Scientific Drilling

30 015 36945

COG RESOURCES

Field: Fren
Site: Eddy County, NM
Well: Tex Mack 11 Federal #9
Survey: 01/11/10/01/19/10

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

Notorized this date 16th of February, 2010.

Notary Signature
County of Midland
State of Texas

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

Scientific Drilling

Scientific Drilling International
Survey Report

Company:	COG RESOURCES	**Date:** 01/12/2010	**Time:** 15:59:21	**Page:**	1
Field:	Fren	**Co-ordinate(NE) Reference:**	Site: Eddy County, NM, Grid North		
Site:	Eddy County, NM	**Vertical (TVD) Reference:**	SITE 0.0		
Well:	Tex Mack 11 Federal #9	**Section (VS) Reference:**	Well (0.00N,0.00E,128.99Azi)		
Wellpath:	VH - Job #32K0110022	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Sybase

Survey:	01/10/10 KSRG 0'-1819'	**Start Date:**	01/10/2010
Company:	Scientific Drilling Internatio	**Engineer:**	Guebara/Rowe/Williams
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
0.00	0.00	359.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.27	149.50	100.00	0.22	-0.20	0.12	0.27	0.24	149.50
200.00	0.32	154.16	200.00	0.69	-0.66	0.36	0.06	0.75	151.23
300.00	0.64	171.84	299.99	1.36	-1.46	0.56	0.35	1.57	158.97
400.00	0.66	170.12	399.99	2.20	-2.58	0.74	0.03	2.69	164.01
500.00	0.95	166.17	499.98	3.29	-3.95	1.04	0.30	4.09	165.31
600.00	0.88	170.15	599.97	4.53	-5.52	1.37	0.09	5.68	166.09
700.00	0.95	170.30	699.95	5.73	-7.09	1.64	0.07	7.28	166.99
800.00	0.69	190.23	799.94	6.65	-8.50	1.67	0.38	8.66	168.88
900.00	0.69	201.69	899.94	7.11	-9.65	1.34	0.14	9.74	172.09
1000.00	0.51	209.17	999.93	7.37	-10.60	0.90	0.20	10.64	175.14
1100.00	0.58	191.88	1099.93	7.68	-11.48	0.58	0.18	11.50	177.11
1200.00	0.57	233.92	1199.92	7.78	-12.27	0.07	0.41	12.27	179.65
1300.00	0.23	218.96	1299.92	7.65	-12.72	-0.45	0.35	12.73	182.04
1400.00	0.28	43.44	1399.92	7.67	-12.70	-0.41	0.51	12.71	181.86
1500.00	0.65	37.57	1499.91	7.67	-12.07	0.10	0.37	12.07	179.52
1600.00	1.01	49.97	1599.90	7.83	-11.06	1.12	0.40	11.11	174.20
1700.00	1.59	62.12	1699.88	8.54	-9.84	3.02	0.64	10.29	162.92
1800.00	1.21	65.65	1799.85	9.56	-8.76	5.21	0.39	10.19	149.24
1819.00	1.55	71.77	1818.84	9.79	-8.59	5.64	1.95	10.28	146.73

Scientific Drilling

Scientific Drilling International, Inc.

Survey Report

Company:	COG RESOURCES	**Date:** 1/31/2010 **Time:** 22:13:56	**Page:** 1
Field:	Fren	**Co-ordinate(NE) Reference:**	Site: Eddy County, NM, Grid North
Site:	Eddy County, NM	**Vertical (TVD) Reference:**	SITE 0.0
Well:	Tex Mack 11 Federal #9	**Section (VS) Reference:**	Well (0.00N,0.00E,128.99Azi)
Wellpath:	DH - Job #32D0110007	**Survey Calculation Method:**	Minimum Curvature **Db:** Sybase

Survey:	01/11/10/01/19/10 MWD 1905'-6449'	**Start Date:**	1/11/2010
Company:	Scientific Drilling Internatio	**Engineer:**	Calvert/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
1819.0	1.55	71.77	1818.8	9.8	-8.6	5.6	0.00	10.3	146.73
1905.0	1.53	80.46	1904.8	11.2	-8.0	7.9	0.27	11.3	135.59
1968.0	1.93	112.65	1967.8	12.8	-8.3	9.7	1.64	12.8	130.63
2031.0	2.15	153.31	2030.7	14.8	-9.8	11.2	2.27	14.9	131.12
2093.0	3.17	157.45	2092.7	17.4	-12.4	12.4	1.67	17.5	135.05
2156.0	4.40	154.80	2155.5	21.1	-16.2	14.1	1.97	21.5	139.01
2218.0	5.34	148.30	2217.3	26.0	-20.8	16.6	1.76	26.6	141.40
2282.0	6.12	151.05	2281.0	32.0	-26.3	19.8	1.29	32.9	143.02
2344.0	6.91	147.44	2342.6	38.6	-32.4	23.4	1.43	39.9	144.10
2407.0	7.92	144.68	2405.1	46.3	-39.1	28.0	1.70	48.1	144.41
2469.0	8.93	142.24	2466.4	55.1	-46.4	33.4	1.73	57.1	144.25
2532.0	9.75	145.01	2528.6	65.0	-54.6	39.4	1.48	67.4	144.16
2602.0	10.11	132 88	2597.5	76.8	-63.7	47.3	3.03	79.3	143.36
2665.0	9.25	132.98	2659.6	87.4	-70.9	55.1	1.37	89.8	142.13
2727.0	8.52	127.28	2720.9	97.0	-77.0	62.4	1.84	99.1	141.00
2853.0	6.93	123.26	2845.7	113.9	-86.9	76.2	1.33	115.5	138.75
2978.0	7.10	129.72	2969.8	129.1	-95.9	88.4	0.65	130.5	137.33
3072.0	7.65	125.61	3063.0	141.2	-103.3	98.0	0.81	142.4	136.51
3197.0	7.56	127.51	3186.9	157.7	-113.1	111.3	0.21	158.7	135.48
3322.0	7.78	124.12	3310.8	174.3	-122.9	124.8	0.40	175.2	134 56
3448.0	6.76	125.35	3435.8	190.2	-132.0	137.9	0.82	190.9	133.74
3573.0	8.33	127.53	3559.7	206.6	-141.7	151.1	1.28	207.2	133.17
3729.0	7.60	129.39	3714.2	228.2	-155.2	168.0	0.50	228.7	132.72
3954.0	8.59	125.19	3937.0	259.9	-174.3	193.3	0.51	260.3	132.05
4011.0	8.05	125.44	3993.4	268.1	-179.1	200.0	0.95	268.4	131.84
4167.0	7.97	124.55	4147.8	289.8	-191.5	217.8	0.09	290.0	131.33
4324 0	7.41	124.86	4303.4	310.7	-203.5	235.1	0.36	310.9	130 88
4481.0	7.12	125.95	4459.2	330.6	-215.0	251.3	0.20	330.7	130.55
4637.0	6.99	128.38	4614.0	349.7	-226.6	266.5	0.21	349.8	130.37
4762.0	7.73	122.02	4738.0	365.7	-235.7	279.6	0.88	365.7	130.14
4919.0	7.39	121.99	4893.6	386.2	-246.7	297.1	0.22	386.2	129.70
5044.0	7.42	119.36	5017.5	402.1	-254.9	311.0	0.27	402.1	129.34
5106.0	6.05	122.32	5079.1	409.3	-258.6	317.2	2.28	409.3	129.19
5194.0	4.94	121.37	5166.7	417.7	-263.1	324.4	1.27	417.7	129.04
5263.0	4.23	119.14	5235.5	423.1	-265.9	329.1	1.06	423.1	128.93
5327.0	4.07	129.34	5299.3	427.7	-268.4	333.0	1.18	427.7	128.88
5421.0	3.61	138.39	5393.1	434.0	-272.8	337.5	0.81	434.0	128.95
5515.0	3.24	140.13	5486.9	439.5	-277.0	341.2	0.41	439.5	129.08
5577.0	3.81	128.28	5548.8	443.3	-279.6	343.9	1.49	443 3	129.12
5671.0	5.16	117.71	5642.5	450.5	-283.5	350.1	1.68	450.5	129.00
5734.0	4.52	122.04	5705.3	455.8	-286.2	354.7	1.17	455.8	128.90
5796.0	3.75	128.52	5767.2	460.2	-288.7	358.4	1.45	460.2	128.86
5859.0	3.73	116.49	5830.0	464.3	-290.9	361.8	1.24	464.3	128.80
5953.0	4.82	121.36	5923.8	471.2	-294.4	367.9	1.22	471.2	128.66
6015.0	5.02	132.17	5985.5	476.5	-297.5	372.2	1.53	476.5	128.64
6109.0	5.34	141.54	6079.1	484.8	-303.7	377.9	0.96	484.9	128.79
6235.0	5.46	143.33	6204.6	496.4	-313.1	385.2	0.16	496.4	129.11
6360.0	5.36	141.52	6329.0	507.8	-322.5	392.3	0.16	507.9	129.42
6449.0	5.09	147.06	6417.7	515.7	-329.0	397.1	0.64	515.7	129.65