

Results of Directional Survey

API number:	30-025-40803		
OGRID:		Operator:	COG PRODUCTION, LLC
		Property:	SOL 28 FEDERAL # 2H

surface	ULSTR:	I	28	T 25S	R 32E
				2160 FSL	330 FEL

BH Loc	ULSTR:	L	28	T 25S	R 32E
13840	MD	9336.0	TVD	2052 FSL	309 FWL
					4971 FEL

Top Perf/OH	ULSTR:	I	28	T 25S	R 32E
9510	MD	9363.7	TVD	2181 FSL	654 FEL

Bot Perf/OH	ULSTR:	L	28	T 25S	R 32E
13755	MD	9342.6	TVD	2058 FSL	394 FWL
					4886 FEL

	MD	N/S	E/W	VD
	9478	20.80	-295.10	9349.3
TOP PERFS/OH	9510	21.00	-323.70	9363.70
	9510	21.00	-323.70	9363.70
	13695	-98.20	-4496.30	9347.40
BOT PERFS/OH	13755	-101.86	-4556.02	9342.62
	13759	-102.10	-4560.00	9342.30

NEXT TO LAST	13759	-102.10	-4560.00	9342.30
LAST READING	13840	-107.90	-4640.50	9336.00
TD	13840	-107.90	-4640.50	9336.00

Surface Location	2160	FS	330	FE
Projected BHL	2052	FS	4971	FE
Location of				
Top Perfs/OH	2181	FS	654	FE
Bottom Perfs/OH	2058	FS	4886	FE

SUMMARY of Subsurface Locations

Surface Location	I-28-25S-32E	2160	FS	330	FE	Vert. Depth
Top Perfs/OH	I-28-25S-32E	2181	FS	654	FE	9363.70
Bottom Perfs/OH	L-28-25S-32E	2058	FS	4886	FE	9342.62
Projected TD	L-28-25S-32E	2052	FS	4971	FE	9336.00

JUN 27 2013



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

COG OPERATING, LL
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NOV 26 2012

ARTESIA WEST

November 12, 2012

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

30-025-40803

RE: Sol 28 Federal #2H
2160' FSL & 330' FEL
Sec. 28, T25S, R32E
Lea County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

HOBBS OCD

JUN 10 2013

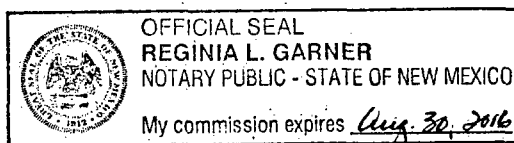
Very truly yours,

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

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The foregoing was acknowledged before me this 12th day of November, 2012.



Pason DataHub Deviation Survey
Well Dossier 1351358274 - SOL 28 FEDERAL # 2H

# Date	Depth	Deviation	Direction	TVD	Horiz
10/25/2012	304	0.80	0.00	0.00	0.00
10/25/2012	488	0.90	0.00	0.00	0.00
10/26/2012	799	1.50	0.00	0.00	0.00
10/26/2012	959	1.70	0.00	0.00	0.00
10/28/2012	1470	1.40	0.00	0.00	0.00
10/28/2012	1565	1.10	0.00	0.00	0.00
10/28/2012	1757	1.40	0.00	0.00	0.00
10/28/2012	2138	0.80	0.00	0.00	0.00
10/28/2012	2233	1.30	0.00	0.00	0.00
10/28/2012	2329	1.90	275.40	2328.59	0.00
10/28/2012	2424	1.40	279.20	2423.55	0.00
10/28/2012	2519	1.00	269.40	2518.53	2.32
10/28/2012	2614	1.10	235.10	2614.00	3.92
10/28/2012	2710	1.90	234.70	2709.00	5.96
10/29/2012	2900	0.90	0.00	0.00	0.00
10/29/2012	2995	0.60	0.00	0.00	0.00
10/29/2012	3090	0.80	0.00	0.00	0.00
10/29/2012	3186	1.80	0.00	0.00	0.00
10/29/2012	3376	1.60	0.00	0.00	0.00
10/29/2012	3567	1.50	35.50	3566.00	0.00
10/29/2012	3663	1.10	21.80	3662.00	0.00
10/29/2012	3757	1.00	1.10	0.00	0.00
10/30/2012	3835	0.80	327.90	3852.13	3.12
10/30/2012	3948	0.40	96.80	3947.13	3.10
10/30/2012	4044	1.40	111.50	4043.11	4.52
10/30/2012	4139	2.30	111.70	4138.06	7.36
10/30/2012	4330	2.40	0.00	0.00	0.00
10/30/2012	4394	1.90	0.00	0.00	0.00
10/30/2012	4426	1.70	162.50	4424.00	0.00
10/30/2012	4521	1.60	210.80	4519.00	0.00
11/1/2012	4825	0.80	0.00	0.00	0.00
11/1/2012	5172	0.20	0.00	0.00	0.00
11/1/2012	5425	0.20	0.00	0.00	0.00
11/1/2012	5710	0.10	0.00	0.00	0.00
11/2/2012	5969	0.50	0.00	0.00	0.00
11/2/2012	6224	0.20	0.00	0.00	0.00
11/2/2012	6350	0.70	0.00	0.00	0.00
11/2/2012	6758	0.40	0.00	0.00	0.00
11/2/2012	7043	0.30	0.00	0.00	0.00
11/2/2012	7393	0.10	0.00	0.00	0.00
11/2/2012	7679	0.80	0.00	0.00	0.00
11/3/2012	8029	0.90	0.00	0.00	0.00

# Date	Depth	Deviation	Direction	TVD	Horiz
11/3/2012	8346	0.50	0.00	0.00	0.00
11/3/2012	8633	0.50	0.00	0.00	0.00
11/3/2012	8807	1.00	0.00	0.00	0.00
11/4/2012	8905	6.90	285.80	0.00	0.00
11/4/2012	8937	11.60	285.40	0.00	0.00
11/4/2012	9000	18.30	280.80	8995.64	0.00
11/4/2012	9032	21.30	273.30	9025.00	0.00
11/4/2012	9096	27.80	272.20	9084.00	0.00
11/5/2012	9510	64.60	271.00	9363.00	0.00
11/5/2012	9541	68.10	272.60	9376.74	0.00
11/5/2012	9573	71.30	272.90	9387.28	0.00
11/6/2012	9858	89.90	266.10	9421.73	0.00
11/6/2012	9890	91.00	266.60	9421.47	0.00
11/6/2012	9985	91.10	266.40	9419.73	0.00
11/6/2012	10081	91.30	266.80	885.78	885.78
11/6/2012	10176	89.70	266.30	9416.89	980.65
11/6/2012	10271	89.90	266.60	9417.23	1075.52
11/6/2012	10366	91.00	266.80	9416.48	1170.41
11/6/2012	10461	91.00	267.00	9414.82	1265.31
11/6/2012	10652	91.50	268.20	9409.91	0.00
11/6/2012	10747	91.00	268.50	9407.84	0.00
11/6/2012	10842	91.50	268.70	9405.76	0.00
11/7/2012	11510	91.30	267.80	9386.95	2313.59
11/7/2012	11605	91.30	269.40	9384.77	2408.55
11/7/2012	11700	92.00	268.50	9382.06	2503.51
11/7/2012	11796	90.30	270.10	9380.13	0.00
11/7/2012	11891	90.80	269.90	9379.22	0.00
11/8/2012	11984	91.70	270.10	9377.19	2787.44
11/8/2012	12079	90.10	270.30	9375.70	2882.42
11/8/2012	12175	91.00	270.60	9374.78	2978.40
11/8/2012	12270	89.40	270.10	9374.45	0.00
11/8/2012	12461	90.40	268.90	9374.78	0.00
11/8/2012	12556	91.50	268.40	9373.20	0.00
11/9/2012	12650	92.30	268.70	9370.00	0.00
11/9/2012	12745	90.40	268.50	9368.00	0.00
11/9/2012	12840	90.10	267.80	9367.60	3643.23
11/9/2012	13127	90.30	266.40	9366.59	3930.01
11/9/2012	13222	89.70	266.80	9366.59	4024.89
11/9/2012	13317	91.10	267.50	9365.93	4119.81
11/9/2012	13413	92.20	267.80	9363.17	4215.73
11/9/2012	13507	92.70	267.70	9359.15	0.00
11/9/2012	13695	94.50	267.10	9347.34	0.00
11/9/2012	13759	94.50	265.90	9342.32	0.00

EOF



A GYRO TECHNOLOGIES INC. COMPANY

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

November 9, 2012

HOBBS OCD

JUN 10 2013

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

RECEIVED

Attn: Kanicia Castillo

Re: Sol 28 Federal No. 002H

30-025-40803

Please find enclosed a copy of the survey from 0' to 8,789' 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: Sol 28 Federal/No. 002H



Rig Name: Silver Oak 12

State/County: New Mexico/Lea

Latitude: 32.01, Longitude: -103.37

GRID North is 0.51 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB = 18 Feet

HOBBS OCD

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 11/9/2012 / 08:31

JUN 10 2013

Vaughn Energy Services

(432) 563-5444

Gardendale, TX

Surveyor: Colby Ware

RECEIVED

Sol 28 Federal No. 002H / API 30-025-40803

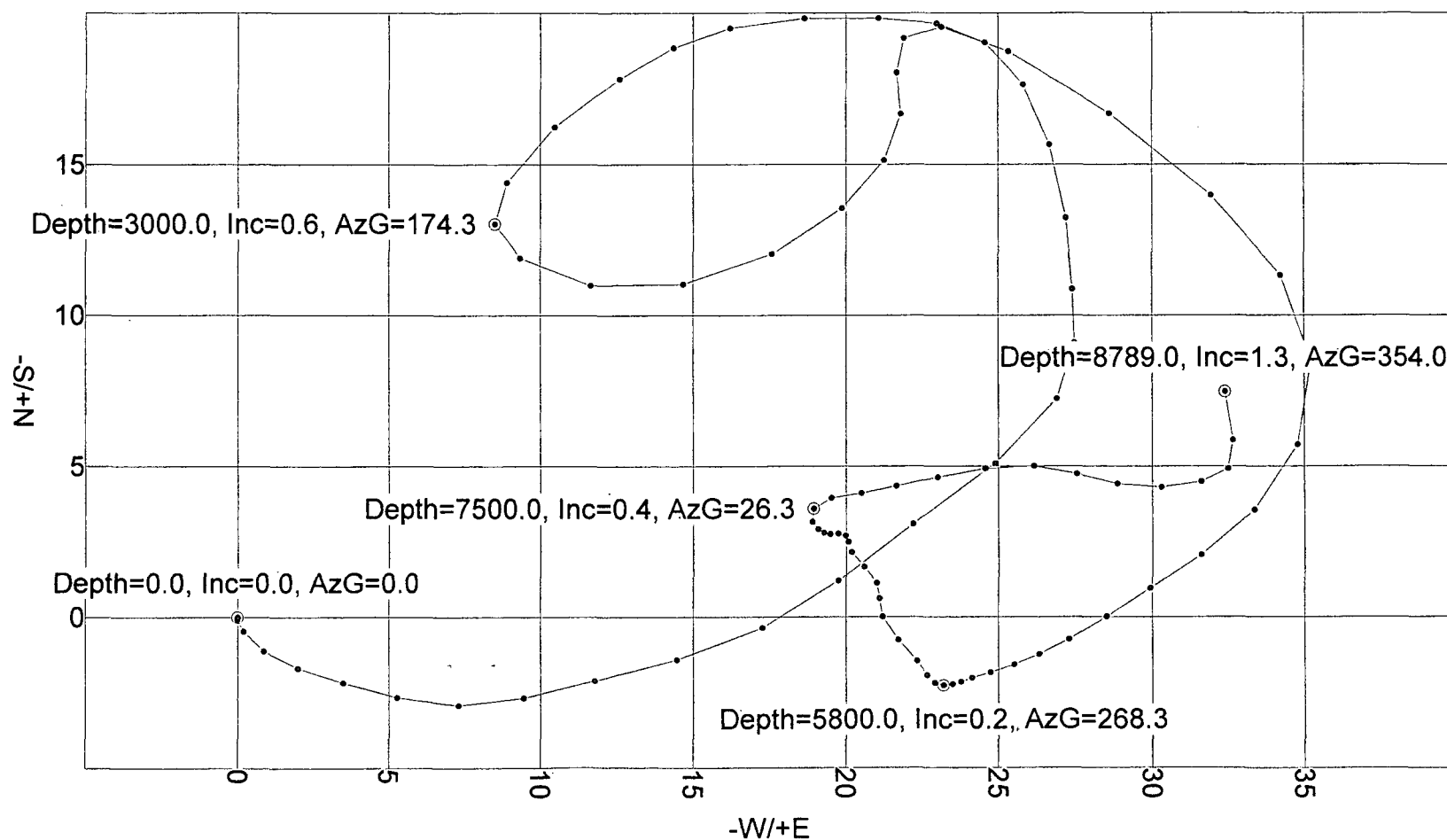
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.09	193.95	100.00	-0.08	-0.02	0.08	193.95	0.09
200.00	0.45	144.23	200.00	-0.47	0.19	0.51	157.88	0.40
300.00	0.64	126.72	299.99	-1.12	0.87	1.42	142.31	0.25
400.00	0.83	109.21	399.99	-1.69	1.99	2.61	130.31	0.29
500.00	0.98	106.74	499.97	-2.17	3.49	4.11	121.91	0.16
600.00	1.15	104.27	599.96	-2.67	5.28	5.91	116.80	0.18
700.00	1.21	90.61	699.94	-2.92	7.30	7.86	111.83	0.29
800.00	1.27	76.96	799.91	-2.68	9.43	9.81	105.89	0.30
900.00	1.49	76.01	899.88	-2.12	11.77	11.96	100.21	0.23
1000.00	1.70	75.06	999.84	-1.42	14.47	14.54	95.62	0.21
1100.00	1.73	63.44	1099.80	-0.37	17.25	17.26	91.21	0.35
1200.00	1.68	51.82	1199.76	1.22	19.76	19.79	86.48	0.35
1300.00	1.85	52.91	1299.71	3.10	22.19	22.41	82.06	0.17
1400.00	2.01	54.00	1399.65	5.10	24.90	25.42	78.43	0.16
1500.00	1.43	27.11	1499.61	7.24	26.89	27.84	74.93	0.98
1600.00	0.85	0.21	1599.59	9.09	27.46	28.92	71.68	0.77
1700.00	1.19	356.69	1699.57	10.87	27.40	29.48	68.36	0.34
1800.00	1.52	353.16	1799.54	13.23	27.18	30.23	64.05	0.35

measured Depth FT	incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Logleg Severity Deg/100
1900.00	1.34	341.89	1899.51	15.65	26.66	30.92	59.58	0.34
2000.00	1.15	330.61	1999.49	17.63	25.81	31.26	55.65	0.31
2100.00	1.05	304.34	2099.47	19.02	24.56	31.07	52.24	0.51
2200.00	0.95	278.07	2199.46	19.66	22.98	30.24	49.46	0.46
2300.00	1.25	272.82	2299.44	19.83	21.07	28.93	46.74	0.31
2400.00	1.54	267.57	2399.41	19.82	18.64	27.21	43.23	0.32
2500.00	1.27	255.82	2499.38	19.50	16.22	25.36	39.75	0.40
2600.00	0.99	244.08	2599.36	18.84	14.36	23.69	37.31	0.36
2700.00	1.35	236.99	2699.34	17.83	12.59	21.83	35.24	0.38
2800.00	1.70	229.89	2799.30	16.23	10.48	19.32	32.84	0.40
2900.00	1.13	207.09	2899.27	14.40	8.90	16.93	31.71	0.79
3000.00	0.56	174.30	2999.26	13.03	8.50	15.56	33.10	0.72
3100.00	1.17	129.08	3099.25	11.90	9.34	15.13	38.12	0.87
3200.00	1.77	99.86	3199.22	10.99	11.65	16.02	46.66	0.94
3300.00	1.77	78.60	3299.17	11.03	14.69	18.37	53.08	0.65
3400.00	1.77	63.33	3399.13	12.03	17.58	21.30	55.61	0.47
3500.00	1.40	47.70	3499.09	13.55	19.87	24.05	55.71	0.56
3600.00	1.04	32.06	3599.07	15.14	21.25	26.09	54.53	0.49
3700.00	0.88	5.68	3699.05	16.67	21.81	27.45	52.60	0.46
3800.00	0.73	339.30	3799.04	18.03	21.66	28.18	50.23	0.40
3900.00	0.82	40.54	3899.03	19.16	21.90	29.10	48.81	0.79
4000.00	0.90	101.77	3999.03	19.54	23.13	30.28	49.81	0.88
4100.00	1.79	114.73	4099.00	18.73	25.32	31.50	53.51	0.93
4200.00	2.67	126.68	4198.92	16.68	28.61	33.12	59.75	0.99
4300.00	2.24	132.43	4298.83	13.97	31.93	34.85	66.37	0.50
4400.00	1.81	147.17	4398.77	11.32	34.23	36.05	71.70	0.67
4500.00	1.71	175.22	4498.72	8.51	35.21	36.22	76.42	0.86
4600.00	1.61	203.26	4598.68	5.73	34.78	35.25	80.65	0.81
4700.00	1.42	224.66	4698.65	3.55	33.35	33.54	83.92	0.59
4800.00	1.23	236.07	4798.62	2.07	31.59	31.65	86.25	0.32
4900.00	1.05	236.32	4898.60	0.96	29.93	29.95	88.16	0.18
5000.00	0.91	236.57	4998.59	0.01	28.50	28.50	89.98	0.14
5100.00	0.73	240.79	5098.57	-0.74	27.28	27.29	91.55	0.19
5200.00	0.52	245.01	5198.57	-1.24	26.31	26.34	92.70	0.21
5300.00	0.48	249.44	5298.56	-1.58	25.51	25.55	93.55	0.06
5400.00	0.44	253.88	5398.56	-1.84	24.74	24.81	94.25	0.05
5500.00	0.29	250.91	5498.56	-2.03	24.13	24.21	94.80	0.16
5600.00	0.15	247.94	5598.56	-2.16	23.77	23.87	95.19	0.14
5700.00	0.18	258.13	5698.56	-2.24	23.50	23.60	95.44	0.04

measured Depth FT	incl Angle Deg	Dir Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.16	268.31	5798.56	-2.27	23.20	23.31	95.60	0.03
5900.00	0.20	299.02	5898.56	-2.19	22.91	23.01	95.47	0.10
6000.00	0.23	329.72	5998.56	-1.94	22.65	22.74	94.88	0.12
6100.00	0.43	322.92	6098.56	-1.46	22.33	22.38	93.75	0.20
6200.00	0.64	316.11	6198.55	-0.76	21.72	21.73	92.01	0.22
6300.00	0.45	341.40	6298.55	0.01	21.20	21.20	89.96	0.30
6400.00	0.26	6.68	6398.54	0.61	21.10	21.11	88.33	0.24
6500.00	0.36	338.03	6498.54	1.13	21.01	21.04	86.91	0.18
6600.00	0.46	309.38	6598.54	1.68	20.59	20.66	85.35	0.22
6700.00	0.29	335.62	6698.54	2.16	20.18	20.29	83.89	0.23
6800.00	0.13	1.86	6798.54	2.51	20.07	20.23	82.88	0.19
6900.00	0.15	311.34	6898.54	2.71	19.98	20.16	82.29	0.12
7000.00	0.17	260.83	6998.54	2.77	19.74	19.93	82.01	0.14
7100.00	0.14	275.33	7098.54	2.76	19.48	19.67	81.94	0.05
7200.00	0.11	289.83	7198.54	2.80	19.27	19.47	81.73	0.04
7300.00	0.16	310.32	7298.54	2.92	19.08	19.30	81.30	0.07
7400.00	0.20	330.81	7398.54	3.16	18.89	19.15	80.49	0.08
7500.00	0.36	26.29	7498.53	3.60	18.94	19.28	79.24	0.30
7600.00	0.51	81.77	7598.53	3.94	19.52	19.91	78.58	0.43
7700.00	0.62	79.57	7698.53	4.11	20.50	20.90	78.67	0.11
7800.00	0.73	77.37	7798.52	4.34	21.65	22.08	78.66	0.10
7900.00	0.86	78.72	7898.51	4.63	23.01	23.47	78.62	0.13
8000.00	0.96	80.07	7998.50	4.92	24.57	25.06	78.68	0.11
8100.00	0.86	94.27	8098.49	5.01	26.15	26.63	79.16	0.25
8200.00	0.77	108.47	8198.48	4.74	27.54	27.94	80.23	0.22
8300.00	0.80	99.19	8298.47	4.42	28.86	29.19	81.30	0.13
8400.00	0.86	89.91	8398.46	4.31	30.29	30.60	81.91	0.14
8500.00	0.67	71.71	8498.45	4.49	31.59	31.91	81.91	0.30
8600.00	0.48	53.52	8598.44	4.92	32.48	32.85	81.38	0.26
8700.00	0.83	346.26	8698.44	5.87	32.64	33.17	79.80	0.78
8789.00	1.26	354.03	8787.42	7.48	32.38	33.24	77.00	0.51



Vaughn Energy Services
(432) 563-5444
Gardendale, TX
Surveyor: Colby Ware
Sol.28 Federal No. 002H / API 30-025-40803



VES Survey Date: 11/03/2012



COG Production LLC

Lea County, NM

Sol 28 Federal

#2H

OH

Design: OH

30-025-40803

HOBBS OCD

JUN 10 2013

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Survey Report - Geographic

12 November, 2012



Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Site:	Sol 28 Federal	MD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project	Lea County, NM		
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	Sol 28 Federal		
Site Position:		Northing:	400,730.40 usft
From:	Map	Easting:	704,768.00 usft
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 5' 59.992 N
		Longitude:	103° 40' 19.444 W
		Grid Convergence:	0.35 °

Well	#2H		
Well Position	+N/-S	0.0 usft	Northing: 400,730.40 usft
	+E/-W	0.0 usft	Easting: 704,768.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Ground Level:	3,384.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF200510	5/21/2012	7.50
			Dip Angle (°)
			60.06
			Field Strength (nT)
			48,478

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			269.42

Survey Program	Date 11/12/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	8,789.0	Survey #1 - VES Gyro (OH)	CB-GYRO-MS
8,841.0	13,759.0	Survey #2 - Crescent1 (OH)	MWD
13,840.0	13,840.0	Survey #3 - PTB (OH)	MWD
			Description
			Camera based gyro multishot
			MWD - Standard
			MWD - Standard

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	400,730.40	704,768.00	32° 5' 59.992 N	103° 40' 19.444 W
100.0	0.09	193.95	100.0	-0.1	0.0	400,730.32	704,767.98	32° 5' 59.991 N	103° 40' 19.444 W
200.0	0.45	144.23	200.0	-0.5	0.2	400,729.93	704,768.19	32° 5' 59.987 N	103° 40' 19.442 W
300.0	0.64	126.72	300.0	-1.1	0.9	400,729.28	704,768.86	32° 5' 59.981 N	103° 40' 19.434 W
400.0	0.83	109.21	400.0	-1.7	2.0	400,728.70	704,770.00	32° 5' 59.975 N	103° 40' 19.421 W
500.0	0.98	106.74	500.0	-2.2	3.5	400,728.22	704,771.50	32° 5' 59.970 N	103° 40' 19.404 W
600.0	1.15	104.27	600.0	-2.7	5.3	400,727.72	704,773.29	32° 5' 59.965 N	103° 40' 19.383 W
700.0	1.21	90.61	699.9	-2.9	7.3	400,727.47	704,775.32	32° 5' 59.962 N	103° 40' 19.359 W
800.0	1.27	76.96	799.9	-2.7	9.5	400,727.71	704,777.45	32° 5' 59.965 N	103° 40' 19.334 W
900.0	1.49	76.01	899.9	-2.1	11.8	400,728.27	704,779.80	32° 5' 59.970 N	103° 40' 19.307 W

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Site:	Sol 28 Federal	MD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
1,000.0	1.70	75.06	999.8	-1.4	14.5	400,728.97	704,782.49	32° 5' 59.977 N	103° 40' 19.276 W	
1,100.0	1.73	63.44	1,099.8	-0.4	17.3	400,730.02	704,785.27	32° 5' 59.987 N	103° 40' 19.243 W	
1,200.0	1.68	51.82	1,199.8	1.2	19.8	400,731.60	704,787.78	32° 6' 0.003 N	103° 40' 19.214 W	
1,300.0	1.85	52.91	1,299.7	3.1	22.2	400,733.48	704,790.22	32° 6' 0.021 N	103° 40' 19.186 W	
1,400.0	2.01	54.00	1,399.7	5.1	24.9	400,735.49	704,792.92	32° 6' 0.041 N	103° 40' 19.154 W	
1,500.0	1.43	27.11	1,499.6	7.2	26.9	400,737.63	704,794.91	32° 6' 0.062 N	103° 40' 19.131 W	
1,600.0	0.85	0.21	1,599.6	9.1	27.5	400,739.48	704,795.48	32° 6' 0.080 N	103° 40' 19.124 W	
1,700.0	1.19	356.69	1,699.6	10.9	27.4	400,741.26	704,795.42	32° 6' 0.098 N	103° 40' 19.125 W	
1,800.0	1.52	353.16	1,799.5	13.2	27.2	400,743.61	704,795.21	32° 6' 0.121 N	103° 40' 19.127 W	
1,900.0	1.34	341.89	1,899.5	15.6	26.7	400,746.04	704,794.68	32° 6' 0.145 N	103° 40' 19.133 W	
2,000.0	1.15	330.61	1,999.5	17.6	25.8	400,748.03	704,793.83	32° 6' 0.165 N	103° 40' 19.143 W	
2,100.0	1.05	304.34	2,099.5	19.0	24.6	400,749.42	704,792.58	32° 6' 0.179 N	103° 40' 19.157 W	
2,200.0	0.95	278.07	2,199.5	19.7	23.0	400,750.05	704,791.00	32° 6' 0.185 N	103° 40' 19.175 W	
2,300.0	1.25	272.82	2,299.4	19.8	21.1	400,750.22	704,789.09	32° 6' 0.187 N	103° 40' 19.198 W	
2,400.0	1.54	267.57	2,399.4	19.8	18.7	400,750.22	704,786.66	32° 6' 0.187 N	103° 40' 19.226 W	
2,500.0	1.27	255.82	2,499.4	19.5	16.2	400,749.89	704,784.24	32° 6' 0.184 N	103° 40' 19.254 W	
2,600.0	0.99	244.08	2,599.4	18.8	14.4	400,749.24	704,782.39	32° 6' 0.177 N	103° 40' 19.276 W	
2,700.0	1.35	236.99	2,699.3	17.8	12.6	400,748.22	704,780.63	32° 6' 0.167 N	103° 40' 19.296 W	
2,800.0	1.70	229.89	2,799.3	16.2	10.5	400,746.62	704,778.50	32° 6' 0.152 N	103° 40' 19.321 W	
2,900.0	1.13	207.09	2,899.3	14.4	8.9	400,744.79	704,776.92	32° 6' 0.134 N	103° 40' 19.339 W	
3,000.0	0.56	174.30	2,999.3	13.0	8.5	400,743.43	704,776.52	32° 6' 0.120 N	103° 40' 19.344 W	
3,100.0	1.17	129.08	3,099.3	11.9	9.4	400,742.30	704,777.36	32° 6' 0.109 N	103° 40' 19.334 W	
3,200.0	1.77	99.86	3,199.2	11.0	11.7	400,741.39	704,779.68	32° 6' 0.100 N	103° 40' 19.308 W	
3,300.0	1.77	78.60	3,299.2	11.0	14.7	400,741.43	704,782.71	32° 6' 0.100 N	103° 40' 19.272 W	
3,400.0	1.77	63.33	3,399.1	12.0	17.6	400,742.43	704,785.61	32° 6' 0.110 N	103° 40' 19.239 W	
3,500.0	1.40	47.70	3,499.1	13.5	19.9	400,743.94	704,787.89	32° 6' 0.125 N	103° 40' 19.212 W	
3,600.0	1.04	32.06	3,599.1	15.1	21.3	400,745.54	704,789.27	32° 6' 0.140 N	103° 40' 19.196 W	
3,700.0	0.88	5.68	3,699.1	16.7	21.8	400,747.07	704,789.83	32° 6' 0.155 N	103° 40' 19.189 W	
3,800.0	0.73	339.30	3,799.0	18.0	21.7	400,748.43	704,789.68	32° 6' 0.169 N	103° 40' 19.191 W	
3,900.0	0.82	40.54	3,899.0	19.2	21.9	400,749.57	704,789.92	32° 6' 0.180 N	103° 40' 19.188 W	
4,000.0	0.90	101.77	3,999.0	19.6	23.2	400,749.95	704,791.16	32° 6' 0.184 N	103° 40' 19.174 W	
4,100.0	1.79	114.73	4,099.0	18.7	25.3	400,749.14	704,793.34	32° 6' 0.176 N	103° 40' 19.148 W	
4,200.0	2.67	126.68	4,198.9	16.7	28.6	400,747.09	704,796.63	32° 6' 0.155 N	103° 40' 19.110 W	
4,300.0	2.24	132.43	4,298.8	14.0	31.9	400,744.38	704,799.94	32° 6' 0.128 N	103° 40' 19.072 W	
4,400.0	1.81	147.17	4,398.8	11.3	34.2	400,741.74	704,802.24	32° 6' 0.102 N	103° 40' 19.045 W	
4,500.0	1.71	175.22	4,498.7	8.5	35.2	400,738.92	704,803.22	32° 6' 0.074 N	103° 40' 19.034 W	
4,600.0	1.61	203.26	4,598.7	5.7	34.8	400,736.15	704,802.79	32° 6' 0.047 N	103° 40' 19.039 W	
4,700.0	1.42	224.66	4,698.6	3.6	33.4	400,733.97	704,801.36	32° 6' 0.025 N	103° 40' 19.056 W	
4,800.0	1.23	236.07	4,798.6	2.1	31.6	400,732.49	704,799.60	32° 6' 0.011 N	103° 40' 19.077 W	
4,900.0	1.05	236.32	4,898.6	1.0	30.0	400,731.39	704,797.95	32° 6' 0.000 N	103° 40' 19.096 W	
5,000.0	0.91	236.57	4,998.6	0.0	28.5	400,730.44	704,796.52	32° 5' 59.991 N	103° 40' 19.113 W	
5,100.0	0.73	240.79	5,098.6	-0.7	27.3	400,729.69	704,795.31	32° 5' 59.983 N	103° 40' 19.127 W	
5,200.0	0.52	245.01	5,198.6	-1.2	26.3	400,729.19	704,794.34	32° 5' 59.978 N	103° 40' 19.138 W	
5,300.0	0.48	249.44	5,298.6	-1.5	25.5	400,728.85	704,793.53	32° 5' 59.975 N	103° 40' 19.147 W	
5,400.0	0.44	253.88	5,398.6	-1.8	24.8	400,728.60	704,792.77	32° 5' 59.973 N	103° 40' 19.156 W	
5,500.0	0.29	250.91	5,498.6	-2.0	24.2	400,728.41	704,792.17	32° 5' 59.971 N	103° 40' 19.163 W	
5,600.0	0.15	247.94	5,598.6	-2.1	23.8	400,728.28	704,791.81	32° 5' 59.969 N	103° 40' 19.168 W	
5,700.0	0.18	258.13	5,698.6	-2.2	23.5	400,728.20	704,791.53	32° 5' 59.969 N	103° 40' 19.171 W	
5,800.0	0.16	268.31	5,798.6	-2.2	23.2	400,728.16	704,791.24	32° 5' 59.968 N	103° 40' 19.174 W	
5,900.0	0.20	299.02	5,898.6	-2.2	22.9	400,728.24	704,790.94	32° 5' 59.969 N	103° 40' 19.178 W	
6,000.0	0.23	329.72	5,998.6	-1.9	22.7	400,728.50	704,790.69	32° 5' 59.972 N	103° 40' 19.181 W	
6,100.0	0.43	322.92	6,098.6	-1.4	22.4	400,728.97	704,790.36	32° 5' 59.976 N	103° 40' 19.184 W	
6,200.0	0.64	316.11	6,198.6	-0.7	21.8	400,729.67	704,789.75	32° 5' 59.983 N	103° 40' 19.191 W	
6,300.0	0.45	341.40	6,298.5	0.0	21.2	400,730.45	704,789.24	32° 5' 59.991 N	103° 40' 19.197 W	
6,400.0	0.26	6.68	6,398.5	0.6	21.1	400,731.04	704,789.14	32° 5' 59.997 N	103° 40' 19.198 W	

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Site:	Sol 28 Federal	MD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,500.0	0.36	338.03	6,498.5	1.2	21.1	400,731.56	704,789.05	32° 6' 0.002 N	103° 40' 19.199 W
6,600.0	0.46	309.38	6,598.5	1.7	20.6	400,732.11	704,788.62	32° 6' 0.007 N	103° 40' 19.204 W
6,700.0	0.29	335.62	6,698.5	2.2	20.2	400,732.59	704,788.21	32° 6' 0.012 N	103° 40' 19.209 W
6,800.0	0.13	1.86	6,798.5	2.5	20.1	400,732.94	704,788.10	32° 6' 0.016 N	103° 40' 19.210 W
6,900.0	0.15	311.34	6,898.5	2.7	20.0	400,733.14	704,788.01	32° 6' 0.018 N	103° 40' 19.211 W
7,000.0	0.17	260.83	6,998.5	2.8	19.8	400,733.20	704,787.77	32° 6' 0.018 N	103° 40' 19.214 W
7,100.0	0.14	275.33	7,098.5	2.8	19.5	400,733.19	704,787.50	32° 6' 0.018 N	103° 40' 19.217 W
7,200.0	0.11	289.83	7,198.5	2.8	19.3	400,733.23	704,787.29	32° 6' 0.019 N	103° 40' 19.220 W
7,300.0	0.16	310.32	7,298.5	3.0	19.1	400,733.35	704,787.09	32° 6' 0.020 N	103° 40' 19.222 W
7,400.0	0.20	330.81	7,398.5	3.2	18.9	400,733.60	704,786.90	32° 6' 0.022 N	103° 40' 19.224 W
7,500.0	0.36	26.29	7,498.5	3.6	19.0	400,734.03	704,786.95	32° 6' 0.027 N	103° 40' 19.224 W
7,600.0	0.51	81.77	7,598.5	4.0	19.5	400,734.38	704,787.53	32° 6' 0.030 N	103° 40' 19.217 W
7,700.0	0.62	79.57	7,698.5	4.1	20.5	400,734.54	704,788.50	32° 6' 0.032 N	103° 40' 19.206 W
7,800.0	0.73	77.37	7,798.5	4.4	21.7	400,734.77	704,789.66	32° 6' 0.034 N	103° 40' 19.192 W
7,900.0	0.86	78.72	7,898.5	4.7	23.0	400,735.06	704,791.01	32° 6' 0.037 N	103° 40' 19.176 W
8,000.0	0.96	80.07	7,998.5	5.0	24.6	400,735.35	704,792.58	32° 6' 0.039 N	103° 40' 19.158 W
8,100.0	0.86	94.27	8,098.5	5.0	26.2	400,735.44	704,794.15	32° 6' 0.040 N	103° 40' 19.140 W
8,200.0	0.77	108.47	8,198.5	4.8	27.5	400,735.17	704,795.53	32° 6' 0.037 N	103° 40' 19.124 W
8,300.0	0.80	99.19	8,298.5	4.4	28.9	400,734.85	704,796.86	32° 6' 0.034 N	103° 40' 19.108 W
8,400.0	0.86	89.91	8,398.5	4.3	30.3	400,734.74	704,798.30	32° 6' 0.033 N	103° 40' 19.092 W
8,500.0	0.67	71.71	8,498.4	4.5	31.6	400,734.92	704,799.61	32° 6' 0.035 N	103° 40' 19.076 W
8,600.0	0.48	53.52	8,598.4	5.0	32.5	400,735.35	704,800.50	32° 6' 0.039 N	103° 40' 19.066 W
8,700.0	0.83	346.26	8,698.4	5.9	32.7	400,736.31	704,800.66	32° 6' 0.048 N	103° 40' 19.064 W
8,789.0	1.26	354.03	8,787.4	7.5	32.4	400,737.91	704,800.41	32° 6' 0.064 N	103° 40' 19.067 W
Tie into Gyro @ 8789' MD									
8,841.0	1.40	354.50	8,839.4	8.7	32.3	400,739.11	704,800.29	32° 6' 0.076 N	103° 40' 19.068 W
8,873.0	2.50	308.60	8,871.4	9.5	31.7	400,739.93	704,799.70	32° 6' 0.084 N	103° 40' 19.075 W
KOP - 8873.0' MD, 8871.4' TVD, 2.50° INC, 308.60° AZI, -31.8' VS									
8,905.0	6.90	285.80	8,903.3	10.5	29.3	400,740.89	704,797.31	32° 6' 0.094 N	103° 40' 19.103 W
8,937.0	11.60	285.29	8,934.9	11.9	24.4	400,742.26	704,792.35	32° 6' 0.108 N	103° 40' 19.160 W
8,969.0	15.30	286.10	8,966.0	13.9	17.2	400,744.28	704,785.19	32° 6' 0.128 N	103° 40' 19.243 W
9,000.0	18.30	280.80	8,995.6	15.9	8.5	400,746.33	704,776.48	32° 6' 0.149 N	103° 40' 19.344 W
9,025.3	20.65	274.70	9,019.5	17.0	0.1	400,747.44	704,768.13	32° 6' 0.160 N	103° 40' 19.441 W
PP - 9025.3' MD, 9019.5' TVD, 20.65° INC, -0.3' VS									
9,032.0	21.30	273.30	9,025.8	17.2	-2.3	400,747.61	704,765.74	32° 6' 0.162 N	103° 40' 19.469 W
9,064.0	23.40	269.90	9,055.3	17.5	-14.4	400,747.93	704,753.58	32° 6' 0.166 N	103° 40' 19.611 W
9,096.0	27.80	272.20	9,084.2	17.8	-28.2	400,748.21	704,739.76	32° 6' 0.170 N	103° 40' 19.771 W
9,128.0	31.30	272.10	9,112.0	18.4	-44.0	400,748.80	704,723.99	32° 6' 0.177 N	103° 40' 19.954 W
9,159.0	32.90	274.70	9,138.3	19.4	-60.4	400,749.78	704,707.55	32° 6' 0.187 N	103° 40' 20.146 W
9,191.0	35.70	272.90	9,164.7	20.6	-78.4	400,750.97	704,689.56	32° 6' 0.200 N	103° 40' 20.355 W
9,223.0	38.70	271.50	9,190.2	21.3	-97.8	400,751.70	704,670.23	32° 6' 0.209 N	103° 40' 20.579 W
9,255.0	42.80	272.10	9,214.5	22.0	-118.6	400,752.36	704,649.36	32° 6' 0.216 N	103° 40' 20.822 W
9,287.0	46.30	271.70	9,237.3	22.7	-141.1	400,753.10	704,626.92	32° 6' 0.225 N	103° 40' 21.083 W
9,318.0	49.80	271.30	9,258.0	23.3	-164.1	400,753.70	704,603.88	32° 6' 0.232 N	103° 40' 21.350 W
9,350.0	51.70	269.90	9,278.2	23.6	-188.9	400,753.96	704,579.10	32° 6' 0.236 N	103° 40' 21.638 W
9,382.0	53.70	268.20	9,297.6	23.1	-214.3	400,753.53	704,553.65	32° 6' 0.234 N	103° 40' 21.934 W
9,414.0	55.80	268.00	9,316.1	22.3	-240.5	400,752.67	704,527.54	32° 6' 0.227 N	103° 40' 22.238 W
9,446.0	58.80	268.00	9,333.4	21.3	-267.4	400,751.73	704,500.63	32° 6' 0.219 N	103° 40' 22.551 W
9,478.0	61.60	269.80	9,349.3	20.8	-295.1	400,751.20	704,472.87	32° 6' 0.216 N	103° 40' 22.874 W
9,510.0	64.60	271.00	9,363.7	21.0	-323.7	400,751.40	704,444.34	32° 6' 0.219 N	103° 40' 23.205 W
9,541.0	68.10	272.60	9,376.2	21.9	-352.0	400,752.30	704,415.96	32° 6' 0.230 N	103° 40' 23.535 W
9,573.0	71.30	272.90	9,387.3	23.3	-382.0	400,753.74	704,385.99	32° 6' 0.246 N	103° 40' 23.883 W
9,605.0	75.00	273.60	9,396.6	25.1	-412.6	400,755.48	704,355.42	32° 6' 0.265 N	103° 40' 24.239 W
9,636.0	77.80	272.10	9,403.8	26.6	-442.7	400,756.97	704,325.33	32° 6' 0.282 N	103° 40' 24.588 W
9,668.0	80.40	272.10	9,409.9	27.7	-474.1	400,758.12	704,293.93	32° 6' 0.295 N	103° 40' 24.953 W

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Site:	Sol 28 Federal	MD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	N-S (usft)	E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,700.0	82.70	271.70	9,414.6	28.8	-505.7	400,759.17	704,262.29	32° 6' 0.307 N	103° 40' 25.321 W
9,732.0	86.40	271.90	9,417.6	29.8	-537.5	400,760.17	704,230.46	32° 6' 0.319 N	103° 40' 25.691 W
9,763.0	87.30	270.80	9,419.3	30.5	-568.5	400,760.90	704,199.52	32° 6' 0.328 N	103° 40' 26.051 W
9,795.0	88.20	270.10	9,420.6	30.8	-600.5	400,761.15	704,167.54	32° 6' 0.333 N	103° 40' 26.422 W
9,827.0	88.90	268.40	9,421.4	30.3	-632.4	400,760.74	704,135.56	32° 6' 0.330 N	103° 40' 26.794 W
9,858.0	89.90	266.10	9,421.7	28.8	-663.4	400,759.25	704,104.60	32° 6' 0.318 N	103° 40' 27.154 W
9,890.0	91.00	266.60	9,421.5	26.8	-695.3	400,757.21	704,072.66	32° 6' 0.299 N	103° 40' 27.526 W
9,985.0	91.10	266.40	9,419.7	21.0	-790.1	400,751.41	703,977.86	32° 6' 0.248 N	103° 40' 28.628 W
10,047.0	91.23	266.66	9,418.5	17.3	-852.0	400,747.66	703,915.98	32° 6' 0.214 N	103° 40' 29.348 W
EOC - 10047.0' MD, 9418.5' TVD, 91.23° INC, 266.66° AZI, 851.8' VS									
10,081.0	91.30	266.80	9,417.7	15.3	-885.9	400,745.72	703,882.05	32° 6' 0.197 N	103° 40' 29.742 W
10,176.0	89.70	266.30	9,416.9	9.6	-980.8	400,740.00	703,787.23	32° 6' 0.146 N	103° 40' 30.845 W
10,271.0	89.90	266.60	9,417.2	3.7	-1,075.6	400,734.12	703,692.41	32° 6' 0.094 N	103° 40' 31.948 W
10,366.0	91.00	266.80	9,416.5	-1.7	-1,170.4	400,728.65	703,597.57	32° 6' 0.045 N	103° 40' 33.050 W
10,461.0	91.00	267.00	9,414.8	-6.9	-1,265.3	400,723.52	703,502.72	32° 6' 0.000 N	103° 40' 34.153 W
10,557.0	91.70	267.70	9,412.6	-11.3	-1,361.1	400,719.08	703,406.85	32° 5' 59.962 N	103° 40' 35.268 W
10,652.0	91.50	268.20	9,409.9	-14.7	-1,456.0	400,715.68	703,311.95	32° 5' 59.934 N	103° 40' 36.372 W
10,747.0	91.00	268.50	9,407.8	-17.5	-1,551.0	400,712.95	703,217.02	32° 5' 59.913 N	103° 40' 37.476 W
10,842.0	91.50	268.70	9,405.8	-19.8	-1,645.9	400,710.63	703,122.07	32° 5' 59.896 N	103° 40' 38.579 W
10,938.0	92.70	268.40	9,402.2	-22.2	-1,741.8	400,708.20	703,026.16	32° 5' 59.877 N	103° 40' 39.695 W
11,033.0	91.30	268.50	9,398.9	-24.8	-1,836.7	400,705.63	702,931.26	32° 5' 59.858 N	103° 40' 40.798 W
11,129.0	91.30	268.20	9,396.8	-27.5	-1,932.7	400,702.87	702,835.32	32° 5' 59.836 N	103° 40' 41.913 W
11,224.0	91.80	268.00	9,394.2	-30.7	-2,027.6	400,699.72	702,740.41	32° 5' 59.811 N	103° 40' 43.017 W
11,319.0	91.80	268.00	9,391.2	-34.0	-2,122.5	400,696.41	702,645.52	32° 5' 59.784 N	103° 40' 44.120 W
11,414.0	91.00	267.10	9,388.9	-38.1	-2,217.4	400,692.35	702,550.63	32° 5' 59.749 N	103° 40' 45.224 W
11,510.0	91.30	267.80	9,387.0	-42.3	-2,313.2	400,688.08	702,454.75	32° 5' 59.713 N	103° 40' 46.339 W
11,605.0	91.30	269.40	9,384.8	-44.6	-2,408.2	400,685.76	702,359.80	32° 5' 59.695 N	103° 40' 47.443 W
11,700.0	92.00	268.50	9,382.1	-46.4	-2,503.1	400,684.02	702,264.86	32° 5' 59.684 N	103° 40' 48.546 W
11,796.0	90.30	270.10	9,380.1	-47.6	-2,599.1	400,682.84	702,168.89	32° 5' 59.678 N	103° 40' 49.662 W
11,891.0	90.80	269.90	9,379.2	-47.6	-2,694.1	400,682.84	702,073.90	32° 5' 59.684 N	103° 40' 50.766 W
11,984.0	91.70	270.10	9,377.2	-47.6	-2,787.1	400,682.84	701,980.92	32° 5' 59.689 N	103° 40' 51.847 W
12,079.0	90.10	270.30	9,375.7	-47.2	-2,882.1	400,683.17	701,885.94	32° 5' 59.698 N	103° 40' 52.951 W
12,175.0	91.00	270.60	9,374.8	-46.5	-2,978.1	400,683.93	701,789.95	32° 5' 59.711 N	103° 40' 54.067 W
12,270.0	89.40	270.10	9,374.4	-45.9	-3,073.0	400,684.51	701,694.95	32° 5' 59.723 N	103° 40' 55.172 W
12,365.0	89.90	269.40	9,375.0	-46.3	-3,168.0	400,684.09	701,599.95	32° 5' 59.724 N	103° 40' 56.276 W
12,461.0	90.40	268.90	9,374.8	-47.7	-3,264.0	400,682.67	701,503.97	32° 5' 59.716 N	103° 40' 57.392 W
12,556.0	91.50	268.40	9,373.2	-50.0	-3,359.0	400,680.43	701,409.01	32° 5' 59.700 N	103° 40' 58.496 W
12,650.0	92.20	268.70	9,370.2	-52.3	-3,452.9	400,678.06	701,315.09	32° 5' 59.682 N	103° 40' 59.588 W
12,745.0	90.40	268.50	9,368.0	-54.7	-3,547.9	400,675.73	701,220.14	32° 5' 59.664 N	103° 41' 0.692 W
12,840.0	90.10	267.80	9,367.6	-57.7	-3,642.8	400,672.67	701,125.19	32° 5' 59.640 N	103° 41' 1.796 W
12,935.0	90.30	267.50	9,367.3	-61.6	-3,737.7	400,668.77	701,030.28	32° 5' 59.607 N	103° 41' 2.899 W
13,031.0	90.10	267.10	9,366.9	-66.1	-3,833.6	400,664.25	700,934.38	32° 5' 59.568 N	103° 41' 4.015 W
13,126.0	90.30	266.40	9,366.6	-71.5	-3,928.5	400,658.86	700,839.54	32° 5' 59.520 N	103° 41' 5.117 W
13,222.0	89.70	266.80	9,366.6	-77.2	-4,024.3	400,653.17	700,743.71	32° 5' 59.469 N	103° 41' 6.232 W
13,317.0	91.10	267.50	9,365.9	-82.0	-4,119.2	400,648.45	700,648.83	32° 5' 59.428 N	103° 41' 7.335 W
13,413.0	92.20	267.80	9,363.2	-85.9	-4,215.0	400,644.51	700,552.95	32° 5' 59.395 N	103° 41' 8.450 W
13,507.0	92.70	267.70	9,359.2	-89.6	-4,308.9	400,640.83	700,459.11	32° 5' 59.364 N	103° 41' 9.541 W
13,601.0	93.60	267.30	9,354.0	-93.7	-4,402.7	400,636.73	700,365.34	32° 5' 59.329 N	103° 41' 10.632 W
13,695.0	94.50	267.10	9,347.4	-98.2	-4,496.3	400,632.15	700,271.69	32° 5' 59.289 N	103° 41' 11.721 W
13,759.0	94.50	265.90	9,342.3	-102.1	-4,560.0	400,628.26	700,208.01	32° 5' 59.255 N	103° 41' 12.461 W
13,840.0	94.50	265.90	9,336.0	-107.9	-4,640.5	400,622.48	700,127.46	32° 5' 59.202 N	103° 41' 13.398 W
BHL - 13840.0' MD, 9336.0' TVD, 94.50° INC, 265.90° AZI, -107.9° N, -4640.5' E, 4641.4' VS									

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Site:	Sol 28 Federal	MD Reference:	Well @ 3402.0usft (Silver Oak #12 - 18' KB)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,789.0	8,787.4	7.5	32.4	Tie into Gyro @ 8789' MD
8,873.0	8,871.4	9.5	31.7	KOP - 8873.0' MD, 8871.4' TVD, 2.50° INC, 308.60° AZI, -31.8' VS
9,025.3	9,019.5	17.0	0.1	PP - 9025.3' MD, 9019.5' TVD, 20.65° INC, -0.3' VS
10,047.0	9,418.5	17.3	-852.0	EOC - 10047.0' MD, 9418.5' TVD, 91.23° INC, 266.66° AZI, 851.8' VS
13,840.0	9,336.0	-107.9	-4,640.5	BHL - 13840.0' MD, 9336.0' TVD, 94.50° INC, 265.90° AZI, -107.9' N, -4640.5' E

Checked By: _____	Approved By: _____	Date: _____
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