



Company: Exxon  
 Lease/Well: PCU/296-6A7

Rig Name: Production  
 State/County: Colorado/Rio Blanco



Latitude: 39.90  
 GRID North is 1.74 Degrees West of True North  
 VS-Azi: 0.00 Degrees

Depth Reference : GL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01.ut  
 Minimum Curvature Method  
 Report Date/Time: 2/7/2011 / 08:28

Vaughn Energy Services  
 Rifle, Colorado 970-456-2071  
 Surveyor: Garry Fowler  
 North Seeking Rate Gyro  
 PCU 296-6A7 / API #05-103-11482

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	0.33	117.51	200.00	-0.27	0.51	-0.27	0.58	117.51	0.17
400.00	0.18	144.15	400.00	-0.79	1.21	-0.79	1.44	123.14	0.09
600.00	2.06	110.27	599.95	-2.29	4.77	-2.29	5.29	115.68	0.96
800.00	6.72	111.94	799.31	-7.91	19.00	-7.91	20.58	112.61	2.33
1000.00	9.89	89.67	997.23	-12.19	47.05	-12.19	48.60	104.52	2.23
1200.00	12.33	86.79	1193.47	-10.89	85.55	-10.89	86.24	97.26	1.25
1400.00	12.32	85.24	1388.86	-7.93	128.14	-7.93	128.38	93.54	0.17
1600.00	11.50	86.20	1584.56	-4.84	169.29	-4.84	169.36	91.64	0.42
1800.00	11.44	87.16	1780.56	-2.54	209.00	-2.54	209.01	90.70	0.10
2000.00	11.41	87.52	1976.60	-0.70	248.58	-0.70	248.58	90.16	0.04
2200.00	11.40	87.16	2172.65	1.14	288.09	1.14	288.09	89.77	0.04
2400.00	11.18	87.93	2368.78	2.82	327.20	2.82	327.22	89.51	0.13
2600.00	9.97	89.90	2565.38	3.55	363.89	3.55	363.91	89.44	0.63
2800.00	5.78	87.33	2763.45	4.05	391.28	4.05	391.30	89.41	2.10
3000.00	1.41	92.75	2963.01	4.40	403.80	4.40	403.82	89.38	2.19
3200.00	0.09	81.87	3162.99	4.30	406.41	4.30	406.44	89.39	0.66
3400.00	0.09	104.60	3362.99	4.29	406.73	4.29	406.75	89.40	0.02
3600.00	0.18	135.86	3562.99	4.03	407.10	4.03	407.12	89.43	0.06
3800.00	0.34	202.47	3762.98	3.25	407.09	3.25	407.10	89.54	0.16
4000.00	0.24	195.52	3962.98	2.29	406.75	2.29	406.75	89.68	0.06

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	0.27	188.09	4162.98	1.43	406.57	1.43	406.57	89.80	0.02
4400.00	0.86	182.96	4362.97	-0.53	406.43	-0.53	406.43	90.08	0.30
4600.00	1.25	180.50	4562.94	-4.21	406.33	-4.21	406.35	90.59	0.19
4800.00	1.25	180.08	4762.89	-8.57	406.31	-8.57	406.40	91.21	0.01
5000.00	1.28	182.95	4962.84	-12.98	406.19	-12.98	406.40	91.83	0.03
5200.00	1.30	167.11	5162.79	-17.41	406.58	-17.41	406.95	92.45	0.18
5400.00	1.30	167.46	5362.74	-21.82	407.58	-21.82	408.16	93.07	0.00
5600.00	1.29	167.06	5562.69	-26.23	408.57	-26.23	409.41	93.67	0.01
5800.00	1.28	179.41	5762.64	-30.65	409.10	-30.65	410.25	94.28	0.14
6000.00	1.27	182.20	5962.59	-35.10	409.04	-35.10	410.54	94.91	0.03
6200.00	1.64	188.71	6162.52	-40.16	408.52	-40.16	410.49	95.61	0.20
6400.00	1.67	177.04	6362.44	-45.91	408.23	-45.91	410.81	96.42	0.17
6600.00	2.20	142.17	6562.33	-51.86	410.74	-51.86	414.00	97.20	0.63
6800.00	2.24	143.57	6762.18	-58.04	415.42	-58.04	419.45	97.95	0.03
7000.00	3.02	142.52	6961.97	-65.35	420.94	-65.35	425.98	98.83	0.39
7200.00	3.24	140.54	7161.67	-73.90	427.74	-73.90	434.08	99.80	0.12
7400.00	3.14	138.58	7361.36	-82.37	434.96	-82.37	442.69	100.72	0.07
7600.00	3.08	139.77	7561.07	-90.58	442.05	-90.58	451.23	101.58	0.04
7800.00	2.66	147.10	7760.82	-98.58	448.04	-98.58	458.76	102.41	0.28
8000.00	2.60	153.96	7960.61	-106.56	452.55	-106.56	464.93	103.25	0.16
8200.00	2.56	169.92	8160.41	-115.03	455.33	-115.03	469.63	104.18	0.36
8400.00	2.85	186.36	8360.18	-124.37	455.56	-124.37	472.23	105.27	0.41
8600.00	3.28	194.63	8559.90	-134.85	453.56	-134.85	473.18	106.56	0.31
8800.00	3.51	194.89	8759.55	-146.31	450.54	-146.31	473.70	107.99	0.11
9000.00	3.72	198.32	8959.15	-158.39	446.93	-158.39	474.17	109.51	0.15
9200.00	4.02	209.24	9158.69	-170.68	441.46	-170.68	473.31	111.14	0.40
9400.00	4.37	212.30	9358.16	-183.25	433.96	-183.25	471.06	112.89	0.21
9600.00	4.69	217.07	9557.53	-196.22	424.95	-196.22	468.07	114.78	0.25
9800.00	5.14	219.41	9756.80	-209.68	414.33	-209.68	464.36	116.84	0.25
10000.00	4.58	218.74	9956.08	-222.83	403.64	-222.83	461.06	118.90	0.28
10200.00	4.25	213.83	10155.48	-235.21	394.52	-235.21	459.31	120.80	0.25
10400.00	3.96	214.47	10354.97	-247.07	386.48	-247.07	458.70	122.59	0.14
10600.00	3.67	219.31	10554.53	-257.72	378.52	-257.72	457.92	124.25	0.22
10800.00	3.53	220.83	10754.13	-267.32	370.44	-267.32	456.82	125.82	0.08
11000.00	3.01	216.35	10953.81	-276.21	363.30	-276.21	456.38	127.24	0.29
11200.00	2.97	215.87	11153.53	-284.64	357.15	-284.64	456.70	128.55	0.02
11400.00	2.65	216.56	11353.29	-292.55	351.36	-292.55	457.21	129.78	0.16
11600.00	3.07	226.99	11553.04	-299.92	344.69	-299.92	456.91	131.03	0.33
11800.00	4.29	228.74	11752.63	-308.51	335.14	-308.51	455.52	132.63	0.61
12000.00	5.94	236.01	11951.83	-319.23	320.94	-319.23	452.67	134.85	0.88
12200.00	6.12	245.73	12150.73	-329.40	302.64	-329.40	447.32	137.42	0.52
12400.00	6.79	243.14	12349.46	-339.13	282.36	-339.13	441.29	140.22	0.37

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	6.19	242.51	12548.17	-349.45	262.25	-349.45	436.91	143.11	0.31
12800.00	4.66	238.35	12747.27	-358.69	245.76	-358.69	434.81	145.58	0.79
13000.00	4.25	239.85	12946.67	-366.68	232.44	-366.68	434.14	147.63	0.21
13200.00	4.38	229.62	13146.10	-375.35	220.21	-375.35	435.18	149.60	0.39
13400.00	4.56	225.18	13345.49	-385.91	208.74	-385.91	438.75	151.59	0.19
13540.00	4.26	220.42	13485.08	-393.80	201.42	-393.80	442.32	152.91	0.34