Scientific Drilling

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COG RESOURCES

Field: Maljamar
Site: Lea County, NM
Well: GC Federal #45
Wellpath: DH - Job #32D0310202
Survey: 03/26/10-04/01/10

SUR: O-20-17s-32e, 750/S &2115/E
BHL: O-20-17s-32e, 978/S & 1657/E
API # 30-025-39473

This survey is correct to the best of my knowledge and is supported by actual field data.

Richardson
Company Representative

PETROLEUM ENGINEER
JUL 15 2010

Notarized this date 22nd **of** April **, 2010.**

Carrie Reed
Notary Signature
Couty of Midland
State of Texas

NOTARY PUBLIC STATE OF TEXAS
CARRIE REED
My Commission Expires
October 4, 2011

Scientific Drilling

Scientific Drilling International, Inc.

Survey Report

Company:	COG RESOURCES	**Date:** 3/29/2010	**Time:** 11:51:46	**Page:**	1
Field:	Maljamar	**Co-ordinate(NE) Reference:**	Site: Lea County, NM, True North		
Site:	Lea County, NM	**Vertical (TVD) Reference:**	SITE 0.0		
Well:	GC Federal #45	**Section (VS) Reference:**	Well (0.00N,0.00E,62.89Azi)		
Wellpath:	VH - Job #32K0310215	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Survey:	03/25/10 KSRG 0'-2087'	**Start Date:**	3/25/2010
Company:	Scientific Drilling Internatio	**Engineer:**	Madird/Sutherland/Renteria
Tool:	Keeper,Keeper Gyro	**Tied-to:**	From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.0	0.00	359.70	0.0	0.0	0.0	0.0	0.00	0.0	0.00
100.0	0.85	216.68	100 0	-0.7	-0.6	-0.4	0.85	0.7	216.68
200.0	0.58	233.04	200.0	-1.8	-1.5	-1.3	0.34	2.0	220.82
300.0	0 55	201.48	300.0	-2 7	-2.2	-1.9	0.31	2.9	219 80
400.0	0.51	232.63	400.0	-3.5	-3.0	-2.4	0.29	3.8	219.02
500 0	0.84	220.20	500.0	-4.6	-3.8	-3.2	0.36	5.0	220.40
600.0	0.73	232 25	600.0	-5.9	-4.7	-4.2	0.20	6.3	221.56
700.0	0.58	227.18	700.0	-7.0	-5.5	-5.1	0.16	7.5	222 85
800.0	0.97	235.72	799.9	-8.3	-6.3	-6.1	0.41	8.8	224.32
900.0	0.36	292.71	899.9	-9.4	-6.7	-7.1	0.83	9.8	227.02
1000.0	0.61	312.02	999.9	-9.8	-6.2	-7.8	0.30	10.0	231.72
1100.0	0.25	291.04	1099.9	-10.1	-5.7	-8.4	0.39	10.2	235.73
1200.0	0.29	337.13	1199.9	-10.2	-5 4	-8.7	0 21	10.3	238.11
1300.0	0.28	329.86	1299.9	-10 2	-5.0	-8.9	0.04	10.2	240.88
1400.0	0.36	15.66	1399.9	-10 0	-4.5	-9.0	0.26	10 0	243.55
1500.0	0.34	41.71	1499.9	-9.5	-3.9	-8.7	0.16	9.6	245.61
1600.0	0 79	57.09	1599.9	-8.6	-3.3	-7.9	0.47	8.6	247.09
1700.0	1.15	72.42	1699.9	-6.9	-2.7	-6.4	0.44	6.9	247.31
1800.0	1.63	70.66	1799.9	-4 5	-1.9	-4.1	0.48	4.5	245.11
1900 0	1.74	69.78	1899.8	-1 6	-0.9	-1.3	0.11	1.6	235.74
2000.0	1.60	67.03	1999.8	1.3	0.2	1.4	0.16	1.4	83.11
2087.0	1.50	64 04	2086.8	3.7	1.1	3.5	0.15	3.7	72.09

Scientific Drilling

Scientific Drilling International, Inc.

Survey Report

Company:	COG RESOURCES	**Date:** 4/7/2010 **Time:** 21:15:00 **Page:**	1
Field:	Maljamar	**Co-ordinate(NE) Reference:**	Site: Lea County, NM, True North
Site:	Lea County, NM	**Vertical (TVD) Reference:**	SITE 0.0
Well:	GC Federal #45	**Section (VS) Reference:**	Well (0.00N,0.00E,62.89Azi)
Wellpath:	DH - Job #32D0310202	**Survey Calculation Method:**	Minimum Curvature **Db:** Sybase

Survey:	03/26/10-04/01/10 MWD 2174'-7086'	**Start Date:**	3/26/2010
Company:	Scientific Drilling Internatio	**Engineer:**	Lopez/Kimble/Becker
Tool:	MWD,MWD	**Tied-to:**	From: Definitive Path

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
2087.0	1.50	64.04	2086.8	3.7	1.1	3.5	0.00	3.7	72.09
2174.0	1.34	67.41	2173.7	5.8	2.0	5.5	0.21	5.9	69.72
2237.0	1.92	63.19	2236.7	7.6	2.8	7.1	0.94	7.6	68.60
2299.0	3.30	61.37	2298.6	10.4	4.1	9.6	2.23	10.4	66 83
2362.0	4 68	59.07	2361.5	14.8	6.3	13.4	2.20	14.8	64.82
2426.0	5.74	56.66	2425.2	20.6	9.4	18.3	1.69	20.6	62.83
2488.0	7.04	56.04	2486.8	27.4	13.2	24.1	2.10	27.5	61 19
2552.0	8.21	61.80	2550.3	35.9	17.6	31.3	2.18	35.9	60.71
2647.0	7.31	62.35	2644.4	48.7	23.6	42.7	0.95	48.8	61.06
2742.0	6.43	62.38	2738.7	60.1	28.9	52.7	0.93	60.1	61 31
2836.0	7.42	59.56	2832.0	71.4	34.4	62.6	1.11	71.4	61.24
2929 0	7.02	61.20	2924.3	83.1	40.2	72.8	0.48	83.1	61.12
3023 0	7.52	66.52	3017.5	95.0	45.4	83.5	0.89	95.0	61.47
3118.0	8.82	62 84	3111 6	108.5	51.2	95.6	1.47	108.5	61.85
3212.0	7.95	60.00	3204.6	122.2	57.7	107.7	1.02	122.2	61.81
3307.0	6.94	58.45	3298.8	134.4	64.0	118.3	1.08	134.5	61.58
3402.0	7 44	64.38	3393.0	146 3	69.7	128.7	0.94	146.4	61.57
3497.0	7.08	63.93	3487.3	158.3	74.9	139.5	0.38	158.3	61.77
3590.0	8.07	64.05	3579.4	170.6	80.3	150.5	1.06	170.6	61 93
3684.0	8.10	63.53	3672.5	183.8	86.1	162.4	0.08	183.8	62.06
3779.0	7.92	63.69	3766.6	197.0	92.0	174.3	0.19	197.0	62.17
3873.0	7.69	64.53	3859.7	209.8	97.6	185.7	0.27	209.8	62.29
3969.0	6.99	66.23	3954.9	222.0	102.7	196.9	0.76	222.1	62.45
4062.0	8.80	64.09	4047.0	234.8	108.1	208.5	1.97	234.8	62.59
4157.0	8.92	63.77	4140.9	249.4	114.5	221.6	0.14	249.4	62.67
4252.0	8.72	64.22	4234.8	264.0	120.9	234.7	0.22	264 0	62.75
4347.0	8 91	63.48	4328.7	278.6	127.3	247.8	0.23	278.6	62.80
4442.0	8.87	62.82	4422.5	293.2	133.9	260.9	0.12	293.2	62.82
4537.0	8.69	62.86	4516.4	307.7	140.6	273.8	0.19	307.7	62.82
4631.0	7.07	65.36	4609.5	320.6	146.2	285.3	1.76	320.6	62.87
4727.0	6.95	64.84	4704.8	332.3	151.1	296.0	0.14	332.3	62.95
4827.0	6.59	65.21	4804.1	344.1	156.1	306.7	0.36	344.1	63.02
4922.0	6.45	64.83	4898.5	354.9	160.7	316.4	0.15	354.9	63.08
5016.0	6.37	65.52	4991.9	365.4	165.1	326.0	0.12	365.4	63.14
5112.0	6.16	67.44	5087.3	375.8	169.3	335.6	0.31	375.8	63.23
5207 0	6.44	65.14	5181.8	386.2	173.5	345.1	0.40	386.2	63.31
5301.0	6.81	68.22	5275.1	397.0	177.7	355.1	0.55	397.1	63.41
5397.0	6.13	60.94	5370.5	407.8	182.4	364.8	1 11	407.9	63.44
5491.0	4 24	66.11	5464.1	416.3	186.2	372.4	2.07	416.3	63 43
5586.0	4.14	72.56	5558.9	423.2	188.6	378.9	0.51	423.2	63.53
5680.0	3.72	62.61	5652.7	429.6	191.1	384.8	0.85	429.6	63 59
5773.0	3.55	65.93	5745.5	435.5	193.6	390.1	0.29	435 5	63.60
5867.0	3.12	54.34	5839.3	440.9	196.3	394.9	0.85	441.0	63.57
5962 0	3.24	50.15	5934.2	446.1	199.5	399.0	0.28	446.1	63.43
6057.0	3.19	47.74	6029.0	451.3	203.0	403.0	0.15	451 3	63 26
6152.0	3.20	67 70	6123.9	456.5	205.8	407.4	1.17	456.5	63.20
6247.0	3.12	67.09	6218.7	461.7	207.8	412.3	0.09	461.7	63.25
6342.0	3.00	69.13	6313.6	466.7	209.7	417.0	0.17	466.8	63.30
6435.0	2.86	67.77	6406.5	471.5	211.5	421.4	0.17	471.5	63.35

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Survey Report

Company:	COG RESOURCES	**Date:** 4/7/2010	**Time:** 21:15:00	**Page:**	2
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Site:	Lea County, NM	**Vertical (TVD) Reference:**	SITE 0.0		
Well:	GC Federal #45	**Section (VS) Reference:**	Well (0.00N,0.00E,62.89Azi)		
Wellpath:	DH - Job #32D0310202	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
6528.0	2.95	66.96	6499.3	476.2	213.3	425 8	0.11	476.2	63.39
6624.0	2.89	62.42	6595.2	481.1	215.4	430.2	0.25	481.1	63.41
6718.0	2.74	57.89	6689.1	485.7	217.7	434.2	0.29	485.7	63.37
6813.0	3 56	65.93	6784 0	490.9	220.1	438.8	0.98	490.9	63.36
6908.0	3.72	65.97	6878.8	496.9	222.5	444.3	0.17	496.9	63.40
7003.0	3.76	65.81	6973.6	503.1	225.1	450.0	0.04	503.1	63.43
7086 0	3.73	69.47	7056.4	508.5	227.1	455 0	0.29	508.5	63.47

Scientific Drilling

Field: Maljamar
Site: Lea County, NM
Well: GC Federal #45
Survey: 03/26/10-04/01/10