

Results of Directional Survey

API number:	30-025-40703		
OGRID:		Operator:	COG OPERATING LLC
		Property:	CABO BLANCO STATE # 2H

surface	ULSTR:	A	05	T	24S	R	33E
				430	FNL	330	FEL

BH Loc	ULSTR:	P	05	T	24S	R	33E
15317	MD	11111.5	TVD	364	FSL	351	FEL
				4916	FNL		

Top Perf/OH	ULSTR:	A	05	T	24S	R	33E
11316	MD	11089.3	TVD	929	FNL	355	FEL

Bot Perf/OH	ULSTR:	P	05	T	24S	R	33E
15240	MD	11110.7	TVD	441	FSL	353	FEL
				4839	FNL		

	MD	N/S	E/W	VD
	11284	-498.60	-18.10	11080.6
TOP PERFS/OH	11316	-498.70	-24.60	11089.30
	11316	-498.70	27.50	11089.30
	15191	-4359.90	-24.10	11110.00
BOT PERFS/OH	15240	-4408.84	-22.92	11110.65
	15274	-4442.80	-22.10	11111.10

NEXT TO LAST	15274	-4442.80	-22.10	11111.10
LAST READING	15317	-4486.00	-21.00	11111.50
TD	15317	-4486.00	-21.00	11111.50

Surface Location	430	FN	330	FE
Projected BHL	4916	FN	351	FE
Location of				
Top Perfs/OH	929	FN	355	FE
Bottom Perfs/OH	4839	FN	353	FE

SUMMARY of Subsurface Locations

Surface Location	A-05-24S-33E	430	FN	330	FE	Vert. Depth
Top Perfs/OH	A-05-24S-33E	929	FN	355	FE	11089.30
Bottom Perfs/OH	P-05-24S-33E	4839	FN	353	FE	11110.65
Projected TD	P-05-24S-33E	4916	FN	351	FE	11111.50

NOV 19 2013



A GYRO TECHNOLOGIES INC. COMPANY

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

September 4, 2013

HOBBS OCD

NOV 15 2013

RECEIVED

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: **Cabo Blanco State No. 002H**

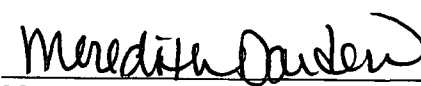
Please find enclosed a copy of the survey from 0.00' to 10450.00' ran on the above referenced well.

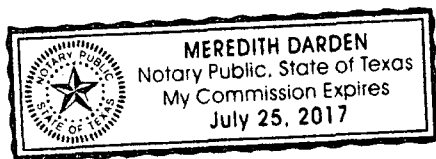
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 4th day of September A.D., 2013, by Keith Havelka.


Meredith Darden
Notary Public, State of Texas



Company: COG Operating LLC (Concho)

Lease/Well: Cabo Blanco State/No. 002H



Rig Name: Basic 46

State/County: New Mexico/Lea

Latitude: 32.25, Longitude: -103.59

GRID North is 0.40 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB = 22 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...co state 2h-de_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 9/4/2013 / 13:22

Vaughn Energy Services

Midland, Texas

432-563-5444

Surveyor: Gene Heiss

Cabo Blanco State No. 002H / API 30-025-40703

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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	0.24	119.70	100.00	-0.10	0.18	-0.10	0.21	119.70	0.24
200.00	0.34	122.08	200.00	-0.36	0.61	-0.36	0.71	120.69	0.10
300.00	0.35	133.86	300.00	-0.73	1.09	-0.73	1.31	124.06	0.07
400.00	0.05	155.59	400.00	-0.99	1.33	-0.99	1.65	126.68	0.31
500.00	0.26	167.37	500.00	-1.25	1.40	-1.25	1.88	131.93	0.21
600.00	0.35	177.83	599.99	-1.79	1.46	-1.79	2.31	140.80	0.11
700.00	0.12	176.48	699.99	-2.20	1.48	-2.20	2.65	146.18	0.23
800.00	0.21	194.72	799.99	-2.48	1.44	-2.48	2.87	149.96	0.10
900.00	0.13	208.89	899.99	-2.76	1.34	-2.76	3.07	154.18	0.09
1000.00	0.32	198.97	999.99	-3.13	1.19	-3.13	3.35	159.20	0.20
1100.00	0.39	174.75	1099.99	-3.73	1.13	-3.73	3.90	163.19	0.16
1200.00	0.89	132.54	1199.98	-4.59	1.73	-4.59	4.91	159.34	0.66
1300.00	1.73	117.04	1299.96	-5.81	3.65	-5.81	6.86	147.83	0.90
1400.00	1.88	108.48	1399.91	-7.02	6.56	-7.02	9.60	136.93	0.31
1500.00	1.68	98.94	1499.86	-7.76	9.57	-7.76	12.32	129.07	0.36
1600.00	1.52	87.82	1599.82	-7.94	12.33	-7.94	14.67	122.78	0.35
1700.00	1.51	89.63	1699.79	-7.88	14.98	-7.88	16.93	117.76	0.05
1800.00	1.32	86.50	1799.75	-7.80	17.45	-7.80	19.12	114.09	0.21

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	1.45	83.47	1899.73	-7.59	19.86	-7.59	21.26	110.92	0.15
2000.00	1.38	78.63	1999.69	-7.21	22.29	-7.21	23.43	107.92	0.14
2100.00	1.62	75.31	2099.66	-6.61	24.84	-6.61	25.70	104.91	0.26
2200.00	1.41	73.12	2199.63	-5.90	27.38	-5.90	28.01	102.16	0.22
2300.00	1.71	71.79	2299.59	-5.08	29.97	-5.08	30.40	99.61	0.30
2400.00	1.36	75.54	2399.55	-4.31	32.54	-4.31	32.82	97.55	0.36
2500.00	1.65	68.51	2499.52	-3.49	35.03	-3.49	35.20	95.69	0.34
2600.00	1.55	74.62	2599.48	-2.60	37.67	-2.60	37.76	93.95	0.20
2700.00	1.61	66.21	2699.44	-1.68	40.26	-1.68	40.29	92.39	0.24
2800.00	1.67	59.59	2799.40	-0.37	42.80	-0.37	42.80	90.50	0.20
2900.00	1.72	64.46	2899.36	1.01	45.42	1.01	45.43	88.72	0.15
3000.00	1.80	62.45	2999.31	2.39	48.16	2.39	48.22	87.16	0.10
3100.00	1.97	60.96	3099.25	3.95	51.06	3.95	51.22	85.58	0.18
3200.00	1.98	59.90	3199.20	5.65	54.06	5.65	54.36	84.03	0.04
3300.00	2.04	44.71	3299.13	7.78	56.81	7.78	57.34	82.20	0.53
3400.00	1.92	38.24	3399.08	10.36	59.10	10.36	60.00	80.06	0.25
3500.00	1.98	36.55	3499.02	13.06	61.16	13.06	62.54	77.94	0.08
3600.00	1.66	34.29	3598.97	15.65	63.01	15.65	64.92	76.05	0.33
3700.00	1.52	27.76	3698.93	18.02	64.44	18.02	66.92	74.38	0.23
3800.00	1.29	25.96	3798.90	20.21	65.56	20.21	68.60	72.86	0.24
3900.00	1.16	24.86	3898.87	22.15	66.48	22.15	70.07	71.58	0.13
4000.00	0.92	21.79	3998.86	23.81	67.20	23.81	71.30	70.49	0.25
4100.00	1.01	25.43	4098.84	25.35	67.88	25.35	72.46	69.52	0.11
4200.00	0.96	21.67	4198.83	26.92	68.56	26.92	73.66	68.56	0.08
4300.00	0.68	19.15	4298.82	28.26	69.06	28.26	74.62	67.75	0.28
4400.00	0.58	49.36	4398.81	29.15	69.64	29.15	75.50	67.29	0.34
4500.00	1.14	82.44	4498.80	29.61	71.02	29.61	76.94	67.37	0.73
4600.00	1.17	104.83	4598.78	29.48	73.00	29.48	78.72	68.01	0.45
4700.00	1.43	109.32	4698.76	28.81	75.16	28.81	80.49	69.03	0.27
4800.00	2.30	117.85	4798.70	27.46	78.11	27.46	82.79	70.63	0.92
4900.00	2.45	133.90	4898.62	25.04	81.42	25.04	85.18	72.91	0.68
5000.00	1.62	136.66	4998.55	22.53	83.93	22.53	86.90	74.98	0.83
5100.00	1.64	142.24	5098.51	20.36	85.78	20.36	88.16	76.65	0.16
5200.00	1.83	133.96	5198.47	18.12	87.81	18.12	89.66	78.34	0.31
5300.00	1.69	138.08	5298.42	15.91	89.95	15.91	91.34	79.97	0.19
5400.00	1.78	140.44	5398.37	13.62	91.92	13.62	92.92	81.57	0.12
5500.00	1.88	139.26	5498.32	11.17	93.98	11.17	94.65	83.22	0.10
5600.00	1.90	138.98	5598.27	8.68	96.14	8.68	96.53	84.84	0.02
5700.00	1.75	133.72	5698.22	6.38	98.33	6.38	98.54	86.29	0.23

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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
5800.00	1.50	135.10	5798.18	4.40	100.35	4.40	100.45	87.49	0.25
5900.00	1.44	130.10	5898.15	2.67	102.24	2.67	102.27	88.51	0.14
6000.00	1.59	133.09	5998.11	0.91	104.21	0.91	104.22	89.50	0.17
6100.00	1.57	131.54	6098.07	-0.95	106.25	-0.95	106.26	90.51	0.05
6200.00	1.53	127.47	6198.04	-2.67	108.34	-2.67	108.37	91.41	0.12
6300.00	1.51	130.69	6298.00	-4.34	110.39	-4.34	110.47	92.25	0.09
6400.00	1.08	133.39	6397.98	-5.84	112.07	-5.84	112.22	92.98	0.43
6500.00	1.20	137.32	6497.96	-7.26	113.47	-7.26	113.70	93.66	0.14
6600.00	1.01	130.84	6597.94	-8.61	114.84	-8.61	115.17	94.29	0.23
6700.00	0.94	124.10	6697.92	-9.64	116.19	-9.64	116.59	94.74	0.14
6800.00	0.87	118.37	6797.91	-10.46	117.53	-10.46	118.00	95.09	0.11
6900.00	0.84	121.19	6897.90	-11.20	118.83	-11.20	119.36	95.39	0.05
7000.00	0.99	125.78	6997.89	-12.09	120.16	-12.09	120.76	95.74	0.17
7100.00	0.91	137.29	7097.87	-13.17	121.39	-13.17	122.11	96.19	0.21
7200.00	0.97	138.68	7197.86	-14.39	122.49	-14.39	123.33	96.70	0.06
7300.00	0.88	142.47	7297.85	-15.63	123.51	-15.63	124.50	97.21	0.11
7400.00	0.87	148.36	7397.83	-16.89	124.38	-16.89	125.52	97.73	0.09
7500.00	0.73	151.51	7497.82	-18.10	125.09	-18.10	126.39	98.24	0.15
7600.00	0.61	163.70	7597.82	-19.18	125.54	-19.18	127.00	98.69	0.19
7700.00	0.51	193.28	7697.81	-20.13	125.59	-20.13	127.19	99.10	0.30
7800.00	0.57	226.50	7797.81	-20.90	125.13	-20.90	126.86	99.48	0.31
7900.00	0.93	245.52	7897.80	-21.58	124.03	-21.58	125.89	99.87	0.43
8000.00	1.07	241.59	7997.78	-22.37	122.46	-22.37	124.49	100.35	0.16
8100.00	1.44	252.04	8097.76	-23.20	120.44	-23.20	122.66	100.90	0.43
8200.00	1.58	232.10	8197.73	-24.43	118.17	-24.43	120.67	101.68	0.54
8300.00	1.59	226.01	8297.69	-26.24	116.09	-26.24	119.01	102.74	0.17
8400.00	1.50	217.37	8397.65	-28.24	114.30	-28.24	117.73	103.88	0.25
8500.00	1.62	196.41	8497.62	-30.63	113.10	-30.63	117.18	105.15	0.58
8600.00	1.68	194.67	8597.58	-33.40	112.33	-33.40	117.20	106.56	0.08
8700.00	1.61	197.97	8697.53	-36.15	111.53	-36.15	117.24	107.96	0.12
8800.00	1.48	204.73	8797.50	-38.66	110.56	-38.66	117.18	109.27	0.22
8900.00	1.15	201.13	8897.47	-40.76	109.66	-40.76	116.99	110.39	0.34
9000.00	1.35	207.23	8997.45	-42.75	108.76	-42.75	116.86	111.46	0.24
9100.00	1.10	216.56	9097.43	-44.56	107.65	-44.56	116.51	112.49	0.32
9200.00	1.18	215.78	9197.41	-46.17	106.47	-46.17	116.05	113.44	0.08
9300.00	1.34	219.80	9297.38	-47.91	105.12	-47.91	115.52	114.50	0.18
9400.00	0.77	220.96	9397.36	-49.32	103.93	-49.32	115.04	115.39	0.58
9500.00	0.62	218.21	9497.36	-50.25	103.15	-50.25	114.74	115.97	0.15
9600.00	0.73	203.92	9597.35	-51.25	102.56	-51.25	114.66	116.55	0.20

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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
9700.00	1.01	198.04	9697.34	-52.67	102.03	-52.67	114.82	117.30	0.30
9800.00	1.18	187.55	9797.32	-54.53	101.62	-54.53	115.33	118.22	0.26
9900.00	1.27	173.30	9897.30	-56.66	101.62	-56.66	116.34	119.14	0.32
10000.00	0.92	161.53	9997.28	-58.52	102.00	-58.52	117.60	119.84	0.41
10100.00	1.67	184.62	10097.25	-60.74	102.14	-60.74	118.83	120.74	0.90
10200.00	1.30	210.01	10197.22	-63.17	101.45	-63.17	119.51	121.91	0.75
10300.00	1.58	219.28	10297.19	-65.22	100.01	-65.22	119.40	123.11	0.36
10400.00	1.84	221.15	10397.14	-67.50	98.08	-67.50	119.07	124.54	0.27
10450.00	2.20	230.66	10447.11	-68.71	96.81	-68.71	118.72	125.37	0.98

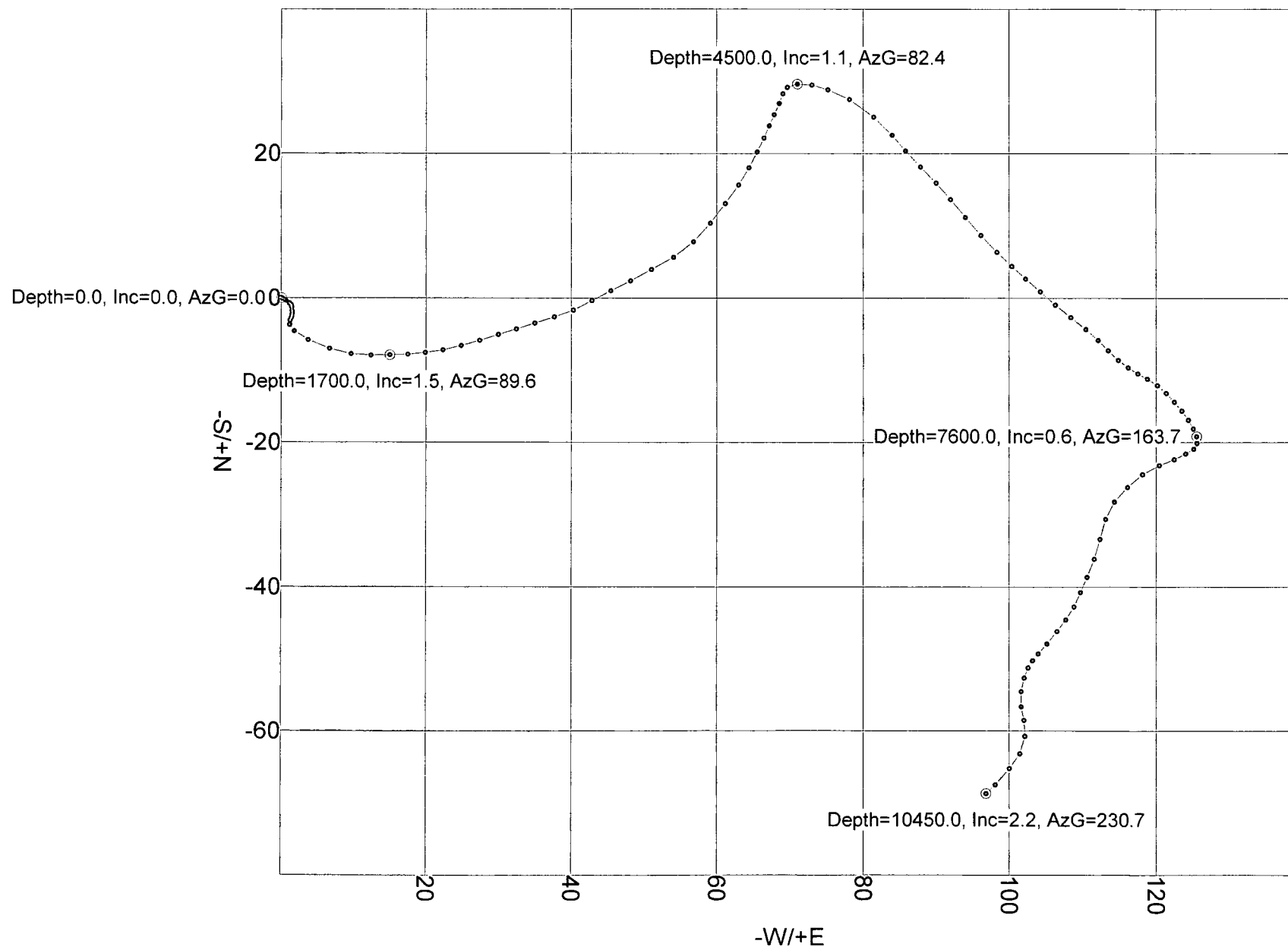
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Vaughn Energy Services
Midland, Texas
432-563-5444
Surveyor: Gene Heiss
Cabo Blanco State No. 002H / API 30-025-40703



VES Survey Date: 0/31/2013

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COG Production LLC

Lea County, NM
Cabo Blanco State
#2H

OH

Survey: MWD #1

Standard Survey Report

12 September, 2013



Wellplanning
Survey Report

HOBBS OCD

NOV 15 2013

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	WELL @ 3689.0usft (Original Well Elev)
Site:	Cabo Blanco State	MD Reference:	WELL @ 3689.0usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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	Cabo Blanco State				
Site Position:		Northing:	456,423.00 usft	Latitude:	32° 15' 9.416 N
From:	Map	Easting:	730,914.90 usft	Longitude:	103° 35' 10.996 W
Position Uncertainty:	3.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	#2H					
Well Position	+N/-S	0.0 usft	Northing:	456,423.00 usft	Latitude:	32° 15' 9.416 N
	+E/-W	0.0 usft	Easting:	730,914.90 usft	Longitude:	103° 35' 10.996 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,667.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/2/2013	7.33	60.16	48,417

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	180.22	

Survey Program		Date	9/9/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	10,450.0	GYRO (OH)			
10,563.0	15,317.0	MWD #1 (OH)			

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)
10,450.0	2.20	230.66	10,447.1	-68.7	96.8	68.3	0.00	0.00	0.00
10,563.0	2.50	264.00	10,560.0	-70.3	92.7	70.0	1.22	0.27	29.50
10,595.0	2.90	262.30	10,592.0	-70.5	91.2	70.2	1.27	1.25	-5.31
KOP - 10595.0 'MD, 2.90° INC, 262.30° AZI									
10,626.0	4.50	213.00	10,622.9	-71.6	89.7	71.3	11.00	5.16	-159.03
10,658.0	9.80	187.20	10,654.7	-75.4	88.7	75.0	18.97	16.56	-80.63
10,689.0	14.90	188.30	10,684.9	-82.0	87.8	81.6	16.47	16.45	3.55
10,721.0	18.10	196.90	10,715.6	-90.8	85.7	90.5	12.56	10.00	26.88
10,752.0	20.20	203.40	10,744.9	-100.3	82.2	100.0	9.64	6.77	20.97
10,784.0	21.60	207.30	10,774.8	-110.6	77.3	110.3	6.17	4.38	12.19



Wellplanning
Survey Report

HOBBS OCD

NOV 15 2013

Company: COG Production LLC
Project: Lea County, NM
Site: Cabo Blanco State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: WELL @ 3689.0usft (Original Well Elev)
MD Reference: WELL @ 3689.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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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)
10,815.0	24.40	207.10	10,803.3	-121.4	71.8	121.1	9.04	9.03	-0.65
10,847.0	28.60	202.60	10,832.0	-134.3	65.8	134.1	14.54	13.13	-14.06
10,878.0	32.50	199.40	10,858.7	-149.1	60.2	148.8	13.63	12.58	-10.32
10,910.0	36.10	198.40	10,885.1	-166.1	54.4	165.9	11.39	11.25	-3.13
10,941.0	39.60	196.20	10,909.6	-184.3	48.7	184.1	12.10	11.29	-7.10
10,973.0	44.40	195.00	10,933.4	-204.9	43.0	204.7	15.21	15.00	-3.75
11,004.0	49.50	192.90	10,954.5	-226.9	37.5	226.7	17.18	16.45	-6.77
11,036.0	54.00	192.30	10,974.3	-251.4	32.1	251.3	14.14	14.06	-1.88
11,067.0	57.30	192.40	10,991.8	-276.4	26.6	276.3	10.65	10.65	0.32
11,099.0	60.30	192.30	11,008.4	-303.1	20.7	303.0	9.38	9.38	-0.31
11,127.0	63.00	192.70	11,021.7	-327.2	15.4	327.1	9.72	9.64	1.43
11,158.0	65.30	193.80	11,035.2	-354.3	9.0	354.3	8.08	7.42	3.55
11,190.0	66.80	194.10	11,048.2	-382.7	2.0	382.7	4.77	4.69	0.94
11,221.0	68.80	193.60	11,059.9	-410.6	-4.9	410.6	6.62	6.45	-1.61
11,253.0	70.70	192.70	11,071.0	-439.8	-11.7	439.9	6.50	5.94	-2.81
11,284.0	73.20	192.20	11,080.6	-468.6	-18.1	468.7	8.21	8.06	-1.61
11,316.0	75.10	192.20	11,089.3	-498.7	-24.6	498.8	5.94	5.94	0.00
11,347.0	77.60	192.20	11,096.6	-528.1	-31.0	528.2	8.06	8.06	0.00
11,379.0	80.10	192.60	11,102.8	-558.8	-37.7	558.9	7.91	7.81	1.25
11,410.0	82.60	192.60	11,107.5	-588.7	-44.4	588.9	8.06	8.06	0.00
11,442.0	84.90	193.10	11,111.0	-619.7	-51.5	619.9	7.35	7.19	1.56
11,473.0	87.10	192.90	11,113.1	-649.8	-58.4	650.1	7.13	7.10	-0.65
11,505.0	89.40	192.90	11,114.1	-681.0	-65.6	681.3	7.19	7.19	0.00
11,536.0	89.90	192.60	11,114.3	-711.2	-72.4	711.5	1.88	1.61	-0.97
EOC - 11536.0 'MD, 89.90° INC, 192.60° AZI									
11,568.0	90.00	192.40	11,114.3	-742.5	-79.3	742.8	0.70	0.31	-0.63
11,599.0	89.20	191.10	11,114.5	-772.8	-85.6	773.2	4.92	-2.58	-4.19
11,662.0	88.80	190.10	11,115.6	-834.8	-97.2	835.1	1.71	-0.63	-1.59
11,725.0	89.00	187.10	11,116.8	-897.0	-106.6	897.4	4.77	0.32	-4.76
11,788.0	89.60	185.70	11,117.6	-959.6	-113.7	960.1	2.42	0.95	-2.22
11,851.0	91.10	184.30	11,117.2	-1,022.4	-119.2	1,022.8	3.26	2.38	-2.22
11,914.0	91.30	182.20	11,115.9	-1,085.3	-122.7	1,085.7	3.35	0.32	-3.33
11,977.0	90.50	180.40	11,114.9	-1,148.2	-124.2	1,148.7	3.13	-1.27	-2.86
12,072.0	91.40	180.10	11,113.3	-1,243.2	-124.6	1,243.7	1.00	0.95	-0.32
12,166.0	90.20	179.90	11,112.0	-1,337.2	-124.6	1,337.7	1.29	-1.28	-0.21
12,261.0	90.70	179.40	11,111.3	-1,432.2	-124.0	1,432.7	0.74	0.53	-0.53
12,355.0	90.00	177.80	11,110.7	-1,526.2	-121.7	1,526.6	1.86	-0.74	-1.70
12,450.0	91.50	176.90	11,109.5	-1,621.1	-117.3	1,621.5	1.84	1.58	-0.95
12,544.0	89.40	178.70	11,108.7	-1,715.0	-113.7	1,715.4	2.94	-2.23	1.91
12,639.0	88.50	178.10	11,110.5	-1,809.9	-111.0	1,810.3	1.14	-0.95	-0.63
12,733.0	89.70	178.00	11,111.9	-1,903.9	-107.8	1,904.3	1.28	1.28	-0.11
12,828.0	89.00	177.80	11,113.0	-1,998.8	-104.4	1,999.2	0.77	-0.74	-0.21
12,922.0	90.20	177.60	11,113.7	-2,092.7	-100.6	2,093.1	1.29	1.28	-0.21



Wellplanning
Survey Report

HOBBS OCD

NOV 15 2013

Company: COG Production LLC
Project: Lea County, NM
Site: Cabo Blanco State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: WELL @ 3689.0usft (Original Well Elev)
MD Reference: WELL @ 3689.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

RECEIVED

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)
13,017.0	90.10	177.80	11,113.4	-2,187.6	-96.8	2,188.0	0.24	-0.11	0.21
13,111.0	88.60	178.50	11,114.5	-2,281.6	-93.7	2,281.9	1.76	-1.60	0.74
13,206.0	89.20	178.00	11,116.3	-2,376.5	-90.8	2,376.8	0.82	0.63	-0.53
13,301.0	90.30	177.30	11,116.7	-2,471.4	-86.9	2,471.7	1.37	1.16	-0.74
13,395.0	91.20	177.30	11,115.5	-2,565.3	-82.5	2,565.6	0.96	0.96	0.00
13,490.0	90.60	177.10	11,114.0	-2,660.2	-77.9	2,660.5	0.67	-0.63	-0.21
13,584.0	89.80	175.50	11,113.7	-2,754.0	-71.8	2,754.2	1.90	-0.85	-1.70
13,679.0	91.00	177.60	11,113.0	-2,848.8	-66.1	2,849.0	2.55	1.26	2.21
13,773.0	91.30	177.80	11,111.1	-2,942.7	-62.3	2,942.9	0.38	0.32	0.21
13,868.0	88.30	179.20	11,111.5	-3,037.7	-59.8	3,037.9	3.48	-3.16	1.47
13,962.0	89.10	178.50	11,113.6	-3,131.6	-57.9	3,131.8	1.13	0.85	-0.74
14,057.0	88.10	178.10	11,115.9	-3,226.5	-55.1	3,226.7	1.13	-1.05	-0.42
14,151.0	88.20	178.70	11,119.0	-3,320.5	-52.5	3,320.6	0.65	0.11	0.64
14,246.0	90.50	178.30	11,120.0	-3,415.4	-50.0	3,415.6	2.46	2.42	-0.42
14,340.0	90.90	178.30	11,118.9	-3,509.4	-47.2	3,509.5	0.43	0.43	0.00
14,435.0	90.60	178.50	11,117.6	-3,604.3	-44.6	3,604.5	0.38	-0.32	0.21
14,530.0	91.30	177.60	11,116.1	-3,699.2	-41.3	3,699.4	1.20	0.74	-0.95
14,624.0	91.30	178.10	11,113.9	-3,793.2	-37.8	3,793.3	0.53	0.00	0.53
14,719.0	90.40	179.00	11,112.5	-3,888.1	-35.4	3,888.2	1.34	-0.95	0.95
14,813.0	91.90	177.60	11,110.6	-3,982.1	-32.6	3,982.1	2.18	1.60	-1.49
14,908.0	91.30	178.30	11,108.0	-4,077.0	-29.2	4,077.0	0.97	-0.63	0.74
15,002.0	90.10	179.20	11,106.8	-4,170.9	-27.2	4,171.0	1.60	-1.28	0.96
15,097.0	88.60	179.20	11,107.9	-4,265.9	-25.9	4,266.0	1.58	-1.58	0.00
15,191.0	88.90	178.70	11,110.0	-4,359.9	-24.1	4,359.9	0.62	0.32	-0.53
15,274.0	89.50	178.50	11,111.1	-4,442.8	-22.1	4,442.9	0.76	0.72	-0.24
15,317.0	89.50	178.50	11,111.5	-4,485.8	-21.0	4,485.9	0.00	0.00	0.00

BHL- 15317.0 'MD, 89.50° INC, 178.50° AZI - PBHL(CBS#2H)

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
10,595.0	10,592.0	-70.5	91.2	KOP - 10595.0 'MD, 2.90° INC, 262.30° AZI
11,536.0	11,114.3	-711.2	-72.4	EOC- 11536.0 'MD, 89.90° INC, 192.60° AZI
15,317.0	11,111.5	-4,485.8	-21.0	BHL- 15317.0 'MD, 89.50° INC, 178.50° AZI

Checked By: _____ Approved By: _____ Date: _____