

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

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.
NMNM0160973

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on reverse side

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

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator
BTA OIL PRODUCERS

Contact: MAYTE X REYES
E-Mail: mreyes1@concho.com

8. Well Name and No.
8115 JV-P MESA B COM 2H

9. API Well No.
30-025-42125-00-X1

3a. Address
104 SOUTH PECOS STREET
MIDLAND, TX 79701

3b. Phone No. (include area code)
Ph: 575-748-6945

10. Field and Pool, or Exploratory
WC-025 G06 S253329D

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 7 T26S R33E SESE 190FSL 1050FEL
32.051184 N Lat, 103.605758 W Lon

11. County or Parish, and State
LEA COUNTY, NM

12. CHECK 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"/> Fracture Treat	<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 APD
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete 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/BLA. Required subsequent reports shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC, on behalf of BTA Oil Producers, LLC, respectfully requests approval for the following changes to the original approved APD.

We want to change our Pilot Hole Depth from the original depth of 12,250' to 12,750'.
We want to change our Pilot Hole Bit Size from 7-7/8" to 8-3/4"
We want to change our target depths as follows:
End of Curve was 9715' TVD now: 9250' TVD
End of Lateral was 9675' TVD now 9210' TVD
Projected Total Depth was 14,315' MD 9675' TVD now 13,850' MD 9210' TVD
Revised Directional Plan attached.
We will drill the vertical/curve from the 9-5/8" intermediate at 4750' to End of Curve at 9527' MD / 9,250' TVD with 8-3/4" Bit size instead of 7-7/8".

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct.

**Electronic Submission #278044 verified by the BLM Well Information System
For BTA OIL PRODUCERS, sent to the Hobbs
Committed to AFMSS for processing by LINDA JIMENEZ on 11/20/2014 (15LJ0362SE)**

Name (Printed/Typed): MAYTE X REYES Title REGULATORY ANALYST

Signature (Electronic Submission) Date 11/11/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE DEC 18 2014

Approved By _____ Title _____ Date _____

Office CARLSBAD FIELD OFFICE

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.

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.

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

DEC 24 2014 dm

Additional data for EC transaction #278044 that would not fit on the form

32. Additional remarks, continued

In the lateral at 9527? MD / 9250? TVD, we want to reduce hole size from 8-3/4? to 7-7/8? to TD (13,850? MD / 9,210? TVD)

Plug Back Cementing Program Changes: Due to drilling a deeper pilot hole and a higher Kick Off Point in the directional plan and an 8-3/4? Bit Size, the following cement plugs are proposed:

12,750? ? 11,750? 410 sx Class H @ 16.4 ppg / 1.07 cuft/sx / 4.3 gal/sx

11,750? ? 10,750? 410 sx Class H @ 16.4 ppg / 1.07 cuft/sx / 4.3 gal/sx

10,750? ? 9,500? 490 sx Class H @ 16.4 ppg / 1.07 cuft/sx / 4.3 gal/sx

9500? ? 8500? 425 sx Class H @ 17.2 ppg / .98 cuft/sx / 3.8 gal/sx

Plug Back Cement volumes based on 8-3/4? bit size + 5% - may be adjusted based on Open Hole Caliper Logs and hole conditions.

The 2 Stage production cementing program is adjusted to reflect the changes in drilled hole length and changes in cited bit sizes. Note: Volumes subject to change based on Open Hole Caliper Logs from the Kick Off Point to the Intermediate Casing Shoe and fluid caliper logs ran at TD.

1st Stage

Lead - 350 sx EconoCem HLH + 5 pps Kol Seal + 5% Salt + 0.125 pps Poly-E-Flake + HR-601 @ 12.7 ppg / 2.0 cuft/sx / 10.5 gal/sx

Tail ? 1025 sx VersaCem H + 1% Salt + 0.4% GasStop + HR-601 @ 14.4 ppg / 1.24 cuft/sx / 5.66 gal/sx.

2nd Stage

Lead - 775 sx EconoCem C @ 11.9 ppg / 2.51 cuft/sx / 14.07 gal/sx

Tail ? 200 sx HalCem C @ 14.8 ppg / 1.34 cuft/sx / 6.35 gal/sx

Summary of Volume Calculation Excess Factors Based on Bit and Casing Size by Stage/Hole Section

1st Stage

Lead: 8773? ? 6900? (Kick Off Point to DV Tool) 8-3/4? Bit Size x 5-1/2? Casing AV + 35%

Tail: 13,850? ? 9527? (End of Lateral to End of Curve) 7-7/8? Bit Size x 5-1/2? Casing AV + 35%

Tail: 9527? ? 8773? (End of Curve to Kick Off Point) 8-3/4? Bit Size x 5-1/2? Casing AV + 35%

2nd Stage

Lead: 0? ? 4750?(inside 9-5/8?Intermediate (8.835? ID to Surface) + 5% Excess

Lead: 4750? ? 6600? (ICP Shoe to 300? above DV Tool Depth) 8-3/4? Bit x 5-1/2? Casing AV + 35% Excess

Tail: 6600? ? 6900? (300? above DV Tool to DV Tool) 8-3/4? Bit X 5-1/2? Casing AV + >35%



COG Operating LLC
 Project: Lea County, NM (NAD27 NME)
 Site: 8115 JV-P Mesa B
 Well: #2H
 Wellbore: OH
 Plan: Plan #2 (#2H/OH)

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	8772.5	0.00	0.00	8772.5	0.0	0.0	0.00	0.00	0.0
3	9527.0	90.53	7.59	9250.0	477.7	63.7	12.00	7.59	481.9
4	13850.1	90.53	7.59	9210.0	4762.8	634.6	0.00	0.00	4804.9

WELL DETAILS: #2H

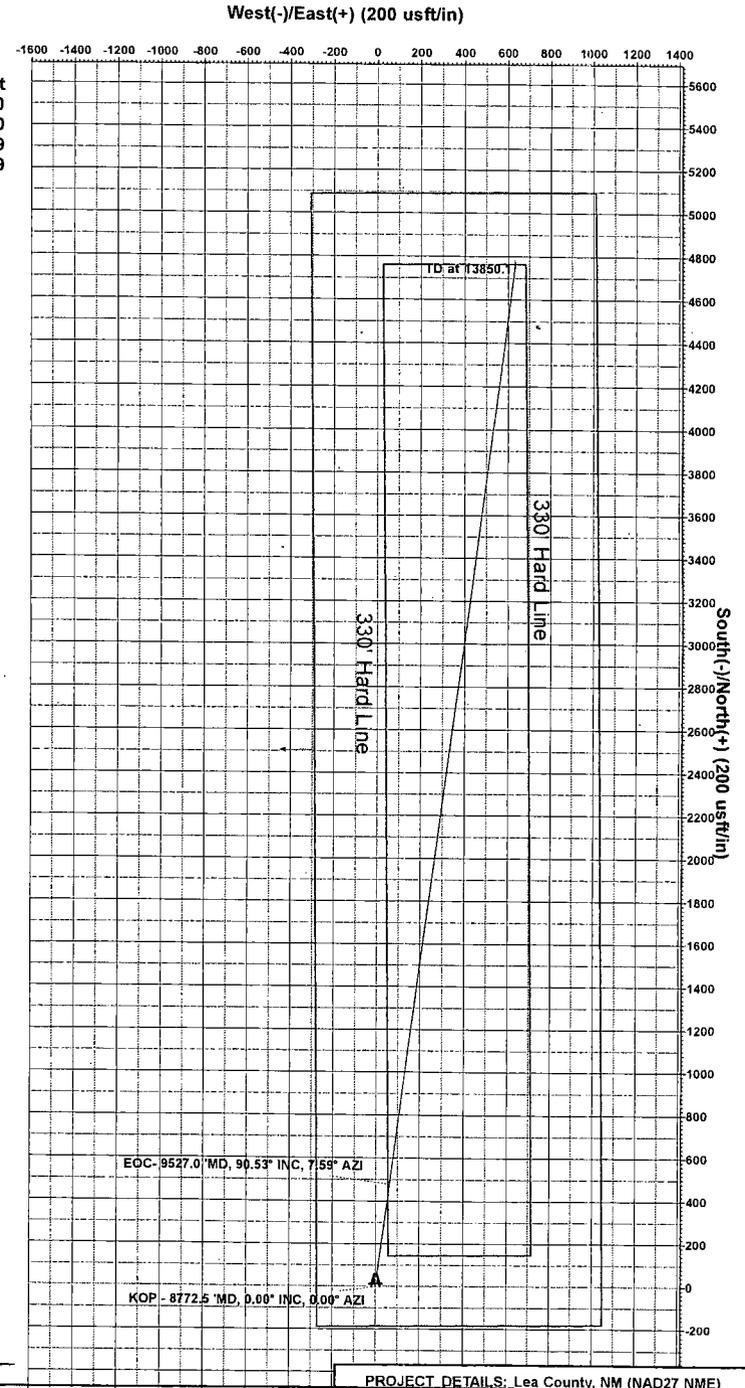
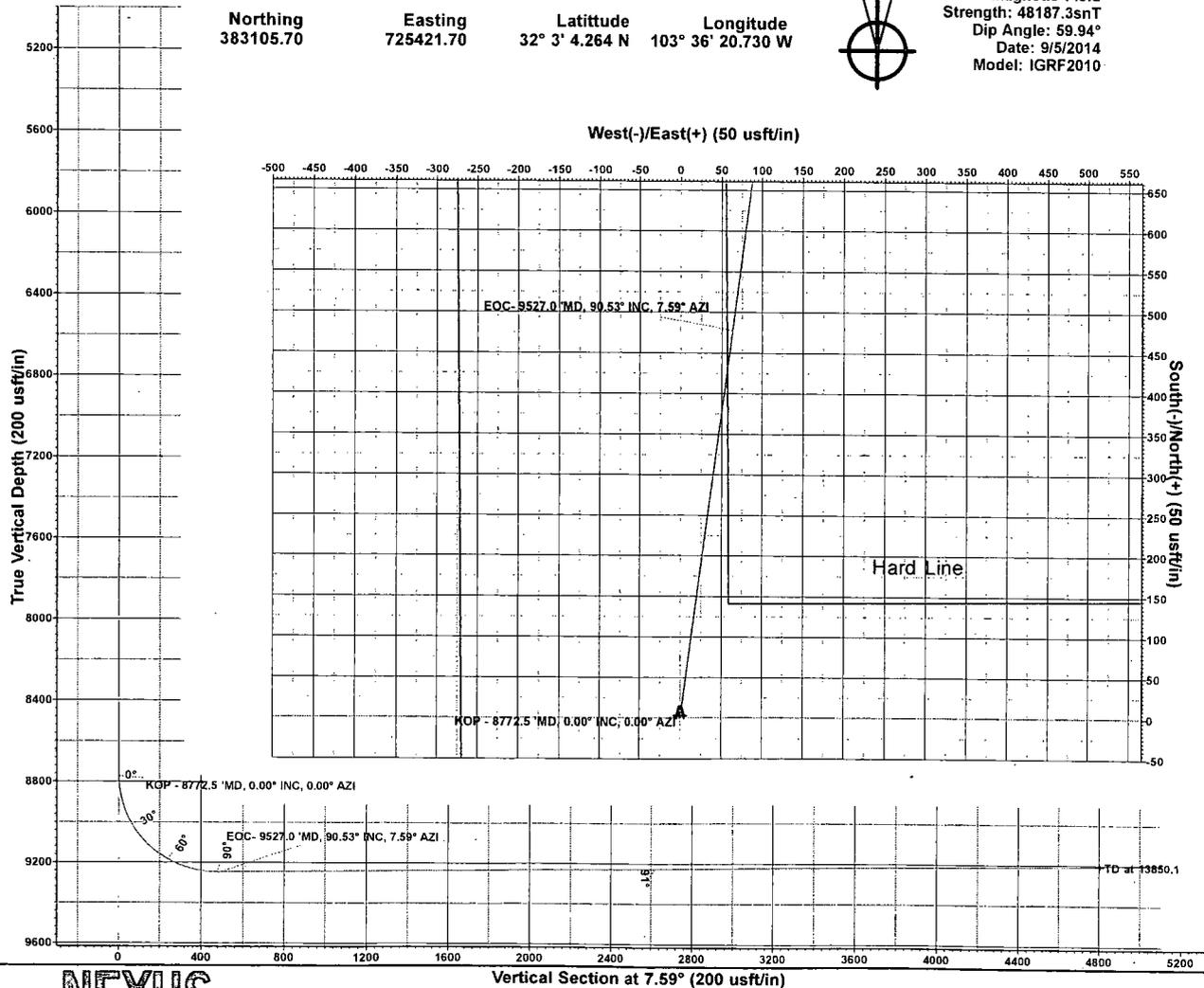
Ground Elevation:: 3241.7
 RKB Elevation: WELL @ 3259.7usft (Original Well Elev)
 Rig Name: Original Well Elev

Northing 383105.70 Easting 725421.70 Latitude 32° 3' 4.264 N Longitude 103° 36' 20.730 W



Azimuths to Grid North
 True North: -0.39°
 Magnetic North: 6.81°

Magnetic Field
 Strength: 48187.3snT
 Dip Angle: 59.94°
 Date: 9/5/2014
 Model: IGRF2010



Vertical Section at 7.59° (200 usft/in)

Nexus Directional Solutions

PROJECT DETAILS: Lea County, NM (NAD27 NME)
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level
 Local North: Grid



COG Operating LLC

Lea County, NM (NAD27 NME)

8115 JV-P Mesa B

#2H

OH

Plan: Plan #2

Standard Survey Report

05 September, 2014



Wellplanning
Survey Report

Company: COG Operating LLC	Local Co-ordinate Reference:	Well #2H:
Project: Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3259.7usft (Original Well Elev)
Site: 8115 JV-P Mesa B	MD Reference:	WELL @ 3259.7usft (Original Well Elev)
Well: #2H	North Reference:	Grid
Wellbore: OH	Survey Calculation Method:	Minimum Curvature
Design: Plan #2	Database:	EDM 5000.1 Single User Db.

Project: Lea County, NM (NAD27 NME)	
Map System: US State Plane 1927 (Exact solution)	System Datum: Mean Sea Level
Geo Datum: NAD 1927 (NADCON CONUS)	
Map Zone: New Mexico East 3001	

Site: 8115 JV-P Mesa B			
Site Position:	Map	Northing: 0.00 usft	Latitude: 30° 59' 24.512 N
From:		Easting: 0.00 usft	Longitude: 105° 55' 44.137 W
Position Uncertainty: 0.0 usft		Slot Radius: 13-3/16 "	Grid Convergence: -0.82 °

Well: #2H			
Well Position	+N/-S 0.0 usft	Northing: 383,105.70 usft	Latitude: 32° 3' 4.264 N
	+E/-W 0.0 usft	Easting: 725,421.70 usft	Longitude: 103° 36' 20.730 W
Position Uncertainty	0.0 usft	Wellhead Elevation: usft	Ground Level: 3,241.7 usft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/5/2014	7.19	59.94	48,187

Design: Plan #2

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	7.59

Survey Tool Program:	Date: 9/5/2014			
From (usft): 0.0	To (usft): 13,850.1	Survey (Wellbore): Plan #2 (OH)	Tool Name: MWD	Description: MWD - Standard

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



Wellplanning
Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3259.7usft (Original Well Elev)
Site:	8115 JV-P Mesa B	MD Reference:	WELL @ 3259.7usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

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)	
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	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00	



Wellplanning
Survey Report

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

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)	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,772.5	0.00	0.00	8,772.5	0.0	0.0	0.0	0.00	0.00	0.00	
KOP - 8772.5 'MD, 0.00° INC, 0.00° AZI										
8,775.0	0.30	7.59	8,775.0	0.0	0.0	0.0	12.00	12.00	0.00	
8,800.0	3.30	7.59	8,800.0	0.8	0.1	0.8	12.00	12.00	0.00	
8,825.0	6.30	7.59	8,824.9	2.9	0.4	2.9	12.00	12.00	0.00	
8,850.0	9.30	7.59	8,849.7	6.2	0.8	6.3	12.00	12.00	0.00	
8,875.0	12.30	7.59	8,874.2	10.9	1.4	11.0	12.00	12.00	0.00	
8,900.0	15.30	7.59	8,898.5	16.8	2.2	16.9	12.00	12.00	0.00	
8,925.0	18.30	7.59	8,922.4	23.9	3.2	24.1	12.00	12.00	0.00	



Wellplanning
Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3259.7usft (Original Well Elev)
Site:	8115 JV-P Mesa.B	MD Reference:	WELL @ 3259.7usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

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)	
8,950.0	21.30	7.59	8,945.9	32.3	4.3	32.6	12.00	12.00	0.00	
8,975.0	24.30	7.59	8,969.0	41.9	5.6	42.3	12.00	12.00	0.00	
9,000.0	27.30	7.59	8,991.5	52.7	7.0	53.2	12.00	12.00	0.00	
9,025.0	30.30	7.59	9,013.4	64.6	8.6	65.2	12.00	12.00	0.00	
9,050.0	33.30	7.59	9,034.6	77.7	10.4	78.4	12.00	12.00	0.00	
9,075.0	36.30	7.59	9,055.2	91.8	12.2	92.7	12.00	12.00	0.00	
9,100.0	39.30	7.59	9,074.9	107.0	14.3	108.0	12.00	12.00	0.00	
9,125.0	42.30	7.59	9,093.8	123.2	16.4	124.3	12.00	12.00	0.00	
9,150.0	45.29	7.59	9,111.9	140.4	18.7	141.6	12.00	12.00	0.00	
9,175.0	48.29	7.59	9,129.0	158.4	21.1	159.8	12.00	12.00	0.00	
9,200.0	51.29	7.59	9,145.1	177.3	23.6	178.9	12.00	12.00	0.00	
9,225.0	54.29	7.59	9,160.3	197.1	26.3	198.8	12.00	12.00	0.00	
9,250.0	57.29	7.59	9,174.3	217.6	29.0	219.5	12.00	12.00	0.00	
9,275.0	60.29	7.59	9,187.3	238.8	31.8	240.9	12.00	12.00	0.00	
9,300.0	63.29	7.59	9,199.1	260.6	34.7	262.9	12.00	12.00	0.00	
9,325.0	66.29	7.59	9,209.7	283.0	37.7	285.5	12.00	12.00	0.00	
9,350.0	69.29	7.59	9,219.2	306.0	40.8	308.7	12.00	12.00	0.00	
9,375.0	72.29	7.59	9,227.4	329.4	43.9	332.3	12.00	12.00	0.00	
9,400.0	75.29	7.59	9,234.4	353.2	47.1	356.3	12.00	12.00	0.00	
9,425.0	78.29	7.59	9,240.1	377.3	50.3	380.6	12.00	12.00	0.00	
9,450.0	81.29	7.59	9,244.5	401.7	53.5	405.2	12.00	12.00	0.00	
9,475.0	84.29	7.59	9,247.7	426.2	56.8	430.0	12.00	12.00	0.00	
9,500.0	87.29	7.59	9,249.5	451.0	60.1	454.9	12.00	12.00	0.00	
9,527.0	90.53	7.59	9,250.0	477.7	63.7	481.9	12.00	12.00	0.00	
EOC- 9527.0 'MD, 90.53° INC, 7.59° AZI										
9,600.0	90.53	7.59	9,249.3	550.1	73.3	554.9	0.00	0.00	0.00	
9,700.0	90.53	7.59	9,248.4	649.2	86.5	654.9	0.00	0.00	0.00	
9,800.0	90.53	7.59	9,247.5	748.3	99.7	754.9	0.00	0.00	0.00	
9,900.0	90.53	7.59	9,246.5	847.4	112.9	854.9	0.00	0.00	0.00	
10,000.0	90.53	7.59	9,245.6	946.5	126.1	954.9	0.00	0.00	0.00	
10,100.0	90.53	7.59	9,244.7	1,045.7	139.3	1,054.9	0.00	0.00	0.00	
10,200.0	90.53	7.59	9,243.8	1,144.8	152.5	1,154.9	0.00	0.00	0.00	
10,300.0	90.53	7.59	9,242.8	1,243.9	165.8	1,254.9	0.00	0.00	0.00	
10,400.0	90.53	7.59	9,241.9	1,343.0	179.0	1,354.9	0.00	0.00	0.00	
10,500.0	90.53	7.59	9,241.0	1,442.1	192.2	1,454.9	0.00	0.00	0.00	
10,600.0	90.53	7.59	9,240.1	1,541.3	205.4	1,554.9	0.00	0.00	0.00	
10,700.0	90.53	7.59	9,239.1	1,640.4	218.6	1,654.9	0.00	0.00	0.00	
10,800.0	90.53	7.59	9,238.2	1,739.5	231.8	1,754.9	0.00	0.00	0.00	
10,900.0	90.53	7.59	9,237.3	1,838.6	245.0	1,854.9	0.00	0.00	0.00	
11,000.0	90.53	7.59	9,236.4	1,937.7	258.2	1,954.9	0.00	0.00	0.00	
11,100.0	90.53	7.59	9,235.4	2,036.9	271.4	2,054.9	0.00	0.00	0.00	
11,200.0	90.53	7.59	9,234.5	2,136.0	284.6	2,154.9	0.00	0.00	0.00	
11,300.0	90.53	7.59	9,233.6	2,235.1	297.8	2,254.9	0.00	0.00	0.00	
11,400.0	90.53	7.59	9,232.7	2,334.2	311.0	2,354.9	0.00	0.00	0.00	



Wellplanning
Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3259.7usft (Original Well Elev)
Site:	8115 JV-P Mesa B	MD Reference:	WELL @ 3259.7usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM.5000.1 Single User Db

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)	
11,500.0	90.53	7.59	9,231.7	2,433.3	324.2	2,454.8	0.00	0.00	0.00	
11,600.0	90.53	7.59	9,230.8	2,532.5	337.5	2,554.8	0.00	0.00	0.00	
11,700.0	90.53	7.59	9,229.9	2,631.6	350.7	2,654.8	0.00	0.00	0.00	
11,800.0	90.53	7.59	9,229.0	2,730.7	363.9	2,754.8	0.00	0.00	0.00	
11,900.0	90.53	7.59	9,228.0	2,829.8	377.1	2,854.8	0.00	0.00	0.00	
12,000.0	90.53	7.59	9,227.1	2,928.9	390.3	2,954.8	0.00	0.00	0.00	
12,100.0	90.53	7.59	9,226.2	3,028.1	403.5	3,054.8	0.00	0.00	0.00	
12,200.0	90.53	7.59	9,225.3	3,127.2	416.7	3,154.8	0.00	0.00	0.00	
12,300.0	90.53	7.59	9,224.3	3,226.3	429.9	3,254.8	0.00	0.00	0.00	
12,400.0	90.53	7.59	9,223.4	3,325.4	443.1	3,354.8	0.00	0.00	0.00	
12,500.0	90.53	7.59	9,222.5	3,424.5	456.3	3,454.8	0.00	0.00	0.00	
12,600.0	90.53	7.59	9,221.6	3,523.7	469.5	3,554.8	0.00	0.00	0.00	
12,700.0	90.53	7.59	9,220.6	3,622.8	482.7	3,654.8	0.00	0.00	0.00	
12,800.0	90.53	7.59	9,219.7	3,721.9	495.9	3,754.8	0.00	0.00	0.00	
12,900.0	90.53	7.59	9,218.8	3,821.0	509.2	3,854.8	0.00	0.00	0.00	
13,000.0	90.53	7.59	9,217.9	3,920.1	522.4	3,954.8	0.00	0.00	0.00	
13,100.0	90.53	7.59	9,216.9	4,019.3	535.6	4,054.8	0.00	0.00	0.00	
13,200.0	90.53	7.59	9,216.0	4,118.4	548.8	4,154.8	0.00	0.00	0.00	
13,300.0	90.53	7.59	9,215.1	4,217.5	562.0	4,254.8	0.00	0.00	0.00	
13,400.0	90.53	7.59	9,214.2	4,316.6	575.2	4,354.8	0.00	0.00	0.00	
13,500.0	90.53	7.59	9,213.2	4,415.7	588.4	4,454.8	0.00	0.00	0.00	
13,600.0	90.53	7.59	9,212.3	4,514.9	601.6	4,554.8	0.00	0.00	0.00	
13,700.0	90.53	7.59	9,211.4	4,614.0	614.8	4,654.8	0.00	0.00	0.00	
13,800.0	90.53	7.59	9,210.5	4,713.1	628.0	4,754.8	0.00	0.00	0.00	
13,850.1	90.53	7.59	9,210.0	4,762.8	634.6	4,804.9	0.00	0.00	0.00	

TD at 13850.1 - PBHL(VP#3)

Design Targets										
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL(VP#3)		0.00	0.00	9,210.0	4,762.8	634.6	387,868.50	726,056.30	32° 3' 51.354 N	103° 36' 12.982 W
- plan hits target center										
- Point										

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
8773	8773	0	0	KOP - 8772.5 'MD, 0.00° INC, 0.00° AZI
9527	9250	478	64	EOC - 9527.0 'MD, 90.53° INC, 7.59° AZI
13,850	9210	4763	635	TD at 13850.1



Wellplanning
Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 3259.7usft (Original Well Elev)
Site:	8115 JV-P Mesa B	MD Reference:	WELL @ 3259.7usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #2	Database:	EDM 5000.1 Single User Db

Checked By: _____ Approved By: _____ Date: _____

**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	BTA Oil Producers
LEASE NO.:	NM0160973
WELL NAME & NO.:	2H-8115 JV-P Mesa B Com
SURFACE HOLE FOOTAGE:	190'/S & 1050'/E
BOTTOM HOLE FOOTAGE:	330'/N & 380'/E
LOCATION:	Sec. 7, T. 26 S., R. 33 E.
COUNTY:	Lea County, New Mexico
API:	30-025-42125

The original COAs still stand with the following drilling modifications:

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)

Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. **Hydrogen Sulfide (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values 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) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.

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

Medium Cave/Karst

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in the Red Beds, Rustler, and Delaware.

1. The **13-3/8** inch surface casing shall be set at approximately **860** feet (**in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt**) and cemented to the surface. **Fresh water mud to be used to setting depth.**
 - 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 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.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

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

Pilot hole is required to have a plug at the bottom of the hole. If multiple plugs are set, the BLM is to be contacted (575-393-3612) 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.

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

Operator has proposed DV tool at depth of 6900'. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

a. First stage to DV tool:

- Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:

- Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

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 RP 53 Sec. 17.
2. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate 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.**

5. 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**.
 - 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.

JAM 121814

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY
LEASE NO.:	NM0160973
WELL NAME & NO.:	23H-RED HILLS UNIT
SURFACE HOLE FOOTAGE:	160' FNL & 1330' FWL
BOTTOM HOLE FOOTAGE:	330' FSL & 1330' FWL
LOCATION:	Section 5 T. 26 S., R. 33 E., NMPM
COUNTY:	LEA COUNTY, NEW MEXICO

TABLE OF CONTENTS

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.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
 - Temporary Fence Crossing Requirement
 - Cave/Karst
 - Commercial Well Determination
- Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- Road Section Diagram**
- Drilling**
 - Cement Requirements
 - Logging Requirements
 - Waste Material and Fluids
- Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
- Interim Reclamation**
- Final Abandonment & Reclamation**

OCD Hobbs

To be added to
your copy of APD.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. A wire gate would be installed in the fence opening during infrastructure installation to prevent livestock from crossing the fence. The gate would be in place during construction inactivity. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Commercial Well Determination

The proposed well is not within a participating area. A commercial well determination must be submitted to the BLM Carlsbad Office.

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

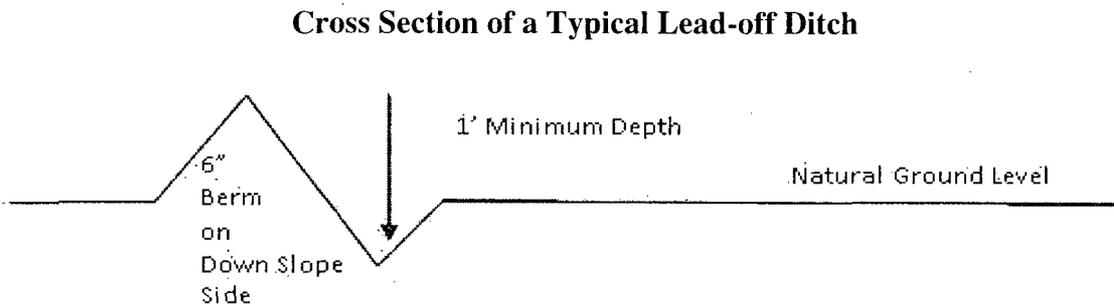
Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill out sloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

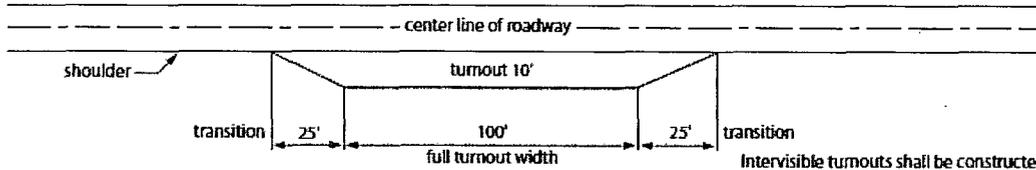
Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

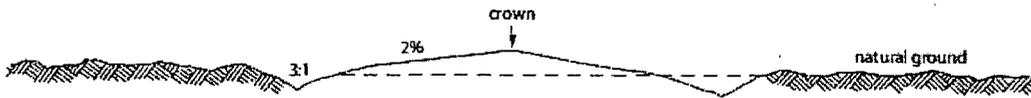
1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

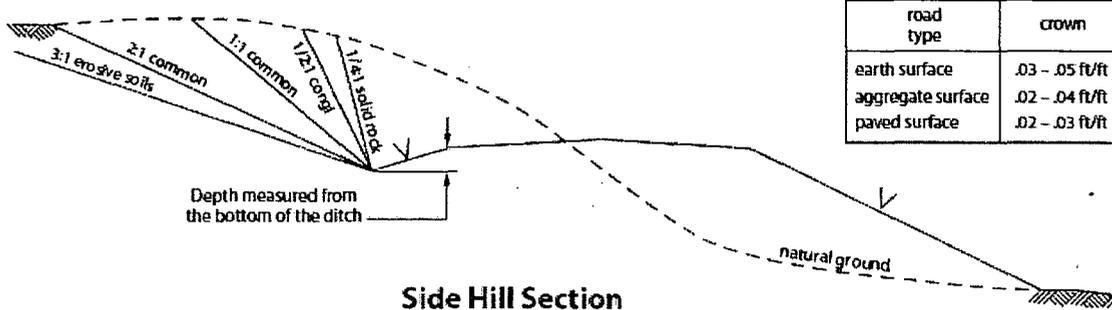


Typical Turnout Plan

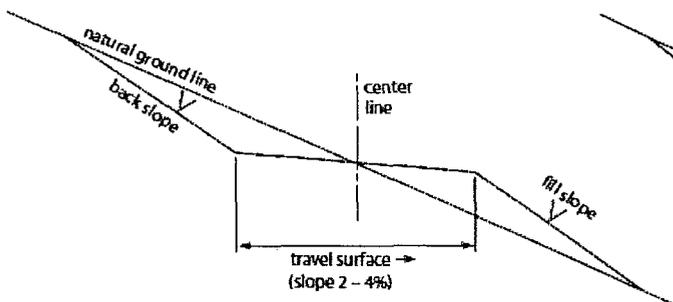
Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional turnouts as needed to keep spacing below 1000 feet.



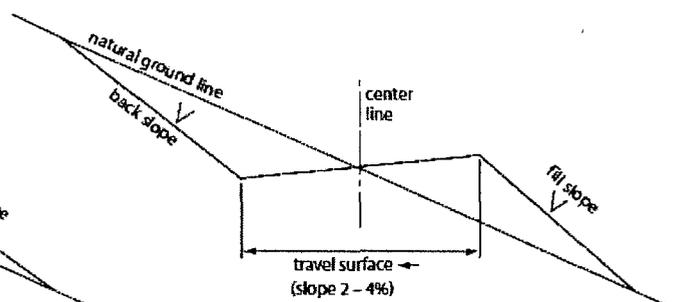
Level Ground Section



Side Hill Section



Typical Outsloped Section



Typical Insloped Section

Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. 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)

Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. **Hydrogen Sulfide (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values 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.). Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. **DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE.** Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. **IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS.** See individual casing strings for details regarding lead cement slurry requirements.

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

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in Red Beds, Rustler, and Delaware.

1. The 13-3/8 inch surface casing shall be set at approximately **950** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
 - 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.

Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
(Ensure Casing is set in the base of the Castile or the Lamar limestone at approximately 4850')

Cement to surface. If cement does not circulate see B.1.a, c-d above.

Centralizers approved as written.

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

Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 15% - Additional cement may be required.**

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 RP 53 Sec. 17.
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 **2000 (2M)** psi.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **3000 (3M)** psi.
5. 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 (18 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.

CRW 112014

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting

Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- | | |
|----------------------------------------------------|--------------------------------------------------|
| <input type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3 |
| <input checked="" type="checkbox"/> seed mixture 2 | <input type="checkbox"/> seed mixture 4 |
| <input type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. A wire gate would be installed in the fence opening during infrastructure installation to prevent livestock from crossing the fence. The gate would be in place during construction inactivity. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

C. ELECTRIC LINES (Not applied for in APD)

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored

interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed