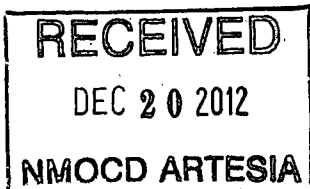




PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

15-40735



COG OPERATING, LL
RECEIVED

NOV 05 2012

ARTESIA WEST

October 29, 2012

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

RE: Baby Buddah 13 Federal #1H
2310' FSL & 190' FWL
Sec. 13, T26S, R28E
Eddy County, New Mexico

Dear Sir,

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

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 29th day of October, 2012.

Notary Public

Pason DataHub Deviation Survey

Well Dossier 1349391499 - BABY BUDDHA 13 FEDERAL 1H

#

# Date	Depth	Deviation	Direction	TVD	Horiz
10/5/2012	176	0.30	0.00	0.00	0.00
10/7/2012	514	0.50	219.60	513.00	0.00
10/7/2012	603	0.60	199.30	602.00	0.00
10/7/2012	699	0.60	198.90	698.00	0.00
10/7/2012	794	0.50	176.30	793.00	0.00
10/7/2012	889	0.60	183.50	888.00	0.00
10/7/2012	985	0.60	208.50	984.00	0.00
10/7/2012	1081	0.70	219.60	1080.00	2.89
10/7/2012	1272	1.10	236.50	1271.94	5.01
10/7/2012	1367	1.50	256.60	1366.92	6.96
10/8/2012	1462	1.80	267.10	1461.88	9.65
10/8/2012	1557	2.00	273.50	1556.83	12.79
10/8/2012	1653	2.10	269.00	1652.77	16.22
10/8/2012	1844	1.30	282.90	1843.00	0.00
10/8/2012	2035	0.90	64.80	203.40	0.00
10/8/2012	2131	1.00	79.00	2130.00	0.00
10/8/2012	2226	1.80	87.20	2225.00	19.55
10/8/2012	2418	3.00	89.10	2417.00	11.19
10/8/2012	2513	2.30	57.00	2512.34	7.13
10/10/2012	2999	0.90	0.00	0.00	0.00
10/10/2012	3475	1.00	0.00	0.00	0.00
10/10/2012	3951	0.90	0.00	0.00	0.00
10/11/2012	4431	0.80	0.00	0.00	0.00
10/11/2012	4906	0.40	0.00	0.00	0.00
10/11/2012	5383	1.30	0.00	0.00	0.00
10/11/2012	5861	1.70	0.00	0.00	0.00
10/12/2012	5960	1.90	0.00	0.00	0.00
10/12/2012	6056	2.10	0.00	0.00	0.00
10/12/2012	6151	1.50	0.00	0.00	0.00
10/12/2012	6243	1.50	0.00	0.00	0.00
10/12/2012	6724	1.30	0.00	0.00	0.00
10/13/2012	7202	1.90	0.00	0.00	0.00
10/13/2012	7390	1.70	0.00	0.00	0.00
10/13/2012	7485	1.00	0.00	0.00	0.00
10/14/2012	7961	1.50	0.00	0.00	0.00
10/14/2012	8451	0.40	0.00	0.00	0.00
10/18/2012	7664	1.00	219.80	7762.00	70.65
10/18/2012	7696	1.20	157.10	7694.00	70.58
10/18/2012	7728	5.90	137.90	7726.00	79.31
10/18/2012	7760	9.60	141.30	7757.00	66.43
10/18/2012	7792	8.90	118.10	7789.41	62.50

# Date	Depth	Deviation	Direction	TVD	Horiz
10/18/2012	7887	17.80	106.80	7881.00	41.68
10/19/2012	7919	21.30	100.10	7911.00	32.38
10/19/2012	7951	24.50	94.00	7941.00	20.00
10/19/2012	7983	26.60	95.90	7970.00	6.22
10/19/2012	8014	29.10	95.00	7997.00	9.40
10/19/2012	8046	32.40	94.90	8025.00	25.73
10/20/2012	8078	36.10	98.90	8051.70	43.65
10/20/2012	8237	53.00	82.70	8166.00	152.26
10/20/2012	8301	60.80	85.50	8201.00	205.52
10/20/2012	8333	63.60	87.70	8216.00	233.76
10/21/2012	8346	67.10	91.00	8229.00	261.90
10/21/2012	8428	77.80	89.90	8248.00	322.70
10/21/2012	8459	83.00	89.30	8254.00	353.24
10/21/2012	8587	88.20	90.70	8261.00	480.93
10/21/2012	8874	90.80	91.50	8261.00	767.87
10/22/2012	8968	90.40	92.30	8260.00	861.86
10/22/2012	9348	91.70	92.40	8256.00	1241.80
10/22/2012	9443	92.10	92.20	8252.00	1336.74
10/22/2012	9634	89.90	90.80	8249.00	0.00
10/22/2012	9730	86.90	90.10	8256.00	0.00
10/22/2012	9920	88.10	90.50	8260.00	0.00
10/22/2012	10016	87.30	89.90	8264.00	1909.28
10/22/2012	10207	86.50	90.80	8273.00	2100.01
10/22/2012	10303	87.00	91.20	8279.00	2195.00
10/23/2012	10398	89.30	91.80	8282.00	2290.18
10/23/2012	10493	90.00	90.90	8282.00	2385.17
10/23/2012	10589	90.20	90.70	8282.00	2481.78
10/23/2012	10685	90.70	90.60	8281.00	2672.73
10/23/2012	10876	90.40	89.90	8279.00	2768.69
10/23/2012	10876	90.40	89.90	8279.00	2863.65
10/24/2012	11161	89.00	90.10	8281.00	3053.57
10/24/2012	11257	88.60	90.10	8283.00	3149.51
10/24/2012	11352	87.40	91.10	8286.00	3244.44
10/24/2012	11447	88.00	91.00	8292.00	3371.33
10/24/2012	11638	87.50	92.10	8299.00	3530.00
10/25/2012	11733	88.50	92.00	8302.00	3625.00
10/25/2012	11829	88.40	91.80	8302.00	3625.09
10/25/2012	12019	87.20	93.10	8309.00	3910.99
10/25/2012	12115	87.80	93.50	8314.00	4006.00
10/25/2012	12210	89.10	93.40	8316.00	4101.00
10/25/2012	12306	89.10	92.60	8318.00	4197.72
10/25/2012	12401	89.20	92.30	8319.00	4992.70
10/26/2012	12496	86.70	92.30	8323.00	4387.62
10/26/2012	12592	87.00	91.70	8328.00	4483.47
10/26/2012	12782	89.50	90.60	8333.00	4673.39

#	Date	Depth	Deviation	Direction	TVD	Horiz
---	------	-------	-----------	-----------	-----	-------

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

October 23, 2012



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

Attn: Kanicia Castillo

Re: **Baby Buddah 13 Federal No. 001H**

Please find enclosed a copy of the survey from 0' to 8,948' 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: Baby Buddah 13 Federal/No. 001H



Rig Name: Silver Oak #7
State/County: New Mexico/Eddy
Latitude: 32.04, Longitude: -104.05
GRID North is 0.15 Degrees East of True North
VS-Azi: 0.00 Degrees

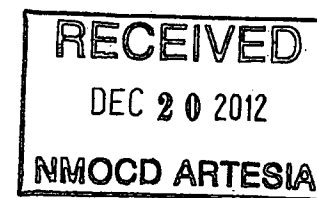


Depth Reference : RKB= 17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 10/23/2012 / 08:54

Vaughn Energy Services
(432) 563-5444
Gardendale, TX
Surveyor: Colby Ware
Baby Buddah 13 Federal No. 001H / API 30-015-40735



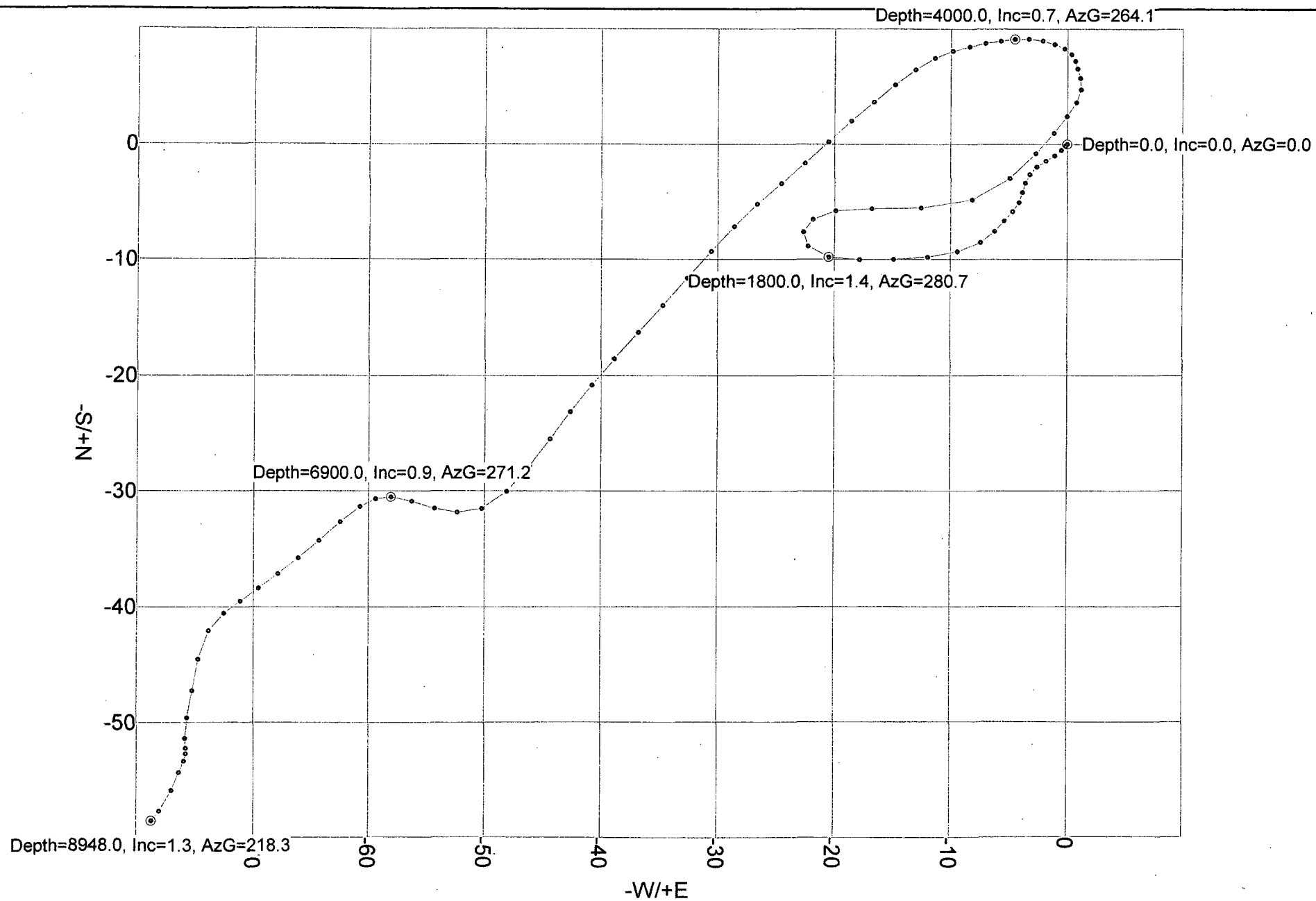
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.22	222.39	100.00	-0.14	-0.13	0.19	222.39	0.22
200.00	0.39	224.79	200.00	-0.52	-0.49	0.72	223.53	0.18
300.00	0.47	233.76	300.00	-1.01	-1.07	1.47	226.67	0.10
400.00	0.55	242.73	399.99	-1.47	-1.82	2.34	231.16	0.11
500.00	0.52	228.89	499.99	-1.99	-2.59	3.27	232.53	0.13
600.00	0.51	215.05	599.98	-2.65	-3.19	4.15	230.28	0.12
700.00	0.47	202.98	699.98	-3.39	-3.61	4.95	226.76	0.11
800.00	0.52	190.92	799.98	-4.21	-3.85	5.71	222.44	0.12
900.00	0.54	206.98	899.97	-5.08	-4.15	6.56	219.26	0.15
1000.00	0.57	223.04	999.97	-5.86	-4.70	7.52	218.74	0.16
1100.00	0.67	222.01	1099.96	-6.66	-5.43	8.59	219.21	0.11
1200.00	0.73	220.98	1199.95	-7.58	-6.24	9.82	219.49	0.07
1300.00	1.06	238.49	1299.94	-8.54	-7.45	11.34	221.10	0.42
1400.00	1.39	256.00	1399.92	-9.32	-9.42	13.25	225.30	0.49
1500.00	1.58	262.50	1499.89	-9.80	-11.96	15.46	230.69	0.26
1600.00	1.77	269.00	1599.84	-10.00	-14.88	17.93	236.09	0.27
1700.00	1.61	269.87	1699.80	-10.03	-17.83	20.46	240.64	0.16
1800.00	1.45	280.73	1799.76	-9.80	-20.48	22.70	244.42	0.33

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	1.03	322.66	1899.74	-8.85	-22.26	23.96	248.31	0.97
2000.00	0.60	14.58	1999.73	-7.63	-22.67	23.92	251.39	0.81
2100.00	1.03	49.15	2099.72	-6.54	-21.86	22.82	253.35	0.64
2200.00	1.46	83.72	2199.70	-5.81	-19.91	20.74	253.74	0.85
2300.00	2.11	88.53	2299.65	-5.62	-16.80	17.71	251.50	0.67
2400.00	2.76	89.34	2399.56	-5.54	-12.54	13.71	246.15	0.65
2500.00	2.38	70.69	2499.46	-4.83	-8.17	9.50	239.42	0.92
2600.00	1.99	48.04	2599.39	-2.98	-4.93	5.76	238.79	0.94
2700.00	1.57	43.34	2699.34	-0.83	-2.69	2.82	252.96	0.44
2800.00	1.15	38.64	2799.31	0.96	-1.13	1.48	310.32	0.43
2900.00	0.94	34.85	2899.30	2.42	-0.03	2.42	359.33	0.22
3000.00	0.74	31.05	2999.29	3.64	0.77	3.72	12.00	0.21
3100.00	0.63	7.19	3099.28	4.74	1.17	4.89	13.91	0.30
3200.00	0.53	343.34	3199.27	5.74	1.11	5.84	10.96	0.26
3300.00	0.45	343.11	3299.27	6.56	0.86	6.61	7.50	0.08
3400.00	0.35	342.89	3399.27	7.23	0.66	7.26	5.21	0.10
3500.00	0.42	320.90	3499.27	7.80	0.34	7.81	2.49	0.16
3600.00	0.48	298.91	3599.26	8.29	-0.26	8.29	358.21	0.18
3700.00	0.57	290.90	3699.26	8.67	-1.09	8.74	352.82	0.11
3800.00	0.66	282.90	3799.25	8.97	-2.12	9.22	346.72	0.12
3900.00	0.73	273.52	3899.24	9.14	-3.31	9.72	340.09	0.13
4000.00	0.67	264.14	3999.24	9.12	-4.53	10.18	333.60	0.13
4100.00	0.75	262.05	4099.23	8.97	-5.76	10.66	327.32	0.08
4200.00	0.78	259.97	4199.22	8.76	-7.07	11.26	321.10	0.04
4300.00	0.81	256.58	4299.21	8.48	-8.42	11.95	315.19	0.05
4400.00	0.87	253.19	4399.20	8.10	-9.84	12.74	309.45	0.08
4500.00	1.03	243.65	4499.19	7.48	-11.38	13.61	303.31	0.22
4600.00	1.19	234.11	4599.17	6.47	-13.03	14.54	296.40	0.24
4700.00	1.31	232.43	4699.14	5.16	-14.77	15.65	289.25	0.13
4800.00	1.41	230.74	4799.12	3.68	-16.64	17.04	282.47	0.11
4900.00	1.50	228.23	4899.08	2.03	-18.57	18.68	276.23	0.11
5000.00	1.56	225.73	4999.05	0.20	-20.52	20.52	270.57	0.09
5100.00	1.57	228.39	5099.01	-1.66	-22.53	22.59	265.79	0.07
5200.00	1.55	231.05	5198.97	-3.42	-24.60	24.84	262.08	0.08
5300.00	1.59	226.94	5298.94	-5.22	-26.67	27.17	258.93	0.12
5400.00	1.58	222.83	5398.90	-7.17	-28.62	29.50	255.93	0.11
5500.00	1.73	221.84	5498.86	-9.31	-30.56	31.94	253.06	0.15
5600.00	1.84	220.86	5598.81	-11.64	-32.61	34.63	250.35	0.11
5700.00	1.78	221.79	5698.76	-14.01	-34.70	37.42	248.01	0.07

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
5800.00	1.76	222.73	5798.71	-16.30	-36.77	40.22	246.10	0.03
5900.00	1.75	221.42	5898.66	-18.57	-38.82	43.04	244.44	0.04
6000.00	1.69	220.10	5998.62	-20.84	-40.78	45.80	242.93	0.07
6100.00	1.69	217.67	6098.57	-23.14	-42.64	48.51	241.51	0.07
6200.00	1.66	215.25	6198.53	-25.49	-44.37	51.18	240.12	0.08
6300.00	1.71	219.24	6298.49	-27.83	-46.15	53.89	238.91	0.13
6400.00	1.68	223.23	6398.44	-30.05	-48.10	56.71	238.00	0.12
6500.00	1.40	249.68	6498.41	-31.54	-50.25	59.33	237.88	0.76
6600.00	1.12	276.12	6598.39	-31.86	-52.36	61.29	238.68	0.64
6700.00	1.15	283.60	6698.37	-31.52	-54.31	62.79	239.87	0.15
6800.00	1.19	291.08	6798.35	-30.91	-56.25	64.18	241.21	0.16
6900.00	0.93	271.17	6898.33	-30.53	-58.02	65.56	242.25	0.44
7000.00	0.67	251.25	6998.32	-30.70	-59.39	66.85	242.66	0.37
7100.00	1.06	239.50	7098.31	-31.35	-60.74	68.35	242.70	0.42
7200.00	1.44	227.75	7198.28	-32.67	-62.46	70.49	242.39	0.46
7300.00	1.39	229.55	7298.25	-34.30	-64.32	72.89	241.93	0.06
7400.00	1.31	231.36	7398.23	-35.80	-66.13	75.20	241.57	0.10
7500.00	1.23	233.23	7498.20	-37.16	-67.89	77.39	241.31	0.09
7600.00	1.16	235.10	7598.18	-38.38	-69.58	79.46	241.12	0.08
7700.00	1.05	234.26	7698.16	-39.50	-71.15	81.38	240.97	0.11
7800.00	0.99	233.42	7798.15	-40.55	-72.59	83.15	240.81	0.07
7900.00	1.34	211.85	7898.13	-42.06	-73.91	85.04	240.36	0.56
8000.00	1.69	190.29	7998.09	-44.50	-74.79	87.03	239.24	0.66
8100.00	1.47	190.31	8098.05	-47.22	-75.28	88.86	237.90	0.22
8200.00	1.29	190.33	8198.02	-49.59	-75.71	90.51	236.78	0.18
8300.00	0.77	179.02	8298.01	-51.37	-75.90	91.65	235.91	0.56
8400.00	0.24	167.72	8398.00	-52.24	-75.85	92.10	235.44	0.53
8500.00	0.33	185.13	8498.00	-52.73	-75.83	92.36	235.19	0.13
8600.00	0.43	202.54	8598.00	-53.37	-76.00	92.87	234.92	0.15
8700.00	0.80	202.12	8697.99	-54.36	-76.41	93.77	234.57	0.37
8800.00	1.13	201.70	8797.98	-55.92	-77.03	95.19	234.02	0.33
8900.00	1.28	217.04	8897.96	-57.73	-78.07	97.09	233.52	0.36
8948.00	1.30	218.35	8945.95	-58.58	-78.73	98.13	233.35	0.07



Vaughn Energy Services
(432) 563-5444
Gardendale, TX
Surveyor: Colby Ware
Baby Buddah 13 Federal No. 001H / API 30-015-40735



VES Survey Date: 10/14/2012



COG Operating LLC

Eddy County, NM (NAD 83)

Baby Buddha 13 Fed

#1H

OH

Design: OH

Standard Survey Report

26 October, 2012





Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Baby Buddha 13 Fed
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Site:	Baby Buddha 13 Fed	MD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project:	Eddy County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Baby Buddha 13 Fed		
Site Position:	Northing:	379,063.53 usft	Latitude: 32° 2' 30.502 N
From: Map	Easting:	629,518.08 usft	Longitude: 104° 2' 55.465 W
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.15 °

Well:	#1H		
Well Position	+N/-S	0.0 usft	Northing: 379,063.53 usft
	+E/-W	0.0 usft	Easting: 629,518.08 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
			Ground Level: 2,948.0 usft

Wellbore:	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	7/11/2012	7.65
			Dip Angle
			59.93
			Field Strength
			48,392

Design:	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	7,600.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			91.63

Survey Program	Date	10/26/2012		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.0	7,600.0	Survey #1 - Gyro1 (Pilot)	CB-GYRO-MS	Camera based gyro multishot
7,632.0	12,821.0	Crescent1 (OH)	MWD	MWD - Standard
12,878.0	12,878.0	PTB (OH)	MWD	MWD - Standard

Survey	Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
	Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
	(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	100.0	0.22	222.39	100.0	-0.1	-0.1	-0.1	0.22	0.22	0.00
	200.0	0.39	224.79	200.0	-0.5	-0.5	-0.5	0.17	0.17	2.40
	300.0	0.47	233.76	300.0	-1.0	-1.1	-1.0	0.10	0.08	8.97
	400.0	0.55	242.73	400.0	-1.5	-1.8	-1.8	0.11	0.08	8.97
	500.0	0.52	228.89	500.0	-2.0	-2.6	-2.5	0.13	-0.03	-13.84
	600.0	0.51	215.05	600.0	-2.7	-3.2	-3.1	0.12	-0.01	-13.84
	700.0	0.47	202.98	700.0	-3.4	-3.6	-3.5	0.11	-0.04	-12.07
	800.0	0.52	190.92	800.0	-4.2	-3.9	-3.7	0.12	0.05	-12.06

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Baby Buddha 13 Fed
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Site:	Baby Buddha 13 Fed	MD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Well:	#1H	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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
900.0	0.54	206.98	900.0	-5.1	-4.2	-4.0	0.15	0.02	16.06	
1,000.0	0.57	223.04	1,000.0	-5.9	-4.7	-4.5	0.16	0.03	16.06	
1,100.0	0.67	222.01	1,100.0	-6.7	-5.4	-5.2	0.10	0.10	-1.03	
1,200.0	0.73	220.98	1,200.0	-7.6	-6.2	-6.0	0.06	0.06	-1.03	
1,300.0	1.06	238.49	1,299.9	-8.5	-7.5	-7.2	0.42	0.33	17.51	
1,400.0	1.39	256.00	1,399.9	-9.3	-9.4	-9.2	0.50	0.33	17.51	
1,500.0	1.58	262.50	1,499.9	-9.8	-12.0	-11.7	0.25	0.19	6.50	
1,600.0	1.77	269.00	1,599.8	-10.0	-14.9	-14.6	0.27	0.19	6.50	
1,700.0	1.61	269.87	1,699.8	-10.0	-17.8	-17.5	0.16	-0.16	0.87	
1,800.0	1.45	280.73	1,799.8	-9.8	-20.5	-20.2	0.33	-0.16	10.86	
1,900.0	1.03	322.66	1,899.7	-8.8	-22.3	-22.0	0.97	-0.42	41.93	
2,000.0	0.60	14.58	1,999.7	-7.6	-22.7	-22.4	0.81	-0.43	51.92	
2,100.0	1.03	49.15	2,099.7	-6.5	-21.9	-21.7	0.63	0.43	34.57	
2,200.0	1.46	83.72	2,199.7	-5.8	-19.9	-19.7	0.85	0.43	34.57	
2,300.0	2.11	88.53	2,299.7	-5.6	-16.8	-16.6	0.67	0.65	4.81	
2,400.0	2.76	89.34	2,399.6	-5.5	-12.6	-12.4	0.65	0.65	0.81	
2,500.0	2.38	70.69	2,499.5	-4.8	-8.2	-8.1	0.91	-0.38	-18.65	
2,600.0	1.99	48.04	2,599.4	-3.0	-4.9	-4.9	0.94	-0.39	-22.65	
2,700.0	1.57	43.34	2,699.3	-0.8	-2.7	-2.7	0.44	-0.42	-4.70	
2,800.0	1.15	38.64	2,799.3	1.0	-1.1	-1.2	0.43	-0.42	-4.70	
2,900.0	0.94	34.85	2,899.3	2.4	0.0	-0.1	0.22	-0.21	-3.79	
3,000.0	0.74	31.05	2,999.3	3.6	0.8	0.6	0.21	-0.20	-3.80	
3,100.0	0.63	7.19	3,099.3	4.7	1.2	1.0	0.30	-0.11	-23.86	
3,200.0	0.53	343.34	3,199.3	5.7	1.1	0.9	0.26	-0.10	-23.85	
3,300.0	0.45	343.11	3,299.3	6.5	0.8	0.7	0.08	-0.08	-0.23	
3,400.0	0.35	342.89	3,399.3	7.2	0.6	0.4	0.10	-0.10	-0.22	
3,500.0	0.42	320.90	3,499.3	7.8	0.3	0.1	0.16	0.07	-21.99	
3,600.0	0.48	298.91	3,599.3	8.3	-0.3	-0.5	0.18	0.06	-21.99	
3,700.0	0.57	290.90	3,699.3	8.7	-1.1	-1.4	0.12	0.09	-8.01	
3,800.0	0.66	282.90	3,799.3	9.0	-2.1	-2.4	0.12	0.09	-8.00	
3,900.0	0.73	273.52	3,899.2	9.1	-3.3	-3.6	0.13	0.07	-9.38	
4,000.0	0.67	264.14	3,999.2	9.1	-4.6	-4.8	0.13	-0.06	-9.38	
4,100.0	0.75	262.05	4,099.2	9.0	-5.8	-6.0	0.08	0.08	-2.09	
4,200.0	0.78	259.97	4,199.2	8.7	-7.1	-7.3	0.04	0.03	-2.08	
4,300.0	0.81	256.58	4,299.2	8.5	-8.5	-8.7	0.06	0.03	-3.39	
4,400.0	0.87	253.19	4,399.2	8.1	-9.9	-10.1	0.08	0.06	-3.39	
4,500.0	1.03	243.65	4,499.2	7.5	-11.4	-11.6	0.22	0.16	-9.54	
4,600.0	1.19	234.11	4,599.2	6.5	-13.0	-13.2	0.24	0.16	-9.54	
4,700.0	1.31	232.43	4,699.1	5.2	-14.8	-14.9	0.13	0.12	-1.68	
4,800.0	1.41	230.74	4,799.1	3.7	-16.7	-16.8	0.11	0.10	-1.69	
4,900.0	1.50	228.23	4,899.1	2.0	-18.6	-18.6	0.11	0.09	-2.51	
5,000.0	1.56	225.73	4,999.0	0.2	-20.5	-20.5	0.09	0.06	-2.50	
5,100.0	1.57	228.39	5,099.0	-1.7	-22.5	-22.5	0.07	0.01	2.66	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Baby Buddha 13 Fed
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Site:	Baby Buddha 13 Fed	MD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

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)
5,200.0	1.55	231.05	5,199.0	-3.4	-24.6	-24.5	0.08	-0.02	2.66
5,300.0	1.59	226.94	5,298.9	-5.2	-26.7	-26.5	0.12	0.04	-4.11
5,400.0	1.58	222.83	5,398.9	-7.2	-28.6	-28.4	0.11	-0.01	-4.11
5,500.0	1.73	221.84	5,498.9	-9.3	-30.6	-30.3	0.15	0.15	-0.99
5,600.0	1.84	220.86	5,598.8	-11.6	-32.6	-32.3	0.11	0.11	-0.98
5,700.0	1.78	221.79	5,698.8	-14.0	-34.7	-34.3	0.07	-0.06	0.93
5,800.0	1.76	222.73	5,798.7	-16.3	-36.8	-36.3	0.04	-0.02	0.94
5,900.0	1.75	221.42	5,898.7	-18.6	-38.8	-38.3	0.04	-0.01	-1.31
6,000.0	1.69	220.10	5,998.6	-20.9	-40.8	-40.2	0.07	-0.06	-1.32
6,100.0	1.69	217.67	6,098.6	-23.1	-42.7	-42.0	0.07	0.00	-2.43
6,200.0	1.66	215.25	6,198.5	-25.5	-44.4	-43.6	0.08	-0.03	-2.42
6,300.0	1.71	219.24	6,298.5	-27.8	-46.2	-45.4	0.13	0.05	3.99
6,400.0	1.68	223.23	6,398.4	-30.1	-48.1	-47.2	0.12	-0.03	3.99
6,500.0	1.40	249.68	6,498.4	-31.6	-50.3	-49.3	0.76	-0.28	26.45
6,600.0	1.12	276.12	6,598.4	-31.9	-52.4	-51.5	0.64	-0.28	26.44
6,700.0	1.15	283.60	6,698.4	-31.5	-54.3	-53.4	0.15	0.03	7.48
6,800.0	1.19	291.08	6,798.3	-30.9	-56.3	-55.4	0.16	0.04	7.48
6,900.0	0.93	271.17	6,898.3	-30.5	-58.1	-57.2	0.45	-0.26	-19.91
7,000.0	0.67	251.25	6,998.3	-30.7	-59.4	-58.5	0.38	-0.26	-19.92
7,100.0	1.06	239.50	7,098.3	-31.4	-60.8	-59.9	0.43	0.39	-11.75
7,200.0	1.44	227.75	7,198.3	-32.7	-62.5	-61.5	0.46	0.38	-11.75
7,300.0	1.39	229.55	7,298.3	-34.3	-64.4	-63.4	0.07	-0.05	1.80
7,400.0	1.31	231.36	7,398.2	-35.8	-66.2	-65.1	0.09	-0.08	1.81
7,500.0	1.23	233.23	7,498.2	-37.2	-67.9	-66.8	0.09	-0.08	1.87
7,600.0	1.16	235.10	7,598.2	-38.4	-69.6	-68.5	0.08	-0.07	1.87
7,632.0	1.10	231.40	7,630.2	-38.8	-70.1	-69.0	0.30	-0.19	-11.56
7,664.0	1.00	219.80	7,662.2	-39.2	-70.5	-69.4	0.73	-0.31	-36.25
7,696.0	1.20	157.10	7,694.2	-39.7	-70.6	-69.4	3.62	0.63	-195.94
KOP - 7696.0' MD, 7694.2' TVD, 1.20° INC, 157.10° AZI, -69.4' VS									
7,728.0	5.90	137.90	7,726.1	-41.2	-69.3	-68.1	14.95	14.69	-60.00
7,760.0	9.60	141.30	7,757.8	-44.5	-66.6	-65.3	11.65	11.56	10.63
7,792.0	8.90	118.10	7,789.4	-47.8	-62.7	-61.3	11.77	-2.19	-72.50
7,824.0	12.00	120.50	7,820.9	-50.6	-57.7	-56.2	9.78	9.69	7.50
7,856.0	14.20	116.30	7,852.0	-54.1	-51.3	-49.7	7.49	6.88	-13.13
7,887.0	17.80	106.80	7,881.8	-57.1	-43.3	-41.7	14.32	11.61	-30.65
7,919.0	21.30	100.10	7,912.0	-59.5	-32.9	-31.2	12.97	10.94	-20.94
7,951.0	24.50	94.00	7,941.5	-61.0	-20.6	-18.8	12.44	10.00	-19.06
7,983.0	26.60	95.90	7,970.3	-62.2	-6.8	-5.1	7.04	6.56	5.94
8,014.0	29.10	95.00	7,997.7	-63.6	7.6	9.4	8.18	8.06	-2.90
8,046.0	32.40	94.90	8,025.2	-65.0	23.9	25.7	10.31	10.31	-0.31
8,078.0	36.10	98.90	8,051.7	-67.2	41.7	43.6	13.53	11.56	12.50
8,110.0	39.00	94.20	8,077.1	-69.4	61.1	63.1	12.73	9.06	-14.69
8,142.0	41.50	90.10	8,101.5	-70.2	81.8	83.7	11.38	7.81	-12.81
8,173.0	44.10	86.10	8,124.2	-69.4	102.8	104.7	12.13	8.39	-12.90

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Baby Buddha 13 Fed
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Site:	Baby Buddha 13 Fed	MD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Well:	#1H	North Reference:	Grid
Wellbore Design:	OH	Survey Calculation Method:	Minimum Curvature
	OH	Database:	Houston R5000 Database

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)
8,205.0	48.70	84.10	8,146.3	-67.4	125.9	127.7	15.07	14.38	-6.25
8,224.9	51.37	83.21	8,159.1	-65.8	141.0	142.8	13.86	13.43	-4.48
PP - 8224.9' MD, 8159.1' TVD, 51.37° INC, 142.8' VS									
8,237.0	53.00	82.70	8,166.5	-64.6	150.5	152.3	13.86	13.45	-4.21
8,269.0	57.00	86.30	8,184.8	-62.1	176.6	178.3	15.53	12.50	11.25
8,301.0	60.80	85.50	8,201.4	-60.1	203.9	205.6	12.07	11.88	-2.50
8,333.0	63.60	87.80	8,216.3	-58.5	232.2	233.7	10.82	8.75	7.19
8,364.0	67.10	91.00	8,229.2	-58.2	260.3	261.9	14.68	11.29	10.32
8,396.0	71.80	89.90	8,240.5	-58.4	290.3	291.8	15.04	14.69	-3.44
8,428.0	77.80	89.90	8,248.8	-58.4	321.2	322.7	18.75	18.75	0.00
8,459.0	83.00	89.30	8,254.0	-58.2	351.7	353.2	16.88	16.77	-1.94
8,491.0	86.50	89.40	8,256.9	-57.8	383.6	385.1	10.94	10.94	0.31
8,587.0	88.20	90.70	8,261.4	-57.9	479.5	480.9	2.23	1.77	1.35
8,625.0	88.96	90.70	8,262.3	-58.3	517.5	518.9	2.00	2.00	0.00
EOC - 8625.0' MD, 8262.3' TVD, 88.96° INC, 90.70° AZI, 518.9' VS									
8,682.0	90.10	90.70	8,262.8	-59.0	574.4	575.9	2.00	2.00	0.00
8,778.0	90.50	90.40	8,262.3	-60.0	670.4	671.9	0.52	0.42	-0.31
8,874.0	90.80	91.50	8,261.2	-61.6	766.4	767.9	1.19	0.31	1.15
8,968.0	90.40	92.30	8,260.2	-64.7	860.4	861.9	0.95	-0.43	0.85
9,063.0	90.30	92.10	8,259.6	-68.3	955.3	956.8	0.24	-0.11	-0.21
9,158.0	89.90	91.40	8,259.5	-71.2	1,050.2	1,051.8	0.85	-0.42	-0.74
9,254.0	91.30	92.80	8,258.5	-74.7	1,146.2	1,147.8	2.06	1.46	1.46
9,348.0	91.70	92.40	8,256.0	-79.0	1,240.0	1,241.8	0.60	0.43	-0.43
9,443.0	92.10	92.20	8,252.8	-82.8	1,334.9	1,336.7	0.47	0.42	-0.21
9,539.0	91.20	91.70	8,250.1	-86.1	1,430.8	1,432.7	1.07	-0.94	-0.52
9,634.0	89.80	90.80	8,249.3	-88.2	1,525.8	1,527.7	1.75	-1.47	-0.95
9,730.0	86.90	90.10	8,252.0	-88.9	1,621.7	1,623.6	3.11	-3.02	-0.73
9,825.0	87.50	90.50	8,256.7	-89.4	1,716.6	1,718.5	0.76	0.63	0.42
9,920.0	88.10	90.50	8,260.3	-90.2	1,811.5	1,813.4	0.63	0.63	0.00
10,016.0	87.30	89.90	8,264.2	-90.6	1,907.5	1,909.3	1.04	-0.83	-0.63
10,112.0	87.40	91.20	8,268.6	-91.5	2,003.4	2,005.1	1.36	0.10	1.35
10,207.0	86.50	90.80	8,273.6	-93.1	2,098.2	2,100.0	1.04	-0.95	-0.42
10,303.0	87.00	91.20	8,279.1	-94.8	2,194.0	2,195.8	0.67	0.52	0.42
10,398.0	89.30	91.80	8,282.2	-97.3	2,288.9	2,290.8	2.50	2.42	0.63
10,493.0	90.00	90.90	8,282.7	-99.5	2,383.9	2,385.8	1.20	0.74	-0.95
10,589.0	90.20	90.70	8,282.6	-100.9	2,479.9	2,481.8	0.29	0.21	-0.21
10,685.0	90.70	90.60	8,281.8	-102.0	2,575.9	2,577.8	0.53	0.52	-0.10
10,780.0	90.90	90.20	8,280.5	-102.6	2,670.9	2,672.7	0.47	0.21	-0.42
10,876.0	90.40	89.90	8,279.4	-102.7	2,766.9	2,768.7	0.61	-0.52	-0.31
10,971.0	89.30	90.10	8,279.7	-102.7	2,861.9	2,863.6	1.18	-1.16	0.21
11,066.0	89.70	90.00	8,280.5	-102.8	2,956.9	2,958.6	0.43	0.42	-0.11
11,161.0	89.00	90.10	8,281.6	-102.9	3,051.9	3,053.6	0.74	-0.74	0.11
11,257.0	88.60	90.10	8,283.6	-103.0	3,147.8	3,149.5	0.42	-0.42	0.00

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Baby Buddha 13 Fed
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Site:	Baby Buddha 13 Fed	MD Reference:	WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
Well:	#1H	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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,352.0	87.40	91.10	8,286.9	-104.0	3,242.8	3,244.4	1.64	-1.26	1.05	
11,447.0	88.00	91.10	8,290.7	-105.9	3,337.7	3,339.3	0.63	0.63	0.00	
11,543.0	87.10	92.10	8,294.8	-108.5	3,433.6	3,435.3	1.40	-0.94	1.04	
11,638.0	87.50	92.10	8,299.3	-112.0	3,528.4	3,530.1	0.42	0.42	0.00	
11,733.0	88.50	92.00	8,302.6	-115.4	3,623.3	3,625.1	1.06	1.05	-0.11	
11,829.0	88.40	91.80	8,305.2	-118.6	3,719.2	3,721.0	0.23	-0.10	-0.21	
11,924.0	89.30	91.90	8,307.1	-121.7	3,814.1	3,816.0	0.95	0.95	0.11	
12,019.0	87.20	93.10	8,310.0	-125.8	3,909.0	3,911.0	2.55	-2.21	1.26	
12,115.0	87.80	93.50	8,314.2	-131.3	4,004.7	4,006.8	0.75	0.63	0.42	
12,210.0	89.10	93.40	8,316.8	-137.0	4,099.5	4,101.7	1.37	1.37	-0.11	
12,306.0	89.10	92.60	8,318.3	-142.1	4,195.4	4,197.7	0.83	0.00	-0.83	
12,401.0	89.20	92.30	8,319.7	-146.1	4,290.3	4,292.7	0.33	0.11	-0.32	
12,496.0	86.70	92.30	8,323.1	-149.9	4,385.1	4,387.6	2.63	-2.63	0.00	
12,592.0	87.00	91.70	8,328.3	-153.3	4,480.9	4,483.5	0.70	0.31	-0.63	
12,687.0	88.80	91.60	8,331.8	-156.0	4,575.8	4,578.4	1.90	1.89	-0.11	
12,782.0	89.50	90.60	8,333.2	-157.8	4,670.8	4,673.4	1.28	0.74	-1.05	
12,821.0	89.60	90.30	8,333.5	-158.1	4,709.8	4,712.4	0.81	0.26	-0.77	
12,878.0	89.60	90.30	8,333.9	-158.4	4,766.8	4,769.4	0.00	0.00	0.00	
BHL - 12878.0' MD, 8333.9' TVD, 89.60° INC, 90.30° AZI, -158.4' N, 4766.8' E, 4769.4' VS										

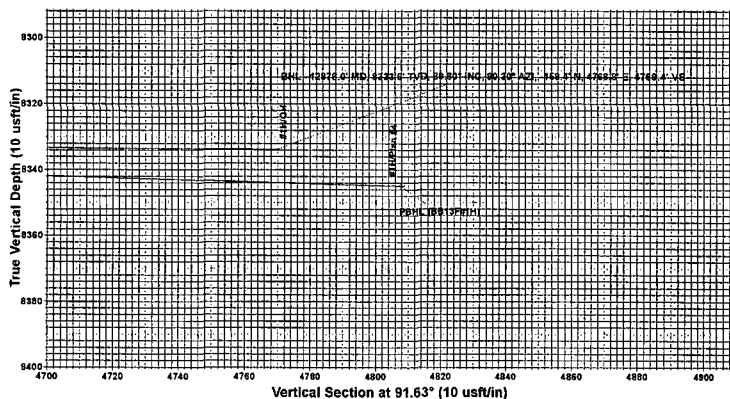
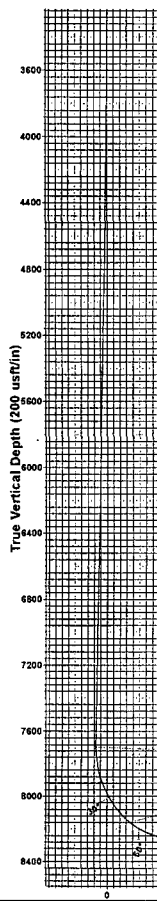
Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
7,696.0	7,694.2	-39.7	-70.6	KOP - 7696.0' MD, 7694.2' TVD, 1.20° INC, 157.10° AZI, -69.4' VS	
8,224.9	8,159.1	-65.8	141.0	PP - 8224.9' MD, 8159.1' TVD, 51.37° INC, 142.8' VS	
8,625.0	8,262.3	-58.3	517.5	EOC - 8625.0' MD, 8262.3' TVD, 88.96° INC, 90.70° AZI, 518.9' VS	
12,878.0	8,333.9	-158.4	4,766.8	BHL - 12878.0' MD, 8333.9' TVD, 89.60° INC, 90.30° AZI, -158.4' N, 4766.8' E,	

Checked By: _____	Approved By: _____	Date: _____
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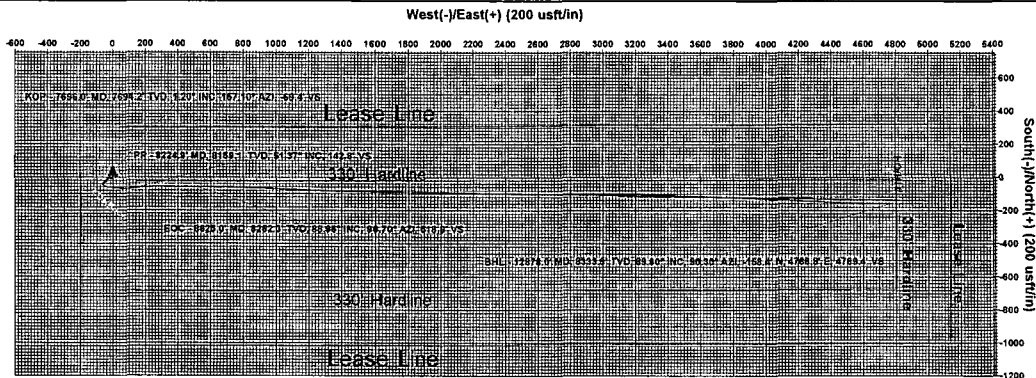
COG Operating LLC
 Project: Eddy County, NM (NAD 83)
 Site: Baby Buddha 13 Fed
 Well: #1H
 Wellbore: OH
 Plan: Plan #4 (#1H/OH)



Azimuths to Grid North
 True North: -0.15°
 Magnetic North: 7.50°
 Magnetic Field
 Strength: 48392.0nT
 Dip Angle: 59.93°
 Date: 7/11/2012
 Model: IGRF200510



Vertical Section at 91.63° (10 usf/in)



Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	10685.0	90.70	90.60	8281.8	-102.0	2575.9	0.00	0.00	2577.8	
2	10805.4	88.31	90.91	8282.9	-103.6	2696.2	2.00	172.56	2698.1	
3	12916.2	88.31	90.91	8345.0	-137.1	4805.9	0.00	0.00	4807.9	PBHL (BB13F#1H)

WELL DETAILS: #1H

Ground Elevation: 2948.0
 RKB Elevation: WELL @ 2965.5usft (Silver Oak #7 - 17.5' KB)
 Rig Name: Silver Oak #7 - 17.5' KB

Surface Hole Location
 Northing: 379063.53
 Easting: 629518.08
 Latitude: 32° 2' 30.502 N
 Longitude: 104° 2' 55.465 W

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (BB13F#1H)	8345.0	-137.1	4805.9	378926.40	634324.01

PROJECT DETAILS: Eddy County, NM (NAD 83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level
 Local North: Grid



Crescent Directional Drilling
 7715 West Industrial Ave. Midland, Tx 79706
 Phone: 432-618-1135

Plan: Plan #4 (#1H/OH)
 Created By: Matt Higgins Date: 11:00, October 26 2012