



COG Production LLC

Lea County, NM

Azores Federal

#2H

OH

Plan: Design #1

Standard Planning Report

15 August, 2013

DEC 10 2013



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #2H
Company:	COG Production LLC	TVD Reference:	WELL @ 3520.1usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3520.1usft (Original Well Elev)
Site:	Azores Federal	North Reference:	Grid
Well:	#2H	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	Azores Federal		
Site Position:	Map	Northing:	430,370.30 usft
From:		Easting:	698,107.40 usft
Position Uncertainty:	3.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 10' 53.703 N
		Longitude:	103° 41' 34.825 W
		Grid Convergence:	0.34 °

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:
			3,498.1 usft

Wellbore:	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	8/15/2013	7.37
			Dip Angle
			(°)
			60.07
			Field Strength
			(nT)
			48,360

Design	Design #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
			(°)
			357.23

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)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
10,062.5	0.00	0.00	10,062.5	0.0	0.0	0.00	0.00	0.00	0.00	
10,810.3	89.73	357.23	10,540.0	474.7	-23.0	12.00	12.00	0.00	357.23	
15,100.1	89.73	357.23	10,560.2	4,759.5	-230.3	0.00	0.00	0.00	0.00	PBHL(Azores#2H)



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Wellbore:	OH		
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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



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Wellbore:	OH		
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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	
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
10,062.5	0.00	0.00	10,062.5	0.0	0.0	0.0	0.00	0.00	0.00	
KOP - 10062.5 'MD, 0.00° INC, 0.00° AZI										
10,075.0	1.50	357.23	10,075.0	0.2	0.0	0.2	12.00	12.00	0.00	
10,100.0	4.50	357.23	10,100.0	1.5	-0.1	1.5	12.00	12.00	0.00	
10,125.0	7.50	357.23	10,124.8	4.1	-0.2	4.1	12.00	12.00	0.00	
10,150.0	10.50	357.23	10,149.5	8.0	-0.4	8.0	12.00	12.00	0.00	



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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)
10,175.0	13.50	357.23	10,174.0	13.2	-0.6	13.2	12.00	12.00	0.00
10,200.0	16.50	357.23	10,198.1	19.6	-1.0	19.7	12.00	12.00	0.00
10,225.0	19.50	357.23	10,221.9	27.4	-1.3	27.4	12.00	12.00	0.00
10,250.0	22.50	357.23	10,245.2	36.3	-1.8	36.3	12.00	12.00	0.00
10,275.0	25.50	357.23	10,268.1	46.5	-2.2	46.5	12.00	12.00	0.00
10,300.0	28.50	357.23	10,290.3	57.8	-2.8	57.9	12.00	12.00	0.00
10,325.0	31.50	357.23	10,312.0	70.3	-3.4	70.4	12.00	12.00	0.00
10,350.0	34.50	357.23	10,332.9	83.9	-4.1	84.0	12.00	12.00	0.00
10,375.0	37.50	357.23	10,353.2	98.5	-4.8	98.7	12.00	12.00	0.00
10,400.0	40.50	357.23	10,372.6	114.3	-5.5	114.4	12.00	12.00	0.00
10,425.0	43.50	357.23	10,391.2	131.0	-6.3	131.1	12.00	12.00	0.00
10,450.0	46.50	357.23	10,408.8	148.6	-7.2	148.8	12.00	12.00	0.00
10,475.0	49.50	357.23	10,425.6	167.2	-8.1	167.4	12.00	12.00	0.00
10,500.0	52.50	357.23	10,441.3	186.6	-9.0	186.8	12.00	12.00	0.00
10,525.0	55.50	357.23	10,456.0	206.8	-10.0	207.0	12.00	12.00	0.00
10,550.0	58.50	357.23	10,469.6	227.7	-11.0	228.0	12.00	12.00	0.00
10,575.0	61.49	357.23	10,482.1	249.3	-12.1	249.6	12.00	12.00	0.00
10,600.0	64.49	357.23	10,493.5	271.6	-13.1	271.9	12.00	12.00	0.00
10,625.0	67.49	357.23	10,503.6	294.4	-14.2	294.7	12.00	12.00	0.00
10,650.0	70.49	357.23	10,512.6	317.7	-15.4	318.1	12.00	12.00	0.00
10,675.0	73.49	357.23	10,520.3	341.4	-16.5	341.8	12.00	12.00	0.00
10,700.0	76.49	357.23	10,526.8	365.6	-17.7	366.0	12.00	12.00	0.00
10,725.0	79.49	357.23	10,532.0	390.0	-18.9	390.4	12.00	12.00	0.00
10,750.0	82.49	357.23	10,535.9	414.6	-20.1	415.1	12.00	12.00	0.00
10,775.0	85.49	357.23	10,538.5	439.5	-21.3	440.0	12.00	12.00	0.00
10,800.0	88.49	357.23	10,539.8	464.4	-22.5	464.9	12.00	12.00	0.00
10,810.3	89.73	357.23	10,540.0	474.7	-23.0	475.3	12.00	12.00	0.00
EOC - 10810.3 MD, 89.73° INC, 357.23° AZI									
10,900.0	89.73	357.23	10,540.4	564.3	-27.3	564.9	0.00	0.00	0.00
11,000.0	89.73	357.23	10,540.9	664.2	-32.1	664.9	0.00	0.00	0.00
11,100.0	89.73	357.23	10,541.4	764.0	-37.0	764.9	0.00	0.00	0.00
11,200.0	89.73	357.23	10,541.8	863.9	-41.8	864.9	0.00	0.00	0.00
11,300.0	89.73	357.23	10,542.3	963.8	-46.6	964.9	0.00	0.00	0.00
11,400.0	89.73	357.23	10,542.8	1,063.7	-51.5	1,064.9	0.00	0.00	0.00
11,500.0	89.73	357.23	10,543.2	1,163.6	-56.3	1,164.9	0.00	0.00	0.00
11,600.0	89.73	357.23	10,543.7	1,263.5	-61.1	1,264.9	0.00	0.00	0.00
11,700.0	89.73	357.23	10,544.2	1,363.3	-66.0	1,364.9	0.00	0.00	0.00
11,800.0	89.73	357.23	10,544.7	1,463.2	-70.8	1,464.9	0.00	0.00	0.00
11,900.0	89.73	357.23	10,545.1	1,563.1	-75.6	1,564.9	0.00	0.00	0.00
12,000.0	89.73	357.23	10,545.6	1,663.0	-80.5	1,664.9	0.00	0.00	0.00
12,100.0	89.73	357.23	10,546.1	1,762.9	-85.3	1,764.9	0.00	0.00	0.00
12,200.0	89.73	357.23	10,546.5	1,862.7	-90.1	1,864.9	0.00	0.00	0.00
12,300.0	89.73	357.23	10,547.0	1,962.6	-95.0	1,964.9	0.00	0.00	0.00
12,400.0	89.73	357.23	10,547.5	2,062.5	-99.8	2,064.9	0.00	0.00	0.00
12,500.0	89.73	357.23	10,548.0	2,162.4	-104.6	2,164.9	0.00	0.00	0.00
12,600.0	89.73	357.23	10,548.4	2,262.3	-109.5	2,264.9	0.00	0.00	0.00
12,700.0	89.73	357.23	10,548.9	2,362.2	-114.3	2,364.9	0.00	0.00	0.00
12,800.0	89.73	357.23	10,549.4	2,462.0	-119.1	2,464.9	0.00	0.00	0.00
12,900.0	89.73	357.23	10,549.8	2,561.9	-124.0	2,564.9	0.00	0.00	0.00
13,000.0	89.73	357.23	10,550.3	2,661.8	-128.8	2,664.9	0.00	0.00	0.00
13,100.0	89.73	357.23	10,550.8	2,761.7	-133.6	2,764.9	0.00	0.00	0.00
13,200.0	89.73	357.23	10,551.3	2,861.6	-138.5	2,864.9	0.00	0.00	0.00
13,300.0	89.73	357.23	10,551.7	2,961.4	-143.3	2,964.9	0.00	0.00	0.00
13,400.0	89.73	357.23	10,552.2	3,061.3	-148.1	3,064.9	0.00	0.00	0.00



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #2H
Company:	COG Production LLC	TVD Reference:	WELL @ 3520.1usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3520.1usft (Original Well Elev)
Site:	Azores Federal	North Reference:	Grid
Well:	#2H	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)	
13,500.0	89.73	357.23	10,552.7	3,161.2	-153.0	3,164.9	0.00	0.00	0.00	
13,600.0	89.73	357.23	10,553.1	3,261.1	-157.8	3,264.9	0.00	0.00	0.00	
13,700.0	89.73	357.23	10,553.6	3,361.0	-162.6	3,364.9	0.00	0.00	0.00	
13,800.0	89.73	357.23	10,554.1	3,460.9	-167.4	3,464.9	0.00	0.00	0.00	
13,900.0	89.73	357.23	10,554.6	3,560.7	-172.3	3,564.9	0.00	0.00	0.00	
14,000.0	89.73	357.23	10,555.0	3,660.6	-177.1	3,664.9	0.00	0.00	0.00	
14,100.0	89.73	357.23	10,555.5	3,760.5	-181.9	3,764.9	0.00	0.00	0.00	
14,200.0	89.73	357.23	10,556.0	3,860.4	-186.8	3,864.9	0.00	0.00	0.00	
14,300.0	89.73	357.23	10,556.4	3,960.3	-191.6	3,964.9	0.00	0.00	0.00	
14,400.0	89.73	357.23	10,556.9	4,060.2	-196.4	4,064.9	0.00	0.00	0.00	
14,500.0	89.73	357.23	10,557.4	4,160.0	-201.3	4,164.9	0.00	0.00	0.00	
14,600.0	89.73	357.23	10,557.9	4,259.9	-206.1	4,264.9	0.00	0.00	0.00	
14,700.0	89.73	357.23	10,558.3	4,359.8	-210.9	4,364.9	0.00	0.00	0.00	
14,800.0	89.73	357.23	10,558.8	4,459.7	-215.8	4,464.9	0.00	0.00	0.00	
14,900.0	89.73	357.23	10,559.3	4,559.6	-220.6	4,564.9	0.00	0.00	0.00	
15,000.0	89.73	357.23	10,559.7	4,659.4	-225.4	4,664.9	0.00	0.00	0.00	
15,100.1	89.73	357.23	10,560.2	4,759.5	-230.3	4,765.0	0.00	0.00	0.00	
TD at 15100.1 - PBHL(Azores#2H)										

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(Azores#2H)	0.00	0.00	10,560.0	4,759.7	-225.5	435,130.00	697,881.90	32° 11' 40.817 N	103° 41' 37.119 W	
- plan misses target center by 4.8usft at 15100.1usft MD (10560.2 TVD, 4759.5 N, -230.3 E)										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
10,062.5	10,062.5	0.0	0.0	KOP - 10062.5 'MD, 0.00° INC, 0.00° AZI	
10,810.3	10,540.0	474.7	-23.0	EOC - 10810.3 'MD, 89.73° INC, 357.23° AZI	
15,100.1	10,560.2	4,759.5	-230.3	TD at 15100.1	



COG Production LLC
Project: Lea County, NM
Site: Azores Federal
Well: #2H
Wellbore: OH
Plan: Design #1 (#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	10062.5	0.00	0.00	10062.5	0.0	0.0	0.00	0.00	0.0
3	10810.3	89.73	357.23	10540.0	474.7	-23.0	12.00	357.23	475.3
4	15100.1	89.73	357.23	10560.2	4759.5	-230.3	0.00	0.00	4765.0

PBHL(Azores#2H)

WELL DETAILS: #2H

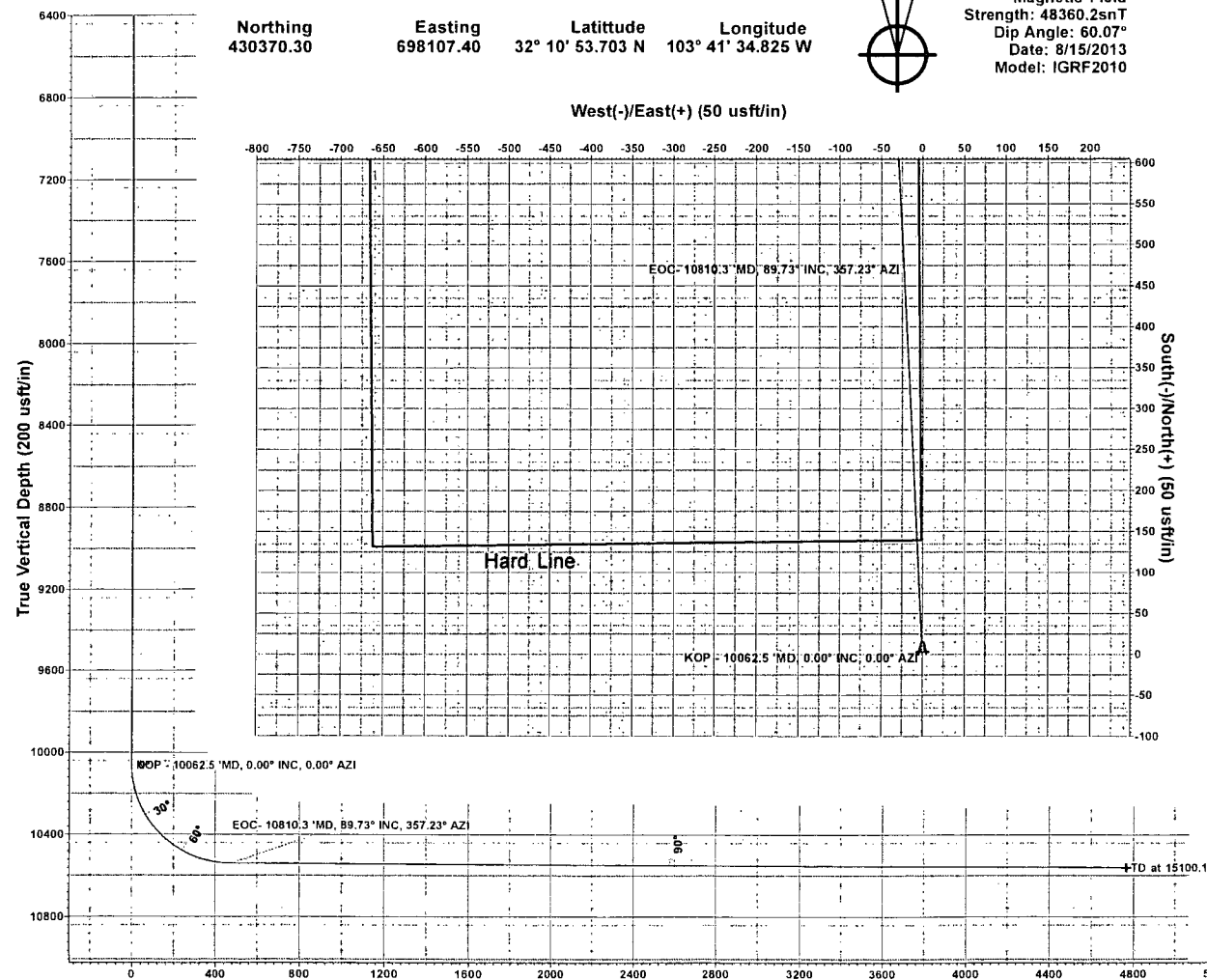
Ground Elevation:: 3498.1
RKB Elevation: WELL @ 3520.1usft (Original Well Elev)
Rig Name: Original Well Elev

Northing 430370.30 Easting 698107.40 Latitude 32° 10' 53.703 N Longitude 103° 41' 34.825 W

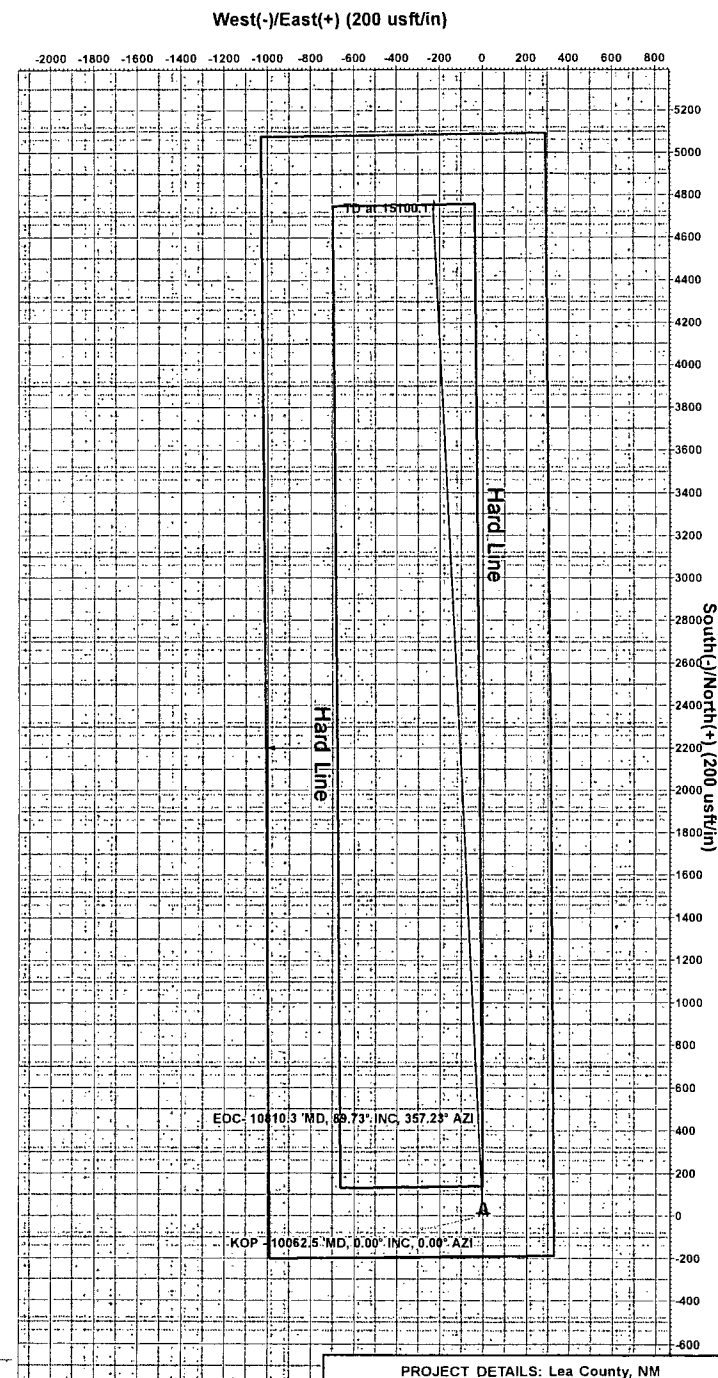


Azimuths to Grid North
True North: -0.34°
Magnetic North: 7.03°

Magnetic Field
Strength: 48360.2snT
Dip Angle: 60.07°
Date: 8/15/2013
Model: IGRF2010



Vertical Section at 357.23° (200 usft/in)



Plan: Design #1 (#2H/OH)
reated By: Well Planner Date: 18:28, August 15 2013

Terra Directional Services
322 Spring Hill Drive, Suite A100, Spring, Texas 77386
432.425.7532

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