



HOBBS OCD

APR 21 2016

RECEIVED

COG Production, LLC

Lea County, NM
Windward Federal
#5H

OH

Plan: Design #1

Standard Planning Report

02 February, 2016

APR 22 2016



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #5H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3564.9usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3564.9usft (Original Well Elev)
Site:	Windward Federal	North Reference:	Grid
Well:	#5H	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	Windward Federal		
Site Position:		Northing:	435,165.30 usft
From:	Map	Easting:	689,487.60 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 41.650 N
		Longitude:	103° 43' 14.802 W
		Grid Convergence:	0.33 °

Well	#5H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			3,538.9 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	1/31/2016	7.17
			Dip Angle
			60.03
			Field Strength
			48,046

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
			(°)
			180.79

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	
8,697.0	0.00	0.00	8,697.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,598.4	90.13	192.50	9,270.0	-560.7	-124.3	10.00	10.00	0.00	192.50	
10,240.7	90.12	179.65	9,268.6	-1,198.1	-192.2	2.00	0.00	-2.00	-90.03	
19,062.0	90.12	179.65	9,250.0	-10,019.2	-138.9	0.00	0.00	0.00	0.00	PBHL(W#5H)



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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)
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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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	
8,697.0	0.00	0.00	8,697.0	0.0	0.0	0.0	0.00	0.00	0.00	
KOP - 8697.0 'MD, 0.00° INC, 0.00° AZI										
8,700.0	0.30	192.50	8,700.0	0.0	0.0	0.0	10.00	10.00	0.00	
8,750.0	5.30	192.50	8,749.9	-2.4	-0.5	2.4	10.00	10.00	0.00	
8,800.0	10.30	192.50	8,799.4	-9.0	-2.0	9.0	10.00	10.00	0.00	
8,850.0	15.30	192.50	8,848.2	-19.8	-4.4	19.9	10.00	10.00	0.00	
8,900.0	20.30	192.50	8,895.8	-34.7	-7.7	34.8	10.00	10.00	0.00	
8,950.0	25.30	192.50	8,941.9	-53.6	-11.9	53.8	10.00	10.00	0.00	
9,000.0	30.30	192.50	8,986.1	-76.4	-16.9	76.6	10.00	10.00	0.00	
9,050.0	35.30	192.50	9,028.1	-102.8	-22.8	103.1	10.00	10.00	0.00	
9,100.0	40.30	192.50	9,067.6	-132.7	-29.4	133.1	10.00	10.00	0.00	
9,150.0	45.29	192.50	9,104.3	-165.9	-36.8	166.4	10.00	10.00	0.00	
9,200.0	50.29	192.50	9,137.8	-202.0	-44.8	202.6	10.00	10.00	0.00	
9,250.0	55.29	192.50	9,168.1	-240.9	-53.4	241.6	10.00	10.00	0.00	
9,300.0	60.29	192.50	9,194.7	-282.2	-62.6	283.0	10.00	10.00	0.00	
9,350.0	65.29	192.50	9,217.6	-325.6	-72.2	326.6	10.00	10.00	0.00	
9,400.0	70.29	192.50	9,236.5	-370.8	-82.2	371.9	10.00	10.00	0.00	
9,450.0	75.29	192.50	9,251.2	-417.4	-92.5	418.6	10.00	10.00	0.00	
9,500.0	80.29	192.50	9,261.8	-465.1	-103.1	466.5	10.00	10.00	0.00	
9,550.0	85.29	192.50	9,268.1	-513.5	-113.8	515.0	10.00	10.00	0.00	



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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)
9,598.4	90.13	192.50	9,270.0	-560.7	-124.3	562.4	10.00	10.00	0.00
EOC- 9598.4 MD, 90.13° INC, 192.50° AZI									
9,600.0	90.13	192.47	9,270.0	-562.3	-124.7	563.9	2.00	0.00	-2.00
9,700.0	90.13	190.47	9,269.8	-660.3	-144.5	662.2	2.00	0.00	-2.00
9,800.0	90.13	188.47	9,269.6	-758.9	-161.0	761.1	2.00	0.00	-2.00
9,900.0	90.13	186.47	9,269.3	-858.0	-174.0	860.4	2.00	0.00	-2.00
10,000.0	90.13	184.47	9,269.1	-957.6	-183.5	960.0	2.00	0.00	-2.00
10,100.0	90.12	182.47	9,268.9	-1,057.4	-189.6	1,059.9	2.00	0.00	-2.00
10,200.0	90.12	180.47	9,268.7	-1,157.4	-192.1	1,159.9	2.00	0.00	-2.00
10,240.7	90.12	179.65	9,268.6	-1,198.1	-192.2	1,200.6	2.00	0.00	-2.00
10,300.0	90.12	179.65	9,268.5	-1,257.4	-191.8	1,259.9	0.00	0.00	0.00
10,400.0	90.12	179.65	9,268.3	-1,357.4	-191.2	1,359.9	0.00	0.00	0.00
10,500.0	90.12	179.65	9,268.1	-1,457.4	-190.6	1,459.9	0.00	0.00	0.00
10,600.0	90.12	179.65	9,267.8	-1,557.4	-190.0	1,559.8	0.00	0.00	0.00
10,700.0	90.12	179.65	9,267.6	-1,657.4	-189.4	1,659.8	0.00	0.00	0.00
10,800.0	90.12	179.65	9,267.4	-1,757.3	-188.8	1,759.8	0.00	0.00	0.00
10,900.0	90.12	179.65	9,267.2	-1,857.3	-188.2	1,859.8	0.00	0.00	0.00
11,000.0	90.12	179.65	9,267.0	-1,957.3	-187.6	1,959.8	0.00	0.00	0.00
11,100.0	90.12	179.65	9,266.8	-2,057.3	-187.0	2,059.7	0.00	0.00	0.00
11,200.0	90.12	179.65	9,266.6	-2,157.3	-186.4	2,159.7	0.00	0.00	0.00
11,300.0	90.12	179.65	9,266.4	-2,257.3	-185.8	2,259.7	0.00	0.00	0.00
11,400.0	90.12	179.65	9,266.2	-2,357.3	-185.2	2,359.7	0.00	0.00	0.00
11,500.0	90.12	179.65	9,266.0	-2,457.3	-184.6	2,459.7	0.00	0.00	0.00
11,600.0	90.12	179.65	9,265.7	-2,557.3	-184.0	2,559.6	0.00	0.00	0.00
11,700.0	90.12	179.65	9,265.5	-2,657.3	-183.3	2,659.6	0.00	0.00	0.00
11,800.0	90.12	179.65	9,265.3	-2,757.3	-182.7	2,759.6	0.00	0.00	0.00
11,900.0	90.12	179.65	9,265.1	-2,857.3	-182.1	2,859.6	0.00	0.00	0.00
12,000.0	90.12	179.65	9,264.9	-2,957.3	-181.5	2,959.6	0.00	0.00	0.00
12,100.0	90.12	179.65	9,264.7	-3,057.3	-180.9	3,059.5	0.00	0.00	0.00
12,200.0	90.12	179.65	9,264.5	-3,157.3	-180.3	3,159.5	0.00	0.00	0.00
12,300.0	90.12	179.65	9,264.3	-3,257.3	-179.7	3,259.5	0.00	0.00	0.00
12,400.0	90.12	179.65	9,264.1	-3,357.3	-179.1	3,359.5	0.00	0.00	0.00
12,500.0	90.12	179.65	9,263.8	-3,457.3	-178.5	3,459.5	0.00	0.00	0.00
12,600.0	90.12	179.65	9,263.6	-3,557.3	-177.9	3,559.4	0.00	0.00	0.00
12,700.0	90.12	179.65	9,263.4	-3,657.3	-177.3	3,659.4	0.00	0.00	0.00
12,800.0	90.12	179.65	9,263.2	-3,757.3	-176.7	3,759.4	0.00	0.00	0.00
12,900.0	90.12	179.65	9,263.0	-3,857.3	-176.1	3,859.4	0.00	0.00	0.00
13,000.0	90.12	179.65	9,262.8	-3,957.3	-175.5	3,959.4	0.00	0.00	0.00
13,100.0	90.12	179.65	9,262.6	-4,057.3	-174.9	4,059.3	0.00	0.00	0.00
13,200.0	90.12	179.65	9,262.4	-4,157.3	-174.3	4,159.3	0.00	0.00	0.00
13,300.0	90.12	179.65	9,262.2	-4,257.3	-173.7	4,259.3	0.00	0.00	0.00
13,400.0	90.12	179.65	9,261.9	-4,357.3	-173.1	4,359.3	0.00	0.00	0.00
13,500.0	90.12	179.65	9,261.7	-4,457.3	-172.5	4,459.3	0.00	0.00	0.00
13,600.0	90.12	179.65	9,261.5	-4,557.3	-171.9	4,559.2	0.00	0.00	0.00
13,700.0	90.12	179.65	9,261.3	-4,657.3	-171.3	4,659.2	0.00	0.00	0.00
13,800.0	90.12	179.65	9,261.1	-4,757.3	-170.7	4,759.2	0.00	0.00	0.00
13,900.0	90.12	179.65	9,260.9	-4,857.3	-170.1	4,859.2	0.00	0.00	0.00
14,000.0	90.12	179.65	9,260.7	-4,957.3	-169.5	4,959.2	0.00	0.00	0.00
14,100.0	90.12	179.65	9,260.5	-5,057.3	-168.9	5,059.1	0.00	0.00	0.00
14,200.0	90.12	179.65	9,260.3	-5,157.3	-168.3	5,159.1	0.00	0.00	0.00
14,300.0	90.12	179.65	9,260.0	-5,257.3	-167.7	5,259.1	0.00	0.00	0.00
14,400.0	90.12	179.65	9,259.8	-5,357.3	-167.0	5,359.1	0.00	0.00	0.00
14,500.0	90.12	179.65	9,259.6	-5,457.3	-166.4	5,459.1	0.00	0.00	0.00
14,600.0	90.12	179.65	9,259.4	-5,557.3	-165.8	5,559.0	0.00	0.00	0.00



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #5H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3564.9usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3564.9usft (Original Well Elev)
Site:	Windward Federal	North Reference:	Grid
Well:	#5H	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)
14,700.0	90.12	179.65	9,259.2	-5,657.3	-165.2	5,659.0	0.00	0.00	0.00
14,800.0	90.12	179.65	9,259.0	-5,757.3	-164.6	5,759.0	0.00	0.00	0.00
14,900.0	90.12	179.65	9,258.8	-5,857.3	-164.0	5,859.0	0.00	0.00	0.00
15,000.0	90.12	179.65	9,258.6	-5,957.3	-163.4	5,959.0	0.00	0.00	0.00
15,100.0	90.12	179.65	9,258.4	-6,057.3	-162.8	6,058.9	0.00	0.00	0.00
15,200.0	90.12	179.65	9,258.1	-6,157.3	-162.2	6,158.9	0.00	0.00	0.00
15,300.0	90.12	179.65	9,257.9	-6,257.3	-161.6	6,258.9	0.00	0.00	0.00
15,400.0	90.12	179.65	9,257.7	-6,357.3	-161.0	6,358.9	0.00	0.00	0.00
15,500.0	90.12	179.65	9,257.5	-6,457.3	-160.4	6,458.9	0.00	0.00	0.00
15,600.0	90.12	179.65	9,257.3	-6,557.3	-159.8	6,558.8	0.00	0.00	0.00
15,700.0	90.12	179.65	9,257.1	-6,657.2	-159.2	6,658.8	0.00	0.00	0.00
15,800.0	90.12	179.65	9,256.9	-6,757.2	-158.6	6,758.8	0.00	0.00	0.00
15,900.0	90.12	179.65	9,256.7	-6,857.2	-158.0	6,858.8	0.00	0.00	0.00
16,000.0	90.12	179.65	9,256.5	-6,957.2	-157.4	6,958.8	0.00	0.00	0.00
16,100.0	90.12	179.65	9,256.2	-7,057.2	-156.8	7,058.7	0.00	0.00	0.00
16,200.0	90.12	179.65	9,256.0	-7,157.2	-156.2	7,158.7	0.00	0.00	0.00
16,300.0	90.12	179.65	9,255.8	-7,257.2	-155.6	7,258.7	0.00	0.00	0.00
16,400.0	90.12	179.65	9,255.6	-7,357.2	-155.0	7,358.7	0.00	0.00	0.00
16,500.0	90.12	179.65	9,255.4	-7,457.2	-154.4	7,458.7	0.00	0.00	0.00
16,600.0	90.12	179.65	9,255.2	-7,557.2	-153.8	7,558.6	0.00	0.00	0.00
16,700.0	90.12	179.65	9,255.0	-7,657.2	-153.2	7,658.6	0.00	0.00	0.00
16,800.0	90.12	179.65	9,254.8	-7,757.2	-152.6	7,758.6	0.00	0.00	0.00
16,900.0	90.12	179.65	9,254.6	-7,857.2	-152.0	7,858.6	0.00	0.00	0.00
17,000.0	90.12	179.65	9,254.3	-7,957.2	-151.3	7,958.6	0.00	0.00	0.00
17,100.0	90.12	179.65	9,254.1	-8,057.2	-150.7	8,058.5	0.00	0.00	0.00
17,200.0	90.12	179.65	9,253.9	-8,157.2	-150.1	8,158.5	0.00	0.00	0.00
17,300.0	90.12	179.65	9,253.7	-8,257.2	-149.5	8,258.5	0.00	0.00	0.00
17,400.0	90.12	179.65	9,253.5	-8,357.2	-148.9	8,358.5	0.00	0.00	0.00
17,500.0	90.12	179.65	9,253.3	-8,457.2	-148.3	8,458.5	0.00	0.00	0.00
17,600.0	90.12	179.65	9,253.1	-8,557.2	-147.7	8,558.4	0.00	0.00	0.00
17,700.0	90.12	179.65	9,252.9	-8,657.2	-147.1	8,658.4	0.00	0.00	0.00
17,800.0	90.12	179.65	9,252.7	-8,757.2	-146.5	8,758.4	0.00	0.00	0.00
17,900.0	90.12	179.65	9,252.5	-8,857.2	-145.9	8,858.4	0.00	0.00	0.00
18,000.0	90.12	179.65	9,252.2	-8,957.2	-145.3	8,958.4	0.00	0.00	0.00
18,100.0	90.12	179.65	9,252.0	-9,057.2	-144.7	9,058.3	0.00	0.00	0.00
18,200.0	90.12	179.65	9,251.8	-9,157.2	-144.1	9,158.3	0.00	0.00	0.00
18,300.0	90.12	179.65	9,251.6	-9,257.2	-143.5	9,258.3	0.00	0.00	0.00
18,400.0	90.12	179.65	9,251.4	-9,357.2	-142.9	9,358.3	0.00	0.00	0.00
18,500.0	90.12	179.65	9,251.2	-9,457.2	-142.3	9,458.3	0.00	0.00	0.00
18,600.0	90.12	179.65	9,251.0	-9,557.2	-141.7	9,558.2	0.00	0.00	0.00
18,700.0	90.12	179.65	9,250.8	-9,657.2	-141.1	9,658.2	0.00	0.00	0.00
18,800.0	90.12	179.65	9,250.6	-9,757.2	-140.5	9,758.2	0.00	0.00	0.00
18,900.0	90.12	179.65	9,250.3	-9,857.2	-139.9	9,858.2	0.00	0.00	0.00
19,000.0	90.12	179.65	9,250.1	-9,957.2	-139.3	9,958.2	0.00	0.00	0.00
19,062.0	90.12	179.65	9,250.0	-10,019.2	-138.9	10,020.1	0.00	0.00	0.00
TD at 19062.0 - PBHL(W#5H)									



Wellplanning Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well #5H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3564.9usft (Original Well Elev)
Project:	Lea County, NM	MD Reference:	WELL @ 3564.9usft (Original Well Elev)
Site:	Windward Federal	North Reference:	Grid
Well:	#5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Design #1		

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(W#5H)	- plan hits target center - Point	0.00	0.00	9,250.0	-10,019.2	-138.9	425,146.10	689,348.70	32° 10' 2.509 N 103° 43' 17.082 W

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,697.0	8,697.0	0.0	0.0	KOP - 8697.0 'MD, 0.00° INC, 0.00° AZI
9,598.4	9,270.0	-560.7	-124.3	EOC- 9598.4 'MD, 90.13° INC, 192.50° AZI
19,062.0	9,250.0	-10,019.2	-138.9	TD at 19062.0



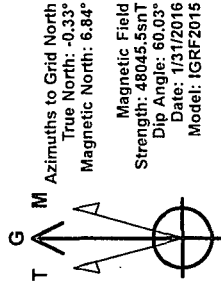
COG Production, LLC
Project: Lea County, NM
Site: Windward Federal

Well: #5H
Wellbore: OH
Plan: Design #1 (#5H/OH)

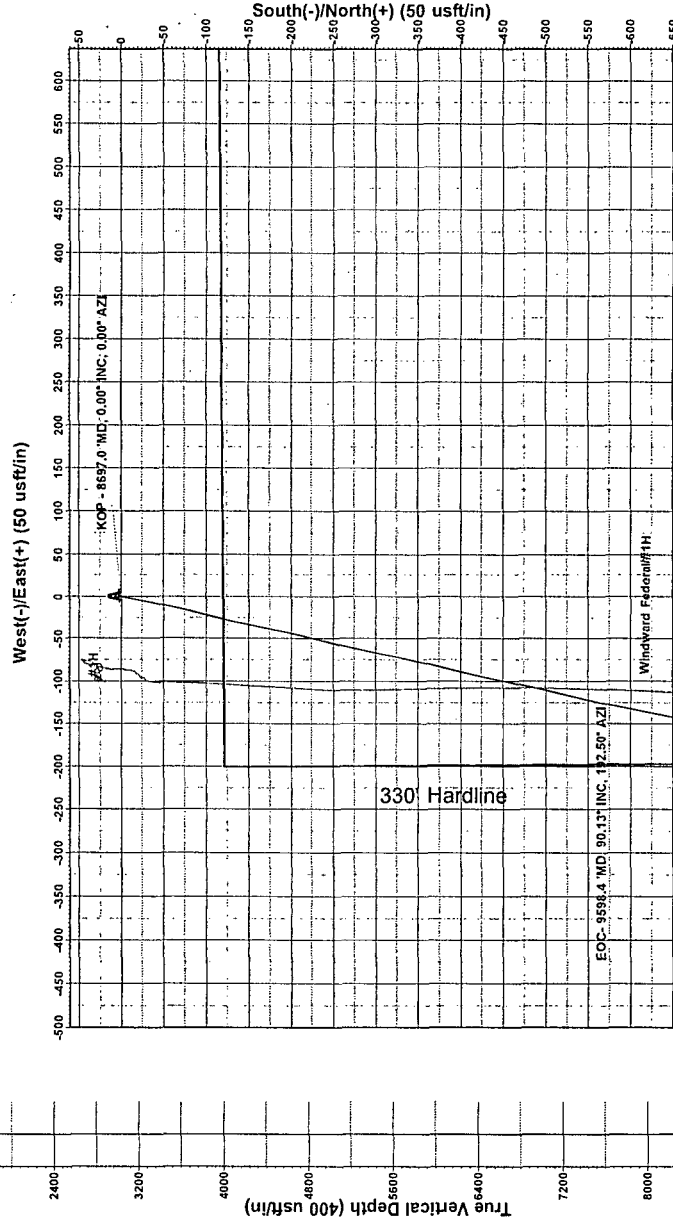
WELL DETAILS: #5H

Ground Elevation: 3538.9
RKB Elevation: WELL @ 3564.9usft (Original Well Elev)
Rig Name: Original Well Elev

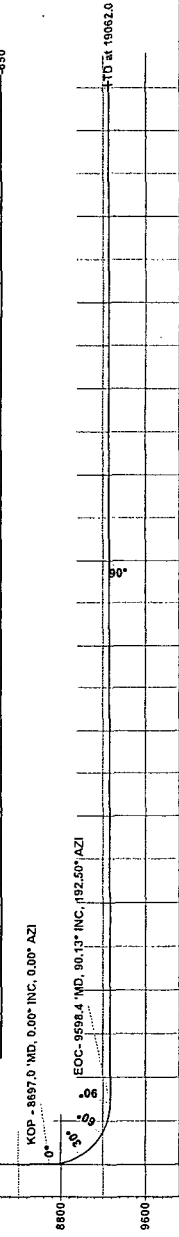
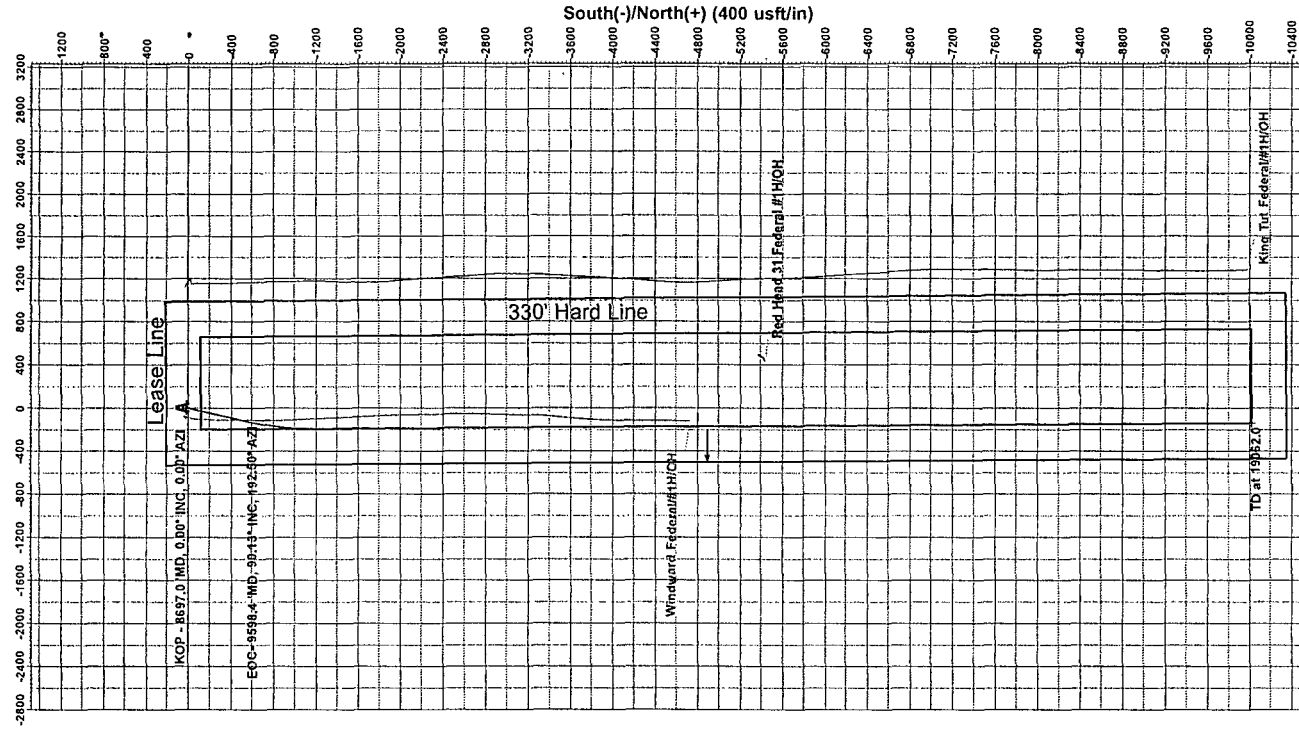
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Deg	TFace	VSeet
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	8697.0	0.00	0.00	8697.0	0.0	0.0	0.00	0.00	0.0
3	9598.4	90.13	192.50	9270.0	-560.7	-124.3	10.00	192.50	552.4
4	10240.7	90.12	179.65	9268.6	-1198.1	-192.2	2.00	-90.03	1200.6
5	19062.0	90.12	179.65	9250.0	-10019.2	-138.9	0.00	0.00	10020.2



Section Details



Section Details



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

Vertical Section at 180.79° (400 usft/in)

