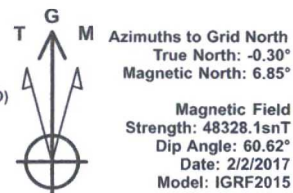


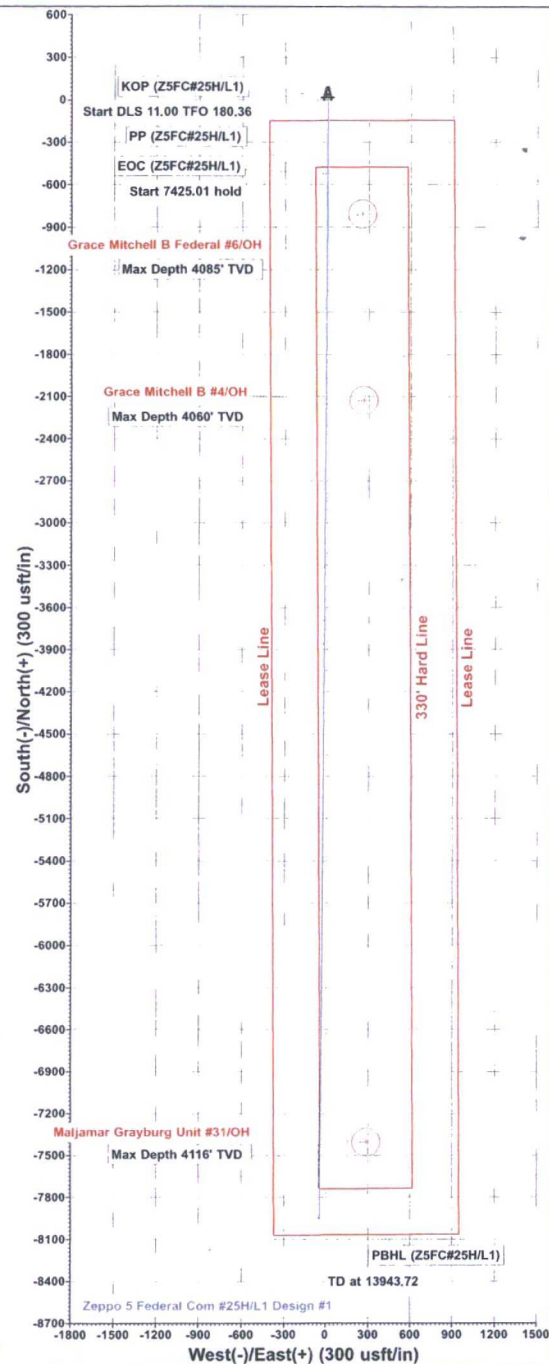
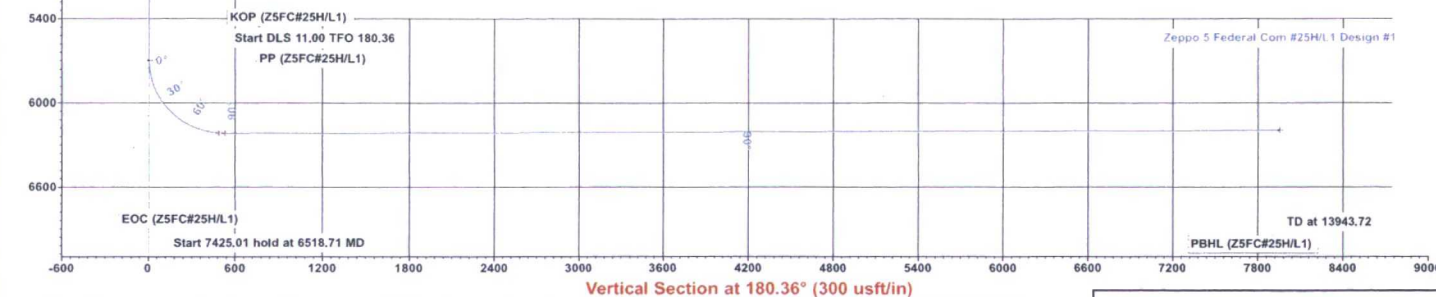
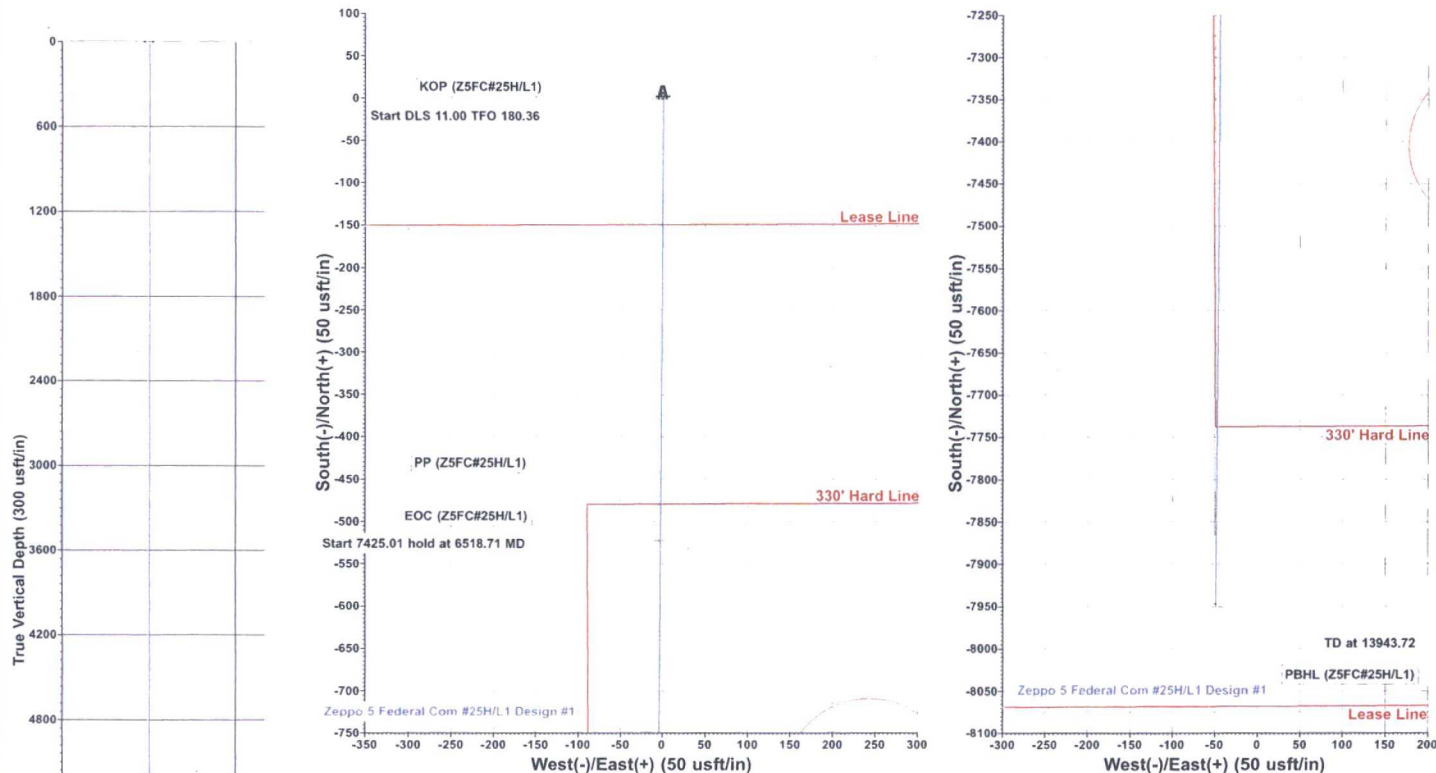
HOBBS OCD
OCT 24 2017
RECEIVED

COG Operating LLC
 Project: Lea County, NM (NAD-27 2015)
 Site: Zeppo 5 Federal Com #25H
 Well: SHL: 2490' FNL, 2210' FEL, Sec 5, T17S, R32E, Unit G
 Wellbore: BHL: 121' FSL, 2308' FEL, Sec 8, T17S, R32E, Unit O
 Plan: Design #1 (SHL: 2490' FNL, 2210' FEL, Sec 5, T17S, R32E, Unit G/BHL: 121' FSL, 2308' FEL, Sec 8, T17S, R32E, Unit O)



Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5699.13	0.00	0.00	5699.13	0.00	0.00	0.00	0.00	0.00	
3	6518.71	90.15	180.36	6220.00	-522.26	-3.25	11.00	180.36	522.27	
4	13943.72	90.15	180.36	6200.00	-7947.10	-49.50	0.00	0.00	7947.25	PBHL (Z5FC#25H/L1)



Terra Directional Services LLC
 3705 South County Road 1210, Midland, TX 79706
 Phone: 432-618-1210

Ground Elevation: 4100.00
 RKB Elevation: KB @ 4118.00usft (Patriot 6)
 Northing 678459.60 Easting 667828.00 Latitude 32° 51' 50.308 N Longitude 103° 47' 12.335 W

PROJECT DETAILS: Lea County, NM (NAD-27 2015)
 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



COG Operating LLC

Lea County, NM (NAD-27 2015)

Zeppo 5 Federal Com #25H

SHL: 2490' FNL, 2210' FEL, Sec 5, T17S, R32E, Unit G

PP: 2970' FNL, 2217' FEL, Sec 5, T17S, R32E, Unit J

BHL: 121' FSL, 2308' FEL, Sec 8, T17S, R32E, Unit O

Plan: Design #1

Standard Planning Report

02 February, 2017





TDS
Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Lea County, NM (NAD-27 2015)
Site: Zeppo 5 Federal Com #25H
Well: SHL: 2490' FNL, 2210' FEL, Sec 5, T17S, R32E, Unit G
Wellbore: BHL: 121' FSL, 2308' FEL, Sec 8, T17S, R32E, Unit O
Design: Design #1

Local Co-ordinate Reference: Well SHL: 2490' FNL, 2210' FEL, Sec 5, T17S, R32E, Unit G
TVD Reference: KB @ 4118.00usft (Patriot 6)
MD Reference: KB @ 4118.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Lea County, NM (NAD-27 2015)		
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 Zeppo 5 Federal Com #25H

Site Position: Northing: 678,459.60 usft Latitude: 32° 51' 50.308 N
From: Map Easting: 667,828.00 usft Longitude: 103° 47' 12.335 W
Position Uncertainty: 0.00 usft Slot Radius: 13.20 in Grid Convergence: 0.30 °

Well SHL: 2490' FNL, 2210' FEL, Sec 5, T17S, R32E, Unit G

Well Position +N/-S 0.00 usft Northing: 678,459.60 usft Latitude: 32° 51' 50.308 N
+E/-W 0.00 usft Easting: 667,828.00 usft Longitude: 103° 47' 12.335 W
Position Uncertainty 0.00 usft Wellhead Elevation: 0.00 usft Ground Level: 4,100.00 usft

Wellbore BHL: 121' FSL, 2308' FEL, Sec 8, T17S, R32E, Unit O

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/2/2017	7.14	60.62	48,328

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	180.36

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	
5,699.13	0.00	0.00	5,699.13	0.00	0.00	0.00	0.00	0.00	0.00	
6,518.71	90.15	180.36	6,220.00	-522.26	-3.25	11.00	11.00	-21.92	180.36	
13,943.72	90.15	180.36	6,200.00	-7,947.10	-49.50	0.00	0.00	0.00	0.00	PBHL (Z5FC#25H/L1)



TDS
Planning Report



Database: EDM 5000.1 Single User Db

Local Co-ordinate Reference:

Well SHL: 2490' FNL, 2210' FEL, Sec 5,
T17S, R32E, Unit G

Company: COG Operating LLC

TVD Reference:

KB @ 4118.00usft (Patriot 6)

Project: Lea County, NM (NAD-27 2015)

MD Reference:

KB @ 4118.00usft (Patriot 6)

Site: Zeppo 5 Federal Com #25H

North Reference:

Grid

Well: SHL: 2490' FNL, 2210' FEL, Sec 5, T17S,
R32E, Unit G

Survey Calculation Method:

Minimum Curvature

Wellbore: BHL: 121' FSL, 2308' FEL, Sec 8, T17S,
R32E, Unit O

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)
0.00	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



TDS
Planning Report



Database: EDM 5000.1 Single User Db

Local Co-ordinate Reference:

Well SHL: 2490' FNL, 2210' FEL, Sec 5,
T17S, R32E, Unit G

Company: COG Operating LLC

TVD Reference:

KB @ 4118.00usft (Patriot 6)

Project: Lea County, NM (NAD-27 2015)

MD Reference:

KB @ 4118.00usft (Patriot 6)

Site: Zeppo 5 Federal Com #25H

North Reference:

Grid

Well: SHL: 2490' FNL, 2210' FEL, Sec 5, T17S,
R32E, Unit G

Survey Calculation Method:

Minimum Curvature

Wellbore: BHL: 121' FSL, 2308' FEL, Sec 8, T17S,
R32E, Unit O

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)
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
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,699.13	0.00	0.00	5,699.13	0.00	0.00	0.00	0.00	0.00	0.00
Start DLS 11.00 TFO 180.36									
5,750.00	5.60	180.36	5,749.92	-2.48	-0.02	2.48	11.00	11.00	0.00
5,800.00	11.10	180.36	5,799.37	-9.74	-0.06	9.74	11.00	11.00	0.00
5,850.00	16.60	180.36	5,847.90	-21.70	-0.14	21.70	11.00	11.00	0.00
5,900.00	22.10	180.36	5,895.06	-38.25	-0.24	38.25	11.00	11.00	0.00
5,950.00	27.60	180.36	5,940.41	-59.25	-0.37	59.26	11.00	11.00	0.00
6,000.00	33.10	180.36	5,983.55	-84.50	-0.53	84.51	11.00	11.00	0.00
6,050.00	38.60	180.36	6,024.06	-113.77	-0.71	113.78	11.00	11.00	0.00
6,100.00	44.10	180.36	6,061.58	-146.79	-0.91	146.79	11.00	11.00	0.00
6,150.00	49.60	180.36	6,095.77	-183.25	-1.14	183.25	11.00	11.00	0.00
6,200.00	55.10	180.36	6,126.30	-222.82	-1.39	222.82	11.00	11.00	0.00
6,250.00	60.60	180.36	6,152.90	-265.13	-1.65	265.14	11.00	11.00	0.00
6,300.00	66.10	180.36	6,175.32	-309.80	-1.93	309.81	11.00	11.00	0.00
6,350.00	71.60	180.36	6,193.36	-356.41	-2.22	356.42	11.00	11.00	0.00
6,400.00	77.10	180.36	6,206.85	-404.54	-2.52	404.55	11.00	11.00	0.00
6,450.00	82.60	180.36	6,215.66	-453.74	-2.83	453.75	11.00	11.00	0.00
6,500.00	88.10	180.36	6,219.71	-503.55	-3.14	503.56	11.00	11.00	0.00
6,518.71	90.15	180.36	6,220.00	-522.26	-3.25	522.27	11.00	11.00	0.00
Start 7425.01 hold at 6518.71 MD									
6,600.00	90.15	180.36	6,219.78	-603.55	-3.76	603.56	0.00	0.00	0.00
6,700.00	90.15	180.36	6,219.51	-703.54	-4.38	703.56	0.00	0.00	0.00
6,800.00	90.15	180.36	6,219.24	-803.54	-5.01	803.56	0.00	0.00	0.00
6,900.00	90.15	180.36	6,218.97	-903.54	-5.63	903.56	0.00	0.00	0.00
7,000.00	90.15	180.36	6,218.70	-1,003.54	-6.25	1,003.56	0.00	0.00	0.00
7,100.00	90.15	180.36	6,218.43	-1,103.54	-6.87	1,103.56	0.00	0.00	0.00
7,200.00	90.15	180.36	6,218.16	-1,203.53	-7.50	1,203.56	0.00	0.00	0.00
7,300.00	90.15	180.36	6,217.89	-1,303.53	-8.12	1,303.56	0.00	0.00	0.00
7,400.00	90.15	180.36	6,217.63	-1,403.53	-8.74	1,403.56	0.00	0.00	0.00
7,500.00	90.15	180.36	6,217.36	-1,503.53	-9.36	1,503.56	0.00	0.00	0.00
7,600.00	90.15	180.36	6,217.09	-1,603.52	-9.99	1,603.56	0.00	0.00	0.00
7,700.00	90.15	180.36	6,216.82	-1,703.52	-10.61	1,703.55	0.00	0.00	0.00
7,800.00	90.15	180.36	6,216.55	-1,803.52	-11.23	1,803.55	0.00	0.00	0.00
7,900.00	90.15	180.36	6,216.28	-1,903.52	-11.86	1,903.55	0.00	0.00	0.00
8,000.00	90.15	180.36	6,216.01	-2,003.51	-12.48	2,003.55	0.00	0.00	0.00
8,100.00	90.15	180.36	6,215.74	-2,103.51	-13.10	2,103.55	0.00	0.00	0.00
8,200.00	90.15	180.36	6,215.47	-2,203.51	-13.72	2,203.55	0.00	0.00	0.00
8,300.00	90.15	180.36	6,215.20	-2,303.51	-14.35	2,303.55	0.00	0.00	0.00
8,400.00	90.15	180.36	6,214.93	-2,403.51	-14.97	2,403.55	0.00	0.00	0.00
8,500.00	90.15	180.36	6,214.66	-2,503.50	-15.59	2,503.55	0.00	0.00	0.00
8,600.00	90.15	180.36	6,214.39	-2,603.50	-16.22	2,603.55	0.00	0.00	0.00
8,700.00	90.15	180.36	6,214.12	-2,703.50	-16.84	2,703.55	0.00	0.00	0.00
8,800.00	90.15	180.36	6,213.85	-2,803.50	-17.46	2,803.55	0.00	0.00	0.00
8,900.00	90.15	180.36	6,213.59	-2,903.49	-18.08	2,903.55	0.00	0.00	0.00
9,000.00	90.15	180.36	6,213.32	-3,003.49	-18.71	3,003.55	0.00	0.00	0.00



TDS
Planning Report



Database: EDM 5000.1 Single User Db

Local Co-ordinate Reference:

Well SHL: 2490' FNL, 2210' FEL, Sec 5,
T17S, R32E, Unit G

Company: COG Operating LLC

TVD Reference:

KB @ 4118.00usft (Patriot 6)

Project: Lea County, NM (NAD-27 2015)

MD Reference:

KB @ 4118.00usft (Patriot 6)

Site: Zeppo 5 Federal Com #25H

North Reference:

Grid

Well: SHL: 2490' FNL, 2210' FEL, Sec 5, T17S,
R32E, Unit G

Survey Calculation Method:

Minimum Curvature

Wellbore: BHL: 121' FSL, 2308' FEL, Sec 8, T17S,
R32E, Unit O

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)
9,100.00	90.15	180.36	6,213.05	-3,103.49	-19.33	3,103.55	0.00	0.00	0.00
9,200.00	90.15	180.36	6,212.78	-3,203.49	-19.95	3,203.55	0.00	0.00	0.00
9,300.00	90.15	180.36	6,212.51	-3,303.48	-20.58	3,303.55	0.00	0.00	0.00
9,400.00	90.15	180.36	6,212.24	-3,403.48	-21.20	3,403.55	0.00	0.00	0.00
9,500.00	90.15	180.36	6,211.97	-3,503.48	-21.82	3,503.55	0.00	0.00	0.00
9,600.00	90.15	180.36	6,211.70	-3,603.48	-22.44	3,603.55	0.00	0.00	0.00
9,700.00	90.15	180.36	6,211.43	-3,703.48	-23.07	3,703.55	0.00	0.00	0.00
9,800.00	90.15	180.36	6,211.16	-3,803.47	-23.69	3,803.55	0.00	0.00	0.00
9,900.00	90.15	180.36	6,210.89	-3,903.47	-24.31	3,903.55	0.00	0.00	0.00
10,000.00	90.15	180.36	6,210.62	-4,003.47	-24.94	4,003.55	0.00	0.00	0.00
10,100.00	90.15	180.36	6,210.35	-4,103.47	-25.56	4,103.55	0.00	0.00	0.00
10,200.00	90.15	180.36	6,210.08	-4,203.46	-26.18	4,203.55	0.00	0.00	0.00
10,300.00	90.15	180.36	6,209.81	-4,303.46	-26.80	4,303.55	0.00	0.00	0.00
10,400.00	90.15	180.36	6,209.54	-4,403.46	-27.43	4,403.54	0.00	0.00	0.00
10,500.00	90.15	180.36	6,209.28	-4,503.46	-28.05	4,503.54	0.00	0.00	0.00
10,600.00	90.15	180.36	6,209.01	-4,603.45	-28.67	4,603.54	0.00	0.00	0.00
10,700.00	90.15	180.36	6,208.74	-4,703.45	-29.30	4,703.54	0.00	0.00	0.00
10,800.00	90.15	180.36	6,208.47	-4,803.45	-29.92	4,803.54	0.00	0.00	0.00
10,900.00	90.15	180.36	6,208.20	-4,903.45	-30.54	4,903.54	0.00	0.00	0.00
11,000.00	90.15	180.36	6,207.93	-5,003.45	-31.16	5,003.54	0.00	0.00	0.00
11,100.00	90.15	180.36	6,207.66	-5,103.44	-31.79	5,103.54	0.00	0.00	0.00
11,200.00	90.15	180.36	6,207.39	-5,203.44	-32.41	5,203.54	0.00	0.00	0.00
11,300.00	90.15	180.36	6,207.12	-5,303.44	-33.03	5,303.54	0.00	0.00	0.00
11,400.00	90.15	180.36	6,206.85	-5,403.44	-33.66	5,403.54	0.00	0.00	0.00
11,500.00	90.15	180.36	6,206.58	-5,503.43	-34.28	5,503.54	0.00	0.00	0.00
11,600.00	90.15	180.36	6,206.31	-5,603.43	-34.90	5,603.54	0.00	0.00	0.00
11,700.00	90.15	180.36	6,206.04	-5,703.43	-35.52	5,703.54	0.00	0.00	0.00
11,800.00	90.15	180.36	6,205.77	-5,803.43	-36.15	5,803.54	0.00	0.00	0.00
11,900.00	90.15	180.36	6,205.50	-5,903.43	-36.77	5,903.54	0.00	0.00	0.00
12,000.00	90.15	180.36	6,205.24	-6,003.42	-37.39	6,003.54	0.00	0.00	0.00
12,100.00	90.15	180.36	6,204.97	-6,103.42	-38.02	6,103.54	0.00	0.00	0.00
12,200.00	90.15	180.36	6,204.70	-6,203.42	-38.64	6,203.54	0.00	0.00	0.00
12,300.00	90.15	180.36	6,204.43	-6,303.42	-39.26	6,303.54	0.00	0.00	0.00
12,400.00	90.15	180.36	6,204.16	-6,403.41	-39.88	6,403.54	0.00	0.00	0.00
12,500.00	90.15	180.36	6,203.89	-6,503.41	-40.51	6,503.54	0.00	0.00	0.00
12,600.00	90.15	180.36	6,203.62	-6,603.41	-41.13	6,603.54	0.00	0.00	0.00
12,700.00	90.15	180.36	6,203.35	-6,703.41	-41.75	6,703.54	0.00	0.00	0.00
12,800.00	90.15	180.36	6,203.08	-6,803.40	-42.38	6,803.54	0.00	0.00	0.00
12,900.00	90.15	180.36	6,202.81	-6,903.40	-43.00	6,903.54	0.00	0.00	0.00
13,000.00	90.15	180.36	6,202.54	-7,003.40	-43.62	7,003.54	0.00	0.00	0.00
13,100.00	90.15	180.36	6,202.27	-7,103.40	-44.24	7,103.54	0.00	0.00	0.00
13,200.00	90.15	180.36	6,202.00	-7,203.40	-44.87	7,203.53	0.00	0.00	0.00
13,300.00	90.15	180.36	6,201.73	-7,303.39	-45.49	7,303.53	0.00	0.00	0.00
13,400.00	90.15	180.36	6,201.46	-7,403.39	-46.11	7,403.53	0.00	0.00	0.00
13,500.00	90.15	180.36	6,201.20	-7,503.39	-46.74	7,503.53	0.00	0.00	0.00
13,600.00	90.15	180.36	6,200.93	-7,603.39	-47.36	7,603.53	0.00	0.00	0.00
13,700.00	90.15	180.36	6,200.66	-7,703.38	-47.98	7,703.53	0.00	0.00	0.00
13,800.00	90.15	180.36	6,200.39	-7,803.38	-48.60	7,803.53	0.00	0.00	0.00
13,900.00	90.15	180.36	6,200.12	-7,903.38	-49.23	7,903.53	0.00	0.00	0.00
13,943.72	90.15	180.36	6,200.00	-7,947.10	-49.50	7,947.25	0.00	0.00	0.00

TD at 13943.72



TDS
Planning Report



Database: EDM 5000.1 Single User Db

Local Co-ordinate Reference:

Well SHL: 2490' FNL, 2210' FEL, Sec 5,
T17S, R32E, Unit G

Company: COG Operating LLC

TVD Reference:

KB @ 4118.00usft (Patriot 6)

Project: Lea County, NM (NAD-27 2015)

MD Reference:

KB @ 4118.00usft (Patriot 6)

Site: Zeppo 5 Federal Com #25H

North Reference:

Grid

Well: SHL: 2490' FNL, 2210' FEL, Sec 5, T17S,
R32E, Unit G

Survey Calculation Method:

Minimum Curvature

Wellbore: BHL: 121' FSL, 2308' FEL, Sec 8, T17S,
R32E, Unit O

Design: Design #1

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Max Depth 4085' TVD - plan misses target center by 844.36usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 100.00)	0.00	0.00	0.00	-809.06	241.58	677,650.54	668,069.58	32° 51' 42.290 N	103° 47' 9.552 W
Max Depth 4116' TVD - plan misses target center by 6209.79usft at 13416.53usft MD (6201.42 TVD, -7419.92 N, -46.22 E) - Circle (radius 100.00)	0.00	0.00	0.00	-7,405.22	275.71	671,054.38	668,103.71	32° 50' 37.020 N	103° 47' 9.553 W
Max Depth 4060' TVD - plan misses target center by 2143.92usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 100.00)	0.00	0.00	0.00	-2,129.03	252.26	676,330.57	668,080.26	32° 51' 29.228 N	103° 47' 9.507 W
KOP (Z5FC#25H/L1) - plan hits target center - Point	0.00	0.00	5,699.13	0.00	0.00	678,459.60	667,828.00	32° 51' 50.308 N	103° 47' 12.335 W
PBHL (Z5FC#25H/L1) - plan hits target center - Point	0.00	0.00	6,200.00	-7,947.10	-49.50	670,512.50	667,778.50	32° 50' 31.674 N	103° 47' 13.398 W
PP (Z5FC#25H/L1) - plan hits target center - Point	0.00	0.00	6,218.37	-479.65	-2.99	677,979.94	667,825.02	32° 51' 45.562 N	103° 47' 12.399 W
EOC (Z5FC#25H/L1) - plan hits target center - Point	0.00	0.00	6,220.00	-522.26	-3.25	677,937.34	667,824.75	32° 51' 45.140 N	103° 47' 12.405 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,699.13	5,699.13	0.00	0.00	Start DLS 11.00 TFO 180.36
6,518.71	6,220.00	-522.26	-3.25	Start 7425.01 hold at 6518.71 MD
13,943.72	6,200.00	-7,947.10	-49.50	TD at 13943.72