



Company: COG Operating (Concho)

Lease/Well: Loco Hills SWD 33/6

Location: 4 Miles SE of Loco Hills

Rig Name: JW Drilling #2

State/County: New Mexico/Eddy

Latitude: 33.79

GRID North is 0.20 Degrees East of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB = 18.5 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01_ed_int.ut

Minimum Curvature Method

Report Date/Time: 1/31/2012 / 12:24

Vaughn Energy Services

Gardendale, Texas

432-563-5444

Surveyor: Seth Hardin

Loco Hills SWD 33 6 / API 30-015-39478

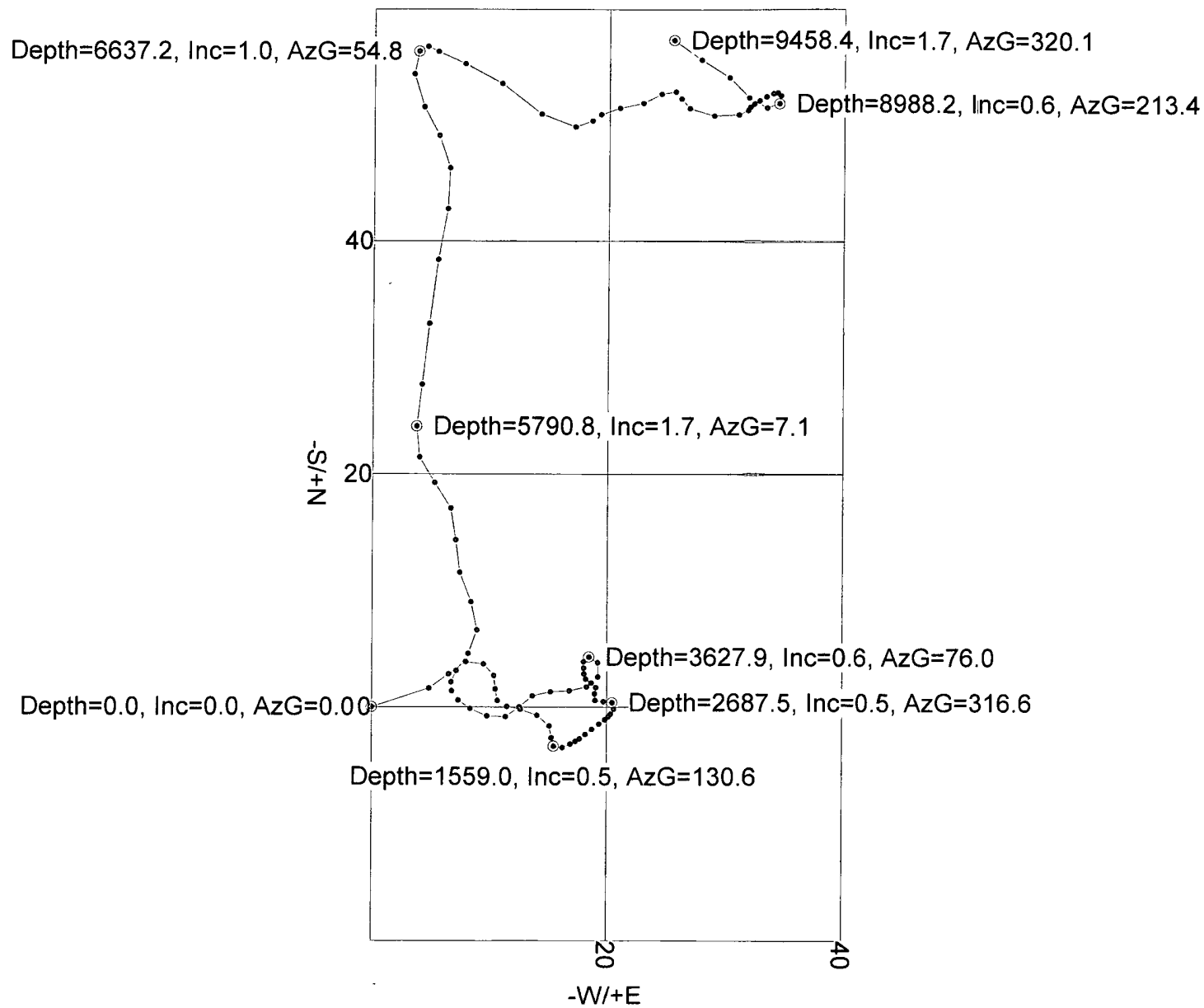
30-015-39478

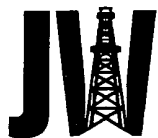
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
430.56	1.36	71.50	430.52	1.62	4.85	1.62	5.12	71.50	0.32
524.60	1.28	34.25	524.54	2.85	6.50	2.85	7.10	66.36	0.90
618.64	1.09	77.89	618.56	3.90	7.96	3.90	8.87	63.91	0.95
712.68	0.90	121.53	712.59	3.70	9.46	3.70	10.16	68.64	0.81
806.72	0.79	157.19	806.62	2.72	10.34	2.72	10.70	75.28	0.56
900.76	0.69	192.86	900.65	1.56	10.47	1.56	10.59	81.50	0.49
994.80	0.66	145.26	994.68	0.57	10.65	0.57	10.67	86.93	0.58
1088.84	0.62	97.66	1088.72	0.06	11.46	0.06	11.46	89.69	0.55
1182.88	0.82	105.55	1182.75	-0.19	12.62	-0.19	12.62	90.85	0.24
1276.92	1.03	113.43	1276.78	-0.70	14.04	-0.70	14.06	92.87	0.26
1370.96	0.79	154.16	1370.81	-1.62	15.10	-1.62	15.19	96.13	0.71
1465.00	0.55	194.88	1464.84	-2.64	15.27	-2.64	15.49	99.82	0.55
1559.04	0.54	130.65	1558.88	-3.37	15.49	-3.37	15.85	102.27	0.62
1653.08	0.53	66.41	1652.91	-3.48	16.22	-3.48	16.59	102.11	0.61
1747.12	0.37	63.84	1746.95	-3.17	16.90	-3.17	17.19	100.63	0.17
1841.16	0.21	61.28	1840.99	-2.95	17.33	-2.95	17.58	99.67	0.17
1935.20	0.32	55.65	1935.03	-2.72	17.70	-2.72	17.90	98.74	0.11
2029.24	0.42	50.02	2029.07	-2.35	18.17	-2.35	18.33	97.38	0.11

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
2123.28	0.44	52.11	2123.10	-1.91	18.73	-1.91	18.82	95.82	0.03
2217.32	0.47	54.21	2217.14	-1.46	19.33	-1.46	19.38	94.32	0.03
2311.36	0.30	51.29	2311.18	-1.08	19.84	-1.08	19.87	93.11	0.18
2405.40	0.14	48.37	2405.22	-0.84	20.12	-0.84	20.13	92.40	0.18
2499.44	0.25	38.00	2499.26	-0.61	20.33	-0.61	20.34	91.71	0.13
2593.48	0.37	27.62	2593.30	-0.17	20.60	-0.17	20.60	90.49	0.14
2687.52	0.49	316.57	2687.33	0.39	20.46	0.39	20.46	88.92	0.54
2781.56	0.62	245.53	2781.37	0.47	19.72	0.47	19.72	88.63	0.69
2875.60	0.49	322.11	2875.41	0.58	19.01	0.58	19.02	88.25	0.74
2969.64	0.37	38.70	2969.44	1.14	18.95	1.14	18.98	86.56	0.58
3063.68	0.38	343.99	3063.48	1.68	19.05	1.68	19.13	84.96	0.37
3157.72	0.39	289.29	3157.52	2.09	18.66	2.09	18.78	83.62	0.38
3251.76	0.33	324.08	3251.56	2.42	18.20	2.42	18.36	82.44	0.24
3345.80	0.28	358.87	3345.60	2.86	18.03	2.86	18.26	80.98	0.20
3439.84	0.32	358.53	3439.64	3.35	18.02	3.35	18.33	79.47	0.04
3533.88	0.36	358.19	3533.68	3.90	18.01	3.90	18.43	77.77	0.04
3627.92	0.58	76.05	3627.71	4.31	18.46	4.31	18.96	76.85	0.66
3721.96	0.81	153.91	3721.75	3.83	19.22	3.83	19.60	78.72	0.95
3816.00	0.85	203.28	3815.78	2.60	19.24	2.60	19.41	82.31	0.74
3910.04	0.89	252.64	3909.81	1.74	18.27	1.74	18.35	84.55	0.77
4004.08	0.96	261.81	4003.84	1.41	16.80	1.41	16.86	85.19	0.17
4098.12	1.02	270.98	4097.86	1.32	15.18	1.32	15.24	85.04	0.18
4192.16	0.96	243.01	4191.89	0.98	13.64	0.98	13.68	85.91	0.51
4286.20	0.89	215.05	4285.92	0.02	12.53	0.02	12.53	89.90	0.48
4380.24	0.97	252.19	4379.95	-0.82	11.35	-0.82	11.38	94.12	0.64
4474.28	1.05	289.34	4473.97	-0.77	9.77	-0.77	9.80	94.53	0.69
4568.32	0.86	300.16	4568.00	-0.13	8.34	-0.13	8.35	90.91	0.28
4662.36	0.67	310.99	4662.03	0.59	7.32	0.59	7.34	85.42	0.25
4756.40	0.55	342.89	4756.07	1.38	6.77	1.38	6.91	78.47	0.38
4850.44	0.43	14.79	4850.10	2.16	6.72	2.16	7.06	72.22	0.31
4944.48	0.87	27.26	4944.14	3.14	7.14	3.14	7.80	66.29	0.49
5038.52	1.31	39.73	5038.16	4.60	8.16	4.60	9.37	60.58	0.53
5132.56	1.46	2.18	5132.17	6.63	8.89	6.63	11.09	53.30	0.96
5226.60	1.62	334.62	5226.18	9.03	8.37	9.03	12.31	42.84	0.80
5320.64	1.69	343.33	5320.18	11.55	7.40	11.55	13.72	32.65	0.28
5414.68	1.77	2.03	5414.18	14.33	7.06	14.33	15.98	26.21	0.60
5508.72	1.66	339.20	5508.18	17.06	6.62	17.06	18.30	21.21	0.73
5602.76	1.56	316.37	5602.18	19.26	5.25	19.26	19.97	15.26	0.69
5696.80	1.63	341.72	5696.19	21.46	3.95	21.46	21.82	10.44	0.75

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5790.84	1.69	7.08	5790.19	24.10	3.71	24.10	24.39	8.74	0.78
5884.88	2.71	6.66	5884.16	27.69	4.14	27.69	27.99	8.49	1.08
5978.92	3.72	6.24	5978.05	32.93	4.72	32.93	33.26	8.16	1.08
6072.96	3.04	9.06	6071.93	38.42	5.45	38.42	38.80	8.07	0.75
6167.00	2.36	11.89	6165.86	42.77	6.24	42.77	43.22	8.30	0.74
6261.04	2.00	352.18	6259.83	46.29	6.41	46.29	46.73	7.89	0.88
6355.08	1.65	328.48	6353.83	49.07	5.48	49.07	49.38	6.38	0.88
6449.12	1.76	336.13	6447.83	51.54	4.19	51.54	51.71	4.65	0.27
6543.16	1.87	349.78	6541.82	54.37	3.34	54.37	54.47	3.51	0.47
6637.20	1.00	54.80	6635.83	56.34	3.73	56.34	56.47	3.79	1.81
6731.24	0.13	117.82	6729.87	56.77	4.49	56.77	56.94	4.53	1.01
6825.28	1.06	116.71	6823.90	56.33	5.36	56.33	56.58	5.44	0.99
6919.32	2.00	113.61	6917.91	55.28	7.64	55.28	55.80	7.87	1.00
7013.36	2.40	122.88	7011.88	53.55	10.80	53.55	54.63	11.40	0.57
7107.40	2.80	132.15	7105.82	50.94	14.16	50.94	52.87	15.53	0.62
7201.44	1.56	70.65	7199.80	49.82	17.07	49.82	52.67	18.92	2.63
7295.48	0.32	69.14	7293.83	50.34	18.53	50.34	53.64	20.21	1.32
7389.52	0.83	47.10	7387.86	50.90	19.27	50.90	54.42	20.74	0.58
7483.56	1.34	85.05	7481.89	51.46	20.87	51.46	55.53	22.07	0.91
7577.60	1.17	69.94	7575.91	51.88	22.86	51.88	56.69	23.78	0.40
7671.64	0.99	54.82	7669.93	52.68	24.43	52.68	58.06	24.88	0.35
7765.68	0.70	117.19	7763.96	52.88	25.60	52.88	58.75	25.84	0.97
7859.72	0.41	179.56	7858.00	52.28	26.12	52.28	58.44	26.55	0.67
7953.76	1.04	124.89	7952.03	51.45	26.82	51.45	58.02	27.54	0.93
8047.80	1.67	96.22	8046.04	50.81	28.89	50.81	58.45	29.63	0.97
8141.84	0.93	70.66	8140.06	50.91	30.98	50.91	59.60	31.32	0.98
8235.88	0.19	29.11	8234.09	51.30	31.77	51.30	60.34	31.77	0.85
8329.92	0.23	42.24	8328.13	51.57	31.98	51.57	60.68	31.80	0.07
8423.96	0.28	55.37	8422.17	51.85	32.30	51.85	61.08	31.92	0.08
8518.00	0.38	58.03	8516.21	52.14	32.75	52.14	61.57	32.13	0.10
8612.04	0.47	60.70	8610.25	52.49	33.35	52.49	62.19	32.43	0.10
8706.08	0.31	74.23	8704.29	52.75	33.93	52.75	62.72	32.75	0.20
8800.12	0.15	87.77	8798.33	52.83	34.30	52.83	62.98	32.99	0.18
8894.16	0.38	150.57	8892.37	52.56	34.57	52.56	62.91	33.33	0.36
8988.20	0.60	213.37	8986.40	51.88	34.45	51.88	62.28	33.58	0.58
9082.24	0.96	273.74	9080.43	51.52	33.39	51.52	61.39	32.94	0.90
9176.28	1.32	318.11	9174.46	52.38	31.87	52.38	61.32	31.32	0.98
9270.32	1.61	313.82	9268.47	54.11	30.19	54.11	61.96	29.16	0.33
9364.36	1.91	293.54	9362.46	55.65	27.80	55.65	62.21	26.55	0.73

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
9458.40	1.69	320.11	9456.46	57.34	25.48	57.34	62.74	23.96	0.91





DRILLING INC. Oil Well Drilling Contractor

Post Office Box 160 Artesia, New Mexico 88211-0160 Office (575) 748-8704 Fax (575) 748-8719

January 17, 2012

COG Operating LLC
550 W. Texas, Suite 1300
Midland, Texas 79701

Re: Loco Hills SWD "33" # 6
Sec. 33, T-17-S, R-30-E
Eddy County, New Mexico

Attn: John Coffman

The following is a Deviation Survey on the referenced well in Eddy County, New Mexico:

310' - 1.5°	2475' - 1°	5038' - 1°	7279' - 1.4°
507' - 1.25°	2989' - 0.75°	5493' - 1°	7497' - 1.1°
797' - 0.75°	3462' - 0.75°	5745' - 1.5°	7778' - 0.8°
1275' - 0.75°	3745' - 0.5°	5933' - 4.5°	8200' - 1.5°
1525' - 1°	3965' - 0.5°	5994' - 4°	8681' - 1°
1774' - 1°	4100' - 0.75°	6459' - 1.4°	8877' - 1°
2040' - 0.75°	4567' - 1°	6869' - 1.5°	9010' - 0.75°
			9259' - 1.75°

Sincerely,

Gary W. Chappell
Contracts Manager

STATE OF NEW MEXICO)
COUNTY OF EDDY)

The foregoing was acknowledged before me this 17th day of January , 2012 by Gary W. Chappell.



OFFICIAL SEAL
CHERYL A. BARTLETT
NOTARY PUBLIC - STATE OF NEW MEXICO

My commission expires: 4-29-12

NOTARY PUBLIC