

MAR 09 2015

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

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

RES **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.
NMNM124664

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
GUNNER 8 FEDERAL 6H

9. API Well No.
30-025-41181-00-X1

10. Field and Pool, or Exploratory
WILDCAT G06 S263407P

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

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

COG OPERATING LLC

Contact: MAYTE X REYES

E-Mail: mreyes1@concho.com

3a. Address

ONE CONCHO CENTER 600 W ILLINOIS AVENUE
MIDLAND, TX 79701-4287

3b. Phone No. (include area code)

Ph: 575-748-6945

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 8 T26S R34E SESW 190FSL 2625FWL

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

TYPE OF SUBMISSION

☒ Notice of Intent

☐ Subsequent Report

☐ Final Abandonment Notice

TYPE OF ACTION

☐ Acidize

☐ Alter Casing

☐ Casing Repair

☐ Change Plans

☐ Convert to Injection

☐ Deepen

☐ Fracture Treat

☐ New Construction

☐ Plug and Abandon

☐ Plug Back

☐ Production (Start/Resume)

☐ Reclamation

☐ Recomplete

☐ Temporarily Abandon

☐ Water Disposal

☐ Water Shut-Off

☐ Well Integrity

☒ Other
Change to Original A
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 recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 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, respectfully request approval for the following BHL and drilling changes to the original approved APD.

BHL Change

From: 1650' FNL & 2625' FWL

To: 330' FNL & 2310' FWL

C102 attached.

Drilling Change attached.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

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

Electronic Submission #293896 verified by the BLM Well Information System

For COG OPERATING LLC, sent to the Hobbs

Committed to AFMSS for processing by JENNIFER MASON on 03/05/2015 (15JAM0088SE)

Name (Printed/Typed) MAYTE X REYES

Title REGULATORY ANALYST

Signature

(Electronic Submission)

Date 03/04/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

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

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 ****

BHLOC *KZ*

MAR 10 2015

Gunner 8 Federal 6H Sundry

COG Request the following changes:

BHL change to 330' FNL & 2310' FWL of section 5

Intermediate Section:

Set approved 9-5/8" casing @ 5375' to insure all salt is covered

Base of Salt @ 5112', Lamar @ 5363'

Cmt in 1 stg with:

1000 sx approved lead slurry

250 sx approved tail slurry

Production Section:

See attached directional plan

Drill 8-3/4" vertical, curve and lateral to approx 19,943' MD / 9810' TVD

Run 5-1/2" 17# P110 LTC csg

Cmt in 1 stg with:

Lead: 600 sx Tuned Light Class H blend + Salt + Gilsonite + CF + CFR-3 @ 10.4 ppg/3.5 yield

Tail: 2500 sx 50:50:2 H + Salt + GasStop + CFR-3 @ 14.4/1.25 yield

Minimum tie back 500' inside 9-5/8"

25% excess on OH from EOL to EOC

40% excess on OH from EOC to 9-5/8" csg shoe



COG Operating LLC
Project: Lea County, NM
Site: Gunner 8 Federal
Well: #6H
Wellbore: OH
Plan: Design #1 (#6H/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	9412.5	0.00	0.00	9412.5	0.0	0.0	0.00	0.00	0.0	
3	10166.5	90.47	318.00	9890.0	357.8	-322.1	12.00	318.00	373.4	
4	11247.7	90.47	1.25	9880.7	1347.4	-689.7	4.00	89.82	1380.0	
5	19943.5	90.47	1.25	9810.0	10040.8	-500.0	0.00	0.00	10053.2	PBHL(G8FC#6H)

WELL DETAILS: #6H

Ground Elevation:: 3351.4
RKB Elevation: WELL @ 3377.4usft (Original Well Elev)
Rig Name: Original Well Elev

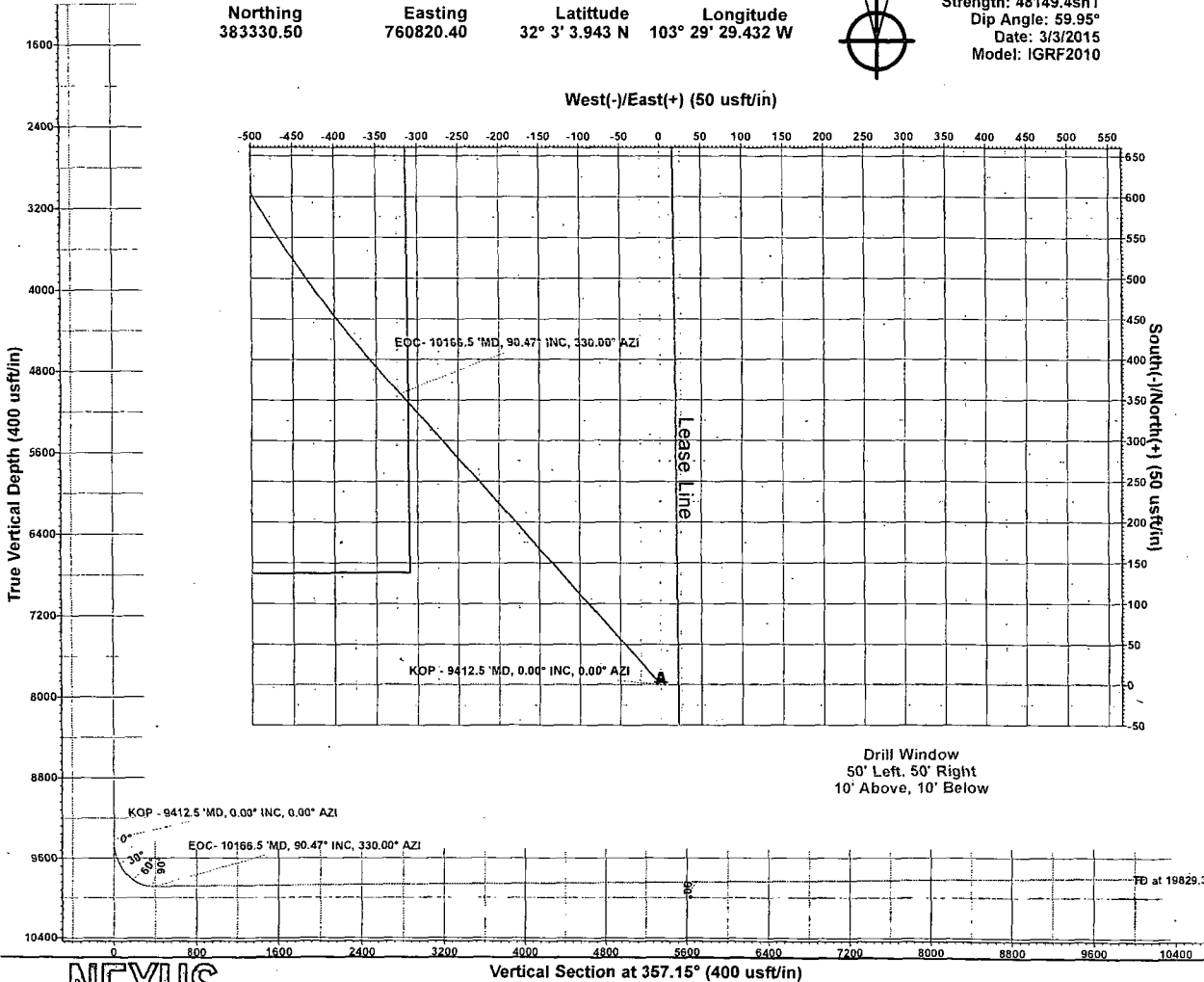
Northing 383330.50 Easting 760820.40 Latitude 32° 3' 3.943 N Longitude 103° 29' 29.432 W



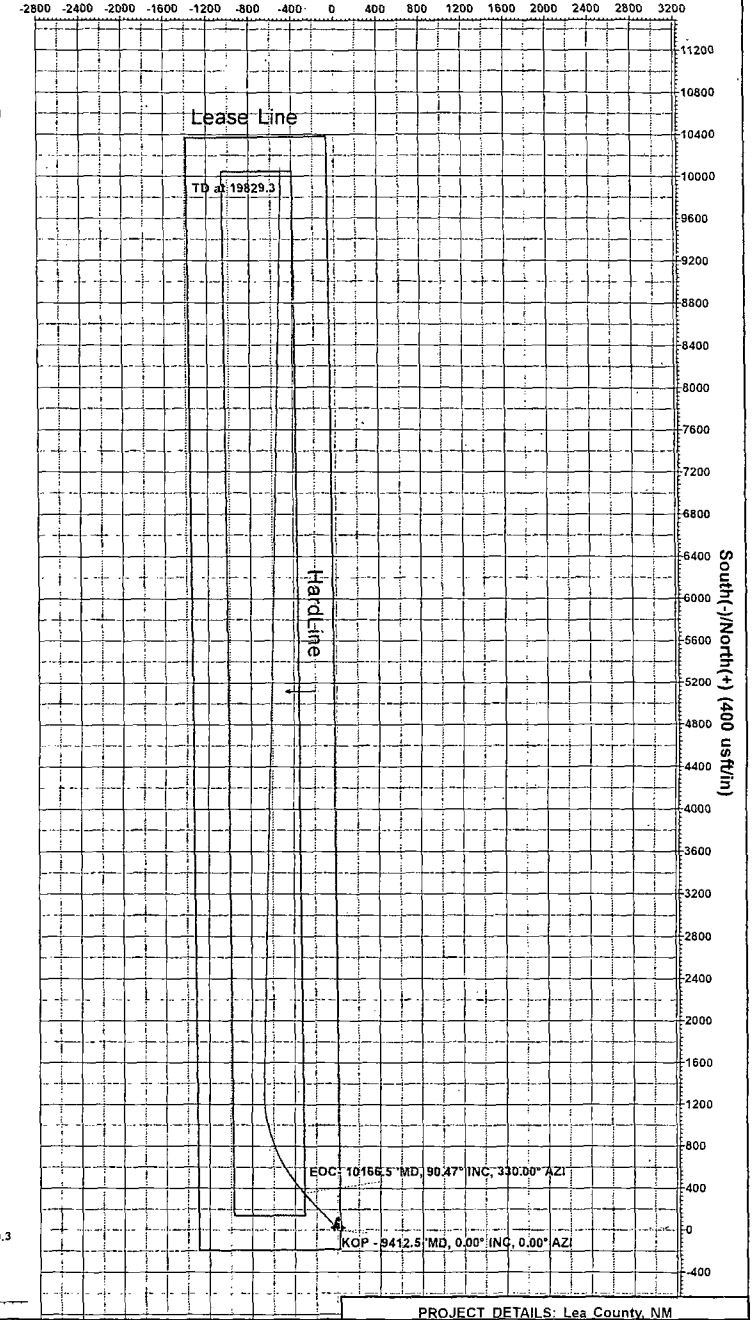
Azimuths to Grid North
True North: -0.45°
Magnetic North: 6.63°

Magnetic Field
Strength: 48149.4snT
Dip Angle: 59.95°
Date: 3/3/2015
Model: IGRF2010

West(-)/East(+) (50 usft/in)



West(-)/East(+) (400 usft/in)



NEXUS
DIRECTIONAL SOLUTIONS, L.P.

Vertical Section at 357.15° (400 usft/in)

Nexus Directional Solutions

PROJECT DETAILS: Lea County, NM
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

Gunner 8 Federal

#6H

OH

Plan: Design #1

Standard Planning Report

03 March, 2015



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #6H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3377.4usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3377.4usft (Original Well Elev)
Site:	Gunner 8-Federal	North Reference:	Grid
Well:	#6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

Project:	Lea County, NM		
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:	Gunner 8 Federal		
Site Position:		Northing:	383,347.50 usft
From:	Map	Easting:	763,104.70 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 3' 3.934 N
		Longitude:	103° 29' 29.432 W
		Grid Convergence:	0.45 °

Well:	#6H					
Well Position	+N-S	-17.0 usft	Northing:	383,330.50 usft	Latitude:	32° 3' 3.943 N
	+E-W	-2,284.3 usft	Easting:	760,820.40 usft	Longitude:	103° 29' 29.432 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,351.4 usft

Wellbore :		OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/3/2015	7.08	59.95	48,149

Design	Design #1				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/S	+E/W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	357.15	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N-S	+E-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,412.5	0.00	0.00	9,412.5	0.0	0.0	0.00	0.00	0.00	0.00	
10,166.5	90.47	318.00	9,890.0	357.8	-322.1	12.00	12.00	0.00	318.00	
11,247.7	90.47	1.25	9,880.7	1,347.4	-689.7	4.00	0.00	4.00	89.82	
19,943.5	90.47	1.25	9,810.0	10,040.8	-500.0	0.00	0.00	0.00	0.00	PBHL(G8FC#6H)



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #6H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3377.4usft (Original Well Elev)
Project:	Lea County NM	MD Reference:	WELL @ 3377.4usft (Original Well Elev)
Site:	Gunner 8 Federal	North Reference:	Grid
Well:	#6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	QH		
Design:	Design #1		

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	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 Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #6H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3377.4usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3377.4usft (Original Well Elev)
Site:	Gunner 8 Federal	North Reference:	Grid
Well:	#6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

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	
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,412.5	0.00	0.00	9,412.5	0.0	0.0	0.0	0.00	0.00	0.00	
KOP - 9412.5 'MD, 0.00° INC, 0.00° AZI										
9,425.0	1.50	318.00	9,425.0	0.1	-0.1	0.1	12.00	12.00	0.00	
9,450.0	4.50	318.00	9,450.0	1.1	-1.0	1.1	12.00	12.00	0.00	
9,475.0	7.50	318.00	9,474.8	3.0	-2.7	3.2	12.00	12.00	0.00	
9,500.0	10.50	318.00	9,499.5	5.9	-5.3	6.2	12.00	12.00	0.00	
9,525.0	13.50	318.00	9,524.0	9.8	-8.8	10.2	12.00	12.00	0.00	
9,550.0	16.50	318.00	9,548.1	14.6	-13.2	15.2	12.00	12.00	0.00	
9,575.0	19.50	318.00	9,571.9	20.4	-18.3	21.2	12.00	12.00	0.00	
9,600.0	22.50	318.00	9,595.2	27.0	-24.3	28.2	12.00	12.00	0.00	
9,625.0	25.50	318.00	9,618.1	34.6	-31.1	36.1	12.00	12.00	0.00	
9,650.0	28.50	318.00	9,640.3	43.0	-38.7	44.9	12.00	12.00	0.00	



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #6H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3377.4usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3377.4usft (Original Well Elev)
Site:	Gunner 8 Federal	North Reference:	Grid
Well:	#6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

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)
9,675.0	31.50	318.00	9,662.0	52.3	-47.1	54.6	12.00	12.00	0.00
9,700.0	34.50	318.00	9,682.9	62.4	-56.2	65.1	12.00	12.00	0.00
9,725.0	37.50	318.00	9,703.2	73.3	-66.0	76.5	12.00	12.00	0.00
9,750.0	40.50	318.00	9,722.6	85.0	-76.5	88.7	12.00	12.00	0.00
9,775.0	43.50	318.00	9,741.2	97.4	-87.7	101.7	12.00	12.00	0.00
9,800.0	46.50	318.00	9,758.8	110.6	-99.6	115.4	12.00	12.00	0.00
9,825.0	49.49	318.00	9,775.6	124.4	-112.0	129.8	12.00	12.00	0.00
9,850.0	52.49	318.00	9,791.3	138.8	-125.0	144.9	12.00	12.00	0.00
9,875.0	55.49	318.00	9,806.0	153.8	-138.5	160.5	12.00	12.00	0.00
9,900.0	58.49	318.00	9,819.6	169.4	-152.5	176.8	12.00	12.00	0.00
9,925.0	61.49	318.00	9,832.1	185.5	-167.0	193.6	12.00	12.00	0.00
9,950.0	64.49	318.00	9,843.5	202.1	-181.9	210.9	12.00	12.00	0.00
9,975.0	67.49	318.00	9,853.6	219.0	-197.2	228.6	12.00	12.00	0.00
10,000.0	70.49	318.00	9,862.6	236.4	-212.8	246.7	12.00	12.00	0.00
10,025.0	73.49	318.00	9,870.3	254.0	-228.7	265.1	12.00	12.00	0.00
10,050.0	76.49	318.00	9,876.8	272.0	-244.9	283.8	12.00	12.00	0.00
10,075.0	79.49	318.00	9,882.0	290.1	-261.2	302.8	12.00	12.00	0.00
10,100.0	82.49	318.00	9,885.9	308.5	-277.8	321.9	12.00	12.00	0.00
10,125.0	85.49	318.00	9,888.5	327.0	-294.4	341.2	12.00	12.00	0.00
10,150.0	88.49	318.00	9,889.9	345.5	-311.1	360.6	12.00	12.00	0.00
10,166.5	90.47	318.00	9,890.0	357.8	-322.1	373.4	12.00	12.00	0.00
EOC-10166.5 'MD, 90.47° INC, 330.00° AZI									
10,200.0	90.47	319.34	9,889.7	382.9	-344.3	399.6	4.00	0.01	4.00
10,300.0	90.48	323.34	9,888.9	461.0	-406.7	480.7	4.00	0.01	4.00
10,400.0	90.49	327.34	9,888.0	543.2	-463.6	565.6	4.00	0.01	4.00
10,500.0	90.50	331.34	9,887.2	629.2	-514.6	654.0	4.00	0.01	4.00
10,600.0	90.50	335.34	9,886.3	718.6	-559.4	745.5	4.00	0.00	4.00
10,700.0	90.50	339.34	9,885.4	810.8	-597.9	839.6	4.00	0.00	4.00
10,800.0	90.50	343.34	9,884.5	905.6	-629.9	935.8	4.00	0.00	4.00
10,900.0	90.50	347.34	9,883.7	1,002.3	-655.2	1,033.6	4.00	0.00	4.00
11,000.0	90.49	351.34	9,882.8	1,100.5	-673.7	1,132.7	4.00	-0.01	4.00
11,100.0	90.48	355.34	9,881.9	1,199.8	-685.3	1,232.4	4.00	-0.01	4.00
11,200.0	90.47	359.34	9,881.1	1,299.7	-689.9	1,332.4	4.00	-0.01	4.00
11,247.7	90.47	1.25	9,880.7	1,347.4	-689.7	1,380.0	4.00	-0.01	4.00
11,300.0	90.47	1.25	9,880.3	1,399.7	-688.6	1,432.2	0.00	0.00	0.00
11,400.0	90.47	1.25	9,879.5	1,499.7	-686.4	1,531.9	0.00	0.00	0.00
11,500.0	90.47	1.25	9,878.7	1,599.6	-684.2	1,631.7	0.00	0.00	0.00
11,600.0	90.47	1.25	9,877.9	1,699.6	-682.0	1,731.4	0.00	0.00	0.00
11,700.0	90.47	1.25	9,877.0	1,799.6	-679.8	1,831.2	0.00	0.00	0.00
11,800.0	90.47	1.25	9,876.2	1,899.6	-677.6	1,930.9	0.00	0.00	0.00
11,900.0	90.47	1.25	9,875.4	1,999.5	-675.5	2,030.6	0.00	0.00	0.00
12,000.0	90.47	1.25	9,874.6	2,099.5	-673.3	2,130.4	0.00	0.00	0.00
12,100.0	90.47	1.25	9,873.8	2,199.5	-671.1	2,230.1	0.00	0.00	0.00
12,200.0	90.47	1.25	9,873.0	2,299.4	-668.9	2,329.9	0.00	0.00	0.00
12,300.0	90.47	1.25	9,872.2	2,399.4	-666.7	2,429.6	0.00	0.00	0.00
12,400.0	90.47	1.25	9,871.4	2,499.4	-664.6	2,529.3	0.00	0.00	0.00
12,500.0	90.47	1.25	9,870.5	2,599.4	-662.4	2,629.1	0.00	0.00	0.00
12,600.0	90.47	1.25	9,869.7	2,699.3	-660.2	2,728.8	0.00	0.00	0.00
12,700.0	90.47	1.25	9,868.9	2,799.3	-658.0	2,828.6	0.00	0.00	0.00
12,800.0	90.47	1.25	9,868.1	2,899.3	-655.8	2,928.3	0.00	0.00	0.00
12,900.0	90.47	1.25	9,867.3	2,999.3	-653.6	3,028.0	0.00	0.00	0.00
13,000.0	90.47	1.25	9,866.5	3,099.2	-651.5	3,127.8	0.00	0.00	0.00
13,100.0	90.47	1.25	9,865.7	3,199.2	-649.3	3,227.5	0.00	0.00	0.00
13,200.0	90.47	1.25	9,864.8	3,299.2	-647.1	3,327.3	0.00	0.00	0.00



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #6H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3377.4usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3377.4usft (Original Well Elev)
Site:	Gunner 8 Federal	North Reference:	Grid
Well:	#6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,300.0	90.47	1.25	9,864.0	3,399.1	-644.9	3,427.0	0.00	0.00	0.00	
13,400.0	90.47	1.25	9,863.2	3,499.1	-642.7	3,526.8	0.00	0.00	0.00	
13,500.0	90.47	1.25	9,862.4	3,599.1	-640.6	3,626.5	0.00	0.00	0.00	
13,600.0	90.47	1.25	9,861.6	3,699.1	-638.4	3,726.2	0.00	0.00	0.00	
13,700.0	90.47	1.25	9,860.8	3,799.0	-636.2	3,826.0	0.00	0.00	0.00	
13,800.0	90.47	1.25	9,860.0	3,899.0	-634.0	3,925.7	0.00	0.00	0.00	
13,900.0	90.47	1.25	9,859.2	3,999.0	-631.8	4,025.5	0.00	0.00	0.00	
14,000.0	90.47	1.25	9,858.3	4,099.0	-629.7	4,125.2	0.00	0.00	0.00	
14,100.0	90.47	1.25	9,857.5	4,198.9	-627.5	4,224.9	0.00	0.00	0.00	
14,200.0	90.47	1.25	9,856.7	4,298.9	-625.3	4,324.7	0.00	0.00	0.00	
14,300.0	90.47	1.25	9,855.9	4,398.9	-623.1	4,424.4	0.00	0.00	0.00	
14,400.0	90.47	1.25	9,855.1	4,498.8	-620.9	4,524.2	0.00	0.00	0.00	
14,500.0	90.47	1.25	9,854.3	4,598.8	-618.7	4,623.9	0.00	0.00	0.00	
14,600.0	90.47	1.25	9,853.5	4,698.8	-616.6	4,723.6	0.00	0.00	0.00	
14,700.0	90.47	1.25	9,852.6	4,798.8	-614.4	4,823.4	0.00	0.00	0.00	
14,800.0	90.47	1.25	9,851.8	4,898.7	-612.2	4,923.1	0.00	0.00	0.00	
14,900.0	90.47	1.25	9,851.0	4,998.7	-610.0	5,022.9	0.00	0.00	0.00	
15,000.0	90.47	1.25	9,850.2	5,098.7	-607.8	5,122.6	0.00	0.00	0.00	
15,100.0	90.47	1.25	9,849.4	5,198.7	-605.7	5,222.3	0.00	0.00	0.00	
15,200.0	90.47	1.25	9,848.6	5,298.6	-603.5	5,322.1	0.00	0.00	0.00	
15,300.0	90.47	1.25	9,847.8	5,398.6	-601.3	5,421.8	0.00	0.00	0.00	
15,400.0	90.47	1.25	9,847.0	5,498.6	-599.1	5,521.6	0.00	0.00	0.00	
15,500.0	90.47	1.25	9,846.1	5,598.5	-596.9	5,621.3	0.00	0.00	0.00	
15,600.0	90.47	1.25	9,845.3	5,698.5	-594.7	5,721.0	0.00	0.00	0.00	
15,700.0	90.47	1.25	9,844.5	5,798.5	-592.6	5,820.8	0.00	0.00	0.00	
15,800.0	90.47	1.25	9,843.7	5,898.5	-590.4	5,920.5	0.00	0.00	0.00	
15,900.0	90.47	1.25	9,842.9	5,998.4	-588.2	6,020.3	0.00	0.00	0.00	
16,000.0	90.47	1.25	9,842.1	6,098.4	-586.0	6,120.0	0.00	0.00	0.00	
16,100.0	90.47	1.25	9,841.3	6,198.4	-583.8	6,219.8	0.00	0.00	0.00	
16,200.0	90.47	1.25	9,840.4	6,298.4	-581.7	6,319.5	0.00	0.00	0.00	
16,300.0	90.47	1.25	9,839.6	6,398.3	-579.5	6,419.2	0.00	0.00	0.00	
16,400.0	90.47	1.25	9,838.8	6,498.3	-577.3	6,519.0	0.00	0.00	0.00	
16,500.0	90.47	1.25	9,838.0	6,598.3	-575.1	6,618.7	0.00	0.00	0.00	
16,600.0	90.47	1.25	9,837.2	6,698.2	-572.9	6,718.5	0.00	0.00	0.00	
16,700.0	90.47	1.25	9,836.4	6,798.2	-570.8	6,818.2	0.00	0.00	0.00	
16,800.0	90.47	1.25	9,835.6	6,898.2	-568.6	6,917.9	0.00	0.00	0.00	
16,900.0	90.47	1.25	9,834.8	6,998.2	-566.4	7,017.7	0.00	0.00	0.00	
17,000.0	90.47	1.25	9,833.9	7,098.1	-564.2	7,117.4	0.00	0.00	0.00	
17,100.0	90.47	1.25	9,833.1	7,198.1	-562.0	7,217.2	0.00	0.00	0.00	
17,200.0	90.47	1.25	9,832.3	7,298.1	-559.8	7,316.9	0.00	0.00	0.00	
17,300.0	90.47	1.25	9,831.5	7,398.1	-557.7	7,416.6	0.00	0.00	0.00	
17,400.0	90.47	1.25	9,830.7	7,498.0	-555.5	7,516.4	0.00	0.00	0.00	
17,500.0	90.47	1.25	9,829.9	7,598.0	-553.3	7,616.1	0.00	0.00	0.00	
17,600.0	90.47	1.25	9,829.1	7,698.0	-551.1	7,715.9	0.00	0.00	0.00	
17,700.0	90.47	1.25	9,828.2	7,798.0	-548.9	7,815.6	0.00	0.00	0.00	
17,800.0	90.47	1.25	9,827.4	7,897.9	-546.8	7,915.3	0.00	0.00	0.00	
17,900.0	90.47	1.25	9,826.6	7,997.9	-544.6	8,015.1	0.00	0.00	0.00	
18,000.0	90.47	1.25	9,825.8	8,097.9	-542.4	8,114.8	0.00	0.00	0.00	
18,100.0	90.47	1.25	9,825.0	8,197.8	-540.2	8,214.6	0.00	0.00	0.00	
18,200.0	90.47	1.25	9,824.2	8,297.8	-538.0	8,314.3	0.00	0.00	0.00	
18,300.0	90.47	1.25	9,823.4	8,397.8	-535.9	8,414.0	0.00	0.00	0.00	
18,400.0	90.47	1.25	9,822.6	8,497.8	-533.7	8,513.8	0.00	0.00	0.00	
18,500.0	90.47	1.25	9,821.7	8,597.7	-531.5	8,613.5	0.00	0.00	0.00	
18,600.0	90.47	1.25	9,820.9	8,697.7	-529.3	8,713.3	0.00	0.00	0.00	



Wellplanning
Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #6H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3377.4usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3377.4usft (Original Well Elev)
Site:	Gunner 8, Federal	North Reference:	Grid
Well:	#6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
18,700.0	90.47	1.25	9,820.1	8,797.7	-527.1	8,813.0	0.00	0.00	0.00	
18,800.0	90.47	1.25	9,819.3	8,897.7	-524.9	8,912.7	0.00	0.00	0.00	
18,900.0	90.47	1.25	9,818.5	8,997.6	-522.8	9,012.5	0.00	0.00	0.00	
19,000.0	90.47	1.25	9,817.7	9,097.6	-520.6	9,112.2	0.00	0.00	0.00	
19,100.0	90.47	1.25	9,816.9	9,197.6	-518.4	9,212.0	0.00	0.00	0.00	
19,200.0	90.47	1.25	9,816.0	9,297.5	-516.2	9,311.7	0.00	0.00	0.00	
19,300.0	90.47	1.25	9,815.2	9,397.5	-514.0	9,411.5	0.00	0.00	0.00	
19,400.0	90.47	1.25	9,814.4	9,497.5	-511.9	9,511.2	0.00	0.00	0.00	
19,500.0	90.47	1.25	9,813.6	9,597.5	-509.7	9,610.9	0.00	0.00	0.00	
19,600.0	90.47	1.25	9,812.8	9,697.4	-507.5	9,710.7	0.00	0.00	0.00	
19,700.0	90.47	1.25	9,812.0	9,797.4	-505.3	9,810.4	0.00	0.00	0.00	
19,800.0	90.47	1.25	9,811.2	9,897.4	-503.1	9,910.2	0.00	0.00	0.00	
19,829.3	90.47	1.25	9,810.9	9,926.7	-502.5	9,939.4	0.00	0.00	0.00	
TD at 19829.3										
19,900.0	90.47	1.25	9,810.4	9,997.4	-500.9	10,009.9	0.00	0.00	0.00	
19,943.5	90.47	1.25	9,810.0	10,040.8	-500.0	10,053.2	0.00	0.00	0.00	
PBHL(G8FC#6H)										

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(G8FC#6H)	0.00	0.00	9,810.0	10,040.8	-500.0	393,371.30	760,320.40	32° 4' 43.341 N	103° 29' 34.333 W	
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
9,412.5	9,412.5	0.0	0.0	KOP - 9412.5 'MD, 0.00° INC, 0.00° AZI	
10,166.5	9,890.0	416.9	-240.7	EOC- 10166.5 'MD, 90.47° INC, 330.00° AZI	
19,829.3	9,810.0	1,237.2	-460.0	TD at 19829.3	



COG Operating LLC
Project: Lea County, NM
Site: Gunner 8 Federal
Well: #6H
Wellbore: OH
Plan: Design #1 (#6H/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	9412.5	0.00	0.00	9412.5	0.0	0.0	0.00	0.00	0.0
3	10166.5	90.47	318.00	9890.0	357.8	-322.1	12.00	318.00	373.4
4	11247.7	90.47	1.25	9880.7	1347.4	-689.7	4.00	89.82	1380.0
5	19943.5	90.47	1.25	9810.0	10040.8	-500.0	0.00	0.00	10053.2

PBHL(G8FC#6H)

WELL DETAILS: #6H

Ground Elevation:: 3351.4
RKB Elevation: WELL @ 3377.4usft (Original Well Elev)
Rig Name: Original Well Elev

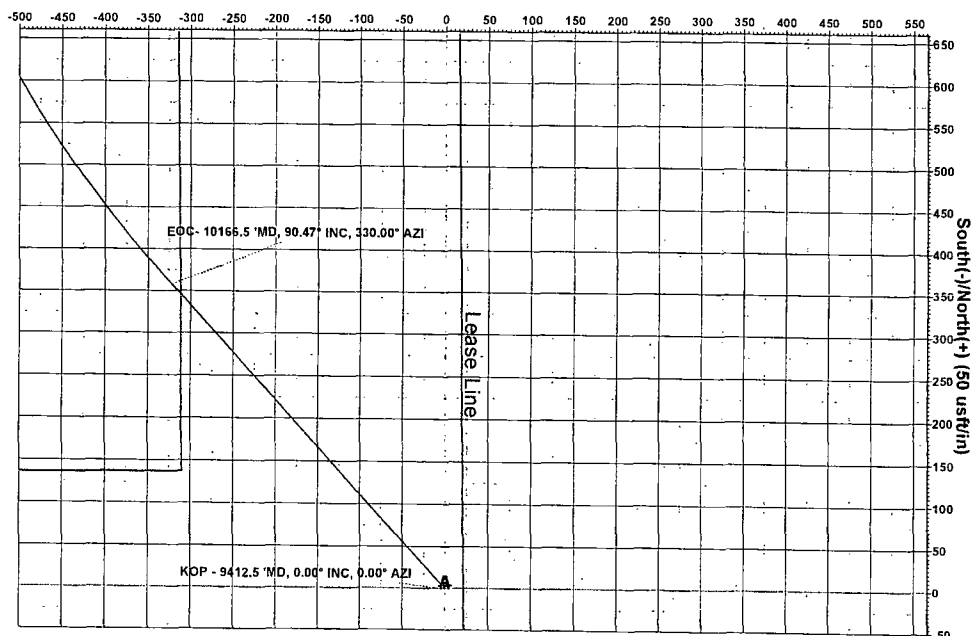
Northing 383330.50 Easting 760820.40
Latitude 32° 3' 3.943 N Longitude 103° 29' 29.432 W



Azimuths to Grid North
True North: -0.45°
Magnetic North: 6.63°

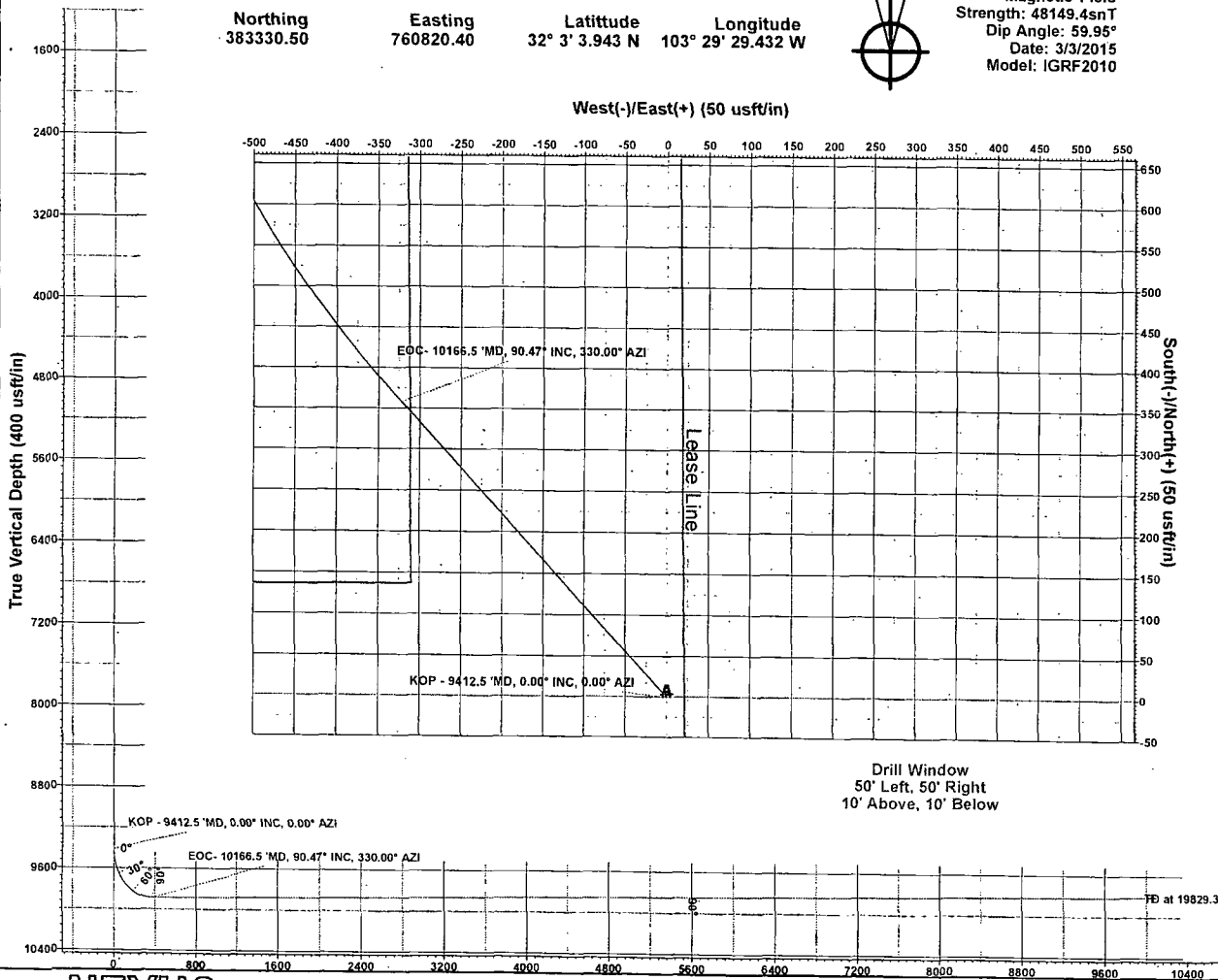
Magnetic Field
Strength: 48149.4snT
Dip Angle: 59.95°
Date: 3/3/2015
Model: IGRF2010

West(-)/East(+) (50 usft/in)

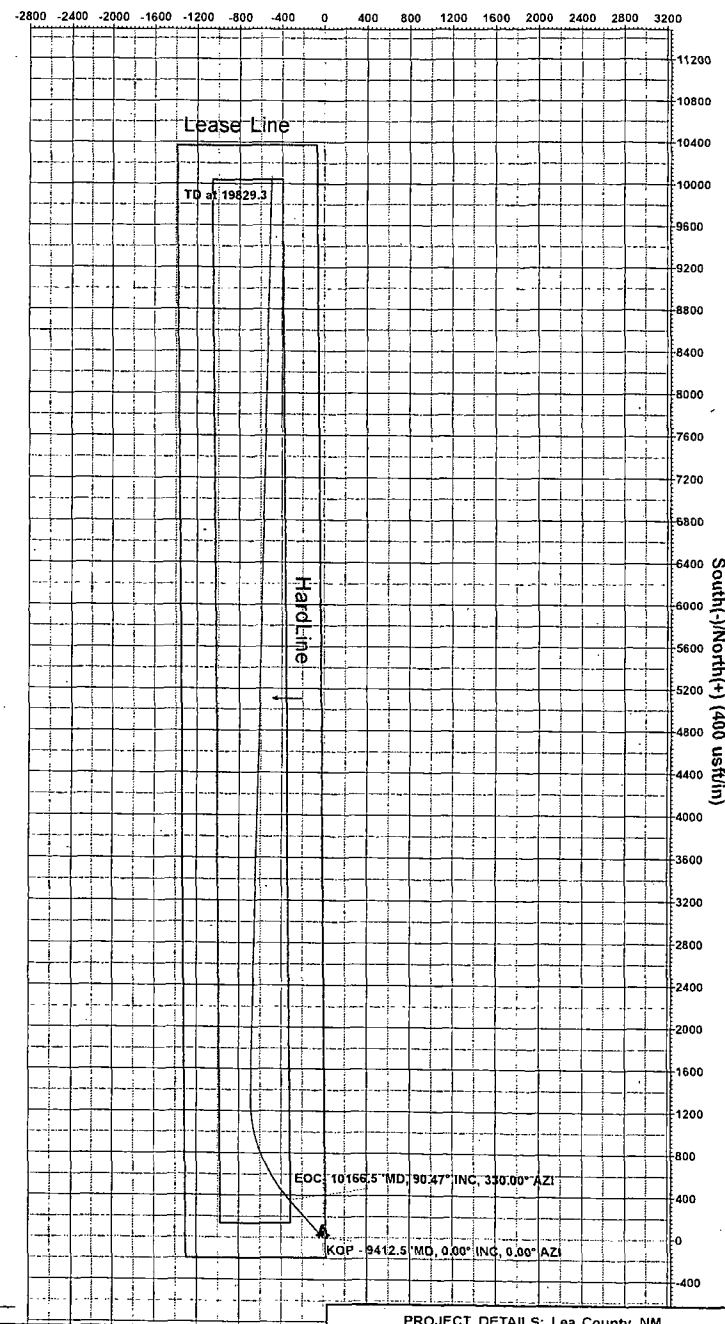


Drill Window
50' Left, 50' Right
10' Above, 10' Below

Vertical Section at 357.15° (400 usft/in)



West(-)/East(+) (400 usft/in)



NEXUS
DIRECTIONAL SOLUTIONS, L.P.

Nexus Directional Solutions

PROJECT DETAILS: Lea County, NM
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

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
LEASE NO.:	NMNM-124664
WELL NAME & NO.:	Gunner 8 Federal 6H
SURFACE HOLE FOOTAGE:	0190' FSL & 2625' FWL
BOTTOM HOLE FOOTAGE:	0330' FNL & 2310' FWL Sec. 5, T. 26 S., R 34 E.
LOCATION:	Section 8, T. 26 S., R 34 E., NMPM
COUNTY:	Lea County, New Mexico
API:	30-025-41181

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. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, please 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.

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

Possible water and brine flows in the Salado, Castile, Delaware, and Bone Spring.

Possible lost circulation in the Delaware and Bone Springs formations.

Possible sulfur water flows from the Castile Group.

1. The 13-3/8 inch surface casing shall be set at approximately **790** 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.

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, which shall be set at approximately **5375** feet (**in the Lamar Limestone**), is:

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

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 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 **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**.
 - 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.
 - 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 030515