



Azimuths to Grid North
True North: -0.31°
Magnetic North: 6.87°

Magnetic Field
Strength: 48366.1snT
Dip Angle: 60.60°
Date: 08/02/2016
Model: IGRF2015

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5254.21	0.00	0.00	5254.21	0.00	0.00	0.00	0.00	0.00	
3	6081.48	91.00	357.90	5775.00	529.60	-19.43	11.00	357.90	529.96	
4	13427.73	91.00	357.90	5646.79	7869.80	-288.70	0.00	0.00	7875.09	PBHL-TD (NFC13H)

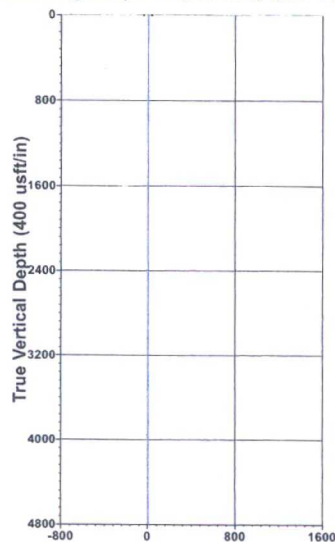
Ground Elevation:: 4046.00
RKB Elevation: KB @ 4064.00usft (Patriot 6)

Northing 667564.50 Easting 718456.50 Latitude 32° 50' 1.797 N Longitude 103° 45' 24.063 W

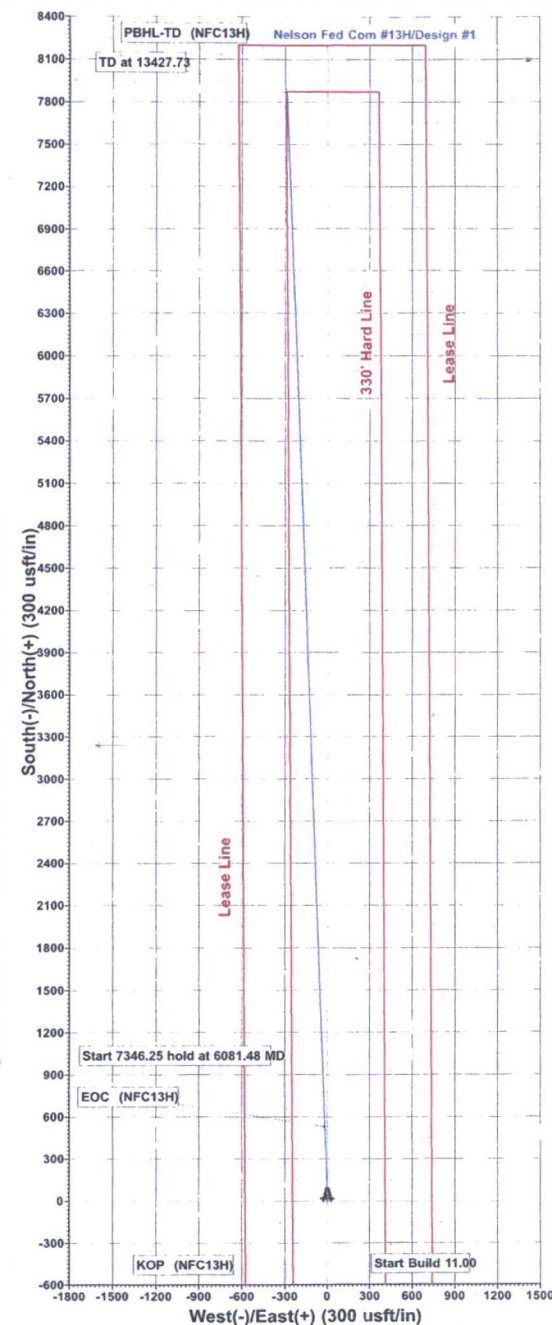
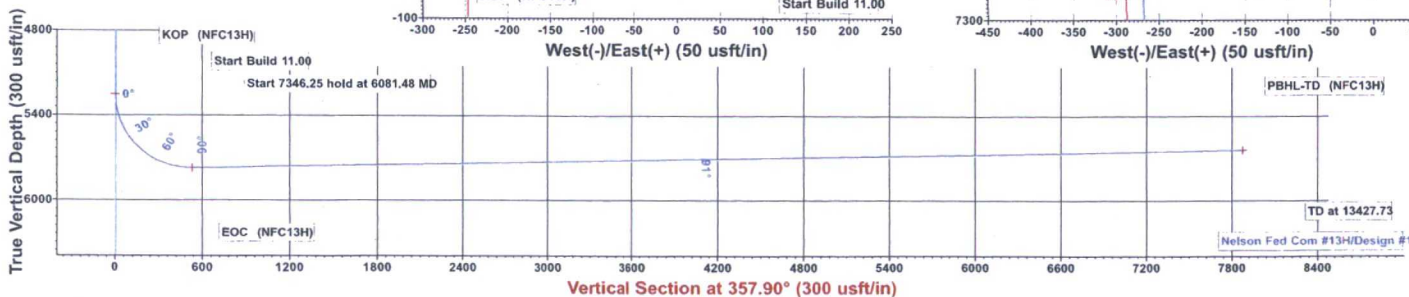
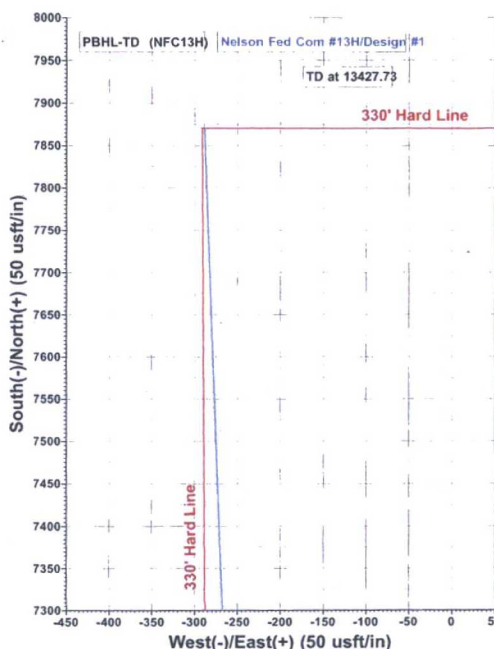
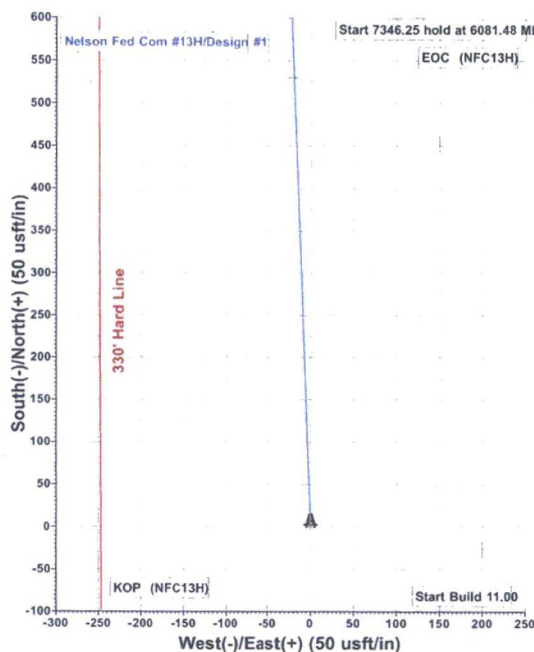
COG Operating LLC
Project: Lea County, NM (NAD-83 2015)
Site: Nelson Fed Com #13H

Well: SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
Wellbore: BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C

Plan: Design #1 (SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K/BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C)



Nelson Fed Com #13H/Design #1



Terra Directional Services LLC
3705 South County Road 1210, Midland, TX 79706
Phone: 432.618.1210

PROJECT DETAILS: Lea County, NM (NAD-83 2015)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid



HOBBS CO

MAR 22 2017

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COG Operating LLC

Lea County, NM (NAD-83 2015)

Nelson Fed Com #13H

SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K

BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C

Plan: Design #1

Standard Planning Report

02 August, 2016



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD-83 2015)
Site: Nelson Fed Com #13H
Well: SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
Wellbore: BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C
Design: Design #1

Local Co-ordinate Reference: Well SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
TVD Reference: KB @ 4064.00usft (Patriot 6)
MD Reference: KB @ 4064.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project Lea County, NM (NAD-83 2015)
Map System: US State Plane 1983 **System Datum:** Mean Sea Level
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

Site Nelson Fed Com #13H, Sec 15, T-17S, R-32E, Unit K
Site Position: Northing: 667,564.50 usft Latitude: 32° 50' 1.797 N
From: Map Easting: 718,456.50 usft Longitude: 103° 45' 24.063 W
Position Uncertainty: 0.00 usft Slot Radius: 13.20 in Grid Convergence: 0.31 °

Well SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
Well Position +N/-S 0.00 usft Northing: 667,564.50 usft Latitude: 32° 50' 1.797 N
 +E/-W 0.00 usft Easting: 718,456.50 usft Longitude: 103° 45' 24.063 W
Position Uncertainty 0.00 usft Wellhead Elevation: 4,064.00 usft Ground Level: 4,046.00 usft

Wellbore BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	08/02/16	7.18	60.60	48,366

Design Design #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	357.90

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,254.21	0.00	0.00	5,254.21	0.00	0.00	0.00	0.00	0.00	0.00	
6,081.48	91.00	357.90	5,775.00	529.60	-19.43	11.00	11.00	0.00	357.90	
13,427.73	91.00	357.90	5,646.79	7,869.80	-288.70	0.00	0.00	0.00	0.00	PBHL-TD (NFC13H)



Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD-83 2015)
Site: Nelson Fed Com #13H
Well: SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
Wellbore: BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C
Design: Design #1

Local Co-ordinate Reference: Well SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
TVD Reference: KB @ 4064.00usft (Patriot 6)
MD Reference: KB @ 4064.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00



Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD-83 2015)
Site: Nelson Fed Com #13H
Well: SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
Wellbore: BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C
Design: Design #1

Local Co-ordinate Reference: Well SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
TVD Reference: KB @ 4064.00usft (Patriot 6)
MD Reference: KB @ 4064.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,254.21	0.00	0.00	5,254.21	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 11.00 - KOP (NFC13H)									
5,300.00	5.04	357.90	5,299.94	2.01	-0.07	2.01	11.00	11.00	0.00
5,350.00	10.54	357.90	5,349.46	8.78	-0.32	8.78	11.00	11.00	0.00
5,400.00	16.04	357.90	5,398.10	20.26	-0.74	20.27	11.00	11.00	0.00
5,450.00	21.54	357.90	5,445.42	36.34	-1.33	36.37	11.00	11.00	0.00
5,500.00	27.04	357.90	5,490.98	56.89	-2.09	56.92	11.00	11.00	0.00
5,550.00	32.54	357.90	5,534.36	81.70	-3.00	81.75	11.00	11.00	0.00
5,600.00	38.04	357.90	5,575.15	110.55	-4.06	110.63	11.00	11.00	0.00
5,650.00	43.54	357.90	5,613.00	143.18	-5.25	143.28	11.00	11.00	0.00
5,700.00	49.04	357.90	5,647.54	179.28	-6.58	179.40	11.00	11.00	0.00
5,750.00	54.54	357.90	5,678.45	218.53	-8.02	218.67	11.00	11.00	0.00
5,800.00	60.04	357.90	5,705.46	260.55	-9.56	260.73	11.00	11.00	0.00
5,850.00	65.54	357.90	5,728.32	304.97	-11.19	305.18	11.00	11.00	0.00
5,900.00	71.04	357.90	5,746.81	351.37	-12.89	351.61	11.00	11.00	0.00
5,950.00	76.54	357.90	5,760.77	399.34	-14.65	399.60	11.00	11.00	0.00
6,000.00	82.04	357.90	5,770.06	448.41	-16.45	448.71	11.00	11.00	0.00
6,050.00	87.54	357.90	5,774.60	498.15	-18.27	498.49	11.00	11.00	0.00
6,081.48	91.00	357.90	5,775.00	529.60	-19.43	529.96	11.00	11.00	0.00
Start 7346.25 hold at 6081.48 MD - EOC (NFC13H)									
6,100.00	91.00	357.90	5,774.68	548.11	-20.11	548.48	0.00	0.00	0.00
6,200.00	91.00	357.90	5,772.93	648.03	-23.77	648.46	0.00	0.00	0.00
6,300.00	91.00	357.90	5,771.19	747.94	-27.44	748.45	0.00	0.00	0.00
6,400.00	91.00	357.90	5,769.44	847.86	-31.10	848.43	0.00	0.00	0.00
6,500.00	91.00	357.90	5,767.70	947.78	-34.77	948.42	0.00	0.00	0.00
6,600.00	91.00	357.90	5,765.95	1,047.70	-38.43	1,048.40	0.00	0.00	0.00
6,700.00	91.00	357.90	5,764.21	1,147.61	-42.10	1,148.39	0.00	0.00	0.00
6,800.00	91.00	357.90	5,762.46	1,247.53	-45.77	1,248.37	0.00	0.00	0.00
6,900.00	91.00	357.90	5,760.71	1,347.45	-49.43	1,348.36	0.00	0.00	0.00
7,000.00	91.00	357.90	5,758.97	1,447.37	-53.10	1,448.34	0.00	0.00	0.00
7,100.00	91.00	357.90	5,757.22	1,547.28	-56.76	1,548.32	0.00	0.00	0.00
7,200.00	91.00	357.90	5,755.48	1,647.20	-60.43	1,648.31	0.00	0.00	0.00
7,300.00	91.00	357.90	5,753.73	1,747.12	-64.09	1,748.29	0.00	0.00	0.00
7,400.00	91.00	357.90	5,751.99	1,847.04	-67.76	1,848.28	0.00	0.00	0.00
7,500.00	91.00	357.90	5,750.24	1,946.95	-71.42	1,948.26	0.00	0.00	0.00
7,600.00	91.00	357.90	5,748.50	2,046.87	-75.09	2,048.25	0.00	0.00	0.00
7,700.00	91.00	357.90	5,746.75	2,146.79	-78.75	2,148.23	0.00	0.00	0.00
7,800.00	91.00	357.90	5,745.01	2,246.71	-82.42	2,248.22	0.00	0.00	0.00
7,900.00	91.00	357.90	5,743.26	2,346.62	-86.08	2,348.20	0.00	0.00	0.00
8,000.00	91.00	357.90	5,741.52	2,446.54	-89.75	2,448.19	0.00	0.00	0.00
8,100.00	91.00	357.90	5,739.77	2,546.46	-93.42	2,548.17	0.00	0.00	0.00
8,200.00	91.00	357.90	5,738.03	2,646.38	-97.08	2,648.16	0.00	0.00	0.00
8,300.00	91.00	357.90	5,736.28	2,746.29	-100.75	2,748.14	0.00	0.00	0.00
8,400.00	91.00	357.90	5,734.54	2,846.21	-104.41	2,848.13	0.00	0.00	0.00
8,500.00	91.00	357.90	5,732.79	2,946.13	-108.08	2,948.11	0.00	0.00	0.00
8,600.00	91.00	357.90	5,731.05	3,046.05	-111.74	3,048.10	0.00	0.00	0.00
8,700.00	91.00	357.90	5,729.30	3,145.97	-115.41	3,148.08	0.00	0.00	0.00
8,800.00	91.00	357.90	5,727.56	3,245.88	-119.07	3,248.07	0.00	0.00	0.00
8,900.00	91.00	357.90	5,725.81	3,345.80	-122.74	3,348.05	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)
9,000.00	91.00	357.90	5,724.06	3,445.72	-126.40	3,448.04	0.00	0.00	0.00
9,100.00	91.00	357.90	5,722.32	3,545.64	-130.07	3,548.02	0.00	0.00	0.00
9,200.00	91.00	357.90	5,720.57	3,645.55	-133.74	3,648.01	0.00	0.00	0.00
9,300.00	91.00	357.90	5,718.83	3,745.47	-137.40	3,747.99	0.00	0.00	0.00
9,400.00	91.00	357.90	5,717.08	3,845.39	-141.07	3,847.97	0.00	0.00	0.00
9,500.00	91.00	357.90	5,715.34	3,945.31	-144.73	3,947.96	0.00	0.00	0.00
9,600.00	91.00	357.90	5,713.59	4,045.22	-148.40	4,047.94	0.00	0.00	0.00
9,700.00	91.00	357.90	5,711.85	4,145.14	-152.06	4,147.93	0.00	0.00	0.00
9,800.00	91.00	357.90	5,710.10	4,245.06	-155.73	4,247.91	0.00	0.00	0.00
9,900.00	91.00	357.90	5,708.36	4,344.98	-159.39	4,347.90	0.00	0.00	0.00
10,000.00	91.00	357.90	5,706.61	4,444.89	-163.06	4,447.88	0.00	0.00	0.00
10,100.00	91.00	357.90	5,704.87	4,544.81	-166.72	4,547.87	0.00	0.00	0.00
10,200.00	91.00	357.90	5,703.12	4,644.73	-170.39	4,647.85	0.00	0.00	0.00
10,300.00	91.00	357.90	5,701.38	4,744.65	-174.06	4,747.84	0.00	0.00	0.00
10,400.00	91.00	357.90	5,699.63	4,844.56	-177.72	4,847.82	0.00	0.00	0.00
10,500.00	91.00	357.90	5,697.89	4,944.48	-181.39	4,947.81	0.00	0.00	0.00
10,600.00	91.00	357.90	5,696.14	5,044.40	-185.05	5,047.79	0.00	0.00	0.00
10,700.00	91.00	357.90	5,694.40	5,144.32	-188.72	5,147.78	0.00	0.00	0.00
10,800.00	91.00	357.90	5,692.65	5,244.23	-192.38	5,247.76	0.00	0.00	0.00
10,900.00	91.00	357.90	5,690.91	5,344.15	-196.05	5,347.75	0.00	0.00	0.00
11,000.00	91.00	357.90	5,689.16	5,444.07	-199.71	5,447.73	0.00	0.00	0.00
11,100.00	91.00	357.90	5,687.41	5,543.99	-203.38	5,547.72	0.00	0.00	0.00
11,200.00	91.00	357.90	5,685.67	5,643.90	-207.04	5,647.70	0.00	0.00	0.00
11,300.00	91.00	357.90	5,683.92	5,743.82	-210.71	5,747.69	0.00	0.00	0.00
11,400.00	91.00	357.90	5,682.18	5,843.74	-214.37	5,847.67	0.00	0.00	0.00
11,500.00	91.00	357.90	5,680.43	5,943.66	-218.04	5,947.65	0.00	0.00	0.00
11,600.00	91.00	357.90	5,678.69	6,043.57	-221.71	6,047.64	0.00	0.00	0.00
11,700.00	91.00	357.90	5,676.94	6,143.49	-225.37	6,147.62	0.00	0.00	0.00
11,800.00	91.00	357.90	5,675.20	6,243.41	-229.04	6,247.61	0.00	0.00	0.00
11,900.00	91.00	357.90	5,673.45	6,343.33	-232.70	6,347.59	0.00	0.00	0.00
12,000.00	91.00	357.90	5,671.71	6,443.24	-236.37	6,447.58	0.00	0.00	0.00
12,100.00	91.00	357.90	5,669.96	6,543.16	-240.03	6,547.56	0.00	0.00	0.00
12,200.00	91.00	357.90	5,668.22	6,643.08	-243.70	6,647.55	0.00	0.00	0.00
12,300.00	91.00	357.90	5,666.47	6,743.00	-247.36	6,747.53	0.00	0.00	0.00
12,400.00	91.00	357.90	5,664.73	6,842.91	-251.03	6,847.52	0.00	0.00	0.00
12,500.00	91.00	357.90	5,662.98	6,942.83	-254.69	6,947.50	0.00	0.00	0.00
12,600.00	91.00	357.90	5,661.24	7,042.75	-258.36	7,047.49	0.00	0.00	0.00
12,700.00	91.00	357.90	5,659.49	7,142.67	-262.03	7,147.47	0.00	0.00	0.00
12,800.00	91.00	357.90	5,657.75	7,242.59	-265.69	7,247.46	0.00	0.00	0.00
12,900.00	91.00	357.90	5,656.00	7,342.50	-269.36	7,347.44	0.00	0.00	0.00
13,000.00	91.00	357.90	5,654.26	7,442.42	-273.02	7,447.43	0.00	0.00	0.00
13,100.00	91.00	357.90	5,652.51	7,542.34	-276.69	7,547.41	0.00	0.00	0.00
13,200.00	91.00	357.90	5,650.76	7,642.26	-280.35	7,647.40	0.00	0.00	0.00
13,300.00	91.00	357.90	5,649.02	7,742.17	-284.02	7,747.38	0.00	0.00	0.00
13,400.00	91.00	357.90	5,647.27	7,842.09	-287.68	7,847.37	0.00	0.00	0.00
13,427.73	91.00	357.90	5,646.79	7,869.80	-288.70	7,875.09	0.00	0.00	0.00

TD at 13427.73 - PBHL-TD (NFC13H)

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K
Company:	COG Operating LLC	TVD Reference:	KB @ 4064.00usft (Patriot 6)
Project:	Lea County, NM (NAD-83 2015)	MD Reference:	KB @ 4064.00usft (Patriot 6)
Site:	Nelson Fed Com #13H	North Reference:	Grid
Well:	SHL: 2,358' FSL, 1,895' FWL, Sec 15, T-17S, R-32E, Unit K	Survey Calculation Method:	Minimum Curvature
Wellbore:	BHL: 330' FNL, 1,650' FWL, Sec 10, T-17S, R-32E, Unit C		
Design:	Design #1		

Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
KOP (NFC13H)	0.00	0.00	5,254.21	0.00	0.00	667,564.50	718,456.50	32° 50' 1.797 N	103° 45' 24.063 W
- plan hits target center									
- Point									
PBHL-TD (NFC13H)	0.00	0.00	5,646.79	7,869.80	-288.70	675,434.30	718,167.80	32° 51' 19.681 N	103° 45' 26.944 W
- plan hits target center									
- Point									
EOC (NFC13H)	0.00	0.00	5,775.00	529.60	-19.43	668,094.10	718,437.07	32° 50' 7.038 N	103° 45' 24.257 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S	+E/-W	
		(usft)	(usft)	
5,254.21	5,254.21	0.00	0.00	Start Build 11.00
6,081.48	5,775.00	529.60	-19.43	Start 7346.25 hold at 6081.48 MD
13,427.73	5,646.79	7,869.80	-288.70	TD at 13427.73