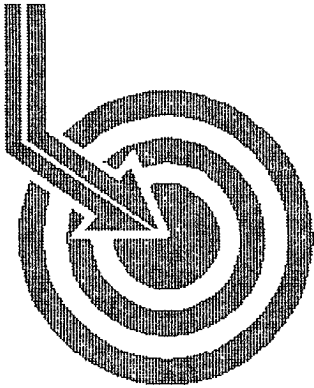


30.815.32059

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Scientific Drilling

COG RESOURCES

Field: Empire Yeso
Site: Eddy County, NM
Well: State S 19 #19
Wellpath: VH - Job #32K0908694
Survey: 09/09/08

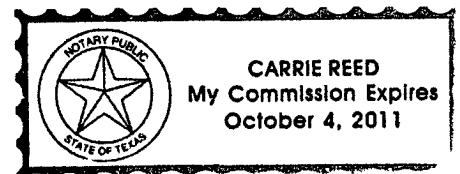
This survey is correct to the best of my knowledge
and is supported by actual field data.

.....*Richard M. ...*.....Company Representative

Notorized this date 14th of October, 2008.

Carrie Reed

Notary Signature
County of Midland
State of Texas





Scientific Drilling International Survey Report

Company: COG RESOURCES	Date: 10/05/2008	Time: 13:01:18	Page: 1
Field: Empire Yeso	Co-ordinate(NE) Reference:	Site: Eddy County, NM, True North	
Site: Eddy County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: State S 19 #19	Section (VS) Reference:	Well (0.00N,0.00E,224.83Azi)	
Wellpath: VH - Job #32K0908694	Survey Calculation Method:	Minimum Curvature Db: Sybase	

Survey: 09/09/08	Start Date: 09/09/2008
Company: KSRG 0'-5198'	
Tool: Scientific Drilling Internatio	Engineer: Guebara/Williams w/Halliburton
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.27	260.74	100.00	0.19	-0.04	-0.23	0.27	0.24	260.74
200.00	0.58	124.05	200.00	0.29	-0.36	-0.05	0.80	0.36	187.26
300.00	1.05	123.54	299.99	0.01	-1.15	1.14	0.47	1.62	135.29
400.00	1.04	146.32	399.97	0.01	-2.41	2.40	0.41	3.40	135.07
500.00	1.22	146.77	499.95	0.42	-4.06	3.49	0.18	5.35	139.28
600.00	1.03	153.83	599.93	0.93	-5.75	4.47	0.23	7.29	142.15
700.00	0.90	154.60	699.92	1.49	-7.27	5.20	0.13	8.94	144.40
800.00	0.88	166.74	799.91	2.16	-8.73	5.72	0.19	10.43	146.77
900.00	0.93	176.97	899.89	3.11	-10.28	5.94	0.17	11.87	150.01
1000.00	0.77	172.69	999.88	4.07	-11.76	6.06	0.17	13.23	152.72
1100.00	0.36	223.27	1099.88	4.79	-12.66	5.93	0.61	13.98	154.88
1200.00	0.58	271.88	1199.88	5.45	-12.87	5.21	0.44	13.88	157.95
1300.00	0.89	263.91	1299.87	6.40	-12.93	3.94	0.33	13.52	163.08
1400.00	0.78	255.72	1399.86	7.59	-13.18	2.50	0.16	13.42	169.25
1500.00	0.87	268.62	1499.85	8.72	-13.37	1.08	0.21	13.41	175.36
1600.00	1.16	262.08	1599.83	10.07	-13.53	-0.68	0.31	13.55	182.86
1700.00	1.18	268.68	1699.81	11.62	-13.69	-2.71	0.14	13.96	191.19
1800.00	1.39	287.09	1799.78	12.93	-13.36	-4.90	0.46	14.23	200.13
1900.00	1.64	280.46	1899.75	14.30	-12.74	-7.46	0.30	14.77	210.36
2000.00	1.84	279.13	1999.70	16.04	-12.23	-10.46	0.20	16.09	220.53
2100.00	1.75	281.04	2099.65	17.83	-11.68	-13.54	0.11	17.88	229.22
2200.00	1.50	273.01	2199.61	19.55	-11.32	-16.35	0.34	19.88	235.30
2300.00	1.63	266.91	2299.58	21.48	-11.33	-19.07	0.21	22.18	239.29
2400.00	1.73	257.94	2399.53	23.80	-11.72	-21.97	0.28	24.90	241.92
2500.00	1.56	258.74	2499.49	26.19	-12.30	-24.78	0.17	27.67	243.60
2600.00	1.53	252.87	2599.46	28.50	-12.96	-27.39	0.16	30.30	244.68
2700.00	1.59	256.06	2699.42	30.87	-13.69	-30.01	0.11	32.99	245.49
2800.00	1.27	254.46	2799.39	33.02	-14.32	-32.43	0.32	35.45	246.18
2900.00	1.15	261.63	2899.37	34.78	-14.76	-34.49	0.19	37.51	246.83
3000.00	1.01	266.50	2999.35	36.24	-14.96	-36.36	0.17	39.32	247.63
3100.00	0.86	248.46	3099.34	37.59	-15.29	-37.94	0.33	40.90	248.05
3200.00	1.12	239.58	3199.32	39.22	-16.06	-39.48	0.30	42.62	247.86
3300.00	1.07	237.49	3299.30	41.08	-17.06	-41.11	0.06	44.51	247.46
3400.00	0.94	216.57	3399.29	42.80	-18.22	-42.39	0.39	46.14	246.74
3500.00	1.22	211.72	3499.27	44.65	-19.78	-43.43	0.29	47.73	245.51
3600.00	0.87	201.21	3599.25	46.38	-21.40	-44.27	0.40	49.17	244.20
3700.00	1.17	209.07	3699.24	48.06	-23.00	-45.04	0.33	50.57	242.95
3800.00	1.19	203.03	3799.22	50.01	-24.84	-45.94	0.13	52.23	241.60
3900.00	1.38	218.34	3899.19	52.17	-26.74	-47.09	0.39	54.16	240.41
4000.00	1.44	225.17	3999.16	54.62	-28.57	-48.73	0.18	56.49	239.61
4100.00	1.22	227.33	4099.13	56.94	-30.18	-50.41	0.23	58.75	239.09
4200.00	1.22	219.06	4199.11	59.06	-31.73	-51.86	0.18	60.80	238.54
4300.00	1.17	215.98	4299.09	61.13	-33.38	-53.13	0.08	62.75	237.86
4400.00	1.11	202.61	4399.07	63.04	-35.10	-54.10	0.27	64.49	237.02
4500.00	1.30	208.21	4499.05	65.02	-37.00	-55.01	0.22	66.30	236.08
4600.00	1.01	186.64	4599.03	66.80	-38.87	-55.65	0.52	67.88	235.07
4700.00	0.93	174.26	4699.01	68.01	-40.55	-55.67	0.22	68.88	233.93
4800.00	1.37	171.78	4798.99	69.24	-42.55	-55.42	0.44	69.87	232.49



Scientific Drilling International Survey Report

Company: COG RESOURCES Date: 10/05/2008 Time: 13:01:18 Page: 2
Field: Empire Yeso Co-ordinate(NE) Reference: Site: Eddy County, NM, True North
Site: Eddy County, NM Vertical (TVD) Reference: SITE 0.0
Well: State S 19 #19 Section (VS) Reference: Well (0.00N,0.00E,224.83Azi)
Wellpath: VH - Job #32K0908694 Survey Calculation Method: Minimum Curvature Db: Sybase

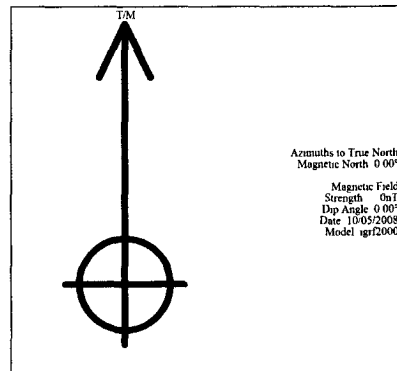
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.00	1.62	169.80	4898.96	70.77	-45.12	-55.00	0.26	71.14	230.63
5000.00	1.50	162.68	4998.92	72.19	-47.76	-54.36	0.23	72.36	228.70
5100.00	1.75	167.79	5098.88	73.64	-50.50	-53.64	0.29	73.68	226.73
5198.00	1.55	161.35	5196.84	75.04	-53.22	-52.90	0.28	75.04	224.83



Scientific
Drilling

Field: Empire Yeso
Site: Eddy County, NM
Well: State S 19 #19
Wellpath: VH - Job #32K0908694
Survey: 09/09/08



West(-)/East(+) [10ft/in]

South(-)/North(+) [10ft/in]

