

COG Operating LLC

**Eddy County, New Mexico (NAD 27)
Falabella 31 Fee #4H**

Wellbore #1

Plan: Plan #1 01-30-13

Surface: 150' FSL, 963' FEL, Sec 31, T18S, R26E, Unit P

PP: 330' FSL, 965' FEL, Sec 31, T18S, R26E, Unit P

BHL: 330' FNL, 990' FEL, Sec 31, T18S, R26E, Unit A

Standard Planning Report

30 January, 2013





Phoenix Technology Services
Planning Report



Database:	GCR DB	Local Co-ordinate Reference:	Well #4H
Company:	COG Operating LLC	TVD Reference:	GL @ 3402.00usft
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	GL @ 3402.00usft
Site:	Falabella 31 Fee	North Reference:	Grid
Well:	#4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1, 01-30-13		

Project	Eddy County, New Mexico (NAD 27)		
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	Falabella 31 Fee		
Site Position:		Northing:	617,359.30 usft
From:	Map	Easting:	472,777.20 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 41' 49.8761 N
		Longitude:	104° 25' 18.5752 W
		Grid Convergence:	-0.05 °

Well	#4H		
Well Position	+N/-S	-6.30 usft	Northing:
	+E/-W	1,953.50 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	
		Latitude:	32° 41' 49.8293 N
		Longitude:	104° 24' 55.7143 W
		Ground Level:	3,402.00 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010_14	01/30/13	7.81
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.44
			48,644

Design	Plan #1, 01-30-13		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			359.34

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,320.90	0.00	0.00	2,320.90	0.00	0.00	0.00	0.00	0.00	0.00	
3,161.81	92.50	359.34	2,841.27	543.55	-6.27	11.00	11.00	0.00	359.34	
7,488.36	92.50	359.34	2,652.55	4,865.70	-56.10	0.00	0.00	0.00	0.00	PBHL-Falabella 31 #4



Phoenix Technology Services
Planning Report



Database:	GCR/DB	Local Co-ordinate Reference:	Well #4H
Company:	COG Operating LLC	TVD Reference:	GL @ 3402.00usft
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	GL @ 3402.00usft
Site:	Falabella 31 Fee	North Reference:	Grid
Well:	#4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 01-30-13		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,320.90	0.00	0.00	2,320.90	0.00	0.00	0.00	0.00	0.00	0.00
KOP Start Build 11.00									
2,400.00	8.70	359.34	2,399.70	5.99	-0.07	6.00	11.00	11.00	0.00
2,500.00	19.70	359.34	2,496.49	30.49	-0.35	30.49	11.00	11.00	0.00
2,600.00	30.70	359.34	2,586.83	73.00	-0.84	73.01	11.00	11.00	0.00
2,700.00	41.70	359.34	2,667.40	131.97	-1.52	131.98	11.00	11.00	0.00
2,767.52	49.13	359.34	2,714.77	180.02	-2.08	180.03	11.00	11.00	0.00
PP Falabella 31 #4H									
2,800.00	52.70	359.34	2,735.24	205.23	-2.37	205.24	11.00	11.00	0.00
2,900.00	63.70	359.34	2,787.86	290.08	-3.34	290.10	11.00	11.00	0.00
3,000.00	74.70	359.34	2,823.31	383.41	-4.42	383.44	11.00	11.00	0.00
3,100.00	85.70	359.34	2,840.30	481.80	-5.55	481.83	11.00	11.00	0.00
3,159.49	92.24	359.34	2,841.37	541.24	-6.24	541.27	11.00	11.00	0.00
Target Center Line									
3,161.81	92.50	359.34	2,841.27	543.55	-6.27	543.59	11.00	11.00	0.00
LP Start 4326.55 hold at 3161.81 MD									
3,200.00	92.50	359.34	2,839.61	581.71	-6.71	581.75	0.00	0.00	0.00
3,300.00	92.50	359.34	2,835.24	681.61	-7.86	681.65	0.00	0.00	0.00
3,400.00	92.50	359.34	2,830.88	781.51	-9.01	781.56	0.00	0.00	0.00
3,500.00	92.50	359.34	2,826.52	881.40	-10.16	881.46	0.00	0.00	0.00
3,600.00	92.50	359.34	2,822.16	981.30	-11.31	981.37	0.00	0.00	0.00
3,700.00	92.50	359.34	2,817.80	1,081.20	-12.47	1,081.27	0.00	0.00	0.00
3,800.00	92.50	359.34	2,813.43	1,181.10	-13.62	1,181.18	0.00	0.00	0.00
3,900.00	92.50	359.34	2,809.07	1,281.00	-14.77	1,281.08	0.00	0.00	0.00
4,000.00	92.50	359.34	2,804.71	1,380.90	-15.92	1,380.99	0.00	0.00	0.00
4,100.00	92.50	359.34	2,800.35	1,480.79	-17.07	1,480.89	0.00	0.00	0.00
4,200.00	92.50	359.34	2,795.99	1,580.69	-18.22	1,580.80	0.00	0.00	0.00
4,300.00	92.50	359.34	2,791.62	1,680.59	-19.38	1,680.70	0.00	0.00	0.00
4,400.00	92.50	359.34	2,787.26	1,780.49	-20.53	1,780.61	0.00	0.00	0.00
4,500.00	92.50	359.34	2,782.90	1,880.39	-21.68	1,880.51	0.00	0.00	0.00
4,600.00	92.50	359.34	2,778.54	1,980.28	-22.83	1,980.42	0.00	0.00	0.00
4,700.00	92.50	359.34	2,774.18	2,080.18	-23.98	2,080.32	0.00	0.00	0.00
4,800.00	92.50	359.34	2,769.81	2,180.08	-25.14	2,180.23	0.00	0.00	0.00
4,900.00	92.50	359.34	2,765.45	2,279.98	-26.29	2,280.13	0.00	0.00	0.00
5,000.00	92.50	359.34	2,761.09	2,379.88	-27.44	2,380.04	0.00	0.00	0.00
5,100.00	92.50	359.34	2,756.73	2,479.78	-28.59	2,479.94	0.00	0.00	0.00
5,200.00	92.50	359.34	2,752.37	2,579.67	-29.74	2,579.85	0.00	0.00	0.00
5,300.00	92.50	359.34	2,748.00	2,679.57	-30.89	2,679.75	0.00	0.00	0.00
5,400.00	92.50	359.34	2,743.64	2,779.47	-32.05	2,779.65	0.00	0.00	0.00
5,500.00	92.50	359.34	2,739.28	2,879.37	-33.20	2,879.56	0.00	0.00	0.00
5,600.00	92.50	359.34	2,734.92	2,979.27	-34.35	2,979.46	0.00	0.00	0.00
5,700.00	92.50	359.34	2,730.56	3,079.16	-35.50	3,079.37	0.00	0.00	0.00
5,800.00	92.50	359.34	2,726.20	3,179.06	-36.65	3,179.27	0.00	0.00	0.00
5,900.00	92.50	359.34	2,721.83	3,278.96	-37.81	3,279.18	0.00	0.00	0.00
6,000.00	92.50	359.34	2,717.47	3,378.86	-38.96	3,379.08	0.00	0.00	0.00
6,100.00	92.50	359.34	2,713.11	3,478.76	-40.11	3,478.99	0.00	0.00	0.00
6,200.00	92.50	359.34	2,708.75	3,578.66	-41.26	3,578.89	0.00	0.00	0.00
6,300.00	92.50	359.34	2,704.39	3,678.55	-42.41	3,678.80	0.00	0.00	0.00
6,400.00	92.50	359.34	2,700.02	3,778.45	-43.56	3,778.70	0.00	0.00	0.00
6,500.00	92.50	359.34	2,695.66	3,878.35	-44.72	3,878.61	0.00	0.00	0.00
6,600.00	92.50	359.34	2,691.30	3,978.25	-45.87	3,978.51	0.00	0.00	0.00
6,700.00	92.50	359.34	2,686.94	4,078.15	-47.02	4,078.42	0.00	0.00	0.00
6,800.00	92.50	359.34	2,682.58	4,178.04	-48.17	4,178.32	0.00	0.00	0.00



Phoenix Technology Services
Planning Report



Database:	GCRIDB	Local Co-ordinate Reference:	Well #4H
Company:	COG Operating LLC	TVD Reference:	GL @ 3402.00usft
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	GL @ 3402.00usft
Site:	Falabella 31 Fee	North Reference:	Grid
Well:	#4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 01-30-13		

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)
6,900.00	92.50	359.34	2,678.21	4,277.94	-49.32	4,278.23	0.00	0.00	0.00
7,000.00	92.50	359.34	2,673.85	4,377.84	-50.48	4,378.13	0.00	0.00	0.00
7,100.00	92.50	359.34	2,669.49	4,477.74	-51.63	4,478.04	0.00	0.00	0.00
7,200.00	92.50	359.34	2,665.13	4,577.64	-52.78	4,577.94	0.00	0.00	0.00
7,300.00	92.50	359.34	2,660.77	4,677.54	-53.93	4,677.85	0.00	0.00	0.00
7,400.00	92.50	359.34	2,656.40	4,777.43	-55.08	4,777.75	0.00	0.00	0.00
7,488.36	92.50	359.34	2,652.55	4,865.70	-56.10	4,866.02	0.00	0.00	0.00
TD at 7488.36 - PBHL-Falabella 31 #4H									

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-Falabella 31 #4H	0.00	0.00	2,652.55	4,865.70	-56.10	622,218.70	474,674.60	32° 42' 37.9780 N	104° 24' 56.4150 W
- plan hits target center									
- Point									
PP-Falabella 31 #4H	0.00	360.00	2,714.75	180.00	-2.08	617,533.00	474,728.63	32° 41' 51.6105 N	104° 24' 55.7402 W
- plan hits target center									
- Point									

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,159.49	2,841.37	Target Center Line		-2.50	359.34

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
2,320.90	2,320.90	0.00	0.00	KOP Start Build 11.00
3,161.81	2,841.27	543.55	-6.27	LP Start 4326.55 hold at 3161.81 MD
7,488.36	2,652.55	4,865.70	-56.10	TD at 7488.36



Project: Eddy County, New Mexico (NAD 27)
Site: Falabella 31 Fee
Well: #4H
Wellbore: Wellbore #1
Design: Plan #1 01-30-13



PHOENIX
TECHNOLOGY SERVICES



Azimuths to Grid North
True North: 0.04°
Magnetic North: 7.85°
Magnetic Field
Strength: 48644.35nT
Dip Angle: 60.44°
Date: 01/30/2013
Model: IGRF2010_14

WELL DETAILS

-N/S	+E/W	Northing	Ground Level: Easting	Latitude	Longitude
0.00	0.00	617353.00	474730.70	32° 41' 49.8293 N	104° 24' 55.7143 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	-N/S	+E/W	Dleg	TFace	VSecl	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2320.90	0.00	0.00	2320.90	0.00	0.00	0.00	0.00	0.00		KOP Start Build 11.00
3	3161.81	92.50	359.34	2841.27	543.55	-6.27	11.00	359.34	543.59		LP Start 4326.55 hold at 3161.81 MD
4	7488.36	92.50	359.34	2652.55	4865.70	-56.10	0.00	0.00	4866.02	PBHL-Falabella 31 #4H	TD at 7488.36

DESIGN TARGET DETAILS

Name	TVD	-N/S	+E/W	Northing	Easting	Latitude	Longitude	Shape
PBHL-Falabella 31 #4H	2652.55	4865.70	-56.10	622218.70	474674.60	32° 42' 37.9780 N	104° 24' 56.4150 W	Point
PP-Falabella 31 #4H	-	-	-	-	-	-	-	-
- plan hts target center	2714.75	180.00	-2.08	617533.00	474728.82	32° 41' 51.6105 N	104° 24' 55.7402 W	Point
- plan hts target center	-	-	-	-	-	-	-	-

PROJECT DETAILS: Eddy County, New Mexico (NAD 27)

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

SITE DETAILS: Falabella 31 Fee

Site Centre Northing: 617359.30
Easting: 472777.20
Positional Uncertainty: 0.00
Convergence: -0.05
Local North: Grid

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Well #4H, Grid North

Latitude: 32° 41' 49.8293 N
Longitude: 104° 24' 55.7143 W

Grid East: 474730.70
Grid North: 617353.00
Scale Factor: 1.000

Geomagnetic Model: IGRF2010_14
Sample Date: 30-Jan-13
Magnetic Declination: 7.81°
Dip Angle from Horizontal: 60.44°
Magnetic Field Strength: 48644

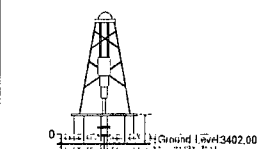
To convert a Magnetic Direction to a Grid Direction, Add 7.85°
To convert a Magnetic Direction to a True Direction, Add 7.81° East
To convert a True Direction to a Grid Direction, Add 0.04°

LEGEND

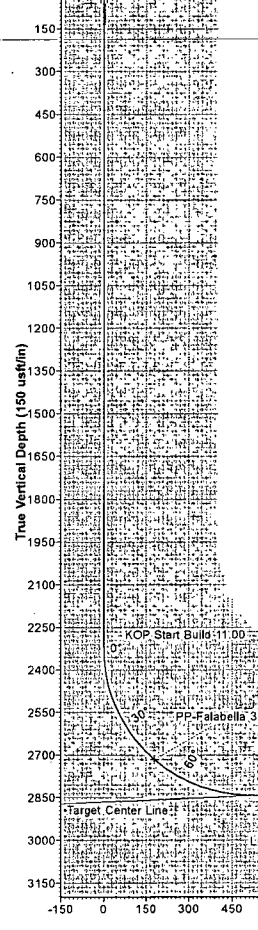
Plan #1 01-30-13

FORMATION TOP DETAILS

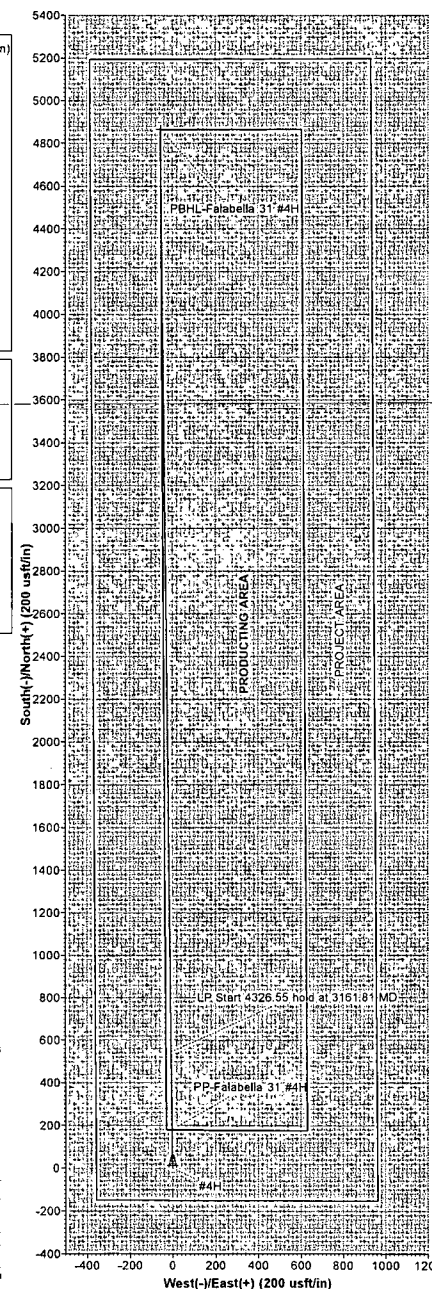
TVDPath	MDPath	Formation	DipAngle	DipDir
2841.37	3159.49	Target Center Line	-2.50	359.34



Ground Level 3402.00

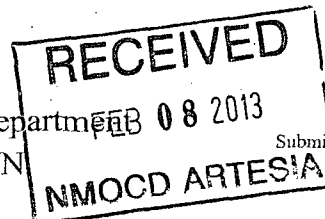


Vertical Section at 359.34° (150 usf/in)



DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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



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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-		Pool Code 50270		Pool Name Penasco Draw; SA-Yeso (Assoc)	
Property Code		Property Name FALABELLA 31 FEE		Well Number 4H	
OGRID No. 229137		Operator Name COG OPERATING, LLC		Elevation 3402'	

Surface Location

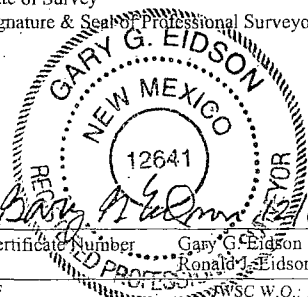
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	31	18-S	26-E		150	SOUTH	963	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	31	18-S	26-E		330	NORTH	990	EAST	EDDY

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

1 34.82 AC. 2 35.17 AC. 3 35.52 AC. 4 35.87 AC.	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=617353.0 N X=474730.7 E LAT.=32.697175° N LONG.=104.415476° W BOTTOM HOLE LOCATION Y=622218.7 N X=474674.6 E CORNER COORDINATES TABLE <table> <tr><td>A - Y=622547.1 N, X=474342.8 E</td></tr> <tr><td>B - Y=622552.9 N, X=475662.4 E</td></tr> <tr><td>C - Y=617204.2 N, X=474374.4 E</td></tr> <tr><td>D - Y=617200.0 N, X=475694.4 E</td></tr> <tr><td>E - Y=622541.4 N, X=473023.1 E</td></tr> <tr><td>F - Y=617208.3 N, X=473054.4 E</td></tr> </table>	A - Y=622547.1 N, X=474342.8 E	B - Y=622552.9 N, X=475662.4 E	C - Y=617204.2 N, X=474374.4 E	D - Y=617200.0 N, X=475694.4 E	E - Y=622541.4 N, X=473023.1 E	F - Y=617208.3 N, X=473054.4 E	330' B.H. 990' Producing Area Project Area 150' S.L. 963'	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.  2-6-13 Signature Date Kelly J. Holly Printed Name kholly@concho.com E-mail Address SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. NOVEMBER 29, 2012 Date of Survey Signature & Seal of Professional Surveyor:  Certificate Number Gary G. Eidson 12641 Ronald J. Eidson 3239 AF WSC W.O.: 12.11.1718
	A - Y=622547.1 N, X=474342.8 E								
	B - Y=622552.9 N, X=475662.4 E								
	C - Y=617204.2 N, X=474374.4 E								
D - Y=617200.0 N, X=475694.4 E									
E - Y=622541.4 N, X=473023.1 E									
F - Y=617208.3 N, X=473054.4 E									

Estimated
Completed
Interval:
330 FSL +
405 FSL