



CONCHO

COG OPERATING LLC

LEA COUNTY, NM

AVALON SHALE

WINDWARD FEDERAL #10H

OWB

Plan: PWP0

Standard Planning Report

01 September, 2016

HOBBS OCD

FEB 06 2017

RECEIVED



COG Operating LLC

Planning Report

Database: EDM_Users
Company: COG OPERATING LLC
Project: LEA COUNTY, NM
Site: AVALON SHALE
Well: WINDWARD FEDERAL #10H
Wellbore: OWB
Design: PWP0

Local Co-ordinate Reference: Well WINDWARD FEDERAL #10H
TVD Reference: RKB=3550.8+26 @ 3576.8usft (McVay 8)
MD Reference: RKB=3550.8+26 @ 3576.8usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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 AVALON SHALE

Site Position: Northing: 419,780.50 usft Latitude: 32° 9' 6.058 N
From: Map Easting: 741,734.30 usft Longitude: 103° 33' 8.114 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.42 °

Well WINDWARD FEDERAL #10H

Well Position +N/-S 15,408.4 usft Northing: 435,188.90 usft Latitude: 32° 11' 41.713 N
+E/-W -49,239.9 usft Easting: 692,494.40 usft Longitude: 103° 42' 39.810 W
Position Uncertainty 3.0 usft Wellhead Elevation: 0.0 usft Ground Level: 3,550.8 usft

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM2015	8/29/2016	7.12	60.01	47,978

Design PWP0

Audit Notes:

Version: Phase: PROTOTYPE Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	178.30

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	
8,722.5	0.00	0.00	8,722.5	0.0	0.0	0.00	0.00	0.00	0.00	
9,472.6	90.00	160.70	9,200.0	-450.7	157.8	12.00	12.00	0.00	160.70	
9,944.7	90.00	179.58	9,200.0	-913.7	238.3	4.00	0.00	4.00	90.00	
19,330.2	90.00	179.58	9,200.0	-10,299.0	306.4	0.00	0.00	0.00	0.00	PBHL-Windward



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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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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
8,722.5	0.00	0.00	8,722.5	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	9.30	160.70	8,799.7	-5.9	2.1	6.0	12.00	12.00	0.00
8,900.0	21.30	160.70	8,895.9	-30.8	10.8	31.1	12.00	12.00	0.00
9,000.0	33.30	160.70	8,984.6	-74.0	25.9	74.7	12.00	12.00	0.00
9,100.0	45.30	160.70	9,061.9	-133.7	46.8	135.0	12.00	12.00	0.00
9,200.0	57.30	160.70	9,124.3	-207.2	72.5	209.2	12.00	12.00	0.00
9,300.0	69.29	160.70	9,169.2	-291.3	102.0	294.2	12.00	12.00	0.00
9,400.0	81.29	160.70	9,194.5	-382.5	133.9	386.3	12.00	12.00	0.00
9,472.6	90.00	160.70	9,200.0	-450.7	157.8	455.2	12.00	12.00	0.00
9,500.0	90.00	161.80	9,200.0	-476.7	166.6	481.4	4.00	0.00	4.00
9,600.0	90.00	165.80	9,200.0	-572.7	194.5	578.2	4.00	0.00	4.00
9,700.0	90.00	169.80	9,200.0	-670.4	215.7	676.5	4.00	0.00	4.00
9,800.0	90.00	173.80	9,200.0	-769.3	229.9	775.8	4.00	0.00	4.00
9,900.0	90.00	177.80	9,200.0	-869.1	237.3	875.7	4.00	0.00	4.00
9,944.7	90.00	179.58	9,200.0	-913.7	238.3	920.4	4.00	0.00	4.00
10,000.0	90.00	179.58	9,200.0	-969.0	238.7	975.7	0.00	0.00	0.00
10,100.0	90.00	179.58	9,200.0	-1,069.0	239.4	1,075.7	0.00	0.00	0.00
10,200.0	90.00	179.58	9,200.0	-1,169.0	240.1	1,175.7	0.00	0.00	0.00
10,300.0	90.00	179.58	9,200.0	-1,269.0	240.9	1,275.6	0.00	0.00	0.00
10,400.0	90.00	179.58	9,200.0	-1,369.0	241.6	1,375.6	0.00	0.00	0.00

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 Minimum Curvature

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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)
10,500.0	90.00	179.58	9,200.0	-1,469.0	242.3	1,475.6	0.00	0.00	0.00
10,600.0	90.00	179.58	9,200.0	-1,569.0	243.0	1,575.6	0.00	0.00	0.00
10,700.0	90.00	179.58	9,200.0	-1,669.0	243.8	1,675.5	0.00	0.00	0.00
10,800.0	90.00	179.58	9,200.0	-1,769.0	244.5	1,775.5	0.00	0.00	0.00
10,900.0	90.00	179.58	9,200.0	-1,869.0	245.2	1,875.5	0.00	0.00	0.00
11,000.0	90.00	179.58	9,200.0	-1,969.0	245.9	1,975.5	0.00	0.00	0.00
11,100.0	90.00	179.58	9,200.0	-2,069.0	246.7	2,075.4	0.00	0.00	0.00
11,200.0	90.00	179.58	9,200.0	-2,169.0	247.4	2,175.4	0.00	0.00	0.00
11,300.0	90.00	179.58	9,200.0	-2,269.0	248.1	2,275.4	0.00	0.00	0.00
11,400.0	90.00	179.58	9,200.0	-2,369.0	248.8	2,375.4	0.00	0.00	0.00
11,500.0	90.00	179.58	9,200.0	-2,469.0	249.6	2,475.3	0.00	0.00	0.00
11,600.0	90.00	179.58	9,200.0	-2,569.0	250.3	2,575.3	0.00	0.00	0.00
11,700.0	90.00	179.58	9,200.0	-2,669.0	251.0	2,675.3	0.00	0.00	0.00
11,800.0	90.00	179.58	9,200.0	-2,769.0	251.7	2,775.2	0.00	0.00	0.00
11,900.0	90.00	179.58	9,200.0	-2,869.0	252.5	2,875.2	0.00	0.00	0.00
12,000.0	90.00	179.58	9,200.0	-2,969.0	253.2	2,975.2	0.00	0.00	0.00
12,100.0	90.00	179.58	9,200.0	-3,069.0	253.9	3,075.2	0.00	0.00	0.00
12,200.0	90.00	179.58	9,200.0	-3,169.0	254.7	3,175.1	0.00	0.00	0.00
12,300.0	90.00	179.58	9,200.0	-3,269.0	255.4	3,275.1	0.00	0.00	0.00
12,400.0	90.00	179.58	9,200.0	-3,369.0	256.1	3,375.1	0.00	0.00	0.00
12,500.0	90.00	179.58	9,200.0	-3,469.0	256.8	3,475.1	0.00	0.00	0.00
12,600.0	90.00	179.58	9,200.0	-3,569.0	257.6	3,575.0	0.00	0.00	0.00
12,700.0	90.00	179.58	9,200.0	-3,669.0	258.3	3,675.0	0.00	0.00	0.00
12,800.0	90.00	179.58	9,200.0	-3,769.0	259.0	3,775.0	0.00	0.00	0.00
12,900.0	90.00	179.58	9,200.0	-3,869.0	259.7	3,875.0	0.00	0.00	0.00
13,000.0	90.00	179.58	9,200.0	-3,969.0	260.5	3,974.9	0.00	0.00	0.00
13,100.0	90.00	179.58	9,200.0	-4,069.0	261.2	4,074.9	0.00	0.00	0.00
13,200.0	90.00	179.58	9,200.0	-4,169.0	261.9	4,174.9	0.00	0.00	0.00
13,300.0	90.00	179.58	9,200.0	-4,268.9	262.6	4,274.9	0.00	0.00	0.00
13,400.0	90.00	179.58	9,200.0	-4,368.9	263.4	4,374.8	0.00	0.00	0.00
13,500.0	90.00	179.58	9,200.0	-4,468.9	264.1	4,474.8	0.00	0.00	0.00
13,600.0	90.00	179.58	9,200.0	-4,568.9	264.8	4,574.8	0.00	0.00	0.00
13,700.0	90.00	179.58	9,200.0	-4,668.9	265.5	4,674.8	0.00	0.00	0.00
13,800.0	90.00	179.58	9,200.0	-4,768.9	266.3	4,774.7	0.00	0.00	0.00
13,900.0	90.00	179.58	9,200.0	-4,868.9	267.0	4,874.7	0.00	0.00	0.00
14,000.0	90.00	179.58	9,200.0	-4,968.9	267.7	4,974.7	0.00	0.00	0.00
14,100.0	90.00	179.58	9,200.0	-5,068.9	268.4	5,074.7	0.00	0.00	0.00
14,200.0	90.00	179.58	9,200.0	-5,168.9	269.2	5,174.6	0.00	0.00	0.00
14,300.0	90.00	179.58	9,200.0	-5,268.9	269.9	5,274.6	0.00	0.00	0.00
14,400.0	90.00	179.58	9,200.0	-5,368.9	270.6	5,374.6	0.00	0.00	0.00
14,500.0	90.00	179.58	9,200.0	-5,468.9	271.3	5,474.6	0.00	0.00	0.00
14,600.0	90.00	179.58	9,200.0	-5,568.9	272.1	5,574.5	0.00	0.00	0.00
14,700.0	90.00	179.58	9,200.0	-5,668.9	272.8	5,674.5	0.00	0.00	0.00
14,800.0	90.00	179.58	9,200.0	-5,768.9	273.5	5,774.5	0.00	0.00	0.00
14,900.0	90.00	179.58	9,200.0	-5,868.9	274.2	5,874.5	0.00	0.00	0.00
15,000.0	90.00	179.58	9,200.0	-5,968.9	275.0	5,974.4	0.00	0.00	0.00
15,100.0	90.00	179.58	9,200.0	-6,068.9	275.7	6,074.4	0.00	0.00	0.00
15,200.0	90.00	179.58	9,200.0	-6,168.9	276.4	6,174.4	0.00	0.00	0.00
15,300.0	90.00	179.58	9,200.0	-6,268.9	277.1	6,274.4	0.00	0.00	0.00
15,400.0	90.00	179.58	9,200.0	-6,368.9	277.9	6,374.3	0.00	0.00	0.00
15,500.0	90.00	179.58	9,200.0	-6,468.9	278.6	6,474.3	0.00	0.00	0.00
15,600.0	90.00	179.58	9,200.0	-6,568.9	279.3	6,574.3	0.00	0.00	0.00
15,700.0	90.00	179.58	9,200.0	-6,668.9	280.1	6,674.3	0.00	0.00	0.00
15,800.0	90.00	179.58	9,200.0	-6,768.9	280.8	6,774.2	0.00	0.00	0.00



COG Operating LLC

Planning Report

Database:	EDM_Users	Local Co-ordinate Reference:	Well WINDWARD FEDERAL #10H
Company:	COG OPERATING LLC	TVD Reference:	RKB=3550.8+26 @ 3576.8usft (McVay 8)
Project:	LEA COUNTY, NM	MD Reference:	RKB=3550.8+26 @ 3576.8usft (McVay 8)
Site:	AVALON SHALE	North Reference:	Grid
Well:	WINDWARD FEDERAL #10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

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)
15,900.0	90.00	179.58	9,200.0	-6,868.9	281.5	6,874.2	0.00	0.00	0.00
16,000.0	90.00	179.58	9,200.0	-6,968.9	282.2	6,974.2	0.00	0.00	0.00
16,100.0	90.00	179.58	9,200.0	-7,068.9	283.0	7,074.2	0.00	0.00	0.00
16,200.0	90.00	179.58	9,200.0	-7,168.9	283.7	7,174.1	0.00	0.00	0.00
16,300.0	90.00	179.58	9,200.0	-7,268.9	284.4	7,274.1	0.00	0.00	0.00
16,400.0	90.00	179.58	9,200.0	-7,368.9	285.1	7,374.1	0.00	0.00	0.00
16,500.0	90.00	179.58	9,200.0	-7,468.9	285.9	7,474.1	0.00	0.00	0.00
16,600.0	90.00	179.58	9,200.0	-7,568.9	286.6	7,574.0	0.00	0.00	0.00
16,700.0	90.00	179.58	9,200.0	-7,668.9	287.3	7,674.0	0.00	0.00	0.00
16,800.0	90.00	179.58	9,200.0	-7,768.9	288.0	7,774.0	0.00	0.00	0.00
16,900.0	90.00	179.58	9,200.0	-7,868.9	288.8	7,874.0	0.00	0.00	0.00
17,000.0	90.00	179.58	9,200.0	-7,968.9	289.5	7,973.9	0.00	0.00	0.00
17,100.0	90.00	179.58	9,200.0	-8,068.8	290.2	8,073.9	0.00	0.00	0.00
17,200.0	90.00	179.58	9,200.0	-8,168.8	290.9	8,173.9	0.00	0.00	0.00
17,300.0	90.00	179.58	9,200.0	-8,268.8	291.7	8,273.9	0.00	0.00	0.00
17,400.0	90.00	179.58	9,200.0	-8,368.8	292.4	8,373.8	0.00	0.00	0.00
17,500.0	90.00	179.58	9,200.0	-8,468.8	293.1	8,473.8	0.00	0.00	0.00
17,600.0	90.00	179.58	9,200.0	-8,568.8	293.8	8,573.8	0.00	0.00	0.00
17,700.0	90.00	179.58	9,200.0	-8,668.8	294.6	8,673.8	0.00	0.00	0.00
17,800.0	90.00	179.58	9,200.0	-8,768.8	295.3	8,773.7	0.00	0.00	0.00
17,900.0	90.00	179.58	9,200.0	-8,868.8	296.0	8,873.7	0.00	0.00	0.00
18,000.0	90.00	179.58	9,200.0	-8,968.8	296.7	8,973.7	0.00	0.00	0.00
18,100.0	90.00	179.58	9,200.0	-9,068.8	297.5	9,073.7	0.00	0.00	0.00
18,200.0	90.00	179.58	9,200.0	-9,168.8	298.2	9,173.6	0.00	0.00	0.00
18,300.0	90.00	179.58	9,200.0	-9,268.8	298.9	9,273.6	0.00	0.00	0.00
18,400.0	90.00	179.58	9,200.0	-9,368.8	299.6	9,373.6	0.00	0.00	0.00
18,500.0	90.00	179.58	9,200.0	-9,468.8	300.4	9,473.6	0.00	0.00	0.00
18,600.0	90.00	179.58	9,200.0	-9,568.8	301.1	9,573.5	0.00	0.00	0.00
18,700.0	90.00	179.58	9,200.0	-9,668.8	301.8	9,673.5	0.00	0.00	0.00
18,800.0	90.00	179.58	9,200.0	-9,768.8	302.6	9,773.5	0.00	0.00	0.00
18,900.0	90.00	179.58	9,200.0	-9,868.8	303.3	9,873.5	0.00	0.00	0.00
19,000.0	90.00	179.58	9,200.0	-9,968.8	304.0	9,973.4	0.00	0.00	0.00
19,100.0	90.00	179.58	9,200.0	-10,068.8	304.7	10,073.4	0.00	0.00	0.00
19,200.0	90.00	179.58	9,200.0	-10,168.8	305.5	10,173.4	0.00	0.00	0.00
19,300.0	90.00	179.58	9,200.0	-10,268.8	306.2	10,273.4	0.00	0.00	0.00
19,330.2	90.00	179.58	9,200.0	-10,299.0	306.4	10,303.6	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL-Windward	0.00	0.00	9,200.0	-10,299.0	306.4	424,889.90	692,800.80	32° 9' 59.778 N	103° 42' 36.939 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									



COG Operating LLC

Planning Report

Database: EDM_Users
Company: COG OPERATING LLC
Project: LEA COUNTY, NM
Site: AVALON SHALE
Well: WINDWARD FEDERAL #10H
Wellbore: OWB
Design: PWP0

Local Co-ordinate Reference: Well WINDWARD FEDERAL #10H
TVD Reference: RKB=3550.8+26 @ 3576.8usft (McVay 8)
MD Reference: RKB=3550.8+26 @ 3576.8usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,722.5	8,722.5	0.0	0.0	Start Build 12.00
9,472.6	9,200.0	-450.7	157.8	Start DLS 4.00 TFO 90.00
9,944.7	9,200.0	-913.7	238.3	Start 9385.6 hold at 9944.7 MD
19,330.2	9,200.0	-10,299.0	306.4	TD at 19330.2



WELL DETAILS: **WINDWARD FEDERAL #10H**

Ground Level: 3550.8
 Northing 435188.90 Easting 692494.40 Latitude 32° 11' 41.713 N Longitude 103° 42' 39.810 W

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	8722.5	0.00	0.00	8722.5	0.0	0.0	0.00	0.00	0.0	Start Build 12.00
3	9472.6	90.00	160.70	9200.0	-450.7	157.8	12.00	160.70	455.2	Start DLS 4.00 TFO 90.00
4	9944.7	90.00	179.58	9200.0	-913.7	238.3	4.00	90.00	920.4	Start 9385.6 hold at 9944.7 MD
5	19330.2	90.00	179.58	9200.0	-10299.0	306.4	0.00	0.00	10303.6	TD at 19330.2

LEGEND

- WINDWARD FEDERAL #3H, OWB, ACTUAL WELLPATH V0
- WINDWARD FEDERAL #9H, OWB, PWP0 V0
- PADUCA 30 FEDERAL #1, OWB, ACUTUAL WELLPATH V0
- PWP0

