



Company: EXXON MOBIL
 Lease/Well: FRU 197-33/A-6
 Location:
 Rig Name: PRODUCTION
 State/County: COLORADO/RIO BLANCO
 Latitude: 39.90
 GRID North is 1.79 Degrees West of True North
 VS-Azi: 146.45 Degrees



Depth Reference : GROUND LEVEL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run02-01final.ut

Minimum Curvature Method

Report Date/Time: 4/30/2010 / 15:04

Vaughn Energy Services

Rifle Colorado

970-456-2071

Surveyor Lamar Guy

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	****
200.00	0.28	17.08	200.00	0.47	0.14	-0.31	0.49	17.08	0.14
400.00	2.99	157.79	399.91	-3.89	2.26	4.49	4.50	149.83	1.61
600.00	6.27	154.83	599.23	-18.61	8.88	20.42	20.62	154.49	1.64
800.00	9.98	151.26	797.19	-43.70	21.86	48.50	48.86	153.42	1.87
1000.00	11.60	145.79	993.65	-75.53	41.51	85.89	86.19	151.21	0.96
1200.00	12.75	145.13	1189.15	-110.27	65.43	128.07	128.23	149.32	0.58
1400.00	13.47	144.15	1383.94	-147.26	91.69	173.40	173.47	148.09	0.37
1600.00	14.01	142.80	1578.22	-185.42	119.96	220.83	220.84	147.10	0.32
1800.00	14.22	145.78	1772.18	-225.03	148.42	269.57	269.57	146.59	0.38
2000.00	13.95	145.31	1966.16	-265.17	175.97	318.25	318.25	146.43	0.15
2200.00	13.20	144.94	2160.57	-303.69	202.81	365.18	365.19	146.26	0.38
2400.00	12.80	142.96	2355.44	-340.07	229.28	410.13	410.14	146.01	0.30
2600.00	13.30	145.75	2550.28	-376.78	255.58	455.26	455.28	145.85	0.40
2800.00	12.94	146.33	2745.06	-414.43	280.94	500.66	500.68	145.87	0.19
3000.00	12.39	146.46	2940.19	-450.96	305.22	544.52	544.54	145.91	0.27
3200.00	11.48	145.98	3135.86	-485.35	328.21	585.88	585.90	145.93	0.46
3400.00	11.28	148.22	3331.93	-518.47	349.65	625.33	625.35	146.00	0.24
3600.00	12.15	147.89	3527.76	-552.93	371.14	665.93	665.94	146.13	0.44
3800.00	13.27	147.24	3722.86	-590.06	394.75	709.92	709.93	146.22	0.56
4000.00	12.75	143.84	3917.73	-627.18	420.19	754.92	754.92	146.18	0.46
4200.00	12.18	139.06	4113.02	-660.94	447.03	797.88	797.92	145.93	0.59
4400.00	9.90	137.76	4309.31	-689.60	472.41	835.80	835.90	145.59	1.14
4600.00	6.98	137.88	4507.12	-711.35	492.12	864.82	864.99	145.32	1.46
4800.00	4.41	138.15	4706.11	-726.09	505.40	884.44	884.67	145.16	1.29
5000.00	1.68	129.85	4905.81	-733.70	512.78	894.86	895.13	145.05	1.38
5200.00	0.20	359.97	5105.79	-735.23	515.03	897.38	897.67	144.99	0.91
5400.00	0.16	69.23	5305.79	-734.78	515.30	897.15	897.46	144.96	0.10
5600.00	0.54	120.66	5505.78	-735.16	516.38	898.07	898.39	144.92	0.23
5800.00	1.35	142.21	5705.75	-737.50	518.63	901.27	901.61	144.88	0.44
6000.00	1.64	125.83	5905.69	-741.05	522.40	906.31	906.67	144.82	0.26
6200.00	1.72	120.49	6105.60	-744.25	527.31	911.69	912.12	144.68	0.09
6400.00	2.67	117.87	6305.45	-747.95	534.02	918.48	919.02	144.47	0.48
6600.00	3.67	114.26	6505.14	-752.76	543.97	927.98	928.73	144.15	0.51
6800.00	3.39	122.27	6704.77	-758.55	554.81	938.80	939.79	143.82	0.28

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
7000.00	3.20	121.44	6904.43	-764.62	564.58	949.26	950.47	143.56	0.10
7200.00	3.13	134.58	7104.13	-771.37	573.24	959.67	961.05	143.38	0.36
7400.00	2.60	124.77	7303.88	-777.80	580.86	969.24	970.76	143.25	0.36
7600.00	2.13	123.73	7503.71	-782.46	587.69	976.90	978.58	143.09	0.24
7800.00	1.99	131.70	7703.58	-786.83	593.38	983.69	985.50	142.98	0.16
8000.00	1.55	151.06	7903.49	-791.52	597.29	989.76	991.60	142.96	0.37
8200.00	1.43	124.98	8103.42	-795.33	600.65	994.78	996.66	142.94	0.34
8400.00	1.22	131.39	8303.37	-798.16	604.29	999.16	1001.12	142.87	0.13
8600.00	1.22	96.64	8503.32	-799.82	608.00	1002.59	1004.67	142.76	0.36
8800.00	1.26	91.27	8703.28	-800.11	612.31	1005.22	1007.52	142.57	0.06
9000.00	1.16	80.18	8903.23	-799.82	616.51	1007.29	1009.85	142.37	0.13
9200.00	1.19	96.72	9103.19	-799.72	620.56	1009.45	1012.25	142.19	0.17
9400.00	0.98	102.20	9303.16	-800.32	624.31	1012.02	1015.02	142.04	0.12
9600.00	1.13	120.48	9503.12	-801.68	627.68	1015.02	1018.18	141.94	0.18
9800.00	1.11	133.92	9703.08	-804.03	630.78	1018.70	1021.94	141.89	0.13
10000.00	0.32	110.04	9903.07	-805.58	632.71	1021.05	1024.34	141.85	0.41
10200.00	0.70	70.21	10103.06	-805.35	634.40	1021.79	1025.21	141.77	0.25
10400.00	0.68	51.61	10303.04	-804.20	636.48	1021.99	1025.60	141.64	0.11
10600.00	0.73	40.04	10503.03	-802.49	638.23	1021.53	1025.34	141.50	0.08
10800.00	1.16	27.67	10703.00	-799.72	639.99	1020.19	1024.28	141.33	0.24
11000.00	0.58	5.19	10902.98	-796.93	641.02	1018.43	1022.74	141.19	0.33
11200.00	0.82	41.79	11102.97	-794.87	642.06	1017.29	1021.79	141.07	0.25
11400.00	0.97	92.92	11302.94	-793.89	644.71	1017.94	1022.70	140.92	0.39
11600.00	1.33	81.77	11502.90	-793.65	648.69	1019.94	1025.02	140.74	0.21
11800.00	1.47	95.69	11702.84	-793.57	653.53	1022.55	1028.04	140.53	0.18
12000.00	1.06	82.14	11902.80	-793.57	657.91	1024.97	1030.83	140.34	0.25
12121.00	1.13	104.74	12023.77	-793.72	660.17	1026.35	1032.39	140.25	0.36
HORIZONTAL DISPLACEMENT IS 1032.39 FEET AT 140.25 DEGREES									