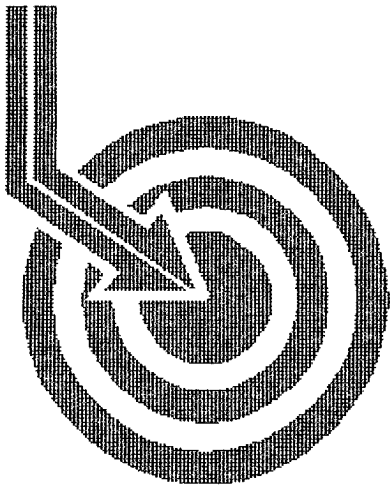




Scientific Drilling

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JUN 17 2010

HOBBSOCD

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

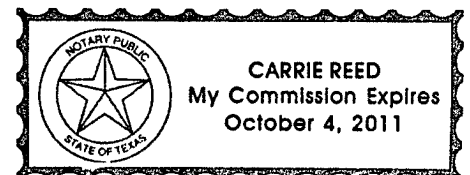
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard
Company Representative

Notarized this date 2nd of April, 2010.

Carrie Reed
Notary Signature
County of Midland
State of Texas

KE PETROLEUM ENGINEER
JUL 15 2010





Scientific Drilling International, Inc.

Survey Report

Company: COG RESOURCES
 Field: Maljamar
 Site: Lea County, NM
 Well: GC Federal #45
 Wellpath: VH - Job #32K0310215

Date: 3/29/2010 Time: 11:51:46 Page: 1
 Co-ordinate(NE) Reference: Site: Lea County, NM, True North
 Vertical (TVD) Reference: SITE 0.0
 Section (VS) Reference: Well (0.00N,0.00E,62.89Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 03/25/10 Start Date: 3/25/2010
 KSRG 0'-2087'
 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	Start Date: 3/26/2010
MWD 2174'-7086'	
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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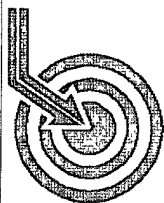
Survey Report

Company: COG RESOURCES
Field: Maljamar
Site: Lea County, NM
Well: GC Federal #45
Wellpath: DH - Job #32D0310202

Date: 4/7/2010 Time: 21:15:00 Page: 2
Co-ordinate(NE) Reference: Site: Lea County, NM, True North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,62.89Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

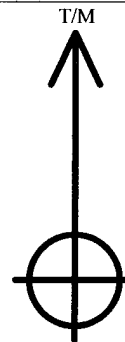
Survey

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



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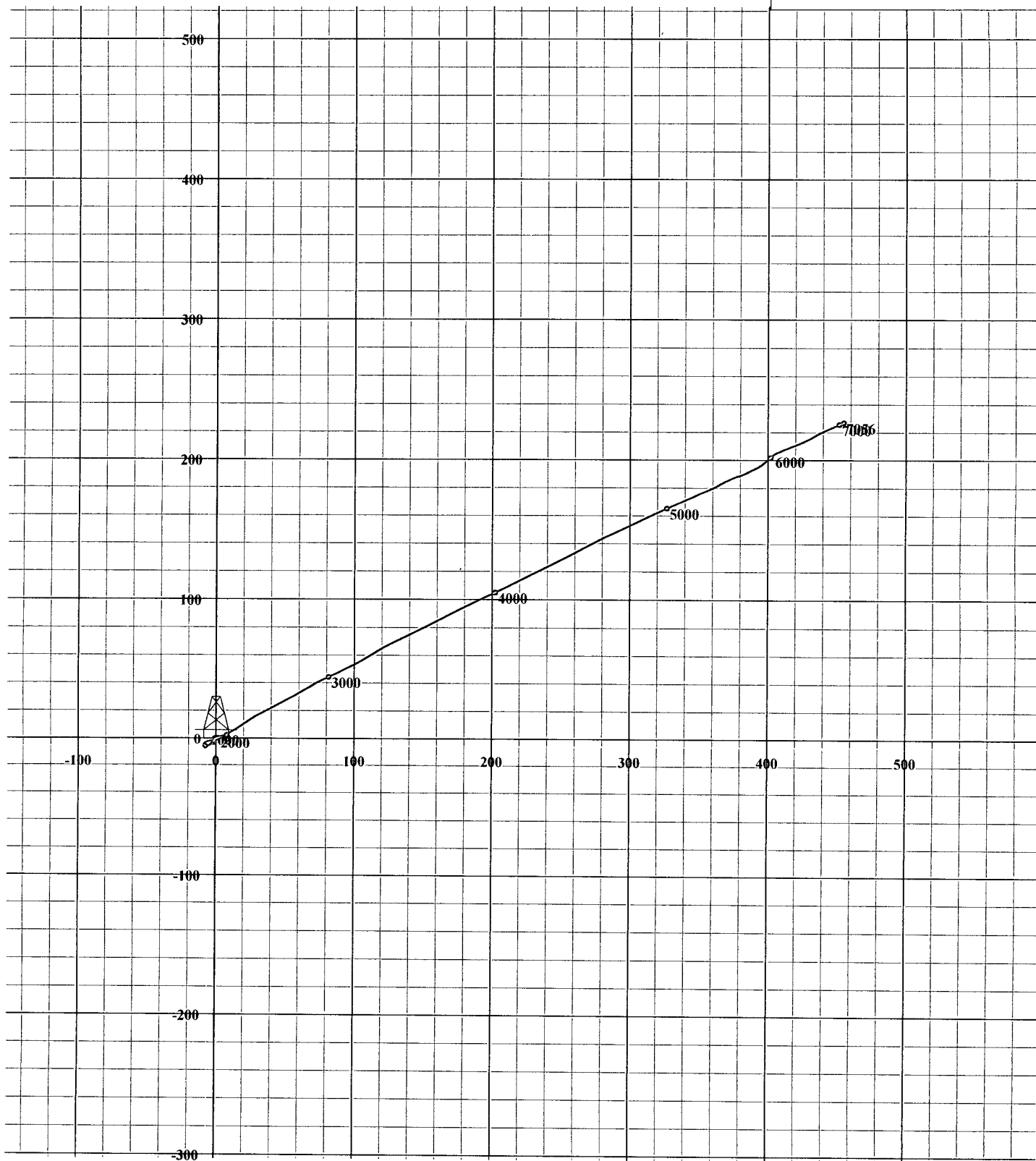
Field: Maljamar
Site: Lea County, NM
Well: GC Federal #45
Survey: 03/26/10-04/01/10



Azimuths to True North
Magnetic North 0 00°

Strength 0nT
Date 4/7/2010
Model tgrf2000

South(-)/North(+) [100ft/in]



West(-)/East(+) [100ft/in]