



Company: EXXON MOBIL
Lease/Well: FRU/197-33B10

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: fru197-33b10raw.ut
Minimum Curvature Method
Report Date/Time: 9/27/2010 / 10:24

Vaughn Energy Services
Rifle, Colorado
970 456 2071
Surveyor: S. Anderson
FRU 197-33B10

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	0.26	8.36	200.00	0.45	0.07	0.45	0.46	8.36	0.13
400.00	4.01	252.62	399.84	-1.19	-6.55	-1.19	6.65	259.74	2.07
600.00	7.33	254.43	598.83	-6.70	-25.52	-6.70	26.38	255.29	1.66
800.00	11.17	258.47	796.20	-14.00	-56.79	-14.00	58.49	256.16	1.95
1000.00	14.98	257.12	990.98	-23.63	-100.99	-23.63	103.72	256.83	1.91
1200.00	18.43	256.60	1182.50	-36.73	-156.97	-36.73	161.21	256.83	1.73
1400.00	20.77	256.35	1370.90	-52.42	-222.20	-52.42	228.30	256.72	1.17
1600.00	25.04	257.95	1555.10	-69.64	-298.07	-69.64	306.10	256.85	2.16
1800.00	27.37	258.22	1734.53	-87.86	-384.48	-87.86	394.39	257.13	1.17
2000.00	27.58	258.08	1911.98	-106.81	-474.78	-106.81	486.65	257.32	0.11
2200.00	26.42	257.00	2090.17	-126.38	-563.44	-126.38	577.44	257.36	0.63
2400.00	24.52	256.39	2270.72	-146.16	-647.15	-146.16	663.45	257.27	0.96
2600.00	22.62	254.16	2454.03	-166.43	-724.51	-166.43	743.38	257.06	1.05
2800.00	22.83	254.55	2638.50	-187.26	-798.91	-187.26	820.56	256.81	0.13
3000.00	23.33	254.52	2822.49	-208.16	-874.47	-208.16	898.90	256.61	0.25
3200.00	22.99	255.85	3006.38	-228.28	-950.51	-228.28	977.54	256.50	0.31
3400.00	23.55	254.39	3190.11	-248.58	-1026.86	-248.58	1056.52	256.39	0.40
3600.00	22.81	254.02	3373.96	-270.01	-1102.62	-270.01	1135.20	256.24	0.38
3800.00	22.95	255.82	3558.23	-290.23	-1177.69	-290.23	1212.93	256.16	0.36
4000.00	23.01	255.62	3742.36	-309.49	-1253.35	-309.49	1291.00	256.13	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	22.96	255.59	3926.48	-328.90	-1328.99	-328.90	1369.08	256.10	0.03
4400.00	23.71	255.51	4110.13	-348.67	-1405.70	-348.67	1448.29	256.07	0.38
4600.00	24.04	259.76	4293.03	-365.98	-1484.72	-365.98	1529.16	256.15	0.87
4800.00	23.99	260.36	4475.72	-380.03	-1564.88	-380.03	1610.37	256.35	0.12
5000.00	22.99	262.59	4659.15	-391.88	-1643.69	-391.88	1689.76	256.59	0.67
5200.00	19.79	263.84	4845.35	-400.55	-1716.10	-400.55	1762.23	256.86	1.62
5400.00	17.14	265.73	5035.04	-406.38	-1779.16	-406.38	1824.98	257.13	1.36
5600.00	12.54	264.25	5228.32	-410.74	-1830.16	-410.74	1875.69	257.35	2.31
5800.00	8.27	278.16	5425.02	-410.88	-1866.02	-410.88	1910.72	257.58	2.46
6000.00	3.85	297.27	5623.87	-405.76	-1886.24	-405.76	1929.39	257.86	2.40
6200.00	0.10	202.58	5823.72	-402.84	-1892.28	-402.84	1934.69	257.98	1.93
6400.00	0.82	235.79	6023.71	-403.82	-1893.54	-403.82	1936.12	257.96	0.37
6600.00	0.63	205.46	6223.70	-405.63	-1895.21	-405.63	1938.13	257.92	0.21
6800.00	1.07	218.38	6423.68	-408.09	-1896.84	-408.09	1940.25	257.86	0.24
7000.00	0.90	188.54	6623.65	-411.11	-1898.24	-411.11	1942.25	257.78	0.27
7200.00	1.00	166.97	6823.62	-414.37	-1898.08	-414.37	1942.78	257.68	0.19
7400.00	0.87	165.79	7023.59	-417.54	-1897.31	-417.54	1942.71	257.59	0.07
7600.00	1.27	141.97	7223.56	-420.75	-1895.58	-420.75	1941.71	257.49	0.29
7800.00	1.21	191.53	7423.52	-424.57	-1894.64	-424.57	1941.63	257.37	0.52
8000.00	1.41	179.95	7623.47	-429.11	-1895.06	-429.11	1943.04	257.24	0.17
8200.00	1.33	176.92	7823.41	-433.88	-1894.93	-433.88	1943.97	257.10	0.06
8400.00	1.04	184.56	8023.37	-438.00	-1894.95	-438.00	1944.92	256.99	0.16
8600.00	1.00	169.21	8223.33	-441.53	-1894.77	-441.53	1945.54	256.88	0.14
8800.00	0.93	176.19	8423.31	-444.87	-1894.34	-444.87	1945.87	256.78	0.07
9000.00	0.79	184.55	8623.28	-447.85	-1894.34	-447.85	1946.56	256.70	0.09
9200.00	0.71	187.13	8823.27	-450.45	-1894.60	-450.45	1947.41	256.63	0.04
9400.00	0.69	196.17	9023.25	-452.84	-1895.09	-452.84	1948.44	256.56	0.06
9600.00	0.87	213.00	9223.23	-455.27	-1896.25	-455.27	1950.14	256.50	0.14
9800.00	0.97	220.67	9423.21	-457.82	-1898.18	-457.82	1952.61	256.44	0.08
10000.00	1.04	195.35	9623.18	-460.86	-1899.76	-460.86	1954.86	256.36	0.22
10200.00	0.95	189.63	9823.15	-464.24	-1900.52	-464.24	1956.40	256.27	0.07
10400.00	0.95	193.74	10023.12	-467.49	-1901.19	-467.49	1957.83	256.19	0.03
10600.00	0.83	200.63	10223.10	-470.46	-1902.10	-470.46	1959.42	256.11	0.08
10800.00	1.04	192.36	10423.07	-473.59	-1903.00	-473.59	1961.04	256.03	0.13
11000.00	0.91	185.93	10623.04	-476.95	-1903.55	-476.95	1962.39	255.93	0.08
11200.00	1.08	173.62	10823.01	-480.41	-1903.51	-480.41	1963.19	255.84	0.14
11400.00	0.74	147.52	11022.99	-483.38	-1902.60	-483.38	1963.04	255.74	0.26
11600.00	0.68	162.81	11222.97	-485.60	-1901.56	-485.60	1962.58	255.67	0.10
11800.00	0.85	151.64	11422.95	-488.03	-1900.50	-488.03	1962.16	255.60	0.11
12000.00	0.82	154.14	11622.93	-490.63	-1899.17	-490.63	1961.52	255.51	0.02
12200.00	2.43	202.95	11822.85	-495.83	-1900.20	-495.83	1963.82	255.38	0.99
12400.00	4.35	190.10	12022.49	-507.21	-1903.18	-507.21	1969.61	255.08	1.03

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
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12505.00	3.50	184.07	12127.25	-514.34	-1904.11	-514.34	1972.35	254.88	0.90
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