



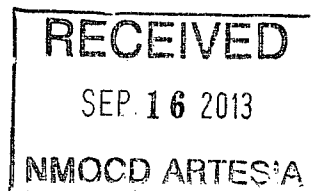
A GYRO TECHNOLOGIES INC. COMPANY

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

30-015-40973

February 21, 2013

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



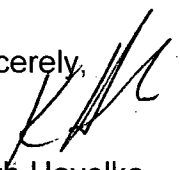
Attn: Kanicia Castillo

Re: **Burch Keely Unit No 965H**

Please find enclosed a copy of the survey from 0' to 4,265' ran on the above referenced well.

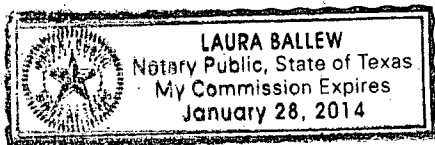
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 21st day of February A.D., 2013, by Keith Havelka.





Laura Ballew
Notary Public, State of Texas



Company: COG Operating LLC (Concho)
 Lease/Well: Burch Keely Unit/No 965H
 Location: S19 T17s R30e
 Rig Name: UDI 40
 State/County: New Mexico/Eddy
 Latitude: 32.82, Longitude: -104.00
 GRID North is 0.18 Degrees East of True North
 VS-Azi: 0.00 Degrees



RKB : 14 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: bku #965h gyro survey.ut

Minimum Curvature Method

Report Date/Time: 2/21/2013 / 09:54

Vaughn Energy Services

(432) 563-5444

Gardendale, TX

Surveyor: Dustin Wedel

Burch Keely Unit No 965H / API 30-015-40973

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	0.43	196.67	100.00	-0.36	-0.11	0.38	196.67	0.43
200.00	0.55	195.44	200.00	-1.18	-0.34	1.23	196.19	0.12
300.00	1.31	187.34	299.98	-2.77	-0.62	2.84	192.53	0.77
400.00	1.92	178.22	399.94	-5.58	-0.71	5.62	187.25	0.67
500.00	1.59	163.98	499.89	-8.59	-0.27	8.60	181.82	0.55
600.00	1.53	163.51	599.86	-11.21	0.49	11.22	177.50	0.06
700.00	1.30	141.12	699.83	-13.38	1.58	13.47	173.25	0.59
800.00	0.54	123.00	799.81	-14.52	2.69	14.77	169.49	0.81
900.00	0.58	100.30	899.81	-14.87	3.59	15.30	166.44	0.22
1000.00	0.70	105.99	999.80	-15.13	4.67	15.84	162.84	0.14
1100.00	0.77	106.53	1099.79	-15.49	5.91	16.58	159.13	0.07
1200.00	0.69	91.79	1199.79	-15.70	7.15	17.25	155.51	0.20
1300.00	0.54	91.68	1299.78	-15.73	8.23	17.75	152.40	0.14
1400.00	0.59	80.44	1399.78	-15.66	9.21	18.17	149.54	0.12
1500.00	0.35	50.95	1499.77	-15.39	9.95	18.32	147.10	0.34
1600.00	0.17	51.72	1599.77	-15.10	10.30	18.28	145.70	0.18
1700.00	0.41	26.90	1699.77	-14.70	10.58	18.11	144.26	0.27
1800.00	0.51	8.90	1799.77	-13.94	10.81	17.64	142.21	0.17

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	0.56	341.60	1899.76	-13.04	10.72	16.88	140.57	0.26
2000.00	0.72	329.74	1999.76	-12.03	10.25	15.81	139.57	0.21
2100.00	1.10	353.34	2099.74	-10.54	9.82	14.41	137.00	0.53
2200.00	0.58	359.09	2199.73	-9.08	9.70	13.29	133.10	0.53
2300.00	0.94	329.12	2299.73	-7.87	9.27	12.17	130.33	0.53
2400.00	0.46	319.50	2399.72	-6.86	8.59	11.00	128.62	0.50
2500.00	0.55	328.82	2499.71	-6.15	8.08	10.16	127.25	0.13
2600.00	0.39	352.20	2599.71	-5.39	7.79	9.47	124.71	0.25
2700.00	0.35	317.08	2699.71	-4.83	7.53	8.95	122.68	0.23
2800.00	0.65	298.88	2799.70	-4.34	6.83	8.09	122.40	0.33
2900.00	0.78	315.72	2899.70	-3.58	5.86	6.87	121.38	0.25
3000.00	0.25	356.71	2999.69	-2.87	5.37	6.09	118.10	0.62
3100.00	0.16	303.57	3099.69	-2.58	5.25	5.85	116.15	0.20
3200.00	0.12	291.42	3199.69	-2.46	5.03	5.60	116.06	0.04
3300.00	0.18	300.24	3299.69	-2.34	4.80	5.34	116.04	0.06
3400.00	0.08	348.49	3399.69	-2.20	4.65	5.15	115.31	0.14
3500.00	0.16	350.38	3499.69	-1.99	4.61	5.03	113.37	0.08
3600.00	0.09	338.69	3599.69	-1.78	4.56	4.90	111.30	0.07
3700.00	0.07	352.30	3699.69	-1.64	4.52	4.81	109.92	0.03
3800.00	0.16	20.15	3799.69	-1.44	4.56	4.79	107.56	0.10
3900.00	0.07	69.98	3899.69	-1.29	4.67	4.84	105.45	0.13
4000.00	0.31	359.14	3999.69	-1.00	4.72	4.83	101.99	0.29
4100.00	0.10	90.80	4099.69	-0.74	4.81	4.86	98.72	0.33
4200.00	0.60	327.15	4199.69	-0.30	4.61	4.62	93.71	0.66
4265.00	0.27	3.05	4264.69	0.14	4.44	4.44	88.20	0.63



COG Operating, LLC

Eddy County(NM27E)

Sec.19-T17S-R30E

Burch Keely Unit #965H

Wellbore #1

Survey: Survey #2-Archer MWD

Standard Survey Report

23 February, 2013

Archer



Archer
Survey Report

Archer

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Burch Keely Unit #965H
Project:	Eddy County(NM27E)	TVD Reference:	WELL @ 3639.00usft (Original Well Elev)
Site:	Sec.19-T17S-R30E	MD Reference:	WELL @ 3639.00usft (Original Well Elev)
Well:	Burch Keely Unit #965H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County(NM27E)		
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.19-T17S-R30E		
Site Position:		Northing:	662,445.100 usft
From:	Map	Easting:	601,220.700 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 49' 14.575 N
		Longitude:	104° 0' 13.830 W
		Grid Convergence:	0.18 °

Well	Burch Keely Unit #965H		
Well Position	+N/-S	0.00 usft	Northing: 662,445.100 usft
	+E/-W	0.00 usft	Easting: 601,220.700 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 49' 14.575 N
		Longitude:	104° 0' 13.830 W
		Ground Level:	3,622.00 usft

Wellbore:	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2013/02/14	7.63
			Dip Angle (°)
			60.62
			Field Strength (nT)
			48,759

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (°)
			87.85

Survey Program	Date: 2013/02/23		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.00	4,265.00	Survey #1-VES Gyro (Wellbore #1)	GYD_DP_MS
4,309.00	9,006.00	Survey #2-Archer MWD (Wellbore #1)	MWD
			Description
			Gyrodata gyro-compassing and drop
			MWD - Standard

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)
Tie-In									
4,265.00	0.27	3.05	4,264.69	0.17	4.42	4.42	0.00	0.00	0.00
First Archer Survey									
4,309.00	0.40	342.20	4,308.68	0.42	4.38	4.39	0.40	0.30	-47.39
4,341.00	0.40	317.80	4,340.68	0.61	4.27	4.29	0.53	0.00	-76.25
4,372.00	0.90	293.70	4,371.68	0.78	3.97	4.00	1.80	1.61	-77.74
4,404.00	3.30	285.70	4,403.66	1.13	2.86	2.90	7.54	7.50	-25.00
4,436.00	6.20	283.80	4,435.55	1.79	0.29	0.36	9.07	9.06	-5.94
4,468.00	9.30	284.60	4,467.25	2.86	-3.89	-3.78	9.69	9.69	2.50
4,499.00	12.40	283.80	4,497.69	4.28	-9.55	-9.38	10.01	10.00	-2.58
4,531.00	15.50	281.60	4,528.74	5.96	-17.07	-16.84	9.83	9.69	-6.87
4,563.00	19.10	280.30	4,559.29	7.76	-26.42	-26.11	11.31	11.25	-4.06

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Burch Keely Unit #965H
Project:	Eddy County(NM27E)	TVD Reference:	WELL @ 3639.00usft (Original Well Elev)
Site:	Sec.19-T17S-R30E	MD Reference:	WELL @ 3639.00usft (Original Well Elev)
Well:	Burch Keely Unit #965H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db.

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)
4,595.00	22.50	279.60	4,589.20	9.72	-37.61	-37.22	10.65	10.62	-2.19
4,626.00	25.90	277.40	4,617.47	11.58	-50.18	-49.70	11.35	10.97	-7.10
4,658.00	29.20	276.30	4,645.84	13.34	-64.87	-64.32	10.43	10.31	-3.44
4,690.00	32.70	276.10	4,673.28	15.11	-81.23	-80.60	10.94	10.94	-0.62
4,721.00	36.00	276.10	4,698.87	16.97	-98.62	-97.91	10.65	10.65	0.00
4,753.00	38.90	276.10	4,724.27	19.04	-117.96	-117.17	9.06	9.06	0.00
4,785.00	42.10	276.00	4,748.60	21.23	-138.63	-137.73	10.00	10.00	-0.31
4,816.00	45.40	276.20	4,770.99	23.51	-159.94	-158.94	10.65	10.65	0.65
4,848.00	48.60	276.20	4,792.81	26.03	-183.20	-182.10	10.00	10.00	0.00
4,880.00	51.50	276.00	4,813.36	28.64	-207.59	-206.37	9.08	9.06	-0.62
4,912.00	54.80	275.90	4,832.55	31.29	-233.06	-231.72	10.32	10.31	-0.31
4,943.00	57.80	275.60	4,849.75	33.88	-258.72	-257.26	9.71	9.68	-0.97
4,975.00	60.40	274.80	4,866.18	36.36	-286.06	-284.49	8.40	8.12	-2.50
5,007.00	63.60	274.00	4,881.20	38.53	-314.23	-312.56	10.24	10.00	-2.50
5,038.00	66.70	274.40	4,894.23	40.59	-342.28	-340.51	10.07	10.00	1.29
5,070.00	69.30	275.20	4,906.21	43.07	-371.84	-369.96	8.45	8.12	2.50
5,102.00	72.00	274.80	4,916.81	45.70	-401.91	-399.91	8.52	8.44	-1.25
5,134.00	75.60	273.80	4,925.74	48.00	-432.55	-430.44	11.64	11.25	-3.12
5,165.00	79.10	273.60	4,932.53	49.95	-462.73	-460.53	11.31	11.29	-0.65
5,197.00	82.00	274.20	4,937.78	52.10	-494.22	-491.91	9.25	9.06	1.87
5,229.00	84.40	274.70	4,941.57	54.57	-525.90	-523.48	7.66	7.50	1.56
5,260.00	86.60	274.20	4,944.00	56.97	-556.71	-554.17	7.28	7.10	-1.61
5,292.00	88.30	274.50	4,945.43	59.39	-588.58	-585.94	5.39	5.31	0.94
5,324.00	88.60	274.50	4,946.29	61.90	-620.47	-617.71	0.94	0.94	0.00
5,419.00	90.20	274.20	4,947.29	69.10	-715.19	-712.09	1.71	1.68	-0.32
5,514.00	90.70	274.00	4,946.54	75.90	-809.94	-806.52	0.57	0.53	-0.21
5,609.00	90.30	272.60	4,945.71	81.37	-904.78	-901.08	1.53	-0.42	-1.47
5,704.00	91.00	272.40	4,944.63	85.51	-999.68	-995.76	0.77	0.74	-0.21
5,800.00	90.60	271.80	4,943.29	89.03	-1,095.61	-1,091.49	0.75	-0.42	-0.62
5,895.00	91.00	271.80	4,941.97	92.01	-1,190.55	-1,186.25	0.42	0.42	0.00
5,990.00	91.40	270.50	4,939.98	93.92	-1,285.51	-1,281.07	1.43	0.42	-1.37
6,085.00	91.40	270.20	4,937.66	94.50	-1,380.48	-1,375.95	0.32	0.00	-0.32
6,180.00	92.20	270.40	4,934.67	94.99	-1,475.43	-1,470.82	0.87	0.84	0.21
6,275.00	91.40	269.50	4,931.69	94.91	-1,570.38	-1,565.71	1.27	-0.84	-0.95
6,371.00	91.60	269.20	4,929.17	93.82	-1,666.34	-1,661.64	0.38	0.21	-0.31
6,466.00	92.70	269.20	4,925.61	92.50	-1,761.26	-1,756.55	1.16	1.16	0.00
6,561.00	91.90	269.30	4,921.80	91.25	-1,856.18	-1,851.44	0.85	-0.84	0.11
6,656.00	90.70	268.90	4,919.64	89.76	-1,951.14	-1,946.39	1.33	-1.26	-0.42
6,751.00	90.60	268.90	4,918.57	87.94	-2,046.12	-2,041.37	0.11	-0.11	0.00
6,846.00	89.60	268.80	4,918.40	86.03	-2,141.10	-2,136.35	1.06	-1.05	-0.11
6,942.00	89.90	268.90	4,918.82	84.10	-2,237.08	-2,232.34	0.33	0.31	0.10
7,037.00	90.50	269.60	4,918.49	82.86	-2,332.07	-2,327.31	0.97	0.63	0.74
7,132.00	90.80	269.40	4,917.41	82.03	-2,427.06	-2,422.26	0.38	0.32	-0.21
7,227.00	90.50	269.10	4,916.33	80.79	-2,522.04	-2,517.23	0.45	-0.32	-0.32
7,322.00	90.40	268.90	4,915.59	79.13	-2,617.03	-2,612.20	0.24	-0.11	-0.21
7,417.00	90.20	268.60	4,915.09	77.06	-2,712.00	-2,707.19	0.38	-0.21	-0.32
7,512.00	88.50	269.60	4,916.17	75.57	-2,806.98	-2,802.16	2.08	-1.79	1.05
7,608.00	89.10	271.80	4,918.18	76.74	-2,902.94	-2,898.01	2.37	0.62	2.29
7,703.00	90.00	270.90	4,918.92	78.98	-2,997.91	-2,992.83	1.34	0.95	-0.95
7,798.00	90.80	269.50	4,918.26	79.31	-3,092.91	-3,087.74	1.70	0.84	-1.47
7,893.00	90.90	268.90	4,916.85	77.98	-3,187.89	-3,182.71	0.64	0.11	-0.63
7,988.00	91.30	268.20	4,915.03	75.58	-3,282.84	-3,277.68	0.85	0.42	-0.74
8,083.00	91.30	267.90	4,912.87	72.35	-3,377.76	-3,372.66	0.32	0.00	-0.32
8,179.00	91.60	267.30	4,910.44	68.33	-3,473.64	-3,468.62	0.70	0.31	-0.62

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Burch Keely Unit #965H
Project:	Eddy County(NM27E)	TVD Reference:	WELL @ 3639.00usft (Original Well Elev)
Site:	Sec.19-T17S-R30E	MD Reference:	WELL @ 3639.00usft (Original Well Elev)
Well:	Burch Keely Unit #965H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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)
8,274.00	91.70	266.70	4,907.71	63.36	-3,568.47	-3,563.57	0.64	0.11	-0.63
8,369.00	91.70	266.60	4,904.89	57.81	-3,663.27	-3,658.51	0.11	0.00	-0.11
8,464.00	91.80	266.30	4,901.99	51.93	-3,758.04	-3,753.44	0.33	0.11	-0.32
8,559.00	90.90	266.70	4,899.75	46.13	-3,852.84	-3,848.38	1.04	-0.95	0.42
8,654.00	90.60	268.50	4,898.50	42.15	-3,947.74	-3,943.37	1.92	-0.32	1.89
8,749.00	90.90	268.80	4,897.26	39.92	-4,042.71	-4,038.35	0.45	0.32	0.32
8,844.00	91.30	269.30	4,895.44	38.34	-4,137.68	-4,133.31	0.67	0.42	0.53
Last Archer Survey									
8,940.00	91.50	268.90	4,893.09	36.83	-4,233.64	-4,229.26	0.47	0.21	-0.42
PTB									
9,006.00	91.50	268.90	4,891.36	35.57	-4,299.60	-4,295.23	0.00	0.00	0.00

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,265.00	4,264.69	0.17	4.42	Tie-In
4,309.00	4,308.68	0.42	4.38	First Archer Survey
8,940.00	4,893.09	36.83	-4,233.64	Last Archer Survey
9,006.00	4,891.36	35.57	-4,299.60	PTB

Checked By: _____	Approved By: _____	Date: _____
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