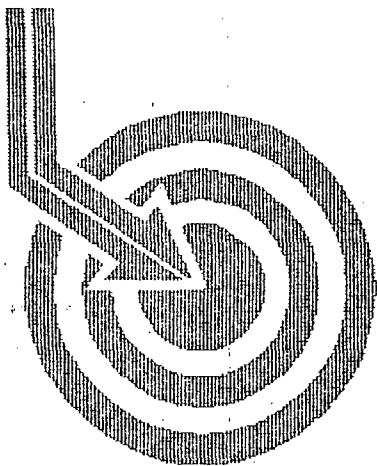




Scientific Drilling

30-015-37503

COG RESOURCES

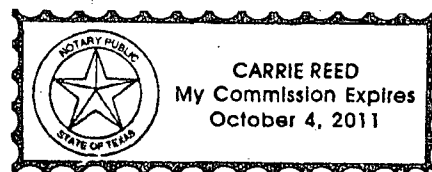
Field: Empire
Site: Eddy County, NM
Well: Firecracker State #11
Wellpath: DH - Job #32D0610487
Survey: 06/30/10-07/06/10

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

Richard
Company Representative

Notarized this date 4th of August, 2010.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International, Inc.

Survey Report

Company: COG RESOURCES Date: 7/12/2010 Time: 17:21:01 Page: 1
Field: Empire Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Site: Eddy County, NM Vertical (TVD) Reference: SITE 0.0
Well: Firecracker State #11 Section (VS) Reference: Well (0.00N,0.00E,229.75Azi)
Wellpath: DH - Job #32D0610487 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 06/30/10-07/06/10 Start Date: 6/30/2010
Company: Scientific Drilling Internatio Engineer: Foster/Hansen
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
802.0	0.89	170.53	802.0	2.2	-3.3	-0.1	0.00	3.3	181.62
884.0	0.68	197.09	884.0	2.9	-4.3	-0.1	0.51	4.3	181.72
948.0	1.16	224.87	948.0	3.9	-5.2	-0.7	1.00	5.2	187.70
1011.0	2.21	227.12	1010.9	5.7	-6.4	-2.0	1.67	6.8	197.56
1075.0	3.24	222.24	1074.9	8.7	-8.6	-4.2	1.65	9.6	205.75
1169.0	4.47	209.48	1168.7	14.8	-13.8	-7.7	1.59	15.8	209.35
1265.0	5.03	215.29	1264.3	22.4	-20.5	-12.0	0.77	23.7	210.42
1392.0	4.76	215.49	1390.9	32.9	-29.3	-18.3	0.21	34.5	211.98
1487.0	5.14	216.34	1485.5	40.9	-35.9	-23.1	0.41	42.7	212.73
1550.0	5.21	221.08	1548.3	46.4	-40.4	-26.7	0.69	48.4	213.44
1644.0	5.35	232.40	1641.9	55.0	-46.3	-32.9	1.12	56.8	215.45
1745.0	5.22	231.69	1742.4	64.3	-52.0	-40.3	0.14	65.8	217.76
1835.0	5.19	226.80	1832.1	72.5	-57.3	-46.5	0.49	73.8	219.03
1930.0	4.90	227.58	1926.7	80.8	-63.0	-52.6	0.31	82.0	219.85
2025.0	4.82	234.01	2021.3	88.9	-68.1	-58.8	0.58	90.0	220.82
2120.0	4.53	233.06	2116.0	96.6	-72.7	-65.0	0.32	97.5	221.82
2215.0	4.36	234.35	2210.7	103.9	-77.0	-71.0	0.21	104.7	222.65
2311.0	4.07	232.43	2306.5	111.0	-81.2	-76.6	0.34	111.7	223.33
2436.0	4.34	242.37	2431.1	120.0	-86.1	-84.3	0.62	120.5	224.40
2562.0	4.32	241.55	2556.8	129.3	-90.6	-92.7	0.05	129.6	225.66
2691.0	4.41	241.78	2685.4	138.9	-95.3	-101.4	0.07	139.1	226.78
2818.0	4.44	246.11	2812.0	148.4	-99.6	-110.2	0.26	148.5	227.90
2945.0	5.11	240.36	2938.6	158.7	-104.4	-119.6	0.65	158.7	228.89
3072.0	4.99	241.59	3065.1	169.7	-109.8	-129.4	0.13	169.7	229.68
3199.0	5.26	231.36	3191.6	180.9	-116.0	-138.8	0.75	180.9	230.10
3357.0	5.17	233.73	3348.9	195.2	-124.8	-150.2	0.15	195.2	230.28
3420.0	4.41	228.08	3411.7	200.5	-128.1	-154.2	1.42	200.5	230.30
3484.0	3.07	236.11	3475.6	204.6	-130.7	-157.5	2.24	204.6	230.32
3547.0	2.10	217.19	3538.5	207.4	-132.5	-159.6	2.03	207.5	230.29
3611.0	1.18	190.17	3602.5	209.1	-134.1	-160.4	1.84	209.1	230.10
3740.0	0.39	313.66	3731.5	210.2	-135.1	-161.0	1.11	210.2	229.99
3927.0	0.17	247.96	3918.5	210.5	-134.8	-161.7	0.19	210.5	230.19
4022.0	0.20	321.22	4013.5	210.6	-134.7	-161.9	0.23	210.6	230.24
4212.0	0.95	311.73	4203.5	210.8	-133.4	-163.3	0.40	210.9	230.76
4403.0	1.25	289.95	4394.4	212.1	-131.6	-166.5	0.27	212.2	231.66
4466.0	0.81	272.82	4457.4	212.8	-131.4	-167.5	0.85	212.9	231.90
4528.0	0.72	145.11	4519.4	213.1	-131.7	-167.8	2.22	213.3	231.87
4584.0	0.80	142.62	4575.4	213.2	-132.3	-167.3	0.15	213.3	231.67