

Results of Directional Survey

API number:	30-025-39471		
OGRID:		Operator:	COG OPERATING LLC
		Property:	GC FEDERAL # 38

surface	ULSTR:	I	20	T	17S	R	32E
				1865	FSL	541	FEL

BH Loc	ULSTR:	I	20	T	17S	R	32E
7129	MD	7099.6	TVD	1661	FSL	979	FEL

Top Perf/OH	ULSTR:	I	20	T	17S	R	32E
5444	MD	5417.6	TVD	1703	FSL	890	FEL

Bot Perf/OH	ULSTR:	I	20	T	17S	R	32E
6800	MD	6771.2	TVD	1669	FSL	962	FEL

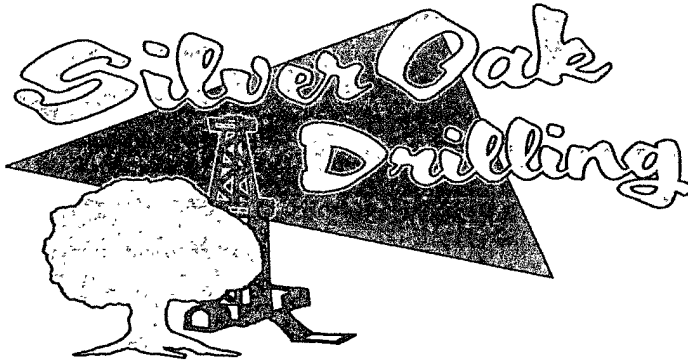
	MD	N/S	E/W	VD
	5425	-162.00	-347.40	5398.6
TOP PERFS/OH	5444	-162.45	-348.61	5417.57
	5488	-163.50	-351.40	5461.50
	6764	-194.80	-419.10	6735.20
BOT PERFS/OH	6800	-195.71	-421.15	6771.16
	6859	-197.20	-424.50	6830.10

NEXT TO LAST	6953	-199.50	-429.60	6923.90
LAST READING	7078	-202.50	-435.60	7048.70
TD	7129	-203.72	-438.05	7099.62

Surface Location	1865	FS	541	FE
Projected BHL	1661	FS	979	FE
Location of				
Top Perfs/OH	1703	FS	890	FE
Bottom Perfs/OH	1669	FS	962	FE

SUMMARY of Subsurface Locations

Surface Location	I-20-17S-32E	1865	FS	541	FE	Vert. Depth
Top Perfs/OH	I-20-17S-32E	1703	FS	890	FE	5417.57
Bottom Perfs/OH	I-20-17S-32E	1669	FS	962	FE	6771.16
Projected TD	I-20-17S-32E	1661	FS	979	FE	7099.62



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

SUR: I-20-17s-32e, 1865/S & 541/E
BHL: I-20-17s-32e, 1661/S & 979/E
API # 30-025-39471

RECEIVED

JUL 19 2010

HOBBSOCD

May 11, 2010

COG, LLC
Fasken Center, Tower II
550 West Texas Ave, Suite 1300
Midland, TX 79701

RE: GC Federal #38
1865' FSL & 541' FEL
Sec. 20, T17S, R32E
Lea County, New Mexico

Dear Sir,

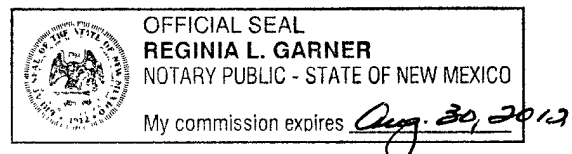
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 11th day of May, 2010.

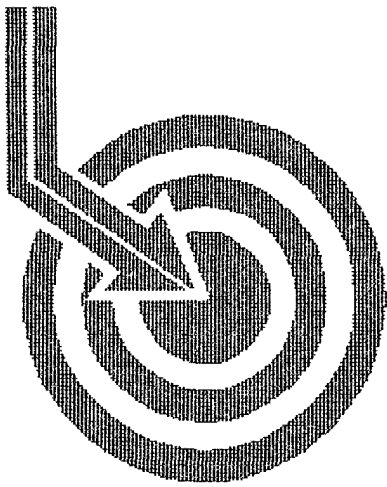
Notary Public

Pason DataHub Deviation Survey 2010/05/28 14:20:57
 # Well Dossier 1272124027 - G.C FEDERAL # 38
 #

Date	Depth	Deviation	Direction
4/24/2010	240	0.30	0.00
4/25/2010	508	0.40	0.00
4/25/2010	612	0.40	0.00
4/26/2010	794	0.30	0.00
4/26/2010	1279	0.30	0.00
4/27/2010	1752	1.10	0.00
4/28/2010	2139	1.64	67.87
4/28/2010	2202	0.40	20.20
4/28/2010	2264	1.40	273.70
4/28/2010	2328	2.19	271.90
4/28/2010	2391	2.87	268.90
4/28/2010	2455	3.50	251.80
4/28/2010	2518	4.84	249.60
4/29/2010	2581	5.49	245.86
4/29/2010	2706	7.29	240.75
4/29/2010	2831	7.50	243.70
4/29/2010	2643	6.27	245.76
4/29/2010	2768	7.87	244.20
4/29/2010	2956	7.14	243.20
4/29/2010	3050	7.50	243.00
4/29/2010	3114	8.34	246.80
4/29/2010	3209	7.82	243.20
4/29/2010	3145	8.29	249.00
4/29/2010	3303	8.76	242.30
4/29/2010	3397	7.81	243.78
4/29/2010	3492	8.31	343.90
4/29/2010	3587	7.98	240.50
4/29/2010	3618	7.80	242.60
4/30/2010	3712	7.79	247.40
4/30/2010	3806	8.28	245.80
4/30/2010	3902	8.68	244.20
4/30/2010	3995	8.00	244.20
4/30/2010	4058	8.32	242.20
4/30/2010	4246	8.46	240.90
4/30/2010	4436	7.52	243.30
4/30/2010	4151	8.11	245.20
4/30/2010	4341	8.11	245.40
4/30/2010	4499	7.71	242.80
4/30/2010	4594	7.56	243.10
4/30/2010	4689	7.68	243.30
4/30/2010	4751	7.73	240.40
5/1/2010	4826	7.70	238.50
5/1/2010	4951	7.88	260.10
5/1/2010	4889	7.51	237.00
5/1/2010	5045	8.15	259.10
2/20/1900	5108	7.85	256.80
5/1/2010	5171	7.11	253.40
5/1/2010	5299	5.65	239.05
5/1/2010	5235	6.85	243.80
5/2/2010	5362	5.14	237.40

Date	Depth	Deviation	Direction
5/2/2010	5488	3.86	251.40
5/2/2010	5614	3.40	241.10
5/2/2010	5771	3.32	237.90
5/2/2010	5550	3.58	240.70
5/2/2010	5708	3.18	238.20
5/2/2010	5865	2.95	236.40
5/3/2010	5868	3.07	238.50
5/4/2010	5914	3.43	232.20
5/5/2010	6009	3.60	340.80
5/5/2010	6104	3.11	252.20
5/5/2010	6197	2.94	0.00
5/5/2010	6292	3.31	247.00
5/5/2010	6386	3.27	246.50
5/5/2010	6482	6.47	248.60
5/5/2010	6571	6.28	250.00
5/5/2010	6670	3.57	244.60
5/6/2010	6764	3.58	249.10
5/6/2010	6859	3.56	242.80
5/6/2010	6953	3.30	248.40
5/6/2010	7078	2.93	238.50

EOF



Scientific Drilling

RECEIVED

JUL 19 2010

HOBBSOCD

COG RESOURCES

Field: Maljamar
Site: Lea County, NM
Well: GC Federal #38
Wellpath: DH - Job #32D0410297
Survey: 04/27/10-05/06/10

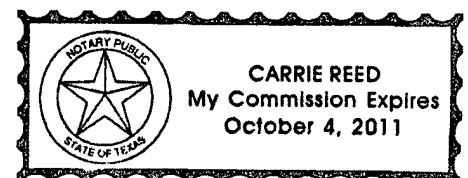
SUR: I-20-17s-32e, 1865/S & 541/E
BHL: I-20-17s-32e, 1661/S & 979/E
API # 30-025-39471

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

Richard
Company Representative

Notarized this date 2nd of June, 2010.

Carrie Reed
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International, Inc.

Survey Report

Company: COG RESOURCES Date: 5/1/2010 Time: 18:01:10 Page: 1
 Field: Maljamar Co-ordinate(NE) Reference: Site: Lea County, NM, True North
 Site: Lea County, NM Vertical (TVD) Reference: SITE 0.0
 Well: GC Federal #38 Section (VS) Reference: Well (0.00N,0.00E,244.66Azi)
 Wellpath: VH - Job #32K0410296 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 04/27/10 Start Date: 4/27/2010
 KSRG 0'-2078'
 Company: Scientific Drilling Internatio Engineer: Madrid w/Renegade
 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
0.0	0.00	359.70	0.0	0.0	0.0	0.0	0.00	0.0	0.00
100.0	0.03	337.66	100.0	0.0	0.0	0.0	0.03	0.0	337.66
200.0	0.09	71.54	200.0	-0.1	0.1	0.1	0.10	0.1	36.68
300.0	0.10	231.58	300.0	-0.1	0.0	0.1	0.19	0.1	54.11
400.0	0.22	227.62	400.0	0.2	-0.1	-0.1	0.12	0.2	226.93
500.0	0.18	205.38	500.0	0.5	-0.4	-0.4	0.09	0.5	221.10
600.0	0.27	229.14	600.0	0.8	-0.7	-0.6	0.13	0.9	220.51
700.0	0.30	234.39	700.0	1.3	-1.0	-1.0	0.04	1.4	224.47
800.0	0.30	217.38	800.0	1.8	-1.4	-1.4	0.09	1.9	224.85
900.0	0.10	202.96	900.0	2.1	-1.7	-1.6	0.20	2.3	223.18
1000.0	0.22	204.03	1000.0	2.3	-1.9	-1.7	0.12	2.5	221.08
1100.0	0.20	176.30	1100.0	2.5	-2.3	-1.7	0.10	2.9	217.48
1200.0	0.15	132.92	1200.0	2.6	-2.5	-1.6	0.14	3.0	212.81
1300.0	0.20	99.42	1300.0	2.4	-2.6	-1.4	0.11	3.0	207.25
1400.0	0.40	121.36	1400.0	2.0	-2.9	-0.9	0.23	3.0	197.36
1500.0	0.43	103.42	1500.0	1.5	-3.1	-0.2	0.13	3.1	184.22
1600.0	0.66	71.80	1600.0	0.7	-3.0	0.7	0.37	3.1	167.34
1700.0	1.07	60.82	1700.0	-0.8	-2.4	2.0	0.44	3.2	139.58
1800.0	1.23	60.54	1800.0	-2.8	-1.4	3.8	0.16	4.0	110.48
1900.0	1.42	56.21	1899.9	-5.1	-0.2	5.8	0.21	5.8	91.99
2000.0	1.57	67.00	1999.9	-7.7	1.0	8.0	0.32	8.1	82.74
2078.0	1.56	65.90	2077.9	-9.8	1.9	10.0	0.04	10.2	79.38



Scientific
Drilling

Scientific Drilling International, Inc.

Survey Report

Company: COG RESOURCES
Field: Maljamar
Site: Lea County, NM
Well: GC Federal #38
Wellpath: DH - Job #32D0410297

Date: 5/12/2010 Time: 16:04.24 Page: 1
Co-ordinate(NE) Reference: Site: Lea County, NM, True North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,244.66Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: 04/27/10-05/06/10
MWD 2139'-7078'

Start Date: 4/27/2010

Company: Scientific Drilling Internatio
Tool: MWD,MWD

Engineer: Foster/Burnett
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
2078.0	1.56	65.90	2077.9	-9.8	1.9	10.0	0.00	10.2	79.38
2139.0	1.64	67.87	2138.8	-11.5	2.5	11.6	0.16	11.8	77.60
2202.0	0.40	20.20	2201.8	-12.6	3.1	12.5	2.23	12.9	76.09
2264.0	1.40	273.70	2263.8	-12.1	3.3	11.8	2.52	12.3	74.19
2328.0	2.19	271.96	2327.8	-10.3	3.4	9.8	1.24	10.4	70.68
2391.0	2.87	268.93	2390.7	-7.8	3.4	7.0	1.10	7.8	63.84
2455.0	3.50	251.87	2454.6	-4.4	2.8	3.6	1.77	4.5	51.71
2518.0	4.84	249.60	2517.5	0.1	1.3	-0.8	2.14	1.5	329.29
2581.0	5.49	245.86	2580.2	5.8	-0.9	-6.0	1.16	6.1	261.70
2643.0	6.27	245.76	2641.9	12.2	-3.5	-11.8	1.26	12.3	253.57
2706.0	7.29	240.75	2704.4	19.6	-6.8	-18.4	1.87	19.7	249.62
2768.0	7.87	244.21	2765.9	27.7	-10.6	-25.7	1.19	27.8	247.54
2830.0	7.50	243.71	2827.3	36.0	-14.3	-33.1	0.61	36.1	246.72
2956.0	7.14	243.22	2952.3	52.1	-21.4	-47.5	0.29	52.1	245.72
3050.0	7.50	243.08	3045.5	64.1	-26.8	-58.2	0.38	64.1	245.24
3114.0	8.34	246.88	3108.9	72.9	-30.5	-66.2	1.55	72.9	245.22
3145.0	8.29	249.02	3139.6	77.3	-32.2	-70.3	1.01	77.4	245.38
3209.0	7.82	243.29	3203.0	86.3	-35.8	-78.5	1.45	86.3	245.47
3303.0	8.76	242.31	3296.0	99.8	-42.0	-90.6	1.01	99.9	245.10
3397.0	7.81	243.78	3389.0	113.4	-48.2	-102.6	1.04	113.4	244.85
3492.0	8.30	243.94	3483.1	126.7	-54.1	-114.6	0.52	126.7	244.75
3555.0	7.98	240.55	3545.4	135.6	-58.2	-122.5	0.92	135.6	244.58
3618.0	7.80	242.68	3607.8	144.2	-62.3	-130.1	0.54	144.2	244.41
3712.0	7.79	247.49	3701.0	157.0	-67.7	-141.6	0.69	157.0	244.46
3806.0	8.28	245.81	3794.1	170.1	-72.9	-153.7	0.58	170.1	244.63
3902.0	8.68	244.21	3889.0	184.3	-78.9	-166.5	0.48	184.3	244.66
3995.0	8.00	244.20	3981.0	197.8	-84.7	-178.7	0.73	197.8	244.63
4058.0	8.32	242.20	4043.4	206.7	-88.8	-186.7	0.68	206.7	244.56
4151.0	8.11	245.21	4135.4	220.0	-94.7	-198.6	0.51	220.0	244.51
4246.0	8.46	240.97	4229.4	233.6	-100.9	-210.8	0.74	233.6	244.42
4341.0	8.11	245.42	4323.4	247.3	-107.0	-223.0	0.77	247.3	244.35
4436.0	7.52	243.37	4417.6	260.2	-112.6	-234.6	0.69	260.2	244.36
4499.0	7.71	242.89	4480.0	268.6	-116.4	-242.1	0.32	268.6	244.32
4594.0	7.56	243.18	4574.2	281.2	-122.1	-253.3	0.16	281.2	244.26
4689.0	7.68	243.37	4668.3	293.8	-127.8	-264.6	0.13	293.8	244.22
4751.0	7.73	240.44	4729.8	302.1	-131.7	-271.9	0.64	302.1	244.16
4826.0	7.70	238.55	4804.1	312.1	-136.8	-280.6	0.34	312.1	244.01
4889.0	7.51	237.00	4866.5	320.4	-141.3	-287.6	0.44	320.4	243.84
4951.0	7.88	260.11	4928.0	328.5	-144.2	-295.2	4.99	328.5	243.97
5045.0	8.15	259.14	5021.1	341.2	-146.5	-308.1	0.32	341.2	244.56
5108.0	7.85	256.82	5083.5	349.7	-148.4	-316.7	0.70	349.7	244.89
5171.0	7.11	253.47	5145.9	357.8	-150.5	-324.6	1.36	357.8	245.13
5235.0	6.85	243.84	5209.5	365.5	-153.3	-331.8	1.87	365.5	245.21
5299.0	5.65	239.05	5273.1	372.4	-156.6	-337.9	2.04	372.5	245.14
5362.0	5.14	237.49	5335.8	378.3	-159.7	-343.0	0.84	378.3	245.03
5425.0	3.93	247.78	5398.6	383.3	-162.0	-347.4	2.31	383.3	244.99
5488.0	3.86	251.47	5461.5	387.5	-163.5	-351.4	0.41	387.6	245.05
5550.0	3.58	240.78	5523.3	391.5	-165.1	-355.0	1.20	391.6	245.06
5614.0	3.40	241.13	5587.2	395.4	-167.0	-358.4	0.28	395.4	245.02



Scientific Drilling International, Inc.

Survey Report

Company: COG RESOURCES
Field: Maljamar
Site: Lea County, NM
Well: GC Federal #38
Wellpath: DH - Job #32D0410297

Date: 5/12/2010 Time: 16:04:24 Page: 2
Co-ordinate(N/E) Reference: Site: Lea County, NM, True North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,244.66Azi)
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
5708.0	3.18	238.21	5681.0	400.8	-169.7	-363.1	0.29	400.8	244.95
5771.0	3.61	237.91	5743.9	404.5	-171.7	-366.3	0.68	404.5	244.88
5865.0	2.95	236.47	5837.8	409.8	-174.6	-370.8	0.71	409.8	244.78
5914.0	3.43	232.28	5886.7	412.5	-176.2	-373.0	1.09	412.5	244.71
6009.0	3.60	249.53	5981.5	418.3	-179.0	-378.0	1.12	418.3	244.66
6104.0	3.11	252.21	6076.4	423.8	-180.8	-383.3	0.54	423.8	244.74
6197.0	2.94	254.34	6169.2	428.7	-182.2	-388.0	0.22	428.7	244.84
6295.0	3.31	247.08	6267.1	434.0	-184.0	-393.0	0.55	434.0	244.91
6386.0	3.27	246.54	6357.9	439.2	-186.1	-397.8	0.06	439.2	244.93
6482.0	3.66	248.62	6453.8	445.0	-188.3	-403.2	0.43	445.0	244.97
6576.0	3.28	250.03	6547.6	450.6	-190.3	-408.5	0.41	450.6	245.02
6670.0	3.57	244.63	6641.4	456.2	-192.5	-413.7	0.46	456.3	245.05
6764.0	3.58	249.10	6735.2	462.1	-194.8	-419.1	0.30	462.1	245.07
6859.0	3.56	242.82	6830.1	468.0	-197.2	-424.5	0.41	468.0	245.08
6953.0	3.30	248.67	6923.9	473.6	-199.5	-429.6	0.46	473.6	245.09
7078.0	2.93	238.51	7048.7	480.4	-202.5	-435.6	0.53	480.4	245.07