	359.41	7 349.8	267.1	326.7	276.4	12.00	11.98	-0.77
7 637.3	90.00	359.32	7 350.0	279.4	326.6	288.7	12.00	11.98	-0.77
7 700.0	90.00	359.32	7 350.0	342.1	325.8	351.3	0.00	0.00	0.00
7 800.0	90.00	359.32	7 350.0	442.1	324.6	451.2	0.00	0.00	0.00



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7 900.0	90.00	359.32	7 350.0	542.1	323.5	551.2	0.00	0.00	0.00
8 000.0	90.00	359.32	7 350.0	642.1	322.3	651.1	0.00	0.00	0.00
8 100.0	90.00	359.32	7 350.0	742.1	321.1	751.0	0.00	0.00	0.00
8 200.0	90.00	359.32	7 350.0	842.1	319.9	850.9	0.00	0.00	0.00
8 300.0	90.00	359.32	7 350.0	942.1	318.7	950.8	0.00	0.00	0.00
8 400.0	90.00	359.32	7 350.0	1 042.1	317.5	1 050.8	0.00	0.00	0.00
8 500.0	90.00	359.32	7 350.0	1 142.0	316.3	1 150.7	0.00	0.00	0.00
8 600.0	90.00	359.32	7 350.0	1 242.0	315.1	1 250.6	0.00	0.00	0.00
8 700.0	90.00	359.32	7 350.0	1 342.0	314.0	1 350.5	0.00	0.00	0.00
8 800.0	90.00	359.32	7 350.0	1 442.0	312.8	1 450.4	0.00	0.00	0.00
8 900.0	90.00	359.32	7 350.0	1 542.0	311.6	1 550.3	0.00	0.00	0.00
9 000.0	90.00	359.32	7 350.0	1 642.0	310.4	1 650.3	0.00	0.00	0.00
9 100.0	90.00	359.32	7 350.0	1 742.0	309.2	1 750.2	0.00	0.00	0.00
9 200.0	90.00	359.32	7 350.0	1 842.0	308.0	1 850.1	0.00	0.00	0.00
9 300.0	90.00	359.32	7 350.0	1 942.0	306.8	1 950.0	0.00	0.00	0.00
9 400.0	90.00	359.32	7 350.0	2 042.0	305.6	2 049.9	0.00	0.00	0.00
9 500.0	90.00	359.32	7 350.0	2 142.0	304.5	2 149.8	0.00	0.00	0.00
9 600.0	90.00	359.32	7 350.0	2 242.0	303.3	2 249.8	0.00	0.00	0.00
9 700.0	90.00	359.32	7 350.0	2 342.0	302.1	2 349.7	0.00	0.00	0.00
9 800.0	90.00	359.32	7 350.0	2 442.0	300.9	2 449.6	0.00	0.00	0.00
9 900.0	90.00	359.32	7 350.0	2 541.9	299.7	2 549.5	0.00	0.00	0.00
10 000.0	90.00	359.32	7 350.0	2 641.9	298.5	2 649.4	0.00	0.00	0.00
10 100.0	90.00	359.32	7 350.0	2 741.9	297.3	2 749.4	0.00	0.00	0.00
10 200.0	90.00	359.32	7 350.0	2 841.9	296.2	2 849.3	0.00	0.00	0.00
10 300.0	90.00	359.32	7 350.0	2 941.9	295.0	2 949.2	0.00	0.00	0.00
10 400.0	90.00	359.32	7 350.0	3 041.9	293.8	3 049.1	0.00	0.00	0.00
10 500.0	90.00	359.32	7 350.0	3 141.9	292.6	3 149.0	0.00	0.00	0.00
10 600.0	90.00	359.32	7 350.0	3 241.9	291.4	3 248.9	0.00	0.00	0.00
10 700.0	90.00	359.32	7 350.0	3 341.9	290.2	3 348.9	0.00	0.00	0.00
10 800.0	90.00	359.32	7 350.0	3 441.9	289.0	3 448.8	0.00	0.00	0.00
10 900.0	90.00	359.32	7 350.0	3 541.9	287.8	3 548.7	0.00	0.00	0.00
11 000.0	90.00	359.32	7 350.0	3 641.9	286.7	3 648.6	0.00	0.00	0.00
11 100.0	90.00	359.32	7 350.0	3 741.9	285.5	3 748.5	0.00	0.00	0.00
11 200.0	90.00	359.32	7 350.0	3 841.9	284.3	3 848.4	0.00	0.00	0.00
11 300.0	90.00	359.32	7 350.0	3 941.8	283.1	3 948.4	0.00	0.00	0.00
11 400.0	90.00	359.32	7 350.0	4 041.8	281.9	4 048.3	0.00	0.00	0.00
11 500.0	90.00	359.32	7 350.0	4 141.8	280.7	4 148.2	0.00	0.00	0.00
11 600.0	90.00	359.32	7 350.0	4 241.8	279.5	4 248.1	0.00	0.00	0.00
11 700.0	90.00	359.32	7 350.0	4 341.8	278.4	4 348.0	0.00	0.00	0.00
11 800.0	90.00	359.32	7 350.0	4 441.8	277.2	4 447.9	0.00	0.00	0.00
11 900.0	90.00	359.32	7 350.0	4 541.8	276.0	4 547.9	0.00	0.00	0.00
12 000.0	90.00	359.32	7 350.0	4 641.8	274.8	4 647.8	0.00	0.00	0.00
12 100.0	90.00	359.32	7 350.0	4 741.8	273.6	4 747.7	0.00	0.00	0.00
12 200.0	90.00	359.32	7 350.0	4 841.8	272.4	4 847.6	0.00	0.00	0.00
12 300.0	90.00	359.32	7 350.0	4 941.8	271.2	4 947.5	0.00	0.00	0.00
12 400.0	90.00	359.32	7 350.0	5 041.8	270.0	5 047.5	0.00	0.00	0.00
12 438.3	90.00	359.32	7 350.0	5 080.1	269.6	5 085.7	0.00	0.00	0.00
Section (Plucky 14 Fed Com #502H)									
12 467.7	90.00	358.73	7 350.0	5 109.5	269.1	5 115.1	2.00	0.00	-2.00
12 500.0	90.00	358.73	7 350.0	5 141.8	268.4	5 147.3	0.00	0.00	0.00
12 600.0	90.00	358.73	7 350.0	5 241.7	266.2	5 247.2	0.00	0.00	0.00
12 700.0	90.00	358.73	7 350.0	5 341.7	263.9	5 347.1	0.00	0.00	0.00
12 800.0	90.00	358.73	7 350.0	5 441.7	261.7	5 447.0	0.00	0.00	0.00
12 900.0	90.00	358.73	7 350.0	5 541.7	259.5	5 546.8	0.00	0.00	0.00



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13 000.0	90.00	358.73	7,350.0	5,641.6	257.3	5,646.7	0.00	0.00	0.00
13 100.0	90.00	358.73	7,350.0	5,741.6	255.1	5,746.6	0.00	0.00	0.00
13 200.0	90.00	358.73	7,350.0	5,841.6	252.9	5,846.4	0.00	0.00	0.00
13 300.0	90.00	358.73	7,350.0	5,941.6	250.7	5,946.3	0.00	0.00	0.00
13 400.0	90.00	358.73	7,350.0	6,041.5	248.5	6,046.2	0.00	0.00	0.00
13 500.0	90.00	358.73	7,350.0	6,141.5	246.2	6,146.1	0.00	0.00	0.00
13 600.0	90.00	358.73	7,350.0	6,241.5	244.0	6,245.9	0.00	0.00	0.00
13 700.0	90.00	358.73	7,350.0	6,341.5	241.8	6,345.8	0.00	0.00	0.00
13 800.0	90.00	358.73	7,350.0	6,441.4	239.6	6,445.7	0.00	0.00	0.00
13 900.0	90.00	358.73	7,350.0	6,541.4	237.4	6,545.5	0.00	0.00	0.00
14 000.0	90.00	358.73	7,350.0	6,641.4	235.2	6,645.4	0.00	0.00	0.00
14 100.0	90.00	358.73	7,350.0	6,741.4	233.0	6,745.3	0.00	0.00	0.00
14 200.0	90.00	358.73	7,350.0	6,841.3	230.7	6,845.1	0.00	0.00	0.00
14 300.0	90.00	358.73	7,350.0	6,941.3	228.5	6,945.0	0.00	0.00	0.00
14 400.0	90.00	358.73	7,350.0	7,041.3	226.3	7,044.9	0.00	0.00	0.00
14 500.0	90.00	358.73	7,350.0	7,141.3	224.1	7,144.8	0.00	0.00	0.00
14 600.0	90.00	358.73	7,350.0	7,241.2	221.9	7,244.6	0.00	0.00	0.00
14 700.0	90.00	358.73	7,350.0	7,341.2	219.7	7,344.5	0.00	0.00	0.00
14 800.0	90.00	358.73	7,350.0	7,441.2	217.5	7,444.4	0.00	0.00	0.00
14 865.8	90.00	358.73	7,350.0	7,507.0	216.0	7,510.1	0.00	0.00	0.00

PBHL (Plucky 14 Fed Cor #502H)

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target - Shape PBHL (Plucky 14 Fed Cor) - plan hits target center - Point	0.00	0.00	7,350.0	7,507.0	216.0	384,282.00	565,184.00	32° 3' 23.212 N	104° 15' 22.892 W
FTP (Plucky 14 Fed Cor) - plan misses target center by 32.6usft at 7465.9usft MD (7319.6 TVD, 111.6 N 326.6 E) - Point	0.00	0.00	7,350.0	100.0	329.0	376,875.00	565,297.00	32° 2' 9.909 N	104° 15' 21.641 W
Section (Plucky 14 Fed Cor) - plan hits target center - Point	0.00	0.00	7,350.0	5,080.1	269.6	381,855.06	565,237.59	32° 2' 59.194 N	104° 15' 22.290 W

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	EOG Y RESOURCE, INC
LEASE NO.:	NMNM-113940
WELL NAME & NO.:	Plucky 14 FED COM 502H
SURFACE HOLE FOOTAGE:	0250' FSL & 0660' FEL
BOTTOM HOLE FOOTAGE	2424' FSL & 330' FEL Sec. 11, T. 26 S., R 26 E.
LOCATION:	Section 14, T. 26 S., R 26 E., NMPM
COUNTY:	Eddy County, New Mexico

All previous COAs still apply expect the following:

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

☒ **Drilling**

Cement Requirements
High Cave/Karst
Logging Requirements

SPECIAL REQUIREMENT(S)

Communitization Agreement

The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.

In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

High Cave/Karst

Possibility of water flows in the Salado and Castile

Possibility of lost circulation in the Castile, Salado, and Delaware

A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH. IF THE PRIMARY CEMENT JOB ON THE SURFACE CASING DOES NOT CIRCULATE, THEN THE NEXT TWO CASING STRINGS MUST BE CEMENTED TO SURFACE.

1. The 13-3/8 inch surface casing shall be set at approximately 360 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing, which shall be set at approximately 1950 feet (**in the Lamar Limestone or the basal anhydrite of the Castile Formation**), is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 200' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

☒ Cement as proposed by operator. Operator shall provide method of verification.

Additional cement may be required – excess calculates to -35%.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the

field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **surface** casing shoe shall be **5000 (5M) psi**. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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Medium

13 3/8 Segment	surface csg in a #/ft	Grade	17 1/2 inch hole. Coupling	Joint	Design Factors			SURFACE	
"A"	54.50	J 55	ST&C	26.20	Collapse	Burst		Length	Weight
"B"					6.87	2.7		360	19,620
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500			Tail Cmt	does	circ to sfc.	Totals:	0	0	
							360	19,620	
Comparison of Proposed to Minimum Required Cement Volumes									
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
17 1/2	0.6946	525	830	304	173	8.80	584	2M	1.56
Setting Depth for D V Tool:				1st Stg	2nd Stg	sum of sx	Σ CuFt		
% Excess Cmt:						0	0		

9 5/8 Segment	casing inside the #/ft	Grade	13 3/8	Coupling	Joint	Design Factors		INTERMEDIATE	
"A"	40.00	J 55		LT&C	6.67	Collapse	Burst	Length	Weight
"B"						2.54	1.15	1,950	78,000
w/8.4#/g mud, 30min Sfc Csg Test psig:								0	0
					Totals:			1,950	78,000
The cement volume(s) are intended to achieve a top of					0	ft from surface or a		360	overlap.
Hole	Annular	1 Stage	1 Stage	Min	1 Stage	Drilling	Calc	Req'd	Min Dist
Size	Volume	Cmt Sx	CuFt Cmt	Cu Ft	% Excess	Mud Wt	MASP	BOPE	Hole-Cplg
12 1/4	0.3132	700	1386	647	114	10.00	1819	2M	0.81

Class 'C' tail cmt yld > 1.35

5 1/2 Segment	casing inside the #/ft	9 5/8 Grade	Coupling	Joint	Design Factors		PRODUCTION		
					Collapse	Burst	Length	Weight	
"A"	17.00	HCP 110	LT&C	3.56	2.67	3.1	6,866	116,722	
"B"	17.00	HCP 110	LT&C	5.78	2.15	3.1	7,999	135,983	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,511							Totals:	14,865	252,705
B	would be:			54.08	2.50	if it were a vertical wellbore.			
No Pilot Hole Planned		MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC	
		14865	7350	7350	6866	90	12	7637	
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		1950	overlap.	
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.2526	1325	2454	3776	-35	9.00			1.35
Setting Depths for D V Tool(s):									
% excess cmt by stage:									
Class 'C' tail cmt yld > 1.35									