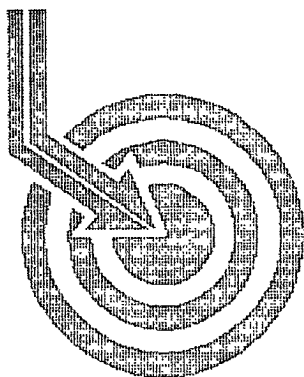




Scientific Drilling

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COG RESOURCES

Field: Maljamar
Site: Lea County, NM
Well: GC Federal #16
Wellpath: DH - Job #32D1009441
Survey: 10/25/09-10/30/09

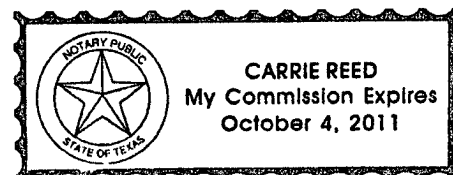
SUR: M-19-17s-32e, 615/S & 990/W
BHL: M-19-17s-32e, 383/S & 998/W
API # 30-025-39112

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

Richard.....Company Representative

Notorized this date 11th of November, 2009.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International Survey Report

Company: COG RESOURCES Date: 10/26/2009 Time: 17:17:07 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 #16 Section (VS) Reference: Well (0.00N,0.00E,182.07Azi)
Wellpath: VH- Job #32K1009445 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 10/25/09 Start Date: 10/25/2009
KSRG 0'-2077'
Company: Scientific Drilling Internatio Engineer: Madrid w/Gray
Tool: MWD;MWD 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
0.00	0.00	359.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.43	265.56	100.00	0.04	-0.03	-0.37	0.43	0.38	265.56
200.00	0.06	154.15	200.00	0.13	-0.11	-0.73	0.46	0.73	261.75
300.00	0.45	295.36	300.00	0.02	0.02	-1.06	0.50	1.06	270.86
400.00	0.29	270.93	400.00	-0.13	0.19	-1.67	0.22	1.68	276.45
500.00	0.65	272.47	499.99	-0.13	0.22	-2.49	0.36	2.49	274.98
600.00	1.12	240.36	599.98	0.38	-0.24	-3.90	0.67	3.91	266.45
700.00	1.12	244.14	699.96	1.35	-1.15	-5.63	0.07	5.75	258.44
800.00	1.15	265.46	799.94	1.93	-1.66	-7.51	0.42	7.69	257.55
900.00	1.00	272.61	899.92	2.03	-1.70	-9.38	0.20	9.53	259.75
1000.00	0.57	256.44	999.91	2.16	-1.77	-10.74	0.48	10.88	260.62
1100.00	0.34	261.17	1099.91	2.35	-1.94	-11.51	0.23	11.68	260.45
1200.00	0.21	244.90	1199.91	2.49	-2.06	-11.97	0.15	12.15	260.24
1300.00	0.31	256.07	1299.91	2.65	-2.20	-12.40	0.11	12.60	259.93
1400.00	0.32	237.57	1399.91	2.88	-2.42	-12.90	0.10	13.12	259.39
1500.00	0.26	229.26	1499.91	3.19	-2.72	-13.31	0.07	13.58	258.47
1600.00	0.60	78.17	1599.90	3.22	-2.76	-12.97	0.84	13.26	258.00
1700.00	1.21	73.76	1699.89	2.76	-2.35	-11.44	0.61	11.68	258.38
1800.00	1.50	76.68	1799.86	2.09	-1.76	-9.15	0.30	9.32	259.14
1900.00	1.65	74.65	1899.83	1.31	-1.07	-6.49	0.16	6.58	260.61
2000.00	1.50	66.31	1999.79	0.31	-0.17	-3.90	0.27	3.91	267.55
2077.02	1.46	60.23	2076.78	-0.65	0.73	-2.13	0.21	2.25	288.81



Scientific Drilling International Survey Report

Company: COG RESOURCES	Date: 11/02/2009	Time: 10:14:04	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 #16	Section (VS) Reference:	Well (0.00N,0.00E,182.07Azi)	
Wellpath: DH - Job #32D1009441	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey: 10/25/09-10/30/09	Start Date: 10/25/2009
MWD 2171'-5323'	
Company: Scientific Drilling Internatio	Engineer: Smith/Ramirez/Baldwin
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
2077.02	1.46	60.23	2076.78	-0.65	0.73	-2.13	0.00	2.25	288.81
2171.00	1.58	61.12	2170.73	-1.95	1.95	0.04	0.13	1.95	1.30
2264.00	2.64	124.14	2263.68	-1.47	1.36	2.94	2.56	3.24	65.13
2359.00	3.43	150.06	2358.55	2.10	-2.33	6.17	1.65	6.59	110.67
2453.00	3.96	173.71	2452.36	7.70	-7.99	7.93	1.70	11.26	135.23
2547.00	4.13	191.99	2546.13	14.25	-14.53	7.58	1.38	16.39	152.45
2641.00	5.01	187.51	2639.83	21.67	-21.91	6.34	1.01	22.81	163.86
2735.00	4.40	185.57	2733.51	29.35	-29.57	5.45	0.67	30.07	169.55
2831.00	4.48	189.97	2829.22	36.74	-36.93	4.45	0.36	37.19	173.13
2926.00	6.16	187.68	2923.81	45.49	-45.63	3.12	1.78	45.74	176.08
3020.00	5.01	190.23	3017.36	54.57	-54.67	1.72	1.25	54.70	178.20
3114.00	5.80	186.01	3110.94	63.37	-63.43	0.50	0.94	63.43	179.55
3210.00	5.01	184.96	3206.52	72.40	-72.43	-0.38	0.83	72.43	180.30
3305.00	4.75	184.87	3301.17	80.47	-80.48	-1.07	0.27	80.49	180.76
3399.00	4.31	185.05	3394.88	87.89	-87.88	-1.71	0.47	87.90	181.11
3494.00	6.07	178.45	3489.48	96.46	-96.46	-1.89	1.95	96.48	181.12
3590.00	5.89	177.40	3584.96	106.44	-106.45	-1.53	0.22	106.46	180.82
3684.00	6.16	174.76	3678.44	116.25	-116.29	-0.85	0.41	116.30	180.42
3778.00	5.01	188.30	3772.00	125.33	-125.38	-0.98	1.85	125.38	180.45
3873.00	4.75	187.33	3866.66	133.37	-133.38	-2.08	0.29	133.40	180.89
3968.00	5.28	185.13	3961.29	141.65	-141.64	-2.97	0.59	141.67	181.20
4062.00	3.69	198.23	4055.00	148.88	-148.82	-4.31	2.00	148.88	181.66
4157.00	5.01	184.08	4149.73	155.96	-155.86	-5.56	1.78	155.96	182.04
4282.00	4.13	185.66	4274.33	165.91	-165.79	-6.39	0.71	165.91	182.21
4377.00	4.22	190.06	4369.08	172.78	-172.63	-7.34	0.35	172.79	182.43
4472.00	4.04	186.05	4463.83	179.58	-179.40	-8.30	0.36	179.59	182.65
4567.00	4.13	186.45	4558.59	186.33	-186.13	-9.04	0.10	186.35	182.78
4661.00	4.57	185.57	4652.32	193.45	-193.22	-9.78	0.47	193.47	182.90
4755.00	4.04	182.23	4746.05	200.50	-200.25	-10.27	0.62	200.52	182.94
4850.00	3.96	183.64	4840.82	207.12	-206.87	-10.61	0.13	207.14	182.94
4945.00	4.01	175.26	4935.59	213.70	-213.46	-10.55	0.61	213.72	182.83
5039.00	3.89	181.65	5029.37	220.15	-219.92	-10.37	0.49	220.16	182.70
5134.00	3.31	181.12	5124.18	226.11	-225.88	-10.51	0.61	226.13	182.66
5197.00	2.23	169.32	5187.11	229.13	-228.91	-10.32	1.93	229.14	182.58
5261.00	1.55	169.65	5251.07	231.19	-230.98	-9.93	1.06	231.19	182.46
5323.00	0.17	162.89	5313.07	232.09	-231.89	-9.76	2.23	232.10	182.41