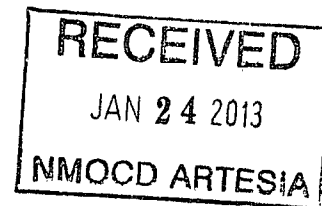




A GYRO TECHNOLOGIES INC. COMPANY

PO Box 261021
Corpus Christi, Texas 78426
(361) 767-0602 • (800) 606-GYRO • Fax (361) 767-0612

September 4, 2012



COG Operating LLC (Concho)
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

15-40131

Attn: Kanica Castillo

RE: Clydesdale 1 Fee No. 004H

Please find enclosed a copy of the survey from 0.00' to 3410.00' ran on the above referenced well.

If I can be of any further service please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations

Company: COG Operating, LLC (Concho)

Lease/Well: Clydesdale 1 Fee / No. 004H



Rig Name: JW4

State/County: New Mexico / Eddy

Latitude: 32.69

GRID North is 0.05 Degrees West of True North

VS-Azi: 0.00 Degrees



RKB : = 13'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...sdale 1 fee 4h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 9/4/2012 / 11:37

Vaughn Energy Services

Gardendale, Texas

432-563-5444

Surveyor: Chris Tallant

Clydesdale 1 Fee No. 004H / API 30-015-40131

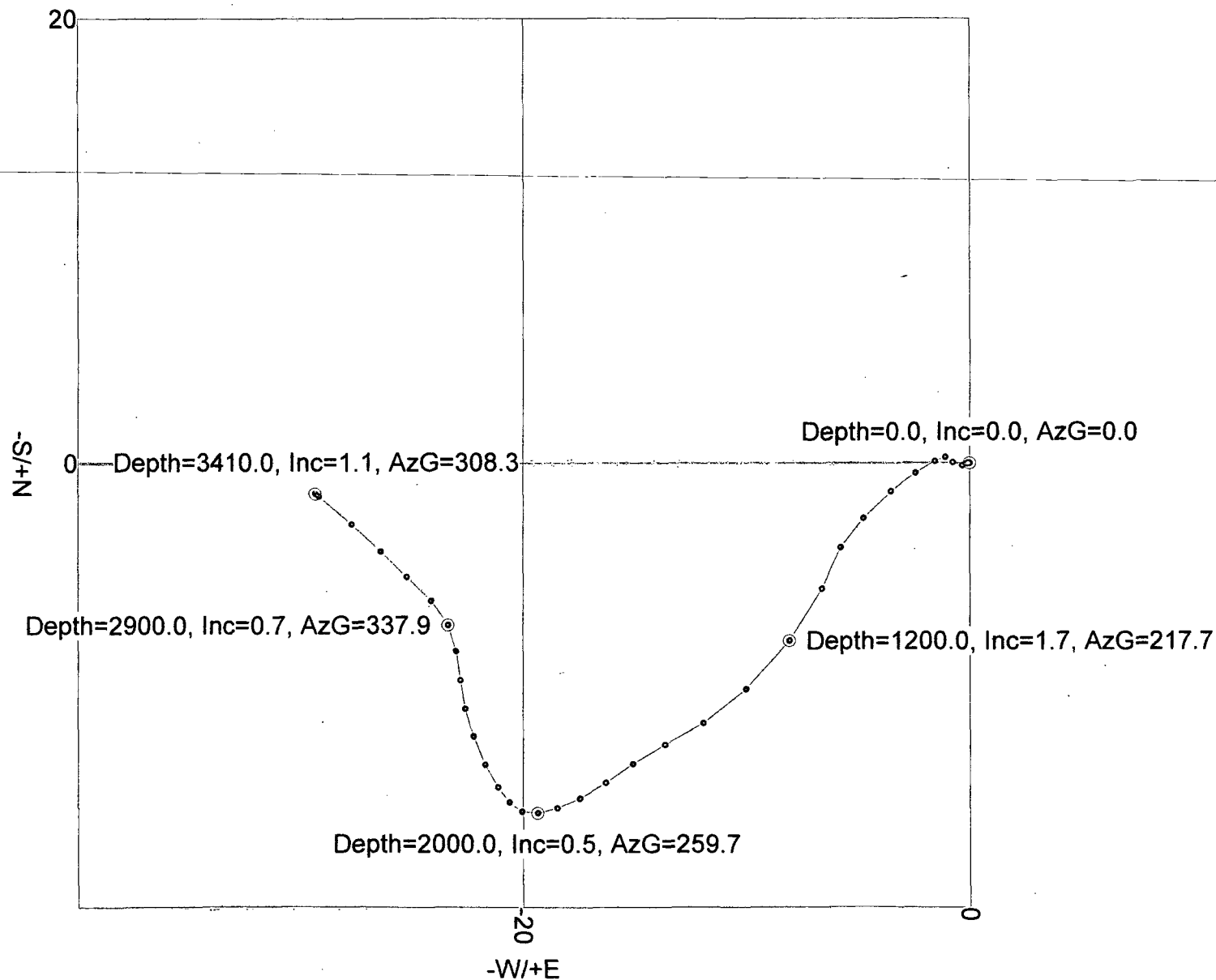


Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.10	275.59	100.00	0.01	-0.09	0.09	275.59	0.10
200.00	0.07	134.92	200.00	-0.02	-0.13	0.13	259.27	0.16
300.00	0.28	258.81	300.00	-0.11	-0.33	0.35	251.02	0.32
400.00	0.30	316.15	400.00	0.03	-0.75	0.75	272.17	0.28
500.00	0.18	288.35	500.00	0.27	-1.08	1.12	283.86	0.17
600.00	0.47	232.70	600.00	0.07	-1.56	1.56	272.56	0.39
700.00	0.69	243.50	699.99	-0.45	-2.42	2.46	259.55	0.25
800.00	0.91	225.08	799.98	-1.28	-3.52	3.75	250.09	0.33
900.00	1.06	226.61	899.97	-2.47	-4.76	5.36	242.53	0.16
1000.00	0.89	206.26	999.95	-3.80	-5.77	6.91	236.63	0.39
1100.00	1.46	203.62	1099.93	-5.66	-6.63	8.71	229.49	0.57
1200.00	1.73	217.75	1199.89	-8.02	-8.06	11.36	225.14	0.48
1300.00	1.62	226.01	1299.85	-10.19	-10.00	14.28	224.45	0.26
1400.00	1.20	238.72	1399.82	-11.72	-11.91	16.71	225.47	0.53
1500.00	1.06	242.24	1499.80	-12.69	-13.63	18.62	227.03	0.15
1600.00	0.86	234.10	1599.79	-13.57	-15.06	20.27	227.98	0.24
1700.00	0.83	236.58	1699.78	-14.41	-16.28	21.74	228.48	0.05
1800.00	0.71	241.85	1799.77	-15.10	-17.43	23.07	229.09	0.14

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.57	253.05	1899.76	-15.54	-18.46	24.13	229.90	0.19
2000.00	0.48	259.70	1999.76	-15.77	-19.35	24.96	230.83	0.11
2100.00	0.39	295.68	2099.75	-15.69	-20.07	25.48	231.98	0.28
2200.00	0.40	318.35	2199.75	-15.29	-20.61	25.66	233.43	0.15
2300.00	0.59	326.30	2299.75	-14.60	-21.12	25.68	235.35	0.20
2400.00	0.75	333.53	2399.74	-13.59	-21.70	25.60	237.95	0.19
2500.00	0.84	341.39	2499.73	-12.31	-22.23	25.41	241.03	0.14
2600.00	0.65	346.84	2599.72	-11.07	-22.59	25.15	243.90	0.20
2700.00	0.85	353.39	2699.71	-9.78	-22.80	24.81	246.79	0.22
2800.00	0.68	349.35	2799.70	-8.46	-23.00	24.50	249.81	0.18
2900.00	0.73	337.90	2899.70	-7.29	-23.35	24.46	252.67	0.15
3000.00	0.84	314.49	2999.69	-6.19	-24.11	24.89	255.61	0.34
3100.00	0.92	314.39	3099.68	-5.11	-25.20	25.72	258.54	0.08
3200.00	0.93	315.82	3199.66	-3.97	-26.34	26.64	261.44	0.02
3300.00	1.14	311.30	3299.65	-2.73	-27.65	27.79	264.36	0.22
3400.00	1.07	309.35	3399.63	-1.48	-29.12	29.16	267.08	0.07
3410.00	1.08	308.34	3409.63	-1.37	-29.27	29.30	267.33	0.19



Vaughn Energy Services
Gardendale, Texas
432-563-5444
Surveyor: Chris Tallant
Clydesdale 1 Fee No. 004H / API 30-015-40131



VES Survey Date: 08/29/2012



COG Operating LLC

Eddy County, NM

Clydesdale 1 Fee 4H

Clydesdale 1 Fee 4H

Wellbore #1

Survey: MWD Surveys

Standard Survey Report

06 September, 2012



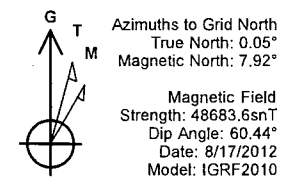
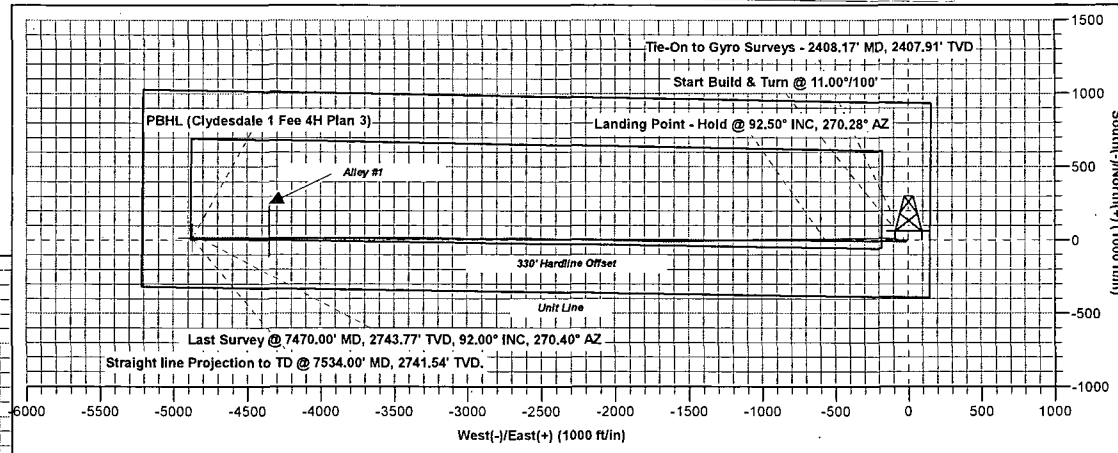
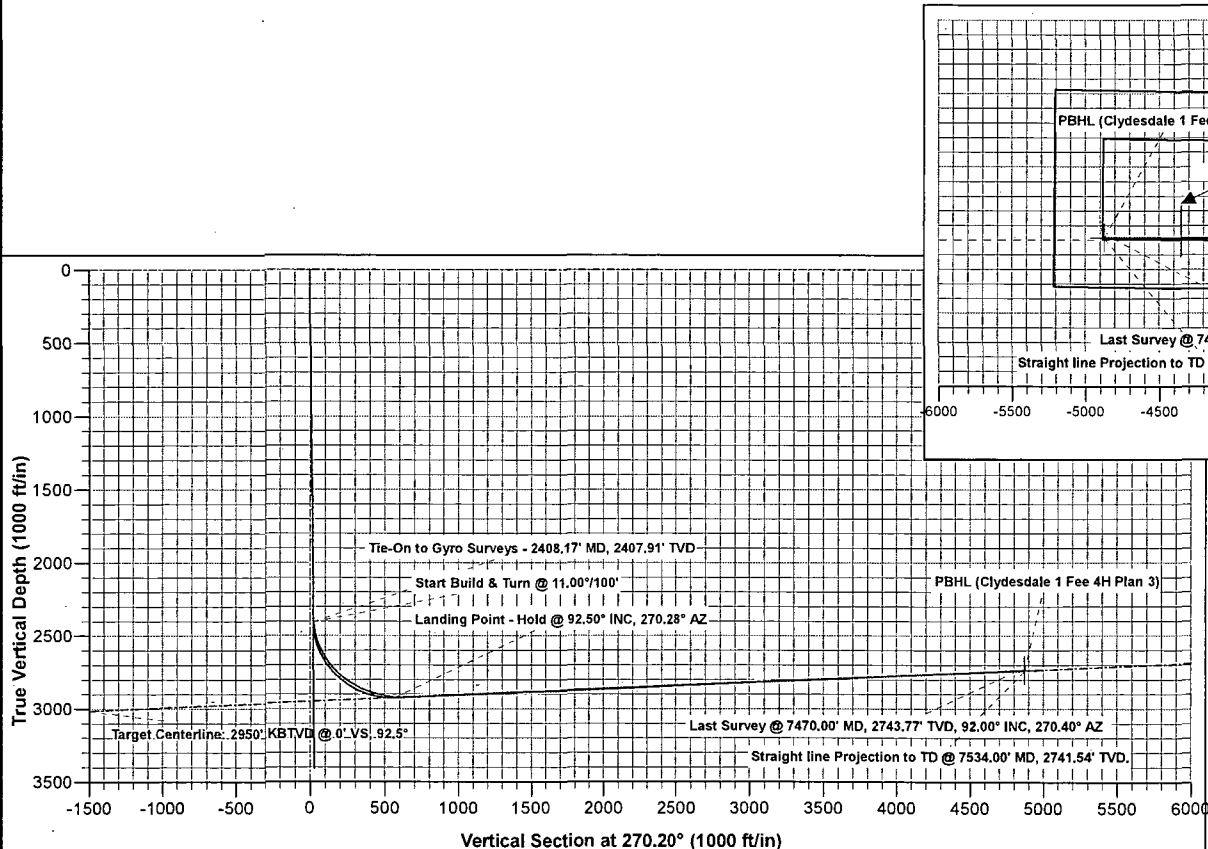
COG Operating LLC
Clydesdale 1 Fee 4H
Eddy County, NM
Plan #3



Surface Location		Ground Elev: 3410.00 WELL @ 3423.00ft (JW #4)			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	614960.50	470388.00	32.690585	-104.429589

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude
PBHL (Clydesdale 1 Fee 4H Plan 3)	2736.80	16.78	-4872.24	614977.28	465515.76	32.690618

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	2408.17	0.76	334.24	2407.91	-13.49	-21.72	0.00	0.00	21.68	
2	3246.10	92.50	270.28	2925.22	-4.40	-565.31	11.00	-63.93	565.29	
3	7557.20	92.50	270.28	2736.80	16.78	-4872.24	0.00	0.00	4872.27	PBHL (Clydesdale 1 Fee 4H Plan 3)



Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Clydesdale 1 Fee 4H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3423.00ft (JW #4)
Site:	Clydesdale 1 Fee 4H	MD Reference:	WELL @ 3423.00ft (JW #4)
Well:	Clydesdale 1 Fee 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Houston R5000 Database

Project:	Eddy County, NM	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Clydesdale 1 Fee 4H				
Site Position:		Northing:	614,960.50 ft	Latitude:	32.690585
From:	Map	Easting:	470,388.00 ft	Longitude:	-104.429589
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.05 °

Well		Clydesdale 1 Fee 4H				
Well Position	+N/-S	0.00 ft	Northing:	614,960.50 ft	Latitude:	32.690585
	+E/-W	0.00 ft	Easting:	470,388.00 ft	Longitude:	-104.429589
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,410.00 ft

Wellbore:	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/17/2012	7.87	60.44	48,684

Design:	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00		267.36

Survey Program	Date	9/6/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	2,300.00	Gyro Surveys (Wellbore #1)	MWD	MWD - Standard	
2,337.00	7,534.00	MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,300.00	0.59	326.30	2,299.75	-14.60	-21.10	21.75	0.00	0.00	0.00
2,337.00	0.70	325.40	2,336.74	-14.25	-21.33	21.97	0.30	0.30	-2.43
2,368.00	2.50	296.20	2,367.73	-13.80	-22.05	22.66	6.19	5.81	-94.19
2,399.00	4.90	289.20	2,398.66	-13.07	-23.91	24.48	7.86	7.74	-22.58
2,431.00	7.60	289.50	2,430.47	-11.91	-27.19	27.71	8.44	8.44	0.94
2,462.00	10.70	289.20	2,461.07	-10.28	-31.84	32.28	10.00	10.00	-0.97
2,493.00	13.90	287.60	2,491.36	-8.21	-38.11	38.45	10.38	10.32	-5.16
2,524.00	17.10	285.10	2,521.23	-5.89	-46.06	46.29	10.54	10.32	-8.06
2,555.00	20.10	283.00	2,550.60	-3.51	-55.66	55.76	9.91	9.68	-6.77
2,587.00	22.90	281.10	2,580.38	-1.07	-67.13	67.10	9.02	8.75	-5.94

Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site: Clydesdale 1 Fee 4H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3423.00ft (JW #4)
Site:	Clydesdale 1 Fee 4H	MD Reference:	WELL @ 3423.00ft (JW #4)
Well:	Clydesdale 1 Fee 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Houston R5000 Database

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,618.00	26.00	279.20	2,608.59	1.18	-79.75	79.62	10.32	10.00	-6.13
2,649.00	29.70	278.10	2,636.00	3.35	-94.07	93.82	12.05	11.94	-3.55
2,680.00	33.40	277.40	2,662.41	5.53	-110.14	109.77	11.99	11.94	-2.26
2,711.00	36.80	276.50	2,687.77	7.68	-127.83	127.34	11.09	10.97	-2.90
2,742.00	40.10	274.80	2,712.04	9.57	-147.01	146.42	11.18	10.65	-5.48
2,773.00	43.60	272.60	2,735.13	10.89	-167.65	166.97	12.24	11.29	-7.10
2,804.00	47.20	270.70	2,756.90	11.51	-189.71	188.97	12.40	11.61	-6.13
2,835.00	49.80	268.80	2,777.44	11.40	-212.92	212.17	9.56	8.39	-6.13
2,867.00	52.30	268.60	2,797.55	10.84	-237.80	237.05	7.83	7.81	-0.63
2,898.00	54.70	268.80	2,815.99	10.27	-262.71	261.96	7.76	7.74	0.65
2,930.00	58.10	268.80	2,833.70	9.71	-289.35	288.60	10.63	10.63	0.00
2,961.00	61.60	269.00	2,849.27	9.20	-316.15	315.39	11.30	11.29	0.65
2,992.00	64.80	269.10	2,863.24	8.74	-343.81	343.05	10.33	10.32	0.32
3,023.00	67.40	269.30	2,875.80	8.35	-372.15	371.37	8.41	8.39	0.65
3,054.00	70.70	269.30	2,886.88	7.99	-401.09	400.30	10.65	10.65	0.00
3,085.00	74.10	269.70	2,896.25	7.74	-430.64	429.82	11.04	10.97	1.29
3,117.00	76.90	269.50	2,904.27	7.52	-461.61	460.78	8.77	8.75	-0.63
3,148.00	79.20	269.30	2,910.68	7.20	-491.94	491.09	7.45	7.42	-0.65
3,179.00	81.50	268.80	2,915.88	6.70	-522.49	521.63	7.59	7.42	-1.61
3,210.00	84.10	268.80	2,919.77	6.05	-553.24	552.37	8.39	8.39	0.00
3,241.00	87.10	269.00	2,922.14	5.46	-584.14	583.27	9.70	9.68	0.65
3,272.00	90.60	269.50	2,922.77	5.05	-615.12	614.24	11.40	11.29	1.61
3,303.00	92.20	269.80	2,922.01	4.86	-646.11	645.21	5.25	5.16	0.97
3,397.00	93.40	269.70	2,917.42	4.45	-740.00	739.01	1.28	1.28	-0.11
3,490.00	92.40	269.70	2,912.71	3.97	-832.88	831.81	1.08	-1.08	0.00
3,584.00	93.10	269.50	2,908.20	3.31	-926.77	925.63	0.77	0.74	-0.21
3,677.00	92.60	269.00	2,903.58	2.10	-1,019.64	1,018.47	0.76	-0.54	-0.54
3,771.00	92.70	268.60	2,899.23	0.13	-1,113.52	1,112.34	0.44	0.11	-0.43
3,865.00	92.90	268.40	2,894.64	-2.33	-1,207.38	1,206.21	0.30	0.21	-0.21
3,958.00	92.00	268.40	2,890.66	-4.92	-1,300.25	1,299.10	0.97	-0.97	0.00
4,052.00	92.60	268.40	2,886.89	-7.54	-1,394.14	1,393.01	0.64	0.64	0.00
4,146.00	91.50	269.00	2,883.53	-9.68	-1,488.05	1,486.92	1.33	-1.17	0.64
4,239.00	90.80	269.70	2,881.66	-10.73	-1,581.03	1,579.85	1.06	-0.75	0.75
4,332.00	91.30	270.40	2,879.96	-10.65	-1,674.01	1,672.73	0.92	0.54	0.75
4,426.00	91.10	271.20	2,877.99	-9.34	-1,767.98	1,766.54	0.88	-0.21	0.85
4,519.00	92.40	271.80	2,875.15	-6.90	-1,860.90	1,859.25	1.54	1.40	0.65
4,613.00	92.70	271.20	2,870.97	-4.45	-1,954.78	1,952.91	0.71	0.32	-0.64
4,706.00	92.70	271.10	2,866.59	-2.58	-2,047.66	2,045.61	0.11	0.00	-0.11
4,800.00	92.70	271.40	2,862.16	-0.53	-2,141.53	2,139.29	0.32	0.00	0.32
4,893.00	92.70	271.40	2,857.78	1.74	-2,234.40	2,231.95	0.00	0.00	0.00
4,987.00	92.90	271.60	2,853.19	4.19	-2,328.25	2,325.60	0.30	0.21	0.21
5,080.00	93.10	271.60	2,848.32	6.79	-2,421.09	2,418.22	0.22	0.22	0.00
5,174.00	93.10	271.80	2,843.23	9.57	-2,514.91	2,511.81	0.21	0.00	0.21

Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site/Clydesdale 1 Fee 4H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3423.00ft (JW #4)
Site:	Clydesdale 1 Fee 4H	MD Reference:	WELL @ 3423.00ft (JW #4)
Well:	Clydesdale 1 Fee 4H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey/Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Houston R5000 Database

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,268.00	92.90	270.40	2,838.31	11.37	-2,608.76	2,605.48	1.50	-0.21	-1.49
5,361.00	92.60	269.30	2,833.85	11.13	-2,701.65	2,698.28	1.22	-0.32	-1.18
5,455.00	92.40	269.30	2,829.75	9.98	-2,795.56	2,792.14	0.21	-0.21	0.00
5,548.00	92.20	269.80	2,826.02	9.25	-2,888.48	2,885.00	0.58	-0.22	0.54
5,642.00	91.80	270.40	2,822.74	9.42	-2,982.42	2,978.83	0.77	-0.43	0.64
5,735.00	92.20	271.10	2,819.49	10.63	-3,075.36	3,071.61	0.87	0.43	0.75
5,829.00	92.70	270.70	2,815.48	12.11	-3,169.26	3,165.35	0.68	0.53	-0.43
5,922.00	92.70	270.70	2,811.09	13.24	-3,262.15	3,258.09	0.00	0.00	0.00
6,016.00	92.40	270.50	2,806.91	14.23	-3,356.05	3,351.84	0.38	-0.32	-0.21
6,110.00	92.00	270.70	2,803.30	15.21	-3,449.97	3,445.62	0.48	-0.43	0.21
6,203.00	92.70	270.50	2,799.49	16.18	-3,542.89	3,538.40	0.78	0.75	-0.22
6,296.00	92.90	269.70	2,794.95	16.35	-3,635.78	3,631.18	0.89	0.22	-0.86
6,390.00	93.10	269.10	2,790.03	15.36	-3,729.64	3,724.99	0.67	0.21	-0.64
6,483.00	93.30	269.10	2,784.84	13.90	-3,822.49	3,817.80	0.22	0.22	0.00
6,577.00	93.30	268.80	2,779.43	12.19	-3,916.32	3,911.61	0.32	0.00	-0.32
6,671.00	93.10	268.60	2,774.18	10.06	-4,010.15	4,005.44	0.30	-0.21	-0.21
6,764.00	93.40	268.80	2,768.91	7.95	-4,102.97	4,098.26	0.39	0.32	0.22
6,858.00	92.20	269.10	2,764.31	6.23	-4,196.84	4,192.11	1.32	-1.28	0.32
6,952.00	91.50	269.30	2,761.28	4.92	-4,290.78	4,286.02	0.77	-0.74	0.21
7,046.00	91.30	269.70	2,758.98	4.10	-4,384.75	4,379.92	0.48	-0.21	0.43
7,139.00	92.00	271.20	2,756.30	4.83	-4,477.71	4,472.75	1.78	0.75	1.61
7,233.00	92.40	271.10	2,752.70	6.71	-4,571.62	4,566.47	0.44	0.43	-0.11
7,326.00	92.20	270.90	2,748.96	8.33	-4,664.53	4,659.21	0.30	-0.22	-0.22
7,421.00	92.00	270.50	2,745.48	9.49	-4,759.46	4,753.98	0.47	-0.21	-0.42
7,470.00	92.00	270.40	2,743.77	9.88	-4,808.43	4,802.88	0.20	0.00	-0.20
Last Survey @ 7470.00' MD, 2743.77' TVD, 92.00° INC, 270.40° AZ									
7,534.00	92.00	270.40	2,741.54	10.32	-4,872.39	4,866.75	0.00	0.00	0.00
Straight line Projection to TD @ 7534.00' MD, 2741.54' TVD									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,470.00	2,743.77	9.88	-4,808.43	Last Survey @ 7470.00' MD, 2743.77' TVD, 92.00° INC, 270.40° AZ
7,534.00	2,741.54	10.32	-4,872.39	Straight line Projection to TD @ 7534.00' MD, 2741.54' TVD

Checked By: _____	Approved By: _____	Date: _____
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