



Company: EXXON MOBIL  
Lease/Well: FRU/197-33B8

Rig Name: PRODUCTION  
State/County: COLORADO/RIO BLANCO

Latitude: 39.92  
GRID North is 1.80 Degrees West of True North

VS-Azi: 0.00 Degrees



DEPTH REFERENCE : GL = 0'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: fru197-33b8.ut  
Minimum Curvature Method  
Report Date/Time: 9/27/2010 / 09:20

Vaughn Energy Services  
Rifle, Colorado  
970 456 2071  
Surveyor: S. Anderson  
FRU 197-33B8

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	0.57	139.58	200.00	-0.76	0.65	-0.76	1.00	139.58	0.29
400.00	3.04	293.98	399.92	0.63	-3.55	0.63	3.61	280.11	1.78
600.00	7.22	299.79	599.07	9.03	-19.31	9.03	21.31	295.08	2.10
800.00	11.36	298.01	796.41	24.53	-47.60	24.53	53.55	297.26	2.07
1000.00	14.95	296.42	991.13	45.27	-88.11	45.27	99.06	297.19	1.81
1200.00	19.19	297.10	1182.27	71.74	-140.50	71.74	157.75	297.05	2.12
1400.00	22.83	298.58	1368.95	105.29	-203.86	105.29	229.44	297.31	1.84
1600.00	24.77	297.83	1551.93	143.41	-275.00	143.41	310.14	297.54	0.98
1800.00	24.78	296.16	1733.52	181.45	-349.67	181.45	393.94	297.43	0.35
2000.00	24.75	296.67	1915.12	218.73	-424.70	218.73	477.72	297.25	0.11
2200.00	24.85	296.13	2096.68	256.03	-499.85	256.03	561.61	297.12	0.12
2400.00	23.69	297.19	2279.00	292.90	-573.33	292.90	643.82	297.06	0.62
2600.00	24.04	298.81	2461.89	330.89	-644.77	330.89	724.72	297.17	0.37
2800.00	24.92	298.71	2643.91	370.77	-717.43	370.77	807.57	297.33	0.44
3000.00	25.16	297.44	2825.11	410.60	-792.12	410.60	892.22	297.40	0.30
3200.00	24.56	296.54	3006.58	448.77	-867.05	448.77	976.30	297.37	0.36
3400.00	24.79	296.87	3188.32	486.29	-941.63	486.29	1059.79	297.31	0.13
3600.00	23.76	296.62	3370.63	523.29	-1015.05	523.29	1141.99	297.27	0.52
3800.00	24.36	298.83	3553.27	561.23	-1087.19	561.23	1223.51	297.30	0.54
4000.00	24.36	298.58	3735.46	600.85	-1159.54	600.85	1305.97	297.39	0.05

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
4200.00	23.93	294.13	3917.98	637.16	-1232.78	637.16	1387.71	297.33	0.93
4400.00	21.08	294.63	4102.74	668.73	-1302.50	668.73	1464.14	297.18	1.43
4600.00	18.71	293.27	4290.79	696.39	-1364.67	696.39	1532.08	297.04	1.21
4800.00	15.22	291.83	4482.06	718.83	-1418.52	718.83	1590.26	296.87	1.76
5000.00	11.69	294.93	4676.55	737.14	-1461.27	737.14	1636.67	296.77	1.80
5200.00	7.60	298.80	4873.68	752.06	-1491.25	752.06	1670.16	296.76	2.07
5400.00	4.24	307.16	5072.59	762.90	-1508.74	762.90	1690.66	296.82	1.73
5600.00	0.08	196.18	5272.40	767.24	-1514.69	767.24	1697.92	296.86	2.14
5800.00	0.63	102.00	5472.40	766.87	-1513.64	766.87	1696.82	296.87	0.32
6000.00	0.83	105.12	5672.38	766.26	-1511.15	766.26	1694.33	296.89	0.10
6200.00	0.78	152.50	5872.37	764.68	-1509.12	764.68	1691.80	296.87	0.32
6400.00	1.06	120.00	6072.34	762.55	-1506.90	762.55	1688.85	296.84	0.29
6600.00	2.22	118.28	6272.26	759.79	-1501.88	759.79	1683.13	296.83	0.58
6800.00	1.57	129.37	6472.15	756.22	-1496.35	756.22	1676.59	296.81	0.37
7000.00	1.62	123.64	6672.07	752.91	-1491.88	752.91	1671.10	296.78	0.08
7200.00	1.58	125.92	6871.99	749.73	-1487.29	749.73	1665.57	296.75	0.04
7400.00	2.30	135.73	7071.88	745.24	-1482.25	745.24	1659.05	296.69	0.40
7600.00	2.24	125.22	7271.72	740.11	-1476.25	740.11	1651.39	296.63	0.21
7800.00	1.30	156.98	7471.63	735.76	-1472.17	735.76	1645.79	296.55	0.66
8000.00	1.01	178.38	7671.59	731.91	-1471.24	731.91	1643.23	296.45	0.26
8200.00	0.58	164.48	7871.57	729.16	-1470.91	729.16	1641.73	296.37	0.24
8400.00	0.49	162.11	8071.56	727.37	-1470.38	727.37	1640.45	296.32	0.05
8600.00	0.57	126.10	8271.55	725.98	-1469.32	725.98	1638.89	296.29	0.17
8800.00	1.04	160.35	8471.53	723.69	-1467.91	723.69	1636.61	296.24	0.33
9000.00	1.25	166.59	8671.49	719.85	-1466.80	719.85	1633.92	296.14	0.12
9200.00	1.53	179.22	8871.43	715.06	-1466.25	715.06	1631.32	296.00	0.20
9400.00	1.42	187.11	9071.37	709.93	-1466.52	709.93	1629.33	295.83	0.11
9600.00	1.96	144.78	9271.28	704.68	-1464.86	704.68	1625.55	295.69	0.66
9800.00	2.72	119.34	9471.12	699.57	-1458.76	699.57	1617.83	295.62	0.63
10000.00	2.36	118.72	9670.93	695.27	-1451.01	695.27	1608.99	295.60	0.18
10200.00	2.24	122.77	9870.76	691.17	-1444.11	691.17	1600.99	295.58	0.10
10400.00	2.82	150.68	10070.58	684.76	-1438.41	684.76	1593.09	295.46	0.67
10600.00	3.34	160.15	10270.29	674.99	-1434.02	674.99	1584.94	295.21	0.36
10800.00	4.13	173.45	10469.86	662.36	-1431.22	662.36	1577.06	294.83	0.58
11000.00	4.00	183.20	10669.36	648.24	-1430.79	648.24	1570.79	294.37	0.35
11200.00	2.72	175.57	10869.02	636.54	-1430.81	636.54	1566.02	293.98	0.68
11400.00	1.28	134.23	11068.90	630.25	-1428.85	630.25	1561.67	293.80	0.98
11600.00	1.45	113.58	11268.84	627.68	-1424.93	627.68	1557.05	293.77	0.26
11800.00	1.79	112.21	11468.76	625.49	-1419.73	625.49	1551.41	293.78	0.17
12000.00	1.37	110.33	11668.69	623.48	-1414.61	623.48	1545.91	293.79	0.21
12200.00	1.41	113.47	11868.63	621.67	-1410.11	621.67	1541.07	293.79	0.05
12400.00	0.90	114.81	12068.59	620.03	-1406.42	620.03	1537.02	293.79	0.26

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
12600.00	1.05	103.47	12268.56	618.94	-1403.20	618.94	1533.64	293.80	0.12
12680.00	1.10	115.58	12348.54	618.44	-1401.80	618.44	1532.16	293.81	0.29