



Company: EXXON MOBIL
Lease/Well: FRU/197-33B9

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: fru197-33b9raw.ut
Minimum Curvature Method
Report Date/Time: 9/27/2010 / 09:51

Vaughn Energy Services
Rifle, Colorado
970 456 2071

Surveyor: S. Anderson
FRU 197-33B9

Duplicate Copy
USP DR # 52422.005

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	0.15	112.20	200.00	-0.10	0.24	-0.10	0.25	112.20	0.07
400.00	3.14	264.38	399.90	-0.73	-4.98	-0.73	5.04	261.68	1.64
600.00	7.30	269.54	599.03	-1.37	-23.14	-1.37	23.18	266.62	2.09
800.00	12.02	270.47	796.14	-1.30	-56.69	-1.30	56.71	268.69	2.37
1000.00	14.57	272.16	990.77	-0.18	-102.66	-0.18	102.66	269.90	1.29
1200.00	14.94	274.29	1184.17	2.69	-153.50	2.69	153.53	271.01	0.33
1400.00	15.05	270.74	1377.37	4.96	-205.18	4.96	205.24	271.38	0.46
1600.00	15.31	269.20	1570.39	4.92	-257.53	4.92	257.58	271.10	0.24
1800.00	15.58	272.92	1763.18	5.92	-310.75	5.92	310.80	271.09	0.51
2000.00	15.79	275.07	1955.73	9.70	-364.67	9.70	364.80	271.52	0.31
2200.00	15.75	274.42	2148.20	14.19	-418.85	14.19	419.09	271.94	0.09
2400.00	14.23	267.68	2341.40	15.29	-470.49	15.29	470.74	271.86	1.16
2600.00	13.96	266.63	2535.38	12.88	-519.14	12.88	519.30	271.42	0.19
2800.00	14.47	267.10	2729.25	10.19	-568.19	10.19	568.28	271.03	0.26
3000.00	14.52	269.85	2922.89	8.87	-618.21	8.87	618.27	270.82	0.34
3200.00	14.28	269.22	3116.61	8.47	-667.94	8.47	668.00	270.73	0.14
3400.00	13.71	269.82	3310.67	8.05	-716.32	8.05	716.36	270.64	0.29
3600.00	13.48	268.33	3505.06	7.30	-763.33	7.30	763.37	270.55	0.21

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
3800.00	13.64	270.54	3699.49	6.84	-810.22	6.84	810.24	270.48	0.27
4000.00	13.64	271.25	3893.85	7.57	-857.37	7.57	857.40	270.51	0.08
4200.00	15.01	271.02	4087.63	8.55	-906.84	8.55	906.88	270.54	0.69
4400.00	14.34	272.63	4281.10	10.14	-957.49	10.14	957.54	270.61	0.39
4600.00	12.80	273.55	4475.51	12.65	-1004.35	12.65	1004.43	270.72	0.78
4800.00	9.09	274.63	4671.84	15.30	-1042.21	15.30	1042.33	270.84	1.86
5000.00	6.85	278.03	4869.90	18.24	-1069.77	18.24	1069.93	270.98	1.14
5200.00	1.84	282.16	5069.26	20.58	-1084.72	20.58	1084.92	271.09	2.51
5400.00	0.23	118.08	5269.23	21.07	-1087.51	21.07	1087.72	271.11	1.03
5600.00	0.65	105.19	5469.22	20.59	-1086.07	20.59	1086.27	271.09	0.21
5800.00	0.90	114.55	5669.20	19.64	-1083.55	19.64	1083.73	271.04	0.14
6000.00	1.20	138.89	5869.17	17.41	-1080.75	17.41	1080.89	270.92	0.26
6200.00	1.23	118.93	6069.13	14.80	-1077.50	14.80	1077.60	270.79	0.21
6400.00	1.24	122.66	6269.08	12.59	-1073.79	12.59	1073.86	270.67	0.04
6600.00	1.40	133.77	6469.03	9.72	-1070.19	9.72	1070.24	270.52	0.15
6800.00	2.16	123.64	6668.93	5.94	-1065.29	5.94	1065.30	270.32	0.41
7000.00	1.65	127.35	6868.82	2.10	-1059.85	2.10	1059.85	270.11	0.26
7200.00	1.17	131.55	7068.76	-1.00	-1056.03	-1.00	1056.03	269.95	0.25
7400.00	0.66	134.71	7268.73	-3.17	-1053.68	-3.17	1053.69	269.83	0.25
7600.00	0.60	173.82	7468.72	-5.03	-1052.74	-5.03	1052.76	269.73	0.21
7800.00	0.80	158.09	7668.70	-7.37	-1052.11	-7.37	1052.13	269.60	0.14
8000.00	1.23	161.55	7868.67	-10.71	-1050.91	-10.71	1050.96	269.42	0.22
8200.00	1.36	155.90	8068.62	-14.91	-1049.26	-14.91	1049.36	269.19	0.09
8400.00	1.59	135.90	8268.55	-19.07	-1046.36	-19.07	1046.53	268.96	0.28
8600.00	1.60	127.59	8468.48	-22.77	-1042.22	-22.77	1042.47	268.75	0.12
8800.00	1.49	129.60	8668.41	-26.13	-1038.00	-26.13	1038.33	268.56	0.06
9000.00	1.52	135.35	8868.34	-29.67	-1034.14	-29.67	1034.56	268.36	0.08
9200.00	1.66	131.27	9068.26	-33.47	-1030.10	-33.47	1030.64	268.14	0.09
9400.00	1.78	130.38	9268.17	-37.39	-1025.56	-37.39	1026.24	267.91	0.06
9600.00	1.80	131.15	9468.07	-41.47	-1020.82	-41.47	1021.66	267.67	0.02
9800.00	1.83	131.22	9667.97	-45.64	-1016.06	-45.64	1017.08	267.43	0.01
10000.00	1.54	146.37	9867.89	-49.97	-1012.17	-49.97	1013.41	267.17	0.26
10200.00	1.56	171.45	10067.82	-54.90	-1010.28	-54.90	1011.78	266.89	0.34
10400.00	1.96	188.63	10267.72	-60.98	-1010.39	-60.98	1012.23	266.55	0.33
10600.00	2.18	183.59	10467.59	-68.16	-1011.15	-68.16	1013.44	266.14	0.14
10800.00	1.95	178.43	10667.46	-75.37	-1011.29	-75.37	1014.09	265.74	0.15
11000.00	1.90	194.68	10867.35	-81.98	-1012.04	-81.98	1015.35	265.37	0.27
11200.00	2.14	201.07	11067.22	-88.68	-1014.22	-88.68	1018.09	265.00	0.17
11400.00	2.21	211.27	11267.08	-95.48	-1017.57	-95.48	1022.04	264.64	0.20

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11600.00	1.58	212.07	11466.97	-101.11	-1021.04	-101.11	1026.04	264.34	0.32
11800.00	0.93	192.01	11666.92	-105.04	-1022.84	-105.04	1028.22	264.14	0.39
12000.00	0.93	165.12	11866.90	-108.19	-1022.76	-108.19	1028.47	263.96	0.22
12141.00	1.05	143.43	12007.88	-110.34	-1021.70	-110.34	1027.64	263.84	0.28



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