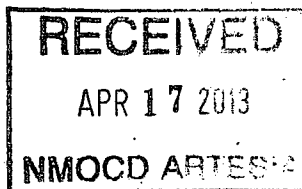




A GYRO TECHNOLOGIES INC. COMPANY

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



December 19, 2012

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

30-015-40789

Attn: Kanicia Castillo

Re: **Buena Vista 2 State No 001H**

Please find enclosed a copy of the survey from 0' to 3,760' ran on the above referenced well.

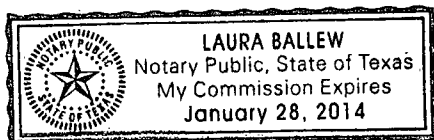
If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 19th day of December A.D., 2012, by Keith Havelka.



Laura Balley
Notary Public, State of Texas

Company: COG Operating LLC (Concho)

Lease/Well: Buena Vista 2 State/No 001H



Rig Name: Patriot #6

State/County: New Mexico/Eddy

Latitude: 32.60, Longitude: -103.81

GRID North is 0.28 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB=17Ft

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: buena vista 2 state 1h_ed.ut

Minimum Curvature Method

Report Date/Time: 12/19/2012 / 09:29

Vaughn Energy Services

Fort Worth, Texas

Office 817-741-3610

Surveyor: Troy Hardin

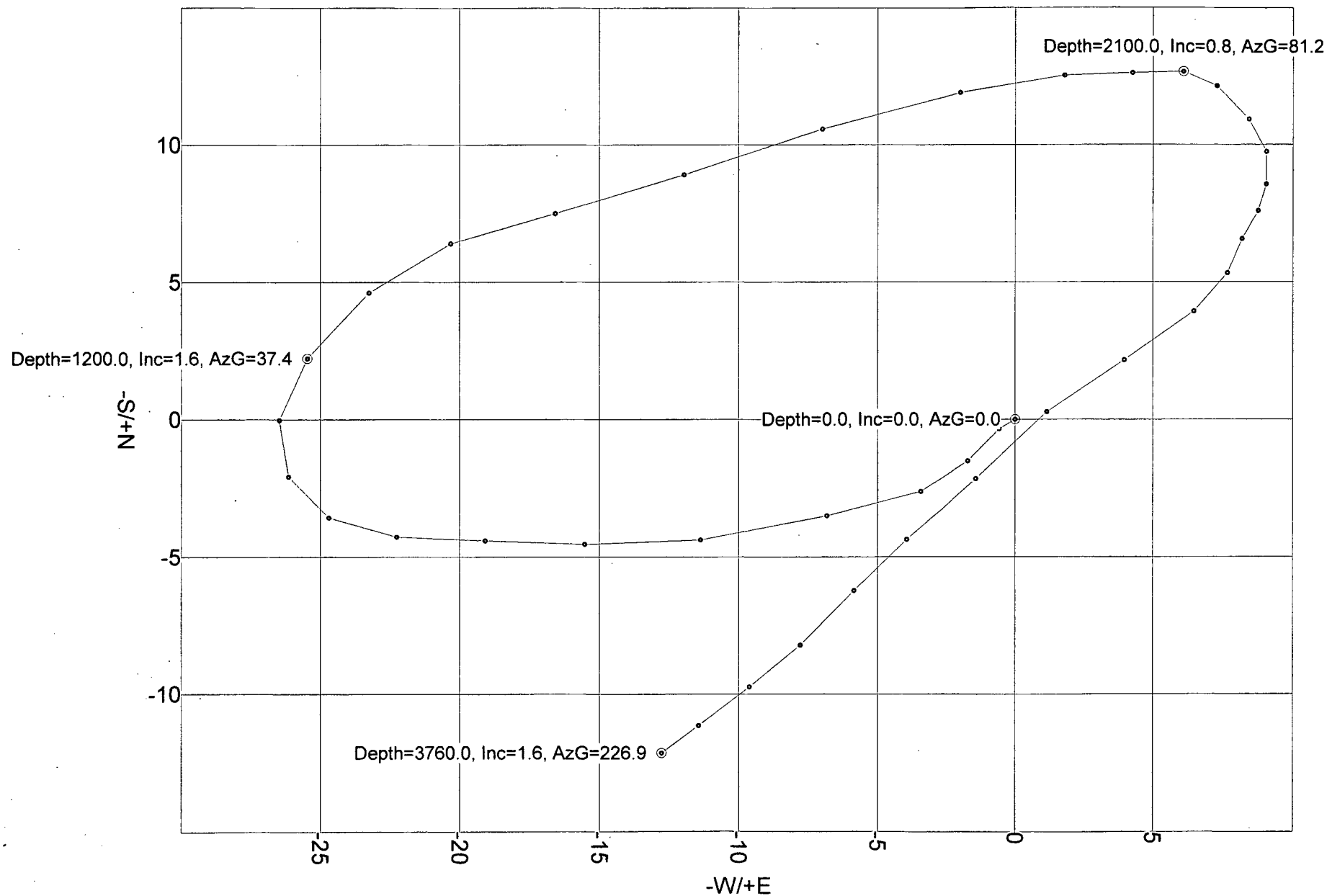
Buena Vista 2 State No 001H / API 30-015-40789

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section 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	0.00	****
100.00	0.78	239.48	100.00	-0.34	-0.58	-0.34	0.68	239.48	0.78
200.00	1.14	214.70	199.98	-1.51	-1.74	-1.51	2.30	228.99	0.55
300.00	1.35	255.82	299.96	-2.62	-3.45	-2.62	4.33	232.76	0.90
400.00	2.65	255.03	399.90	-3.50	-6.82	-3.50	7.67	242.80	1.30
500.00	2.68	263.18	499.79	-4.38	-11.37	-4.38	12.18	248.94	0.38
600.00	2.11	273.61	599.70	-4.54	-15.53	-4.54	16.18	253.70	0.71
700.00	1.97	270.58	699.64	-4.41	-19.09	-4.41	19.59	257.00	0.18
800.00	1.68	274.85	799.59	-4.27	-22.26	-4.27	22.67	259.15	0.32
900.00	1.29	300.60	899.56	-3.57	-24.69	-3.57	24.95	261.77	0.76
1000.00	1.19	332.02	999.53	-2.08	-26.14	-2.08	26.23	265.45	0.68
1100.00	1.32	8.15	1099.51	-0.02	-26.47	-0.02	26.47	269.96	0.79
1200.00	1.58	37.44	1199.48	2.22	-25.47	2.22	25.56	274.98	0.78
1300.00	2.16	46.50	1299.43	4.61	-23.26	4.61	23.71	281.22	0.65
1400.00	1.89	72.67	1399.37	6.40	-20.31	6.40	21.30	287.49	0.95
1500.00	2.57	74.33	1499.29	7.50	-16.58	7.50	18.19	294.35	0.68
1600.00	2.96	72.01	1599.17	8.90	-11.96	8.90	14.91	306.67	0.40
1700.00	3.06	71.00	1699.04	10.57	-6.98	10.57	12.67	326.55	0.11
1800.00	2.86	79.30	1798.90	11.90	-2.01	11.90	12.07	350.40	0.47

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	1.57	83.37	1898.83	12.52	1.80	12.52	12.65	8.16	1.29
2000.00	1.27	93.30	1998.80	12.62	4.26	12.62	13.32	18.66	0.39
2100.00	0.82	81.21	2098.78	12.66	6.07	12.66	14.04	25.63	0.49
2200.00	0.92	141.92	2198.77	12.14	7.28	12.14	14.15	30.94	0.88
2300.00	1.02	131.87	2298.76	10.92	8.43	10.92	13.80	37.67	0.20
2400.00	0.68	183.77	2398.75	9.73	9.05	9.73	13.29	42.92	0.80
2500.00	0.68	176.69	2498.74	8.55	9.05	8.55	12.45	46.62	0.08
2600.00	0.56	220.14	2598.73	7.59	8.76	7.59	11.59	49.12	0.47
2700.00	0.81	202.24	2698.73	6.56	8.18	6.56	10.49	51.28	0.32
2800.00	0.73	203.95	2798.72	5.32	7.66	5.32	9.32	55.19	0.08
2900.00	1.43	229.41	2898.70	3.92	6.45	3.92	7.55	58.67	0.83
3000.00	2.06	237.93	2998.65	2.16	3.98	2.16	4.53	61.51	0.68
3100.00	1.84	234.47	3098.59	0.28	1.15	0.28	1.19	76.58	0.25
3200.00	2.27	220.75	3198.53	-2.16	-1.44	-2.16	2.60	213.79	0.65
3300.00	1.60	239.86	3298.47	-4.36	-3.95	-4.36	5.88	222.14	0.92
3400.00	1.55	210.95	3398.44	-6.22	-5.85	-6.22	8.54	223.23	0.79
3500.00	1.70	235.74	3498.40	-8.22	-7.77	-8.22	11.31	223.40	0.71
3600.00	1.05	222.01	3598.37	-9.73	-9.61	-9.73	13.68	224.64	0.73
3700.00	1.63	239.11	3698.34	-11.14	-11.45	-11.14	15.97	225.77	0.70
3760.00	1.57	226.90	3758.32	-12.14	-12.78	-12.14	17.63	226.46	0.58



Vaughn Energy Services
Fort Worth, Texas
Office 817-741-3610
Surveyor: Troy Hardin
Buena Vista 2 State No 001H / API 30-015-40789



VES Survey Date: 12/6/2012



A Schlumberger Company

COG Operating LLC

Eddy County(NAD27)

Buena Vista 2 State

#1H

OH

Design: OH

Pathfinder X&Y Report

17 December, 2012





A Schlumberger Company

Pathfinder

Pathfinder X&Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project:	Eddy County(NAD27)		
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:	Buena Vista 2 State		
Site Position:		Northing:	580,725.890 usft
From:	Map	Easting:	661,225.570 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32.595430
		Longitude:	-103.809834
		Grid Convergence:	0.28 °

Well	#1H					
Well Position	+N/-S	0.0 usft	Northing:	581,505.900 usft	Latitude:	32.598033
	+E/-W	0.0 usft	Easting:	622,731.600 usft	Longitude:	-103.934811
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,292.9 usft

Wellbore		OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/1/2012	7.61	60.47	48,714

Design:	OH			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.63



A Schlumberger Company

Pathfinder Pathfinder X&Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey Program		Date	12/17/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	3,760.0	Gyro #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s	
3,876.0	12,850.0	MWD #1 (OH)	MWD	MWD - Standard	

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-3,310.9	0.0	0.0	0.0	0.00	581,505.90	622,731.60	
100.0	0.78	239.48	100.0	-3,210.9	-0.3	-0.6	-0.3	0.78	581,505.55	622,731.01	
200.0	1.14	214.70	200.0	-3,110.9	-1.5	-1.7	-1.5	0.54	581,504.39	622,729.86	
300.0	1.35	255.82	300.0	-3,010.9	-2.6	-3.4	-2.6	0.90	581,503.28	622,728.15	
400.0	2.65	255.03	399.9	-2,911.0	-3.5	-6.8	-3.5	1.30	581,502.40	622,724.78	
500.0	2.68	263.18	499.8	-2,811.1	-4.4	-11.4	-4.3	0.38	581,501.52	622,720.22	
600.0	2.11	273.61	599.7	-2,711.2	-4.5	-15.5	-4.4	0.72	581,501.36	622,716.06	
700.0	1.97	270.58	699.6	-2,611.3	-4.4	-19.1	-4.3	0.18	581,501.50	622,712.51	
800.0	1.68	274.85	799.6	-2,511.3	-4.3	-22.3	-4.1	0.32	581,501.64	622,709.33	
900.0	1.29	300.60	899.6	-2,411.3	-3.6	-24.7	-3.4	0.76	581,502.33	622,706.90	
1,000.0	1.19	332.02	999.5	-2,311.4	-2.1	-26.2	-1.9	0.68	581,503.82	622,705.44	
1,100.0	1.32	8.15	1,099.5	-2,211.4	0.0	-26.5	0.2	0.79	581,505.88	622,705.12	
1,200.0	1.58	37.44	1,199.5	-2,111.4	2.2	-25.5	2.4	0.78	581,508.12	622,706.12	
1,300.0	2.16	46.50	1,299.4	-2,011.5	4.6	-23.3	4.8	0.65	581,510.51	622,708.33	
1,400.0	1.89	72.67	1,399.4	-1,911.5	6.4	-20.3	6.5	0.95	581,512.30	622,711.27	
1,500.0	2.57	74.33	1,499.3	-1,811.6	7.5	-16.6	7.6	0.68	581,513.39	622,715.00	
1,600.0	2.96	72.01	1,599.2	-1,711.7	8.9	-12.0	9.0	0.41	581,514.80	622,719.61	
1,700.0	3.06	71.00	1,699.0	-1,611.9	10.6	-7.0	10.6	0.11	581,516.46	622,724.59	
1,800.0	2.86	79.30	1,798.9	-1,512.0	11.9	-2.0	11.9	0.47	581,517.79	622,729.57	
1,900.0	1.57	83.37	1,898.8	-1,412.1	12.5	1.8	12.5	1.30	581,518.42	622,733.38	
2,000.0	1.27	93.30	1,998.8	-1,312.1	12.6	4.2	12.6	0.39	581,518.51	622,735.85	



A Schlumberger Company

Pathfinder
Pathfinder X&Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,100.0	0.82	81.21	2,098.8	-1,212.1	12.7	6.1	12.6	0.50	581,518.56	622,737.66	
2,200.0	0.92	141.92	2,198.8	-1,112.1	12.1	7.3	12.1	0.88	581,518.03	622,738.86	
2,300.0	1.02	131.87	2,298.8	-1,012.1	10.9	8.4	10.9	0.20	581,516.81	622,740.02	
2,400.0	0.68	183.77	2,398.7	-912.2	9.7	9.0	9.7	0.80	581,515.62	622,740.65	
2,500.0	0.68	176.69	2,498.7	-812.2	8.5	9.0	8.5	0.08	581,514.44	622,740.64	
2,600.0	0.56	220.14	2,598.7	-712.2	7.6	8.8	7.5	0.47	581,513.47	622,740.36	
2,700.0	0.81	202.24	2,698.7	-612.2	6.5	8.2	6.5	0.33	581,512.44	622,739.78	
2,800.0	0.73	203.95	2,798.7	-512.2	5.3	7.7	5.3	0.08	581,511.21	622,739.25	
2,900.0	1.43	229.41	2,898.7	-412.2	3.9	6.4	3.9	0.83	581,509.81	622,738.05	
3,000.0	2.06	237.93	2,998.7	-312.2	2.1	4.0	2.1	0.68	581,508.05	622,735.57	
3,100.0	1.84	234.47	3,098.6	-212.3	0.3	1.1	0.3	0.25	581,506.16	622,732.74	
3,200.0	2.27	220.75	3,198.5	-112.4	-2.2	-1.5	-2.2	0.65	581,503.73	622,730.15	
3,300.0	1.60	239.86	3,298.5	-12.4	-4.4	-4.0	-4.4	0.92	581,501.52	622,727.65	
3,400.0	1.55	210.95	3,398.4	87.5	-6.2	-5.9	-6.2	0.79	581,499.66	622,725.74	
3,500.0	1.70	235.74	3,498.4	187.5	-8.2	-7.8	-8.2	0.71	581,497.67	622,723.82	
3,600.0	1.05	222.01	3,598.4	287.5	-9.7	-9.6	-9.7	0.72	581,496.15	622,721.98	
3,700.0	1.63	239.11	3,698.3	387.4	-11.2	-11.5	-11.1	0.70	581,494.74	622,720.15	
3,760.0	1.57	226.90	3,758.3	447.4	-12.2	-12.8	-12.1	0.58	581,493.74	622,718.82	
3,876.0	1.06	239.28	3,874.3	563.4	-13.8	-14.9	-13.7	0.50	581,492.11	622,716.73	
3,939.0	0.97	228.29	3,937.3	626.4	-14.4	-15.8	-14.3	0.34	581,491.46	622,715.83	
4,002.0	1.76	206.58	4,000.3	689.4	-15.7	-16.6	-15.6	1.48	581,490.24	622,715.00	
4,033.0	3.17	198.50	4,031.2	720.3	-16.9	-17.1	-16.8	4.67	581,489.00	622,714.52	
4,064.0	4.57	196.65	4,062.2	751.3	-18.9	-17.7	-18.8	4.53	581,487.00	622,713.89	
4,095.0	5.72	193.23	4,093.0	782.1	-21.6	-18.4	-21.5	3.84	581,484.31	622,713.18	
4,126.0	6.86	188.57	4,123.8	812.9	-24.9	-19.0	-24.8	4.03	581,480.98	622,712.56	
4,158.0	8.18	185.32	4,155.6	844.7	-29.1	-19.5	-29.0	4.33	581,476.82	622,712.06	
4,190.0	9.32	183.65	4,187.2	876.3	-33.9	-19.9	-33.8	3.65	581,471.97	622,711.68	



A Schlumberger Company

Pathfinder

Pathfinder X&Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec. (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
4,221.0	9.58	184.26	4,217.8	906.9	-39.0	-20.3	-38.9	0.90	581,466.89	622,711.33	
4,317.0	9.23	184.26	4,312.5	1,001.6	-54.7	-21.4	-54.5	0.36	581,451.25	622,710.17	
4,411.0	8.79	184.61	4,405.3	1,094.4	-69.3	-22.6	-69.2	0.47	581,436.57	622,709.03	
4,505.0	8.53	184.17	4,498.3	1,187.4	-83.4	-23.7	-83.3	0.29	581,422.46	622,707.94	
4,694.0	8.44	183.91	4,685.2	1,374.3	-111.3	-25.6	-111.1	0.05	581,394.64	622,705.98	
4,884.0	7.47	182.33	4,873.4	1,562.5	-137.5	-27.1	-137.3	0.52	581,368.39	622,704.53	
4,979.0	8.27	182.33	4,967.5	1,656.6	-150.5	-27.6	-150.3	0.84	581,355.39	622,704.00	
5,075.0	9.76	186.11	5,062.3	1,751.4	-165.5	-28.7	-165.3	1.67	581,340.40	622,702.85	
5,170.0	9.41	185.58	5,155.9	1,845.0	-181.2	-30.4	-181.0	0.38	581,324.67	622,701.24	
5,265.0	9.15	185.40	5,249.7	1,938.8	-196.5	-31.8	-196.3	0.28	581,309.42	622,699.77	
5,359.0	8.71	184.88	5,342.6	2,031.7	-211.0	-33.1	-210.8	0.48	581,294.88	622,698.46	
5,454.0	8.27	184.88	5,436.5	2,125.6	-225.0	-34.3	-224.8	0.46	581,280.91	622,697.27	
5,549.0	7.91	184.26	5,530.6	2,219.7	-238.3	-35.4	-238.1	0.39	581,267.58	622,696.20	
5,644.0	9.50	184.35	5,624.5	2,313.6	-252.7	-36.5	-252.4	1.67	581,253.25	622,695.12	
5,739.0	9.23	184.35	5,718.2	2,407.3	-268.1	-37.6	-267.8	0.28	581,237.83	622,693.95	
5,834.0	8.97	184.96	5,812.0	2,501.1	-283.0	-38.9	-282.8	0.29	581,222.86	622,692.73	
5,929.0	8.62	185.14	5,905.9	2,595.0	-297.5	-40.1	-297.2	0.37	581,208.39	622,691.46	
6,024.0	9.50	186.90	5,999.7	2,688.8	-312.4	-41.7	-312.1	0.97	581,193.51	622,689.88	
6,119.0	9.06	187.69	6,093.5	2,782.6	-327.6	-43.7	-327.3	0.48	581,178.32	622,687.93	
6,214.0	8.62	187.69	6,187.3	2,876.4	-342.1	-45.6	-341.7	0.46	581,163.85	622,685.98	
6,309.0	8.44	187.78	6,281.3	2,970.4	-356.0	-47.5	-355.7	0.19	581,149.89	622,684.08	
6,404.0	8.62	189.18	6,375.2	3,064.3	-369.9	-49.6	-369.6	0.29	581,135.95	622,682.00	
6,499.0	9.41	185.32	6,469.1	3,158.2	-384.7	-51.5	-384.4	1.05	581,121.19	622,680.15	
6,594.0	7.56	184.00	6,563.0	3,252.1	-398.7	-52.6	-398.3	1.96	581,107.22	622,678.99	
6,689.0	8.09	181.36	6,657.1	3,346.2	-411.6	-53.2	-411.2	0.67	581,094.30	622,678.40	
6,783.0	9.06	183.12	6,750.1	3,439.2	-425.6	-53.8	-425.2	1.07	581,080.30	622,677.84	
6,877.0	8.62	182.50	6,843.0	3,532.1	-440.0	-54.5	-439.7	0.48	581,065.87	622,677.13	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
6,973.0	9.41	181.71	6,937.8	3,626.9	-455.1	-55.0	-454.7	0.83	581,050.84	622,676.58	
7,068.0	8.97	175.21	7,031.6	3,720.7	-470.2	-54.6	-469.8	1.19	581,035.70	622,676.97	
7,162.0	8.44	170.37	7,124.5	3,813.6	-484.3	-52.9	-484.0	0.96	581,021.59	622,678.73	
7,257.0	9.15	173.54	7,218.4	3,907.5	-498.7	-50.9	-498.3	0.90	581,007.22	622,680.75	
7,351.0	8.53	182.77	7,311.3	4,000.4	-513.1	-50.3	-512.7	1.64	580,992.83	622,681.25	
7,445.0	8.88	184.26	7,404.2	4,093.3	-527.3	-51.2	-526.9	0.44	580,978.63	622,680.38	
7,539.0	10.11	189.36	7,496.9	4,186.0	-542.6	-53.1	-542.3	1.58	580,963.25	622,678.49	
7,632.0	9.94	187.60	7,588.5	4,277.6	-558.7	-55.5	-558.3	0.38	580,947.24	622,676.11	
7,727.0	8.88	187.51	7,682.2	4,371.3	-574.1	-57.5	-573.7	1.12	580,931.84	622,674.06	
7,822.0	9.15	187.16	7,776.0	4,465.1	-588.8	-59.4	-588.4	0.29	580,917.08	622,672.16	
7,917.0	8.00	185.49	7,869.9	4,559.0	-602.9	-61.0	-602.5	1.24	580,903.00	622,670.59	
8,012.0	7.21	185.84	7,964.1	4,653.2	-615.4	-62.2	-615.0	0.83	580,890.49	622,669.35	
8,044.0	5.98	186.90	7,995.9	4,685.0	-619.1	-62.7	-618.6	3.86	580,886.84	622,668.95	
8,076.0	2.90	190.76	8,027.8	4,716.9	-621.5	-63.0	-621.1	9.66	580,884.39	622,668.59	
8,107.0	0.70	329.81	8,058.8	4,747.9	-622.1	-63.2	-621.7	11.16	580,883.78	622,668.35	
8,139.0	3.69	358.90	8,090.8	4,779.9	-620.9	-63.4	-620.5	9.68	580,884.98	622,668.23	
KOP - 8139.0 'MD, 8090.8 'TVD, -620.9 'N, -63.4 'E											
8,148.4	4.49	0.47	8,100.1	4,789.2	-620.3	-63.4	-619.8	8.57	580,885.65	622,668.23	
TGT #1(BV 2 State)											
8,170.0	6.33	2.59	8,121.6	4,810.7	-618.2	-63.3	-617.8	8.57	580,887.69	622,668.29	
8,200.0	8.27	3.64	8,151.4	4,840.5	-614.4	-63.1	-614.0	6.48	580,891.49	622,668.50	
8,231.0	11.70	0.04	8,181.9	4,871.0	-609.0	-63.0	-608.6	11.24	580,896.86	622,668.65	
8,263.0	15.92	358.46	8,213.0	4,902.1	-601.4	-63.1	-601.0	13.24	580,904.50	622,668.53	
8,295.0	19.79	357.84	8,243.4	4,932.5	-591.6	-63.4	-591.2	12.11	580,914.30	622,668.21	
8,326.0	23.83	357.49	8,272.2	4,961.3	-580.1	-63.9	-579.7	13.04	580,925.81	622,667.74	
8,358.0	27.70	358.37	8,301.0	4,990.1	-566.2	-64.4	-565.8	12.15	580,939.70	622,667.24	
8,389.0	32.71	358.02	8,327.8	5,016.9	-550.6	-64.9	-550.2	16.17	580,955.29	622,666.75	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,421.0	36.32	358.28		8,354.2	5,043.3	-532.5	-65.4	-532.1	11.29	580,973.41	622,666.16
8,453.0	39.31	357.49		8,379.5	5,068.6	-512.9	-66.2	-512.5	9.47	580,993.01	622,665.44
8,484.0	42.38	357.67		8,402.9	5,092.0	-492.6	-67.0	-492.2	9.91	581,013.26	622,664.58
8,516.0	45.90	358.20		8,425.9	5,115.0	-470.4	-67.8	-469.9	11.06	581,035.53	622,663.78
8,548.0	48.98	357.58		8,447.5	5,136.6	-446.8	-68.7	-446.4	9.73	581,059.08	622,662.91
8,579.0	51.27	357.93		8,467.4	5,156.5	-423.0	-69.6	-422.6	7.44	581,082.85	622,661.98
8,611.0	54.26	359.25		8,486.7	5,175.8	-397.6	-70.2	-397.1	9.90	581,108.32	622,661.36
8,642.0	58.04	0.57		8,504.0	5,193.1	-371.8	-70.3	-371.4	12.70	581,134.06	622,661.33
8,674.0	61.11	0.75		8,520.2	5,209.3	-344.3	-70.0	-343.8	9.61	581,161.65	622,661.64
8,706.0	63.93	0.13		8,535.0	5,224.1	-315.9	-69.7	-315.4	8.98	581,190.03	622,661.86
8,737.0	67.36	359.78		8,547.8	5,236.9	-287.6	-69.8	-287.2	11.11	581,218.27	622,661.84
8,769.0	69.56	359.25		8,559.5	5,248.6	-257.9	-70.0	-257.4	7.05	581,248.03	622,661.58
8,801.0	70.52	358.90		8,570.4	5,259.5	-227.8	-70.5	-227.3	3.17	581,278.11	622,661.10
8,832.0	73.34	358.64		8,580.0	5,269.1	-198.3	-71.1	-197.9	9.13	581,307.57	622,660.46
8,864.0	76.94	358.72		8,588.2	5,277.3	-167.4	-71.8	-167.0	11.25	581,338.48	622,659.75
8,895.0	78.35	358.37		8,594.9	5,284.0	-137.1	-72.6	-136.7	4.68	581,368.75	622,658.98
8,927.0	81.07	358.02		8,600.6	5,289.7	-105.7	-73.6	-105.2	8.57	581,400.22	622,657.99
8,959.0	85.03	358.55		8,604.5	5,293.6	-73.9	-74.6	-73.5	12.48	581,431.97	622,657.04
8,990.0	86.88	358.55		8,606.7	5,295.8	-43.0	-75.3	-42.5	5.97	581,462.88	622,656.26
9,021.0	87.32	358.55		8,608.2	5,297.3	-12.1	-76.1	-11.6	1.42	581,493.83	622,655.48
9,053.0	89.60	358.90		8,609.1	5,298.2	19.9	-76.8	20.4	7.21	581,525.81	622,654.76
LP - 9053.0 'MD, 8609.1 'TVD, 19.9 'N, -76.8 'E											
9,085.0	91.01	359.51		8,608.9	5,298.0	51.9	-77.3	52.4	4.80	581,557.80	622,654.32
9,180.0	91.01	0.57		8,607.2	5,296.3	146.9	-77.2	147.4	1.12	581,652.79	622,654.39
9,274.0	89.96	0.48		8,606.4	5,295.5	240.9	-76.4	241.4	1.12	581,746.78	622,655.25
9,369.0	90.75	0.13		8,605.9	5,295.0	335.9	-75.8	336.4	0.91	581,841.77	622,655.75
9,464.0	91.19	359.43		8,604.2	5,293.3	430.9	-76.2	431.3	0.87	581,936.76	622,655.39



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Pathfinder
Pathfinder X&Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V: Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
9,559.0	91.01	359.16	8,602.4	5,291.5	525.8	-77.4	526.3	0.34	582,031.73	622,654.22	
9,654.0	90.66	358.99	8,601.0	5,290.1	620.8	-78.9	621.3	0.41	582,126.71	622,652.69	
9,749.0	90.22	358.46	8,600.3	5,289.4	715.8	-81.0	716.3	0.73	582,221.68	622,650.57	
9,844.0	90.31	358.11	8,599.9	5,289.0	810.7	-83.9	811.3	0.38	582,316.64	622,647.73	
9,939.0	90.13	358.02	8,599.5	5,288.6	905.7	-87.1	906.2	0.21	582,411.58	622,644.52	
10,034.0	88.99	359.78	8,600.2	5,289.3	1,000.7	-88.9	1,001.2	2.21	582,506.56	622,642.70	
10,129.0	88.72	1.80	8,602.1	5,291.2	1,095.6	-87.6	1,096.2	2.14	582,601.53	622,644.01	
10,224.0	88.29	2.06	8,604.6	5,293.7	1,190.5	-84.4	1,191.1	0.53	582,696.44	622,647.21	
10,319.0	89.96	2.24	8,606.1	5,295.2	1,285.5	-80.8	1,286.0	1.77	582,791.36	622,650.77	
10,414.0	89.78	2.33	8,606.3	5,295.4	1,380.4	-77.0	1,380.8	0.21	582,886.28	622,654.56	
10,508.0	89.25	2.15	8,607.1	5,296.2	1,474.3	-73.4	1,474.7	0.60	582,980.21	622,658.23	
10,603.0	89.87	0.92	8,607.8	5,296.9	1,569.3	-70.8	1,569.7	1.45	583,075.17	622,660.78	
10,697.0	89.34	0.83	8,608.4	5,297.5	1,663.3	-69.4	1,663.7	0.57	583,169.15	622,662.21	
10,792.0	90.40	0.48	8,608.7	5,297.8	1,758.2	-68.3	1,758.6	1.18	583,264.15	622,663.30	
10,887.0	89.60	0.22	8,608.7	5,297.8	1,853.2	-67.7	1,853.6	0.89	583,359.14	622,663.88	
10,982.0	90.66	0.39	8,608.4	5,297.5	1,948.2	-67.2	1,948.6	1.13	583,454.14	622,664.38	
11,077.0	90.48	0.04	8,607.5	5,296.6	2,043.2	-66.9	2,043.6	0.41	583,549.13	622,664.74	
11,157.0	89.96	359.70	8,607.2	5,296.3	2,123.2	-67.0	2,123.6	0.78	583,629.13	622,664.56	
11,267.0	89.60	1.45	8,607.6	5,296.7	2,233.2	-65.9	2,233.6	1.62	583,739.12	622,665.66	
11,362.0	89.83	1.15	8,608.1	5,297.2	2,328.2	-63.8	2,328.6	0.40	583,834.10	622,667.82	
11,457.0	90.75	1.62	8,607.6	5,296.7	2,423.2	-61.5	2,423.5	1.09	583,929.07	622,670.11	
11,552.0	90.40	1.45	8,606.7	5,295.8	2,518.1	-58.9	2,518.5	0.41	584,024.03	622,672.66	
11,647.0	90.13	1.27	8,606.2	5,295.3	2,613.1	-56.7	2,613.4	0.34	584,119.00	622,674.91	
11,742.0	89.78	1.10	8,606.3	5,295.4	2,708.1	-54.7	2,708.4	0.41	584,213.98	622,676.88	
11,837.0	89.87	1.18	8,606.6	5,295.7	2,803.1	-52.8	2,803.3	0.13	584,308.96	622,678.77	
11,932.0	91.89	1.54	8,605.1	5,294.2	2,898.0	-50.6	2,898.3	2.16	584,403.92	622,681.02	
12,027.0	93.12	1.71	8,601.0	5,290.1	2,992.9	-47.9	2,993.1	1.31	584,498.79	622,683.71	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Site:	Buena Vista 2 State	MD Reference:	KB = 18 @ 3310.9usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
12,122.0	93.91	2.06	8,595.1	5,284.2	3,087.7	-44.8	3,087.9	0.91	584,593.55	622,686.83	
12,217.0	92.51	1.98	8,589.8	5,278.9	3,182.4	-41.4	3,182.6	1.48	584,688.34	622,690.17	
12,311.0	91.98	0.92	8,586.1	5,275.2	3,276.3	-39.0	3,276.5	1.26	584,782.24	622,692.55	
12,406.0	91.80	0.13	8,583.0	5,272.1	3,371.3	-38.2	3,371.5	0.85	584,877.18	622,693.42	
12,501.0	91.36	359.43	8,580.4	5,269.5	3,466.2	-38.5	3,466.4	0.87	584,972.15	622,693.06	
12,596.0	91.36	358.28	8,578.1	5,267.2	3,561.2	-40.4	3,561.4	1.21	585,067.10	622,691.16	
12,691.0	91.36	357.14	8,575.9	5,265.0	3,656.1	-44.2	3,656.3	1.20	585,162.00	622,687.36	
12,850.0	91.36	357.14	8,572.1	5,261.2	3,814.9	-52.2	3,815.1	0.00	585,320.75	622,679.43	
PROJECTED BHL - 12850.0 'MD, 8572.1 'TVD, 3814.9 'N, -52.2 'E - PBHL(Buena Vista 2 State #1H)											

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,139.0	8,090.8	-620.9	-63.4	KOP - 8139.0 'MD, 8090.8 'TVD, -620.9 'N, -63.4 'E
9,053.0	8,609.1	19.9	-76.8	LP - 9053.0 'MD, 8609.1 'TVD, 19.9 'N, -76.8 'E
12,850.0	8,572.1	3,814.9	-52.2	PROJECTED BHL - 12850.0 'MD, 8572.1 'TVD, 3814.9 'N, -52.2 'E

Checked By: _____ Approved By: _____ Date: _____



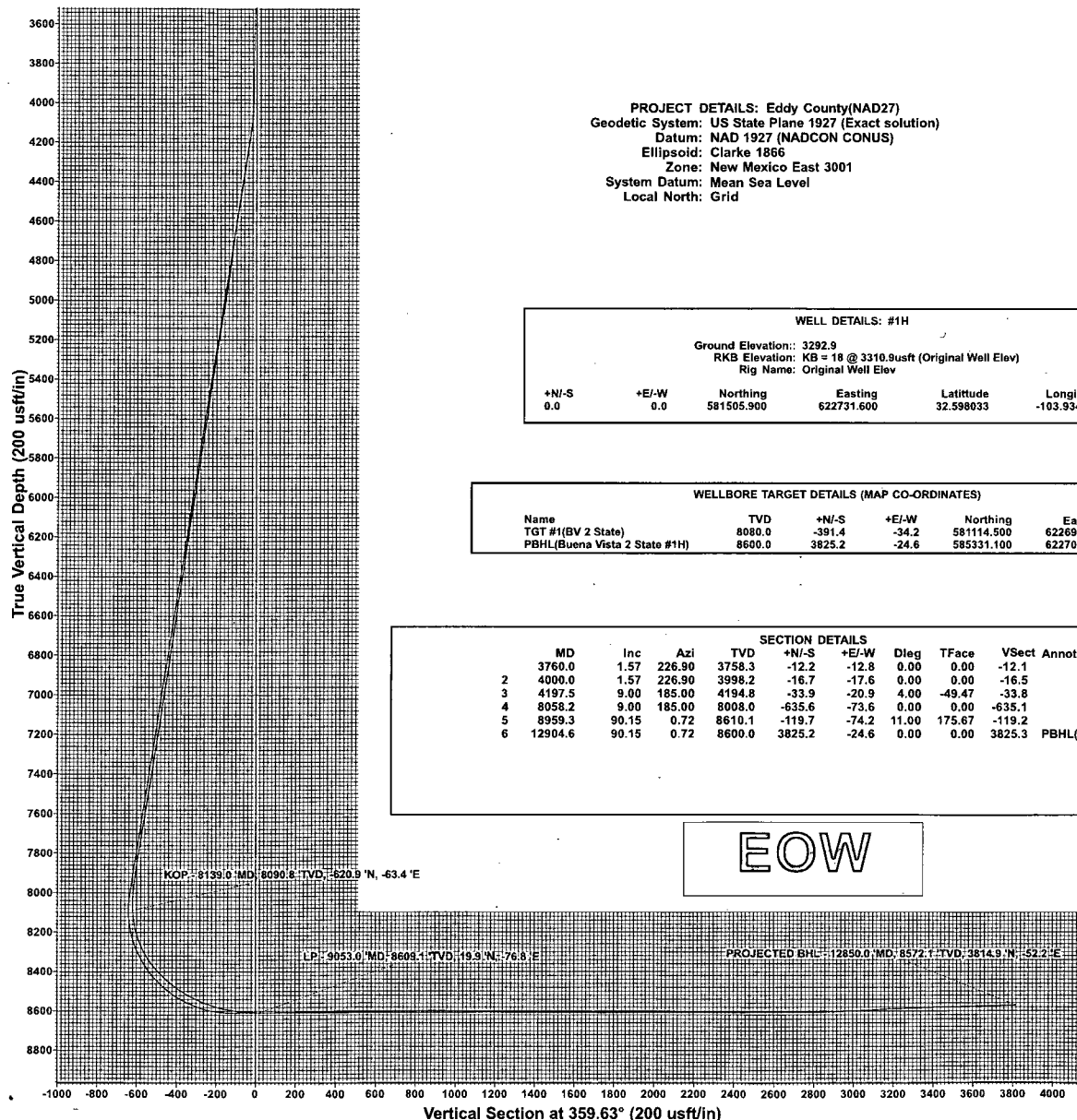
Project: Eddy County(NAD27)
Site: Buena Vista 2 State
Well: #1H
Wellbore: OH
Plan: Post Gyro Plan #2 (#1H/OH)



Azimuths to Grid North
True North: -0.21°
Magnetic North: 7.40°

Magnetic Field
Strength: 48714.3snT
Dip Angle: 60.47°
Date: 10/1/2012
Model: IGRF200510

PATHFINDER
A Schlumberger Company



PROJECT DETAILS: Eddy County(NAD27)
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

WELL DETAILS: #1H

Ground Elevation: 3292.9
RKB Elevation: KB = 18 @ 3318.9usft (Original Well Elev)
Rig Name: Original Well Elev

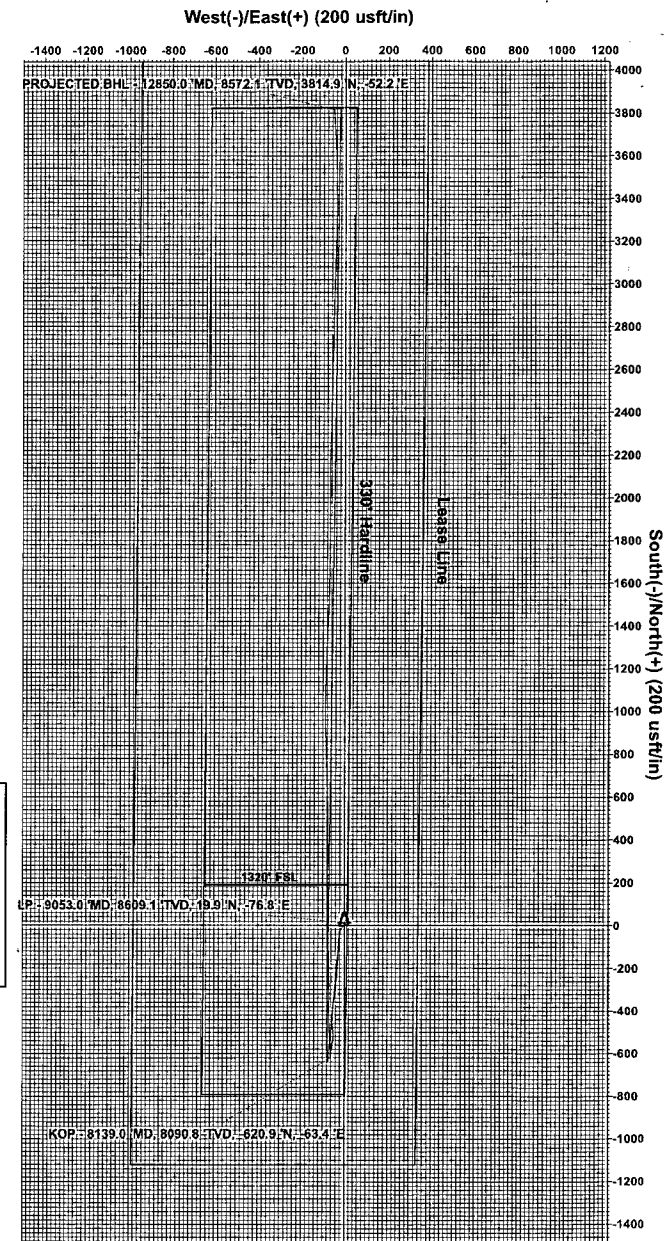
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	581505.900	622731.600	32.598033	-103.934811	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
TGT #1(BV 2 State)	8080.0	-391.4	-34.2	581114.500	622697.400	Point
PBHL(Buena Vista 2 State #1H)	8600.0	3825.2	-24.6	585331.100	622707.000	Point

SECTION DETAILS

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	TFace	VSect	Annotation	Target
2	3760.0	1.57	226.90	3758.3	-12.2	-12.8	0.00	0.00	-12.1		
3	4000.0	1.57	226.90	3998.2	-16.7	-17.6	0.00	0.00	-16.5		
3	4197.5	9.00	185.00	4194.8	-33.9	-20.9	4.00	-49.47	-33.8		
4	8058.2	9.00	185.00	8008.0	-635.6	-73.6	0.00	0.00	-635.1		
5	8959.3	90.15	0.72	8610.1	-119.7	-74.2	11.00	175.67	-119.2		
6	12904.6	90.15	0.72	8600.0	3825.2	-24.6	0.00	0.00	3825.3	PBHL(Buena Vista 2 State #1H)	



Plan: Post Gyro Plan #2 (#1H/OH)

Created By: Michael Trout Date: 9:42, December 17 2012

Checked: _____ Date: _____

COG Operating LLC
Eddy County(NAD27)
Buena Vista 2 State
#1H
Original Well Elev
OH
Post Gyro Plan #2