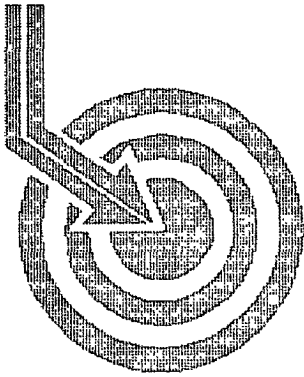


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Scientific Drilling

COG RESOURCES

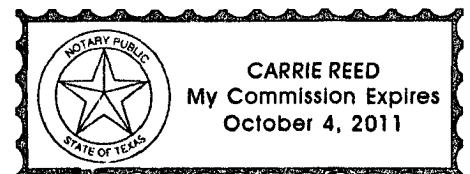
Field: Grayburg Jackson
Site: Eddy County, NM
Well: GJ West Coop #79
Wellpath: VH - Job #32K1109493
Survey: 11/13/09

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

Lu Harton Company Representative

Notorized this date 10th of December, 2009.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific Drilling International Survey Report

Company: COG RESOURCES	Date: 11/18/2009	Time: 09:12:56	Page: 1
Field: Grayburg Jackson	Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North		
Site: Eddy County, NM	Vertical (TVD) Reference: SITE 0.0		
Well: GJ West Coop #79	Section (VS) Reference: Well (0.00N,0.00E,239.03Azi)		
Wellpath: VH - Job #32K1109493	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey: 11/13/09	Start Date: 11/18/2009
Company: Scientific Drilling Internatio	Engineer: Madrid w/Halliburton
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1.81	210.00	99.98	1.38	-1.37	-0.79	1.81	1.58	210.00
200.00	1.99	210.96	199.93	4.29	-4.22	-2.47	0.18	4.89	210.34
300.00	1.24	187.46	299.89	6.50	-6.79	-3.51	0.99	7.64	207.32
400.00	1.16	174.50	399.87	7.61	-8.87	-3.55	0.28	9.55	201.82
500.00	1.35	152.24	499.84	8.11	-10.92	-2.90	0.52	11.30	194.90
600.00	1.58	131.42	599.81	7.76	-12.87	-1.32	0.58	12.94	185.86
700.00	1.61	137.42	699.77	7.06	-14.82	0.66	0.17	14.83	177.44
800.00	1.74	154.46	799.73	6.92	-17.22	2.27	0.51	17.37	172.50
900.00	1.68	164.02	899.69	7.44	-20.00	3.33	0.29	20.28	170.56
1000.00	1.43	175.41	999.65	8.37	-22.65	3.83	0.40	22.98	170.41
1100.00	1.08	177.95	1099.63	9.38	-24.84	3.96	0.35	25.15	170.94
1200.00	1.05	183.95	1199.61	10.36	-26.70	3.93	0.12	26.98	171.62
1300.00	0.86	193.76	1299.59	11.42	-28.34	3.69	0.25	28.58	172.58
1400.00	0.75	211.84	1399.58	12.53	-29.62	3.17	0.28	29.79	173.90
1500.00	0.90	233.83	1499.57	13.89	-30.64	2.19	0.35	30.72	175.91
1600.00	0.99	234.57	1599.56	15.53	-31.61	0.85	0.09	31.62	178.46
1700.00	0.76	237.06	1699.55	17.06	-32.47	-0.41	0.23	32.47	180.72
1800.00	0.81	236.59	1799.54	18.43	-33.22	-1.56	0.05	33.25	182.68
1900.00	0.81	252.71	1899.53	19.82	-33.82	-2.82	0.23	33.94	184.77
2000.00	0.93	261.78	1999.52	21.26	-34.14	-4.30	0.18	34.41	187.18
2100.00	0.99	269.09	2099.50	22.75	-34.27	-5.97	0.14	34.79	189.87
2200.00	0.96	270.22	2199.49	24.22	-34.28	-7.67	0.04	35.13	192.61
2300.00	0.96	269.71	2299.48	25.65	-34.29	-9.34	0.01	35.54	195.24
2400.00	0.80	263.14	2399.46	27.01	-34.37	-10.87	0.19	36.05	197.55
2500.00	0.85	257.53	2499.45	28.35	-34.62	-12.29	0.09	36.73	199.55
2600.00	0.99	246.32	2599.44	29.91	-35.12	-13.81	0.23	37.74	201.46
2700.00	1.06	243.56	2699.43	31.69	-35.88	-15.43	0.09	39.06	203.26
2800.00	1.10	246.47	2799.41	33.56	-36.68	-17.13	0.07	40.48	205.04
2900.00	1.17	249.44	2899.39	35.52	-37.42	-18.97	0.09	41.95	206.88
3000.00	1.31	253.29	2999.36	37.63	-38.11	-21.02	0.16	43.52	208.88
3100.00	1.52	256.81	3099.33	40.00	-38.74	-23.41	0.23	45.26	211.14
3200.00	1.13	271.81	3199.31	42.10	-39.01	-25.68	0.52	46.71	213.36
3300.00	0.99	274.39	3299.29	43.63	-38.91	-27.53	0.15	47.67	215.28
3400.00	0.54	278.92	3399.28	44.70	-38.77	-28.86	0.45	48.33	216.66
3500.00	0.54	289.61	3499.28	45.36	-38.54	-29.77	0.10	48.70	217.68
3600.00	0.69	299.20	3599.27	45.95	-38.09	-30.74	0.18	48.94	218.90
3700.00	0.80	305.15	3699.26	46.54	-37.39	-31.83	0.13	49.11	220.41
3800.00	0.76	304.55	3799.25	47.09	-36.62	-32.95	0.04	49.26	221.98
3900.00	0.71	287.67	3899.24	47.78	-36.05	-34.09	0.22	49.61	223.40
4000.00	0.64	278.40	3999.24	48.62	-35.78	-35.23	0.13	50.21	224.55
4100.00	0.98	285.80	4099.23	49.64	-35.47	-36.61	0.36	50.97	225.90
4200.00	1.21	274.85	4199.21	51.08	-35.15	-38.48	0.31	52.11	227.59
4300.00	1.21	245.63	4299.19	52.98	-35.49	-40.49	0.61	53.85	228.77
4400.00	0.97	230.45	4399.17	54.87	-36.47	-42.11	0.37	55.70	229.11
4500.00	0.89	277.26	4499.16	56.32	-36.91	-43.53	0.74	57.07	229.71
4600.00	0.98	269.66	4599.15	57.66	-36.81	-45.16	0.15	58.26	230.81
4700.00	1.17	271.34	4699.13	59.26	-36.80	-47.03	0.19	59.72	231.96
4800.00	0.78	288.51	4799.11	60.57	-36.56	-48.70	0.48	60.89	233.11



Scientific Drilling International Survey Report

Company: COG RESOURCES Date: 11/18/2009 Time: 09:12:56 Page: 2
Field: Grayburg Jackson Co-ordinate(NE) Reference: Site: Eddy County, NM, Grid North
Site: Eddy County, NM Vertical (TVD) Reference: SITE 0.0
Well: GJ West Coop #79 Section (VS) Reference: Well (0.00N,0.00E,239.03Azi)
Wellpath: VH - Job #32K1109493 Survey Calculation Method: Minimum Curvature Db: Sybase

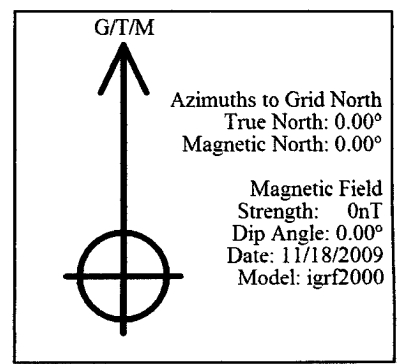
Survey

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	0.78	291.37	4899.10	61.43	-36.09	-49.98	0.04	61.65	234.17
5000.00	0.82	274.53	4999.09	62.42	-35.79	-51.33	0.24	62.57	235.11
5100.00	0.92	273.44	5099.08	63.67	-35.68	-52.84	0.10	63.76	235.97
5200.00	0.74	297.71	5199.07	64.67	-35.33	-54.21	0.39	64.71	236.91
5300.00	0.82	287.16	5299.06	65.48	-34.82	-55.47	0.16	65.49	237.88
5400.00	0.97	271.21	5399.05	66.67	-34.59	-57.00	0.29	66.67	238.75
5437.00	1.02	269.38	5436.05	67.22	-34.59	-57.64	0.16	67.22	239.03



Scientific
Drilling

Field: Grayburg Jackson
Site: Eddy County, NM
Well: GJ West Coop #79
Wellpath: VH - Job #32K1109493
Survey: 11/13/09



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

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

