



COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Site: Sec. 28, T 24 S., R 34 E.
Well: Coonskin Fee 25H
Wellbore: Wellbore #1
Plan: Plan #1 (Coonskin Fee 25H/Wellbore #1)
McVay 8



WELL DETAILS: Coonskin Fee 25H

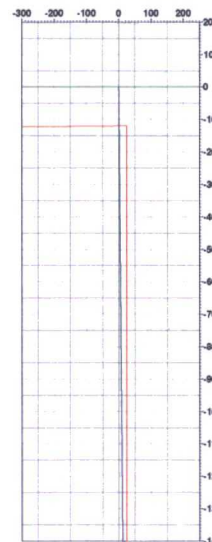
Ground Elevation:: 3318.50
RKB Elevation: KB=26' @ 3344.50ft (McVay 8)
Rig Name: McVay 8

Northing	Easting	Latitude	Longitude
436006.8000	797062.3000	32° 11' 42.192 N	103° 22' 22.917 W

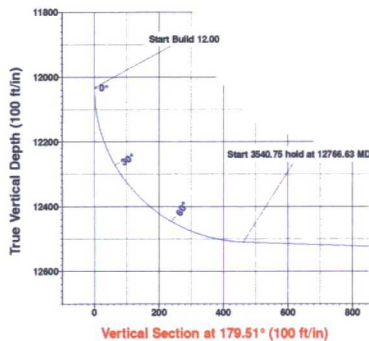
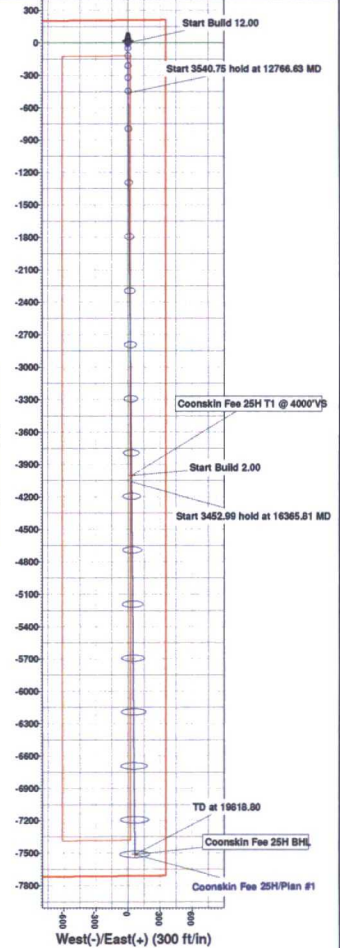
Planned Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	12032.81	0.00	0.00	12032.81	0.00	0.00	0.00	0.00	0.00
3	12766.63	88.06	179.51	12510.00	-461.27	3.94	12.00	179.51	461.28
4	16307.38	88.06	179.51	12630.00	-3999.85	34.19	0.00	0.00	4000.00
5	16365.81	89.23	179.51	12631.39	-4058.27	34.69	2.00	0.00	4058.42
6	19818.80	89.23	179.51	12678.00	-7510.82	64.20	0.00	0.00	7511.09

West(-)/East(+) (100 ft/in)



South(-)/North(+) (300 ft/in)



PROJECT DETAILS: Lea County, NM (NAD27 NME)
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 179.51° (200 ft/in)

Coonskin Fee 25H T1 @ 4000'VB

Coonskin Fee 25H Plan #1



CONCHO

COG Operating L L C

Lea County, NM (NAD27 NME)

Sec. 28, T 24 S. , R 34 E.

Coonskin Fee 25H

Wellbore #1

Plan: Plan #1

Standard Survey Report

07 March, 2017





Integrity Directional Services, LLC

Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Coonskin Fee 25H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3344.50ft (McVay 8)
Site:	Sec. 28, T 24 S. , R 34 E.	MD Reference:	KB=26' @ 3344.50ft (McVay 8)
Well:	Coonskin Fee 25H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Multi User Db

Project	Lea County, NM (NAD27 NME)		
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	Sec. 28, T 24 S. , R 34 E.		
Site Position:		Northing:	436,006.8000 usft
From:	Map	Easting:	797,062.3000 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 42.192 N
		Longitude:	103° 22' 22.917 W
		Grid Convergence:	0.51 °

Well	Coonskin Fee 25H		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	32° 11' 42.192 N
		Longitude:	103° 22' 22.917 W
		Ground Level:	3,318.50 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/7/2017	6.89	60.07	47,971

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	179.51	

Survey Tool Program	Date 3/7/2017				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	19,818.80	Plan #1 (Wellbore #1)	MWD	MWD - Standard	

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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	



Integrity Directional Services, LLC
Survey Report



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Well:	Coonskin Fee 25H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Multi User Db

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
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



Integrity Directional Services, LLC

Survey Report



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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00



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Survey Report



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9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	10,000.00	0.00	0.00	0.00	0.00	0.00	0.00
10,100.00	0.00	0.00	10,100.00	0.00	0.00	0.00	0.00	0.00	0.00
10,200.00	0.00	0.00	10,200.00	0.00	0.00	0.00	0.00	0.00	0.00
10,300.00	0.00	0.00	10,300.00	0.00	0.00	0.00	0.00	0.00	0.00
10,400.00	0.00	0.00	10,400.00	0.00	0.00	0.00	0.00	0.00	0.00
10,500.00	0.00	0.00	10,500.00	0.00	0.00	0.00	0.00	0.00	0.00
10,600.00	0.00	0.00	10,600.00	0.00	0.00	0.00	0.00	0.00	0.00
10,700.00	0.00	0.00	10,700.00	0.00	0.00	0.00	0.00	0.00	0.00
10,800.00	0.00	0.00	10,800.00	0.00	0.00	0.00	0.00	0.00	0.00
10,900.00	0.00	0.00	10,900.00	0.00	0.00	0.00	0.00	0.00	0.00
11,000.00	0.00	0.00	11,000.00	0.00	0.00	0.00	0.00	0.00	0.00
11,100.00	0.00	0.00	11,100.00	0.00	0.00	0.00	0.00	0.00	0.00
11,200.00	0.00	0.00	11,200.00	0.00	0.00	0.00	0.00	0.00	0.00
11,300.00	0.00	0.00	11,300.00	0.00	0.00	0.00	0.00	0.00	0.00
11,400.00	0.00	0.00	11,400.00	0.00	0.00	0.00	0.00	0.00	0.00
11,500.00	0.00	0.00	11,500.00	0.00	0.00	0.00	0.00	0.00	0.00
11,600.00	0.00	0.00	11,600.00	0.00	0.00	0.00	0.00	0.00	0.00
11,700.00	0.00	0.00	11,700.00	0.00	0.00	0.00	0.00	0.00	0.00
11,800.00	0.00	0.00	11,800.00	0.00	0.00	0.00	0.00	0.00	0.00
11,900.00	0.00	0.00	11,900.00	0.00	0.00	0.00	0.00	0.00	0.00
12,000.00	0.00	0.00	12,000.00	0.00	0.00	0.00	0.00	0.00	0.00
12,032.81	0.00	0.00	12,032.81	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 12.00									
12,100.00	8.06	179.51	12,099.78	-4.72	0.04	4.72	12.00	12.00	0.00
12,200.00	20.06	179.51	12,196.60	-28.97	0.25	28.97	12.00	12.00	0.00
12,300.00	32.06	179.51	12,286.27	-72.83	0.62	72.83	12.00	12.00	0.00
12,400.00	44.06	179.51	12,364.86	-134.36	1.15	134.37	12.00	12.00	0.00
12,500.00	56.06	179.51	12,428.94	-210.90	1.80	210.90	12.00	12.00	0.00
12,600.00	68.06	179.51	12,475.70	-299.08	2.56	299.09	12.00	12.00	0.00
12,700.00	80.06	179.51	12,503.11	-395.05	3.38	395.07	12.00	12.00	0.00
12,766.63	88.06	179.51	12,510.00	-461.27	3.94	461.28	12.00	12.00	0.00
Start 3540.75 hold at 12766.63 MD									
12,800.00	88.06	179.51	12,511.13	-494.62	4.23	494.64	0.00	0.00	0.00
12,900.00	88.06	179.51	12,514.52	-594.56	5.08	594.58	0.00	0.00	0.00
13,000.00	88.06	179.51	12,517.91	-694.50	5.94	694.52	0.00	0.00	0.00
13,100.00	88.06	179.51	12,521.30	-794.44	6.79	794.47	0.00	0.00	0.00
13,200.00	88.06	179.51	12,524.69	-894.38	7.64	894.41	0.00	0.00	0.00
13,300.00	88.06	179.51	12,528.08	-994.31	8.50	994.35	0.00	0.00	0.00
13,400.00	88.06	179.51	12,531.47	-1,094.25	9.35	1,094.29	0.00	0.00	0.00
13,500.00	88.06	179.51	12,534.86	-1,194.19	10.21	1,194.24	0.00	0.00	0.00
13,600.00	88.06	179.51	12,538.25	-1,294.13	11.06	1,294.18	0.00	0.00	0.00



Integrity Directional Services, LLC

Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Coonskin Fee 25H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3344.50ft (McVay 8)
Site:	Sec. 28, T 24 S. , R 34 E.	MD Reference:	KB=26' @ 3344.50ft (McVay 8)
Well:	Coonskin Fee 25H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Multi User Db

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,700.00	88.06	179.51	12,541.64	-1,394.07	11.92	1,394.12	0.00	0.00	0.00
13,800.00	88.06	179.51	12,545.02	-1,494.01	12.77	1,494.06	0.00	0.00	0.00
13,900.00	88.06	179.51	12,548.41	-1,593.95	13.62	1,594.01	0.00	0.00	0.00
14,000.00	88.06	179.51	12,551.80	-1,693.89	14.48	1,693.95	0.00	0.00	0.00
14,100.00	88.06	179.51	12,555.19	-1,793.83	15.33	1,793.89	0.00	0.00	0.00
14,200.00	88.06	179.51	12,558.58	-1,893.76	16.19	1,893.83	0.00	0.00	0.00
14,300.00	88.06	179.51	12,561.97	-1,993.70	17.04	1,993.78	0.00	0.00	0.00
14,400.00	88.06	179.51	12,565.36	-2,093.64	17.90	2,093.72	0.00	0.00	0.00
14,500.00	88.06	179.51	12,568.75	-2,193.58	18.75	2,193.66	0.00	0.00	0.00
14,600.00	88.06	179.51	12,572.14	-2,293.52	19.60	2,293.60	0.00	0.00	0.00
14,700.00	88.06	179.51	12,575.53	-2,393.46	20.46	2,393.55	0.00	0.00	0.00
14,800.00	88.06	179.51	12,578.92	-2,493.40	21.31	2,493.49	0.00	0.00	0.00
14,900.00	88.06	179.51	12,582.30	-2,593.34	22.17	2,593.43	0.00	0.00	0.00
15,000.00	88.06	179.51	12,585.69	-2,693.28	23.02	2,693.37	0.00	0.00	0.00
15,100.00	88.06	179.51	12,589.08	-2,793.21	23.88	2,793.32	0.00	0.00	0.00
15,200.00	88.06	179.51	12,592.47	-2,893.15	24.73	2,893.26	0.00	0.00	0.00
15,300.00	88.06	179.51	12,595.86	-2,993.09	25.58	2,993.20	0.00	0.00	0.00
15,400.00	88.06	179.51	12,599.25	-3,093.03	26.44	3,093.14	0.00	0.00	0.00
15,500.00	88.06	179.51	12,602.64	-3,192.97	27.29	3,193.09	0.00	0.00	0.00
15,600.00	88.06	179.51	12,606.03	-3,292.91	28.15	3,293.03	0.00	0.00	0.00
15,700.00	88.06	179.51	12,609.42	-3,392.85	29.00	3,392.97	0.00	0.00	0.00
15,800.00	88.06	179.51	12,612.81	-3,492.79	29.86	3,492.91	0.00	0.00	0.00
15,900.00	88.06	179.51	12,616.20	-3,592.73	30.71	3,592.86	0.00	0.00	0.00
16,000.00	88.06	179.51	12,619.58	-3,692.67	31.56	3,692.80	0.00	0.00	0.00
16,100.00	88.06	179.51	12,622.97	-3,792.60	32.42	3,792.74	0.00	0.00	0.00
16,200.00	88.06	179.51	12,626.36	-3,892.54	33.27	3,892.69	0.00	0.00	0.00
16,300.00	88.06	179.51	12,629.75	-3,992.48	34.13	3,992.63	0.00	0.00	0.00
16,307.38	88.06	179.51	12,630.00	-3,999.85	34.19	4,000.00	0.00	0.00	0.00
Start Build 2.00									
16,365.81	89.23	179.51	12,631.39	-4,058.27	34.69	4,058.42	2.00	2.00	0.00
Start 3452.99 hold at 16365.81 MD									
16,400.00	89.23	179.51	12,631.85	-4,092.45	34.98	4,092.60	0.00	0.00	0.00
16,500.00	89.23	179.51	12,633.20	-4,192.44	35.84	4,192.59	0.00	0.00	0.00
16,600.00	89.23	179.51	12,634.55	-4,292.43	36.69	4,292.58	0.00	0.00	0.00
16,700.00	89.23	179.51	12,635.90	-4,392.42	37.55	4,392.58	0.00	0.00	0.00
16,800.00	89.23	179.51	12,637.25	-4,492.40	38.40	4,492.57	0.00	0.00	0.00
16,900.00	89.23	179.51	12,638.60	-4,592.39	39.25	4,592.56	0.00	0.00	0.00
17,000.00	89.23	179.51	12,639.95	-4,692.38	40.11	4,692.55	0.00	0.00	0.00
17,100.00	89.23	179.51	12,641.30	-4,792.36	40.96	4,792.54	0.00	0.00	0.00
17,200.00	89.23	179.51	12,642.65	-4,892.35	41.82	4,892.53	0.00	0.00	0.00
17,300.00	89.23	179.51	12,644.00	-4,992.34	42.67	4,992.52	0.00	0.00	0.00
17,400.00	89.23	179.51	12,645.35	-5,092.33	43.53	5,092.51	0.00	0.00	0.00
17,500.00	89.23	179.51	12,646.70	-5,192.31	44.38	5,192.50	0.00	0.00	0.00



Integrity Directional Services, LLC
Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Coonskin Fee 25H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3344.50ft (McVay 8)
Site:	Sec. 28, T 24 S. , R 34 E.	MD Reference:	KB=26' @ 3344.50ft (McVay 8)
Well:	Coonskin Fee 25H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Multi User Db

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,600.00	89.23	179.51	12,648.05	-5,292.30	45.24	5,292.49	0.00	0.00	0.00
17,700.00	89.23	179.51	12,649.40	-5,392.29	46.09	5,392.48	0.00	0.00	0.00
17,800.00	89.23	179.51	12,650.75	-5,492.27	46.95	5,492.48	0.00	0.00	0.00
17,900.00	89.23	179.51	12,652.10	-5,592.26	47.80	5,592.47	0.00	0.00	0.00
18,000.00	89.23	179.51	12,653.45	-5,692.25	48.66	5,692.46	0.00	0.00	0.00
18,100.00	89.23	179.51	12,654.80	-5,792.24	49.51	5,792.45	0.00	0.00	0.00
18,200.00	89.23	179.51	12,656.15	-5,892.22	50.36	5,892.44	0.00	0.00	0.00
18,300.00	89.23	179.51	12,657.50	-5,992.21	51.22	5,992.43	0.00	0.00	0.00
18,400.00	89.23	179.51	12,658.85	-6,092.20	52.07	6,092.42	0.00	0.00	0.00
18,500.00	89.23	179.51	12,660.20	-6,192.19	52.93	6,192.41	0.00	0.00	0.00
18,600.00	89.23	179.51	12,661.55	-6,292.17	53.78	6,292.40	0.00	0.00	0.00
18,700.00	89.23	179.51	12,662.90	-6,392.16	54.64	6,392.39	0.00	0.00	0.00
18,800.00	89.23	179.51	12,664.25	-6,492.15	55.49	6,492.38	0.00	0.00	0.00
18,900.00	89.23	179.51	12,665.60	-6,592.13	56.35	6,592.38	0.00	0.00	0.00
19,000.00	89.23	179.51	12,666.95	-6,692.12	57.20	6,692.37	0.00	0.00	0.00
19,100.00	89.23	179.51	12,668.30	-6,792.11	58.06	6,792.36	0.00	0.00	0.00
19,200.00	89.23	179.51	12,669.65	-6,892.10	58.91	6,892.35	0.00	0.00	0.00
19,300.00	89.23	179.51	12,671.00	-6,992.08	59.77	6,992.34	0.00	0.00	0.00
19,400.00	89.23	179.51	12,672.35	-7,092.07	60.62	7,092.33	0.00	0.00	0.00
19,500.00	89.23	179.51	12,673.70	-7,192.06	61.48	7,192.32	0.00	0.00	0.00
19,600.00	89.23	179.51	12,675.05	-7,292.04	62.33	7,292.31	0.00	0.00	0.00
19,700.00	89.23	179.51	12,676.40	-7,392.03	63.18	7,392.30	0.00	0.00	0.00
19,800.00	89.23	179.51	12,677.75	-7,492.02	64.04	7,492.29	0.00	0.00	0.00
19,818.80	89.23	179.51	12,678.00	-7,510.82	64.20	7,511.09	0.00	0.00	0.00
TD at 19818.80									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Coonskin Fee 25H T1	0.00	0.00	12,630.00	-3,999.85	34.19	432,006.9558	797,096.4895	32° 11' 2.610 N	103° 22' 22.935 W
- plan hits target center									
- Point									
Coonskin Fee 25H B1	0.00	0.00	12,678.00	-7,510.82	64.20	428,496.0000	797,126.5000	32° 10' 27.867 N	103° 22' 22.950 W
- plan hits target center									
- Point									



Integrity Directional Services, LLC
Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Coonskin Fee 25H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3344.50ft (McVay 8)
Site:	Sec. 28, T 24 S. , R 34 E.	MD Reference:	KB=26' @ 3344.50ft (McVay 8)
Well:	Coonskin Fee 25H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Multi User Db

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
12,033	12,033	0	0	Start Build 12.00
12,767	12,510	-461	4	Start 3540.75 hold at 12766.63 MD
16,307	12,630	-4000	34	Start Build 2.00
16,366	12,631	-4058	35	Start 3452.99 hold at 16365.81 MD
19,819	12,678	-7511	64	TD at 19818.80