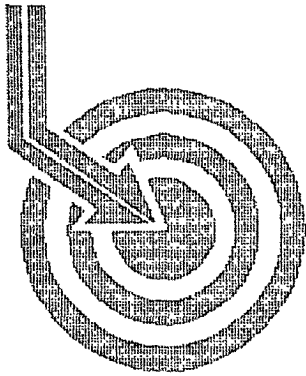
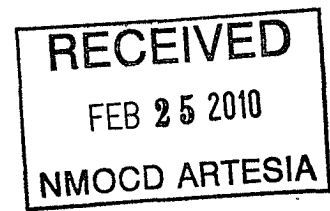




Scientific Drilling



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COG RESOURCES

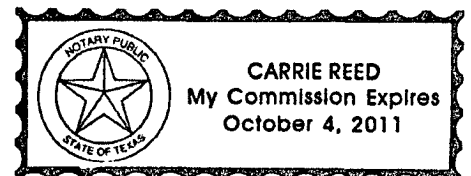
Field: Grayburg Jackson
Site: Eddy County, NM
Well: GJ West Coop #85
Wellpath: VH - Job #32K1209541
Survey: 12/08/09

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

[Signature] Company Representative

Notorized this date 31st of December, 2009.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International Survey Report

Company: COG RESOURCES	Date: 12/09/2009	Time: 13:06:01	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 #85	Section (VS) Reference:	Well (0.00N,0.00E,179.45Azi)	
Wellpath: VH - Job #32K1209541	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey: 12/08/09	Start Date: 12/08/2009
Company: Scientific Drilling Internatio	Engineer: Melendez 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	0.56	173.41	100.00	0.49	-0.49	0.06	0.56	0.49	173.41
200.00	0.51	153.07	199.99	1.37	-1.37	0.31	0.20	1.40	167.08
300.00	0.53	109.81	299.99	1.93	-1.92	0.95	0.38	2.14	153.68
400.00	0.58	107.97	399.99	2.25	-2.23	1.87	0.05	2.91	140.12
500.00	0.67	100.49	499.98	2.52	-2.50	2.92	0.12	3.84	130.50
600.00	0.92	88.03	599.97	2.62	-2.58	4.30	0.30	5.01	120.92
700.00	0.99	88.15	699.96	2.58	-2.52	5.97	0.07	6.48	112.90
800.00	1.03	89.39	799.94	2.56	-2.48	7.73	0.05	8.12	107.81
900.00	0.79	93.83	899.93	2.61	-2.52	9.32	0.25	9.65	105.13
1000.00	0.58	102.02	999.92	2.77	-2.67	10.50	0.23	10.83	104.27
1100.00	0.54	113.02	1099.92	3.07	-2.96	11.43	0.11	11.80	104.52
1200.00	0.48	124.69	1199.91	3.50	-3.38	12.20	0.12	12.67	105.49
1300.00	0.38	139.08	1299.91	3.99	-3.87	12.77	0.15	13.34	106.87
1400.00	0.21	146.73	1399.91	4.40	-4.28	13.08	0.17	13.77	108.10
1500.00	0.14	145.81	1499.91	4.66	-4.53	13.25	0.07	14.01	108.87
1600.00	0.05	214.25	1599.91	4.79	-4.67	13.30	0.13	14.09	109.34
1700.00	0.07	251.79	1699.91	4.85	-4.72	13.21	0.04	14.03	109.66
1800.00	0.28	240.84	1799.91	4.98	-4.86	12.94	0.21	13.83	110.58
1900.00	0.30	245.24	1899.91	5.21	-5.09	12.49	0.03	13.49	112.16
2000.00	0.28	241.74	1999.90	5.43	-5.31	12.04	0.03	13.16	113.82
2100.00	0.49	249.25	2099.90	5.69	-5.58	11.42	0.22	12.72	116.04
2200.00	0.38	242.71	2199.90	5.99	-5.89	10.73	0.12	12.24	118.74
2300.00	0.39	249.24	2299.90	6.25	-6.16	10.12	0.04	11.84	121.33
2400.00	0.44	248.54	2399.89	6.51	-6.42	9.44	0.05	11.42	124.21
2500.00	0.42	253.97	2499.89	6.74	-6.66	8.73	0.05	10.98	127.34
2600.00	0.43	249.93	2599.89	6.97	-6.89	8.03	0.03	10.58	130.64
2700.00	0.36	260.65	2699.89	7.14	-7.07	7.36	0.10	10.21	133.83
2800.00	0.33	221.68	2799.88	7.40	-7.34	6.86	0.23	10.05	136.91
2900.00	0.42	216.36	2899.88	7.91	-7.85	6.45	0.10	10.16	140.56
3000.00	0.46	197.35	2999.88	8.58	-8.53	6.12	0.15	10.49	144.34
3100.00	0.43	197.70	3099.88	9.32	-9.27	5.88	0.03	10.98	147.59
3200.00	0.45	211.23	3199.87	10.01	-9.96	5.57	0.11	11.41	150.80
3300.00	0.58	222.59	3299.87	10.72	-10.67	5.02	0.16	11.79	154.80
3400.00	0.59	224.54	3399.86	11.45	-11.41	4.32	0.02	12.20	159.28
3500.00	0.60	224.35	3499.86	12.18	-12.15	3.59	0.01	12.67	163.54
3600.00	0.56	228.87	3599.85	12.87	-12.84	2.85	0.06	13.16	167.47
3700.00	0.61	223.17	3699.85	13.57	-13.55	2.12	0.08	13.72	171.10
3800.00	0.59	221.73	3799.84	14.34	-14.33	1.42	0.03	14.40	174.36
3900.00	0.63	225.90	3899.84	15.10	-15.09	0.68	0.06	15.11	177.43
4000.00	0.49	217.13	3999.83	15.82	-15.82	0.03	0.16	15.82	179.91
4100.00	0.19	184.85	4099.83	16.32	-16.32	-0.25	0.34	16.32	180.87
4200.00	0.25	170.73	4199.83	16.70	-16.70	-0.23	0.08	16.70	180.77
4300.00	0.42	168.47	4299.83	17.28	-17.28	-0.12	0.17	17.28	180.39
4400.00	0.27	159.74	4399.83	17.86	-17.86	0.04	0.16	17.86	179.88
4500.00	0.17	95.79	4499.83	18.10	-18.09	0.27	0.25	18.10	179.16
4600.00	0.19	73.80	4599.83	18.07	-18.06	0.57	0.07	18.07	178.18
4700.00	0.20	99.55	4699.82	18.05	-18.05	0.90	0.09	18.07	177.13
4800.00	0.26	182.79	4799.82	18.31	-18.30	1.07	0.31	18.33	176.67



Scientific Drilling International

Survey Report

Company: COG RESOURCES Date: 12/09/2009 Time: 13:06:01 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 #85 Section (VS) Reference: Well (0.00N,0.00E,179.45Azi)
Wellpath: VH - Job #32K1209541 Survey Calculation Method: Minimum Curvature Db: Sybase

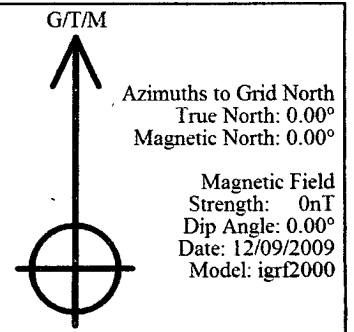
Survey

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	0.46	189.08	4899.82	18.93	-18.92	0.99	0.20	18.95	177.00
5000.00	0.45	171.25	4999.82	19.72	-19.71	0.99	0.14	19.73	177.13
5100.00	0.16	170.53	5099.82	20.24	-20.23	1.07	0.29	20.26	176.97
5200.00	0.35	192.77	5199.82	20.68	-20.67	1.03	0.21	20.70	177.16
5300.00	0.50	213.89	5299.81	21.34	-21.33	0.72	0.21	21.34	178.08
5400.00	0.50	197.37	5399.81	22.11	-22.11	0.34	0.14	22.11	179.11
5432.00	0.45	222.70	5431.81	22.34	-22.33	0.21	0.67	22.34	179.45



**Scientific
Drilling**

Field: Grayburg Jackson
Site: Eddy County, NM
Well: GJ West Coop #85
Wellpath: VH - Job #32K1209541
Survey: 12/08/09



West(-)/East(+) [5ft/in]

South(-)/North(+) [5ft/in]

