



NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 12 2018

RECEIVED

COG Operating L L C

Eddy County, NM (NAD 27 NME)

Sec. 31, T 26 S, R 28- E

Way South State Com 702H

Wellbore #1

30.015-45542

Plan: Plan #1

Standard Survey Report

12 December, 2018



INTEGRITY
DIRECTIONAL

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Site: Sec. 31, T 26 S, R 28- E
Well: Way South State Com 702H
Wellbore: Wellbore #1
Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 702H
TVD Reference: KB=29' @ 3110.00usft (Noram 23)
MD Reference: KB=29' @ 3110.00usft (Noram 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1

Project	Eddy County, NM (NAD 27 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. 31, T 26 S, R 28- E			
Site Position:		Northing:	363,736.60 usft	Latitude: 31.99984
From: Map		Easting:	566,855.10 usft	Longitude: -104.11767
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.11 °

Well	Way South State Com 702H			
Well Position	+N/-S	0.00 usft	Northing:	364,000.90 usft
	+E/-W	0.00 usft	Easting:	566,194.60 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft
			Ground Level:	3,081.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/12/2018	7.13	59.63	47,819

Design	Plan #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	359.99	

Survey Tool Program	Date 12/12/2018				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	21,736.98	Plan #1 (Wellbore #1)	MWD	MWD - Standard	

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	



Survey Report



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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)
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

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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
6,729.10	0.00	0.00	6,729.10	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
6,800.00	1.42	180.00	6,799.99	-0.88	0.00	-0.88	2.00	2.00	0.00
6,900.00	3.42	180.00	6,899.90	-5.10	0.00	-5.10	2.00	2.00	0.00
6,979.10	5.00	180.00	6,978.79	-10.90	0.00	-10.90	2.00	2.00	0.00
Start 1470.90 hold at 6979.10 MD									
7,000.00	5.00	180.00	6,999.60	-12.72	0.00	-12.72	0.00	0.00	0.00
7,100.00	5.00	180.00	7,099.22	-21.44	0.00	-21.44	0.00	0.00	0.00
7,200.00	5.00	180.00	7,198.84	-30.15	0.00	-30.15	0.00	0.00	0.00
7,300.00	5.00	180.00	7,298.46	-38.87	0.00	-38.87	0.00	0.00	0.00
7,400.00	5.00	180.00	7,398.08	-47.58	0.00	-47.58	0.00	0.00	0.00
7,500.00	5.00	180.00	7,497.70	-56.30	0.00	-56.30	0.00	0.00	0.00
7,600.00	5.00	180.00	7,597.32	-65.02	0.00	-65.02	0.00	0.00	0.00
7,700.00	5.00	180.00	7,696.94	-73.73	0.00	-73.73	0.00	0.00	0.00
7,800.00	5.00	180.00	7,796.56	-82.45	0.00	-82.45	0.00	0.00	0.00
7,900.00	5.00	180.00	7,896.18	-91.16	0.00	-91.16	0.00	0.00	0.00
8,000.00	5.00	180.00	7,995.80	-99.88	0.00	-99.88	0.00	0.00	0.00
8,100.00	5.00	180.00	8,095.42	-108.59	0.00	-108.59	0.00	0.00	0.00
8,200.00	5.00	180.00	8,195.04	-117.31	0.00	-117.31	0.00	0.00	0.00
8,300.00	5.00	180.00	8,294.66	-126.03	0.00	-126.03	0.00	0.00	0.00
8,400.00	5.00	180.00	8,394.28	-134.74	0.00	-134.74	0.00	0.00	0.00
8,450.00	5.00	180.00	8,444.09	-139.10	0.00	-139.10	0.00	0.00	0.00
Start Drop -2.00									
8,500.00	4.00	180.00	8,493.93	-143.02	0.00	-143.02	2.00	-2.00	0.00
8,600.00	2.00	180.00	8,593.79	-148.25	0.00	-148.25	2.00	-2.00	0.00
8,700.00	0.00	0.00	8,693.77	-150.00	0.00	-150.00	2.00	-2.00	0.00
Start 176.28 hold at 8700.00 MD									
8,800.00	0.00	0.00	8,793.77	-150.00	0.00	-150.00	0.00	0.00	0.00
8,876.28	0.00	0.00	8,870.05	-150.00	0.00	-150.00	0.00	0.00	0.00
Start DLS 10.00 TFO 359.99									



Survey Report



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8,900.00	2.37	359.99	8,893.76	-149.51	0.00	-149.51	10.00	10.00	0.00
9,000.00	12.37	359.99	8,992.81	-136.69	0.00	-136.69	10.00	10.00	0.00
9,100.00	22.37	359.99	9,088.13	-106.88	-0.01	-106.88	10.00	10.00	0.00
9,200.00	32.37	359.99	9,176.82	-60.96	-0.01	-60.96	10.00	10.00	0.00
9,300.00	42.37	359.99	9,256.19	-0.34	-0.02	-0.34	10.00	10.00	0.00
9,400.00	52.37	359.99	9,323.83	73.15	-0.03	73.15	10.00	10.00	0.00
9,500.00	62.37	359.99	9,377.68	157.26	-0.05	157.26	10.00	10.00	0.00
9,600.00	72.37	359.99	9,416.10	249.44	-0.06	249.44	10.00	10.00	0.00
9,700.00	82.37	359.99	9,437.94	346.90	-0.08	346.90	10.00	10.00	0.00
9,772.59	89.63	359.99	9,443.00	419.27	-0.09	419.27	10.00	10.00	0.00
Start 11965.38 hold at 9772.59 MD									
9,800.00	89.63	359.99	9,443.17	446.68	-0.09	446.68	0.00	0.00	0.00
9,900.00	89.63	359.99	9,443.82	546.67	-0.11	546.67	0.00	0.00	0.00
10,000.00	89.63	359.99	9,444.46	646.67	-0.12	646.67	0.00	0.00	0.00
10,100.00	89.63	359.99	9,445.10	746.67	-0.14	746.67	0.00	0.00	0.00
10,200.00	89.63	359.99	9,445.75	846.67	-0.15	846.67	0.00	0.00	0.00
10,300.00	89.63	359.99	9,446.39	946.67	-0.17	946.67	0.00	0.00	0.00
10,400.00	89.63	359.99	9,447.03	1,046.66	-0.18	1,046.66	0.00	0.00	0.00
10,500.00	89.63	359.99	9,447.68	1,146.66	-0.20	1,146.66	0.00	0.00	0.00
10,600.00	89.63	359.99	9,448.32	1,246.66	-0.21	1,246.66	0.00	0.00	0.00
10,700.00	89.63	359.99	9,448.96	1,346.66	-0.23	1,346.66	0.00	0.00	0.00
10,800.00	89.63	359.99	9,449.61	1,446.65	-0.24	1,446.65	0.00	0.00	0.00
10,900.00	89.63	359.99	9,450.25	1,546.65	-0.26	1,546.65	0.00	0.00	0.00
11,000.00	89.63	359.99	9,450.90	1,646.65	-0.27	1,646.65	0.00	0.00	0.00
11,100.00	89.63	359.99	9,451.54	1,746.65	-0.29	1,746.65	0.00	0.00	0.00
11,200.00	89.63	359.99	9,452.18	1,846.65	-0.30	1,846.65	0.00	0.00	0.00
11,300.00	89.63	359.99	9,452.83	1,946.64	-0.32	1,946.64	0.00	0.00	0.00
11,400.00	89.63	359.99	9,453.47	2,046.64	-0.33	2,046.64	0.00	0.00	0.00
11,500.00	89.63	359.99	9,454.11	2,146.64	-0.35	2,146.64	0.00	0.00	0.00
11,600.00	89.63	359.99	9,454.76	2,246.64	-0.36	2,246.64	0.00	0.00	0.00
11,700.00	89.63	359.99	9,455.40	2,346.64	-0.38	2,346.64	0.00	0.00	0.00
11,800.00	89.63	359.99	9,456.04	2,446.63	-0.39	2,446.63	0.00	0.00	0.00
11,900.00	89.63	359.99	9,456.69	2,546.63	-0.41	2,546.63	0.00	0.00	0.00
12,000.00	89.63	359.99	9,457.33	2,646.63	-0.42	2,646.63	0.00	0.00	0.00
12,100.00	89.63	359.99	9,457.97	2,746.63	-0.44	2,746.63	0.00	0.00	0.00
12,200.00	89.63	359.99	9,458.62	2,846.63	-0.45	2,846.63	0.00	0.00	0.00
12,300.00	89.63	359.99	9,459.26	2,946.62	-0.47	2,946.62	0.00	0.00	0.00
12,400.00	89.63	359.99	9,459.91	3,046.62	-0.48	3,046.62	0.00	0.00	0.00
12,500.00	89.63	359.99	9,460.55	3,146.62	-0.50	3,146.62	0.00	0.00	0.00
12,600.00	89.63	359.99	9,461.19	3,246.62	-0.51	3,246.62	0.00	0.00	0.00
12,700.00	89.63	359.99	9,461.84	3,346.62	-0.53	3,346.62	0.00	0.00	0.00
12,800.00	89.63	359.99	9,462.48	3,446.61	-0.55	3,446.61	0.00	0.00	0.00
12,900.00	89.63	359.99	9,463.12	3,546.61	-0.56	3,546.61	0.00	0.00	0.00

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Database: EDM 5000.1

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)
13,000.00	89.63	359.99	9,463.77	3,646.61	-0.58	3,646.61	0.00	0.00	0.00
13,100.00	89.63	359.99	9,464.41	3,746.61	-0.59	3,746.61	0.00	0.00	0.00
13,200.00	89.63	359.99	9,465.05	3,846.61	-0.61	3,846.61	0.00	0.00	0.00
13,300.00	89.63	359.99	9,465.70	3,946.60	-0.62	3,946.60	0.00	0.00	0.00
13,400.00	89.63	359.99	9,466.34	4,046.60	-0.64	4,046.60	0.00	0.00	0.00
13,500.00	89.63	359.99	9,466.98	4,146.60	-0.65	4,146.60	0.00	0.00	0.00
13,600.00	89.63	359.99	9,467.63	4,246.60	-0.67	4,246.60	0.00	0.00	0.00
13,700.00	89.63	359.99	9,468.27	4,346.59	-0.68	4,346.59	0.00	0.00	0.00
13,800.00	89.63	359.99	9,468.91	4,446.59	-0.70	4,446.59	0.00	0.00	0.00
13,900.00	89.63	359.99	9,469.56	4,546.59	-0.71	4,546.59	0.00	0.00	0.00
14,000.00	89.63	359.99	9,470.20	4,646.59	-0.73	4,646.59	0.00	0.00	0.00
14,100.00	89.63	359.99	9,470.85	4,746.59	-0.74	4,746.59	0.00	0.00	0.00
14,200.00	89.63	359.99	9,471.49	4,846.58	-0.76	4,846.58	0.00	0.00	0.00
14,300.00	89.63	359.99	9,472.13	4,946.58	-0.77	4,946.58	0.00	0.00	0.00
14,400.00	89.63	359.99	9,472.78	5,046.58	-0.79	5,046.58	0.00	0.00	0.00
14,500.00	89.63	359.99	9,473.42	5,146.58	-0.80	5,146.58	0.00	0.00	0.00
14,600.00	89.63	359.99	9,474.06	5,246.58	-0.82	5,246.58	0.00	0.00	0.00
14,700.00	89.63	359.99	9,474.71	5,346.57	-0.83	5,346.57	0.00	0.00	0.00
14,800.00	89.63	359.99	9,475.35	5,446.57	-0.85	5,446.57	0.00	0.00	0.00
14,900.00	89.63	359.99	9,475.99	5,546.57	-0.86	5,546.57	0.00	0.00	0.00
15,000.00	89.63	359.99	9,476.64	5,646.57	-0.88	5,646.57	0.00	0.00	0.00
15,100.00	89.63	359.99	9,477.28	5,746.57	-0.89	5,746.57	0.00	0.00	0.00
15,200.00	89.63	359.99	9,477.92	5,846.56	-0.91	5,846.56	0.00	0.00	0.00
15,300.00	89.63	359.99	9,478.57	5,946.56	-0.92	5,946.56	0.00	0.00	0.00
15,400.00	89.63	359.99	9,479.21	6,046.56	-0.94	6,046.56	0.00	0.00	0.00
15,500.00	89.63	359.99	9,479.86	6,146.56	-0.95	6,146.56	0.00	0.00	0.00
15,600.00	89.63	359.99	9,480.50	6,246.56	-0.97	6,246.56	0.00	0.00	0.00
15,700.00	89.63	359.99	9,481.14	6,346.55	-0.98	6,346.55	0.00	0.00	0.00
15,800.00	89.63	359.99	9,481.79	6,446.55	-1.00	6,446.55	0.00	0.00	0.00
15,900.00	89.63	359.99	9,482.43	6,546.55	-1.02	6,546.55	0.00	0.00	0.00
16,000.00	89.63	359.99	9,483.07	6,646.55	-1.03	6,646.55	0.00	0.00	0.00
16,100.00	89.63	359.99	9,483.72	6,746.55	-1.05	6,746.55	0.00	0.00	0.00
16,200.00	89.63	359.99	9,484.36	6,846.54	-1.06	6,846.54	0.00	0.00	0.00
16,300.00	89.63	359.99	9,485.00	6,946.54	-1.08	6,946.54	0.00	0.00	0.00
16,400.00	89.63	359.99	9,485.65	7,046.54	-1.09	7,046.54	0.00	0.00	0.00
16,500.00	89.63	359.99	9,486.29	7,146.54	-1.11	7,146.54	0.00	0.00	0.00
16,600.00	89.63	359.99	9,486.93	7,246.53	-1.12	7,246.54	0.00	0.00	0.00
16,700.00	89.63	359.99	9,487.58	7,346.53	-1.14	7,346.53	0.00	0.00	0.00
16,800.00	89.63	359.99	9,488.22	7,446.53	-1.15	7,446.53	0.00	0.00	0.00
16,900.00	89.63	359.99	9,488.87	7,546.53	-1.17	7,546.53	0.00	0.00	0.00
17,000.00	89.63	359.99	9,489.51	7,646.53	-1.18	7,646.53	0.00	0.00	0.00
17,100.00	89.63	359.99	9,490.15	7,746.52	-1.20	7,746.52	0.00	0.00	0.00
17,200.00	89.63	359.99	9,490.80	7,846.52	-1.21	7,846.52	0.00	0.00	0.00
17,300.00	89.63	359.99	9,491.44	7,946.52	-1.23	7,946.52	0.00	0.00	0.00

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Site: Sec. 31, T 26 S, R 28- E
Well: Way South State Com 702H
Wellbore: Wellbore #1
Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 702H
TVD Reference: KB=29' @ 3110.00usft (Noram 23)
MD Reference: KB=29' @ 3110.00usft (Noram 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1

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)
17,400.00	89.63	359.99	9,492.08	8,046.52	-1.24	8,046.52	0.00	0.00	0.00
17,500.00	89.63	359.99	9,492.73	8,146.52	-1.26	8,146.52	0.00	0.00	0.00
17,600.00	89.63	359.99	9,493.37	8,246.51	-1.27	8,246.51	0.00	0.00	0.00
17,700.00	89.63	359.99	9,494.01	8,346.51	-1.29	8,346.51	0.00	0.00	0.00
17,800.00	89.63	359.99	9,494.66	8,446.51	-1.30	8,446.51	0.00	0.00	0.00
17,900.00	89.63	359.99	9,495.30	8,546.51	-1.32	8,546.51	0.00	0.00	0.00
18,000.00	89.63	359.99	9,495.94	8,646.51	-1.33	8,646.51	0.00	0.00	0.00
18,100.00	89.63	359.99	9,496.59	8,746.50	-1.35	8,746.50	0.00	0.00	0.00
18,200.00	89.63	359.99	9,497.23	8,846.50	-1.36	8,846.50	0.00	0.00	0.00
18,300.00	89.63	359.99	9,497.87	8,946.50	-1.38	8,946.50	0.00	0.00	0.00
18,400.00	89.63	359.99	9,498.52	9,046.50	-1.39	9,046.50	0.00	0.00	0.00
18,500.00	89.63	359.99	9,499.16	9,146.50	-1.41	9,146.50	0.00	0.00	0.00
18,600.00	89.63	359.99	9,499.81	9,246.49	-1.42	9,246.49	0.00	0.00	0.00
18,700.00	89.63	359.99	9,500.45	9,346.49	-1.44	9,346.49	0.00	0.00	0.00
18,800.00	89.63	359.99	9,501.09	9,446.49	-1.45	9,446.49	0.00	0.00	0.00
18,900.00	89.63	359.99	9,501.74	9,546.49	-1.47	9,546.49	0.00	0.00	0.00
19,000.00	89.63	359.99	9,502.38	9,646.49	-1.48	9,646.49	0.00	0.00	0.00
19,100.00	89.63	359.99	9,503.02	9,746.48	-1.50	9,746.48	0.00	0.00	0.00
19,200.00	89.63	359.99	9,503.67	9,846.48	-1.52	9,846.48	0.00	0.00	0.00
19,300.00	89.63	359.99	9,504.31	9,946.48	-1.53	9,946.48	0.00	0.00	0.00
19,400.00	89.63	359.99	9,504.95	10,046.48	-1.55	10,046.48	0.00	0.00	0.00
19,500.00	89.63	359.99	9,505.60	10,146.47	-1.56	10,146.48	0.00	0.00	0.00
19,600.00	89.63	359.99	9,506.24	10,246.47	-1.58	10,246.47	0.00	0.00	0.00
19,700.00	89.63	359.99	9,506.88	10,346.47	-1.59	10,346.47	0.00	0.00	0.00
19,800.00	89.63	359.99	9,507.53	10,446.47	-1.61	10,446.47	0.00	0.00	0.00
19,900.00	89.63	359.99	9,508.17	10,546.47	-1.62	10,546.47	0.00	0.00	0.00
20,000.00	89.63	359.99	9,508.82	10,646.46	-1.64	10,646.46	0.00	0.00	0.00
20,100.00	89.63	359.99	9,509.46	10,746.46	-1.65	10,746.46	0.00	0.00	0.00
20,200.00	89.63	359.99	9,510.10	10,846.46	-1.67	10,846.46	0.00	0.00	0.00
20,300.00	89.63	359.99	9,510.75	10,946.46	-1.68	10,946.46	0.00	0.00	0.00
20,400.00	89.63	359.99	9,511.39	11,046.46	-1.70	11,046.46	0.00	0.00	0.00
20,500.00	89.63	359.99	9,512.03	11,146.45	-1.71	11,146.45	0.00	0.00	0.00
20,600.00	89.63	359.99	9,512.68	11,246.45	-1.73	11,246.45	0.00	0.00	0.00
20,700.00	89.63	359.99	9,513.32	11,346.45	-1.74	11,346.45	0.00	0.00	0.00
20,800.00	89.63	359.99	9,513.96	11,446.45	-1.76	11,446.45	0.00	0.00	0.00
20,900.00	89.63	359.99	9,514.61	11,546.45	-1.77	11,546.45	0.00	0.00	0.00
21,000.00	89.63	359.99	9,515.25	11,646.44	-1.79	11,646.44	0.00	0.00	0.00
21,100.00	89.63	359.99	9,515.89	11,746.44	-1.80	11,746.44	0.00	0.00	0.00
21,200.00	89.63	359.99	9,516.54	11,846.44	-1.82	11,846.44	0.00	0.00	0.00
21,300.00	89.63	359.99	9,517.18	11,946.44	-1.83	11,946.44	0.00	0.00	0.00
21,400.00	89.63	359.99	9,517.83	12,046.44	-1.85	12,046.44	0.00	0.00	0.00
21,500.00	89.63	359.99	9,518.47	12,146.43	-1.86	12,146.43	0.00	0.00	0.00
21,600.00	89.63	359.99	9,519.11	12,246.43	-1.88	12,246.43	0.00	0.00	0.00

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Site: Sec. 31, T 26 S, R 28- E
Well: Way South State Corn 702H
Wellbore: Wellbore #1
Design: Plan #1

Local Co-ordinate Reference: Well Way South State Corn 702H
TVD Reference: KB=29' @ 3110.00usft (Noram 23)
MD Reference: KB=29' @ 3110.00usft (Noram 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1

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)
21,700.00	89.63	359.99	9,519.76	12,346.43	-1.89	12,346.43	0.00	0.00	0.00
21,737.97	89.63	359.99	9,520.00	12,384.40	-1.90	12,384.40	0.00	0.00	0.00
TD at 21737.97									

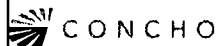
Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Way South State Corr	0.00	0.00	9,317.35	64.90	-0.10	364,065.80	566,194.50	32.00075	-104.11980
- plan misses target center by 0.07usft at 9389.53usft MD (9317.36 TVD, 64.92 N, -0.03 E)									
- Point									
Way South State Corr	0.00	0.00	9,519.16	12,254.40	-1.90	376,255.30	566,192.70	32.03426	-104.11973
- plan misses target center by 0.02usft at 21607.97usft MD (9519.16 TVD, 12254.40 N, -1.88 E)									
- Point									
Way South State Corr	0.00	0.00	9,520.00	12,384.40	-1.90	376,385.30	566,192.70	32.03462	-104.11973
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6729	6729	0	0	Start Build 2.00
6979	6979	-11	0	Start 1470.90 hold at 6979.10 MD
8450	8444	-139	0	Start Drop -2.00
8700	8694	-150	0	Start 176.28 hold at 8700.00 MD
8876	8870	-150	0	Start DLS 10.00 TFO 359.99
9773	9443	419	0	Start 11965.38 hold at 9772.59 MD
21,738	9520	12,384	-2	TD at 21737.97

Checked By: _____ Approved By: _____ Date: _____



COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Site: Sec. 31, T 28 S, R 28 E
Well: Way South State Com 702H
Wellbore: Wellbore #1
Plan: Plan #1 (Way South State Com 702H/Wellbore #1)
Noram 23

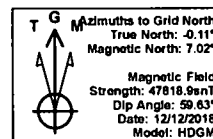
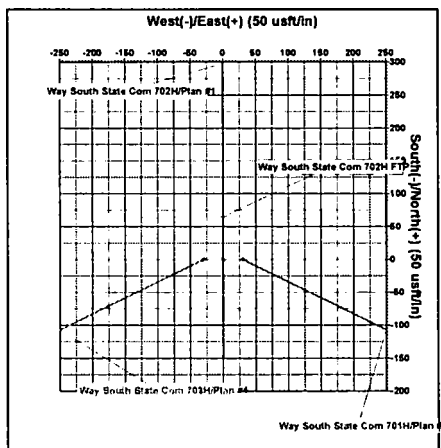
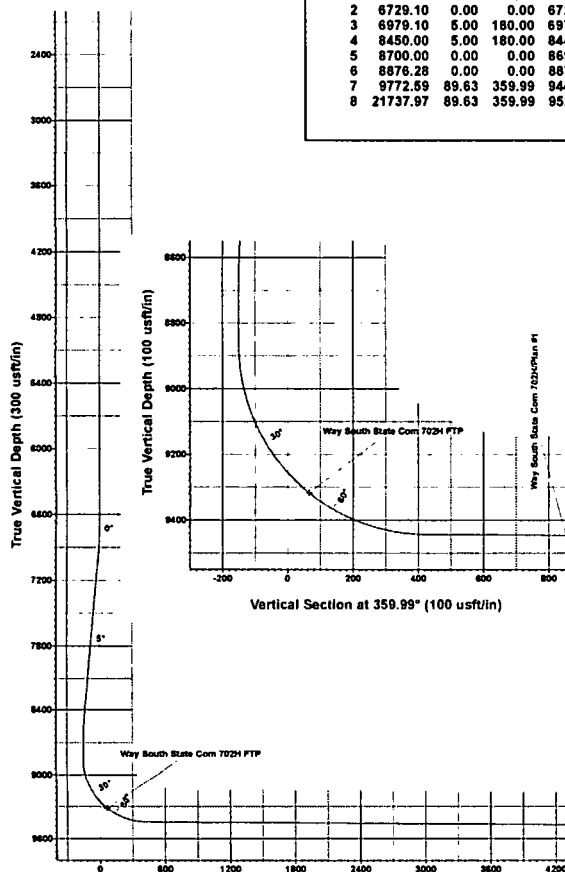
WELL DETAILS: Way South State Com 702H

Ground Elevation: 3081.00
RKB Elevation: KB=29' @ 3110.00usft (Noram 23)
Rig Name: Noram 23

Northing	Easting	Latitude	Longitude
364000.90	566194.60	32.00057	-104.11980

Planned Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
2	6729.10	0.00	0.00	6729.10	0.00	0.00	0.00	0.00	0.00	Start 1470.90 hold at 6979.10 MD
3	6979.10	5.00	180.00	6978.79	-10.90	0.00	2.00	180.00	-10.90	Start Drop -2.00
4	8450.00	5.00	180.00	8444.09	-139.10	0.00	0.00	0.00	-139.10	Start 176.28 hold at 8700.00 MD
5	8700.00	0.00	0.00	8693.77	-150.00	0.00	2.00	180.00	-150.00	Start DLS 10.00 TFO 359.99
6	8876.28	0.00	0.00	8870.05	-150.00	0.00	0.00	0.00	-150.00	Start 11965.38 hold at 9772.59 MD
7	9772.59	89.63	359.99	9443.00	419.27	-0.09	10.00	359.99	419.27	TD at 21737.97
8	21737.97	89.63	359.99	9520.00	12384.40	-1.90	0.00	0.00	12384.40	



PROJECT DETAILS: Eddy County, NM (NAD 27 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

