

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

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.

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: DEBORA WILBOURN E-Mail: dwilbourn@concho.com	5. Lease Serial No. NMNM120897	6. If Indian, Allottee or Tribe Name	7. If Unit or CA/Agreement, Name and/or No.
3a. Address 2208 W MAIN ST ARTESIA, NM 88210	3b. Phone No. (include area code) Ph: 575-748-6958	10. Field and Pool, or Exploratory POKER LAKE DELAWARE SW	9. API Well No. 30-015-39820	11. County or Parish, and State EDDY COUNTY, NM	
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 13 T24S R30E SWSW 400FSL 990FWL					

RECEIVED

NOV 21 2012

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

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

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate 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 recompleation 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 requests the following changes:
Production casing section:

Drill 7-7/8? pilot hole to 10,500? to run gyro and OH logs.
The Wolfcamp will not be penetrated; PHTD will be in carbonate section in between 2nd & 3rd BSS
Plug back PH to 9200? with:
200 sx Class H @ 17.2ppg/0.98yield from PHTD to 9900?
275 sx Class H @ 17.2ppg/0.98yield from 9900? to 9200?
Kick off and drill 7-7/8? curve & lateral to 14,202? MD/9850? TVD (see attached directional plan)
Run 5-1/2? 17# P-110 LTC csg to TD
Cmt in 1 stage with:
Lead: 1000 sx 50:50:10 H + Salt + Gilsonite + CF + CFR-3 @ 11.8 ppg/2.5 yield

APPROVED

NOV 20 2012

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

14. I hereby certify that the foregoing is true and correct.		Electronic Submission #159936 verified by the BLM Well Information System For COG OPERATING LLC, sent to the Carlsbad Committed to AFMSS for processing by KURT SIMMONS on 11/14/2012 ()		Accepted for record NMOC 11/26/2012
Name (Printed/Typed)	DEBORA WILBOURN	Title	DRLG ENGINEERING TECH	
Signature	(Electronic Submission)	Date	11/09/2012	

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By	Title	Date
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.

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

Additional data for EC transaction #159936 that would not fit on the form

32. Additional remarks, continued

Tail: 950 sx 50:50:2 H + Salt + GasStop + CFR-3 @ 14.4 ppg/1.25 yield
Minimum tie back to 3600?
35% excess on OH



COG Operating LLC
Project: Eddy County, NM
Site: Silverstreak 13 Federal Com
Well: #2H
Wellbore: OH
Plan: Plan #1 (#2H/OH)

WELL DETAILS: #2H

Ground Elevation:: 3456.0
RKB Elevation: WELL @ 3474.0usft (Silver Oak #12 - 18' KB)
Rig Name: Silver Oak #12 - 18' KB

Surface Hole Location

Eastings Latitude Longitude
652802.30 32° 12' 41.794 N 103° 50' 21.404 W



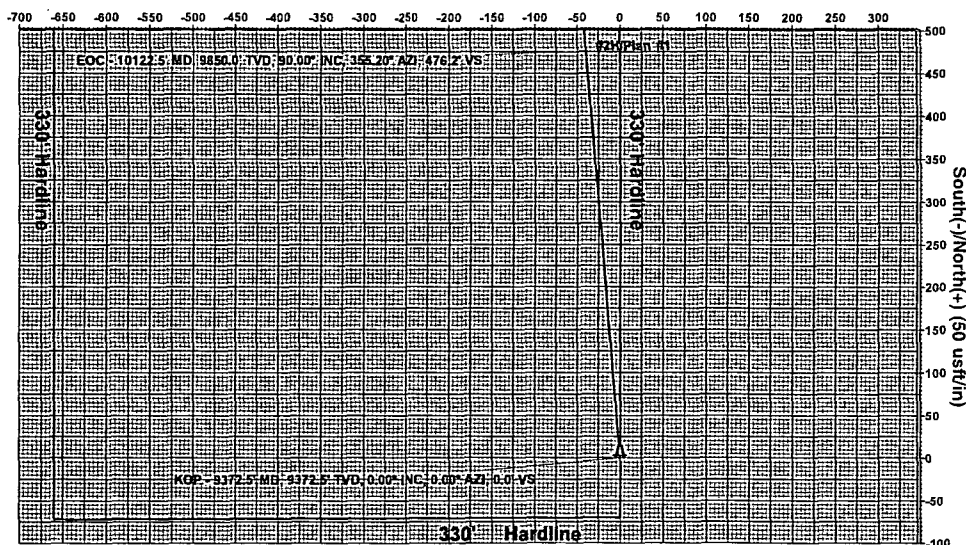
Azimuths to Grid North
True North: -0.26°
Magnetic North: 7.27°

Magnetic Field
Strength: 48439.2snT
Dip Angle: 60.09°
Date: 11/8/2012
Model: IGRF2010

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	9372.5	0.00	0.00	9372.5	0.0	0.0	0.00	0.00	0.0	
3	10122.5	90.00	355.20	9850.0	475.8	-40.0	12.00	355.20	476.2	
4	10358.3	90.00	359.92	9850.0	711.3	-50.0	2.00	90.01	711.8	
5	14202.9	90.00	359.92	9850.0	4555.9	-55.7	0.00	0.00	4556.2	PBHL (S13#2H)

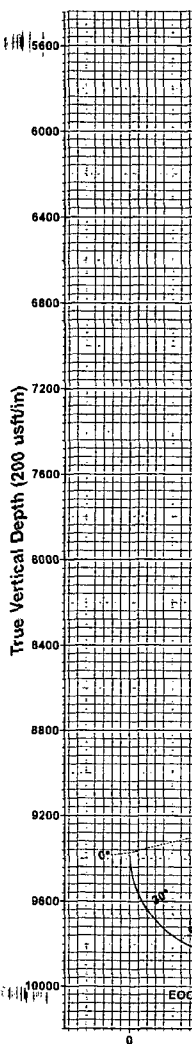
West(-)/East(+) (50 usft/in)



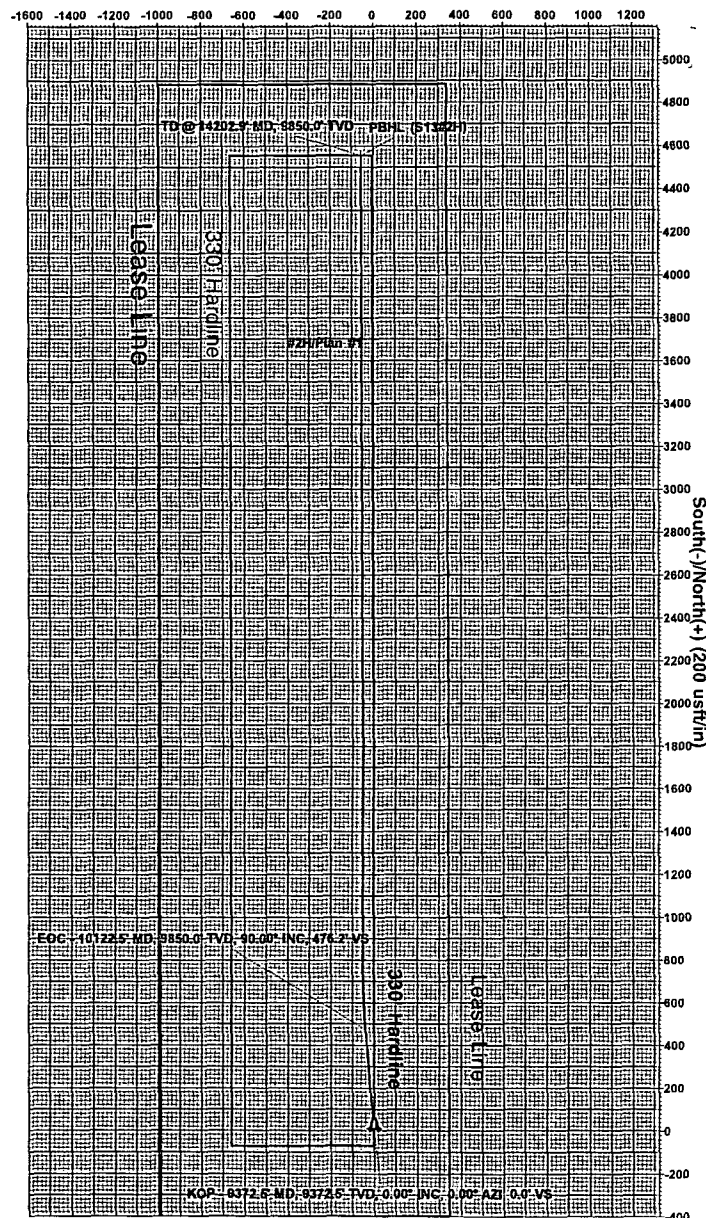
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northings	Eastings
PBHL (S13#2H)	9850.0	4555.9	-55.7	445609.98	652746.62

Vertical Section at 359.30° (200 usft/in)



West(-)/East(+) (200 usft/in)



PROJECT DETAILS: Eddy 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



Crescent Directional Drilling
7715 West Industrial Ave. Midland, Tx 79706
Phone: 432-618-1135

Plan: Plan #1 (#2H/OH)
Created By: Matt Higgins Date: 17:21, November 08 2012



COG Operating LLC

Eddy County, NM

Silverstreak 13 Federal Com

#2H

OH

Plan: Plan #1

Standard Planning Report

08 November, 2012



Database:	Houston R5000 Database	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3474.0usft (Silver Oak #12--18' KB)
Project:	Eddy County, NM	MD Reference:	WELL @ 3474.0usft (Silver Oak #12--18' KB)
Site:	Silverstreak 13 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Eddy 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	Silverstreak 13 Federal Com		
Site Position:	Map	Northing:	441,054.10 usft
From:		Easting:	652,802.30 usft
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 12' 41.794 N
		Longitude:	103° 50' 21.404 W
		Grid Convergence:	0.26 °

Well:	#2H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			3,456.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	11/8/2012	7.54
			Dip Angle
			(°)
			Field Strength
			(nT)
			48,439

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			359.30

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,372.5	0.00	0.00	9,372.5	0.0	0.0	0.00	0.00	0.00	0.00	
10,122.5	90.00	355.20	9,850.0	475.8	-40.0	12.00	12.00	0.00	355.20	
10,358.3	90.00	359.92	9,850.0	711.3	-50.0	2.00	0.00	2.00	90.01	
14,202.9	90.00	359.92	9,850.0	4,555.9	-55.7	0.00	0.00	0.00	0.00	PBHL (S13#2H)

Database:	Houston R5000 Database	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3474.0usft (Silver Oak #12 - 18' KB)
Project:	Eddy County, NM	MD Reference:	WELL @ 3474.0usft (Silver Oak #12 - 18' KB)
Site:	Silverstreak 13 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	QH		
Design:	Plan #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

Database:	Houston R5000 Database	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3474.0usft (Silver Oak #12 - 18 KB)
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Site:	Silverstreak 13 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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	
9,372.5	0.00	0.00	9,372.5	0.0	0.0	0.0	0.00	0.00	0.00	
KOP: 9372.5 MD: 9372.5 TVD: 0.00° INC: 0.00° AZI: 0.0° VS										
9,375.0	0.30	355.20	9,375.0	0.0	0.0	0.0	12.00	12.00	0.00	
9,400.0	3.30	355.20	9,400.0	0.8	-0.1	0.8	12.00	12.00	0.00	
9,425.0	6.30	355.20	9,424.9	2.9	-0.2	2.9	12.00	12.00	0.00	
9,450.0	9.30	355.20	9,449.7	6.3	-0.5	6.3	12.00	12.00	0.00	
9,475.0	12.30	355.20	9,474.2	10.9	-0.9	10.9	12.00	12.00	0.00	
9,500.0	15.30	355.20	9,498.5	16.9	-1.4	16.9	12.00	12.00	0.00	
9,525.0	18.30	355.20	9,522.4	24.1	-2.0	24.1	12.00	12.00	0.00	
9,550.0	21.30	355.20	9,545.9	32.5	-2.7	32.5	12.00	12.00	0.00	
9,575.0	24.30	355.20	9,569.0	42.2	-3.5	42.2	12.00	12.00	0.00	
9,600.0	27.30	355.20	9,591.5	53.0	-4.5	53.0	12.00	12.00	0.00	
9,625.0	30.30	355.20	9,613.4	65.0	-5.5	65.1	12.00	12.00	0.00	

Database:	Houston R5000 Database	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3474.0usft (Silver Oak #12 - 18" KB)
Project:	Eddy County, NM	MD Reference:	WELL @ 3474.0usft (Silver Oak #12 - 18" KB)
Site:	Silverstreak 13 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
9,650.0	33.30	355.20	9,634.6	78.1	-6.6	78.2	12.00	12.00	0.00
9,675.0	36.30	355.20	9,655.2	92.3	-7.8	92.4	12.00	12.00	0.00
9,700.0	39.30	355.20	9,674.9	107.6	-9.0	107.7	12.00	12.00	0.00
9,725.0	42.30	355.20	9,693.8	123.9	-10.4	124.0	12.00	12.00	0.00
9,750.0	45.30	355.20	9,711.9	141.1	-11.9	141.3	12.00	12.00	0.00
9,775.0	48.30	355.20	9,729.0	159.3	-13.4	159.4	12.00	12.00	0.00
9,800.0	51.30	355.20	9,745.1	178.3	-15.0	178.5	12.00	12.00	0.00
9,825.0	54.30	355.20	9,760.2	198.1	-16.6	198.3	12.00	12.00	0.00
9,850.0	57.30	355.20	9,774.3	218.7	-18.4	219.0	12.00	12.00	0.00
9,875.0	60.30	355.20	9,787.2	240.1	-20.2	240.3	12.00	12.00	0.00
9,900.0	63.30	355.20	9,799.1	262.0	-22.0	262.3	12.00	12.00	0.00
9,925.0	66.30	355.20	9,809.7	284.5	-23.9	284.8	12.00	12.00	0.00
9,950.0	69.30	355.20	9,819.1	307.6	-25.8	307.9	12.00	12.00	0.00
9,975.0	72.30	355.20	9,827.4	331.1	-27.8	331.4	12.00	12.00	0.00
10,000.0	75.30	355.20	9,834.3	355.1	-29.8	355.4	12.00	12.00	0.00
10,025.0	78.30	355.20	9,840.0	379.3	-31.9	379.7	12.00	12.00	0.00
10,050.0	81.30	355.20	9,844.5	403.8	-33.9	404.2	12.00	12.00	0.00
10,075.0	84.30	355.20	9,847.6	428.5	-36.0	428.9	12.00	12.00	0.00
10,100.0	87.30	355.20	9,849.4	453.4	-38.1	453.8	12.00	12.00	0.00
10,122.5	90.00	355.20	9,850.0	475.8	-40.0	476.2	12.00	12.00	0.00
EOC - 10122.5' MD, 9860.0' TVD, 90.00° INC, 355.20° AZI, 476.2' VS									
10,200.0	90.00	356.75	9,850.0	553.1	-45.4	553.6	2.00	0.00	2.00
10,300.0	90.00	358.75	9,850.0	653.0	-49.3	653.6	2.00	0.00	2.00
10,358.3	90.00	359.92	9,850.0	711.3	-50.0	711.8	2.00	0.00	2.00
10,400.0	90.00	359.92	9,850.0	753.0	-50.1	753.6	0.00	0.00	0.00
10,500.0	90.00	359.92	9,850.0	853.0	-50.2	853.6	0.00	0.00	0.00
10,600.0	90.00	359.92	9,850.0	953.0	-50.4	953.6	0.00	0.00	0.00
10,700.0	90.00	359.92	9,850.0	1,053.0	-50.5	1,053.5	0.00	0.00	0.00
10,800.0	90.00	359.92	9,850.0	1,153.0	-50.6	1,153.5	0.00	0.00	0.00
10,900.0	90.00	359.92	9,850.0	1,253.0	-50.8	1,253.5	0.00	0.00	0.00
11,000.0	90.00	359.92	9,850.0	1,353.0	-50.9	1,353.5	0.00	0.00	0.00
11,100.0	90.00	359.92	9,850.0	1,453.0	-51.1	1,453.5	0.00	0.00	0.00
11,200.0	90.00	359.92	9,850.0	1,553.0	-51.2	1,553.5	0.00	0.00	0.00
11,300.0	90.00	359.92	9,850.0	1,653.0	-51.4	1,653.5	0.00	0.00	0.00
11,400.0	90.00	359.92	9,850.0	1,753.0	-51.5	1,753.5	0.00	0.00	0.00
11,500.0	90.00	359.92	9,850.0	1,853.0	-51.7	1,853.5	0.00	0.00	0.00
11,600.0	90.00	359.92	9,850.0	1,953.0	-51.8	1,953.5	0.00	0.00	0.00
11,700.0	90.00	359.92	9,850.0	2,053.0	-52.0	2,053.5	0.00	0.00	0.00
11,800.0	90.00	359.92	9,850.0	2,153.0	-52.1	2,153.5	0.00	0.00	0.00
11,900.0	90.00	359.92	9,850.0	2,253.0	-52.3	2,253.5	0.00	0.00	0.00
12,000.0	90.00	359.92	9,850.0	2,353.0	-52.4	2,353.5	0.00	0.00	0.00
12,100.0	90.00	359.92	9,850.0	2,453.0	-52.6	2,453.5	0.00	0.00	0.00
12,200.0	90.00	359.92	9,850.0	2,553.0	-52.7	2,553.5	0.00	0.00	0.00
12,300.0	90.00	359.92	9,850.0	2,653.0	-52.9	2,653.5	0.00	0.00	0.00
12,400.0	90.00	359.92	9,850.0	2,753.0	-53.0	2,753.4	0.00	0.00	0.00
12,500.0	90.00	359.92	9,850.0	2,853.0	-53.2	2,853.4	0.00	0.00	0.00
12,600.0	90.00	359.92	9,850.0	2,953.0	-53.3	2,953.4	0.00	0.00	0.00
12,700.0	90.00	359.92	9,850.0	3,053.0	-53.5	3,053.4	0.00	0.00	0.00
12,800.0	90.00	359.92	9,850.0	3,153.0	-53.6	3,153.4	0.00	0.00	0.00
12,900.0	90.00	359.92	9,850.0	3,253.0	-53.8	3,253.4	0.00	0.00	0.00
13,000.0	90.00	359.92	9,850.0	3,353.0	-53.9	3,353.4	0.00	0.00	0.00
13,100.0	90.00	359.92	9,850.0	3,453.0	-54.0	3,453.4	0.00	0.00	0.00
13,200.0	90.00	359.92	9,850.0	3,553.0	-54.2	3,553.4	0.00	0.00	0.00
13,300.0	90.00	359.92	9,850.0	3,653.0	-54.3	3,653.4	0.00	0.00	0.00

Database:	Houston R5000 Database	Local Co-ordinate Reference:	Well #2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3474.0usft (Silver Oak #12--18" KB)
Project:	Eddy County, NM	MD Reference:	WELL @ 3474.0usft (Silver Oak #12--18" KB)
Site:	Silverstreak 13 Federal Com	North Reference:	Grid
Well:	#2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)	
13,400.0	90.00	359.92	9,850.0	3,753.0	-54.5	3,753.4	0.00	0.00	0.00	
13,500.0	90.00	359.92	9,850.0	3,853.0	-54.6	3,853.4	0.00	0.00	0.00	
13,600.0	90.00	359.92	9,850.0	3,953.0	-54.8	3,953.4	0.00	0.00	0.00	
13,700.0	90.00	359.92	9,850.0	4,053.0	-54.9	4,053.4	0.00	0.00	0.00	
13,800.0	90.00	359.92	9,850.0	4,153.0	-55.1	4,153.4	0.00	0.00	0.00	
13,900.0	90.00	359.92	9,850.0	4,253.0	-55.2	4,253.4	0.00	0.00	0.00	
14,000.0	90.00	359.92	9,850.0	4,353.0	-55.4	4,353.4	0.00	0.00	0.00	
14,100.0	90.00	359.92	9,850.0	4,453.0	-55.5	4,453.4	0.00	0.00	0.00	
14,202.9	90.00	359.92	9,850.0	4,555.9	-55.7	4,556.2	0.00	0.00	0.00	
TD @ 14202.9' MD, 9850.0' TVD										

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 (S13#2H)	0.00	0.00	9,850.0	4,555.9	-55.7	445,609.98	652,746.63	32° 13' 26.882 N	103° 50' 21.808 W	
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,372.5	9,372.5	0.0	0.0	KOP - 9372.5' MD, 9372.5' TVD, 0.00° INC, 0.00° AZI, 0.0' VS	
10,122.5	9,850.0	475.8	-40.0	EOC - 10122.5' MD, 9850.0' TVD, 90.00° INC, 355.20° AZI, 476.2' VS	
14,202.9	9,850.0	4,555.9	-55.7	TD @ 14202.9' MD, 9850.0' TVD	