

Company: Exxon
 Lease/Well: FRU/197-33B2

State/County: Colorado/Rio Blanco
 Latitude: 39.92
 GRID North is 1.79 Degrees West of True North
 VS-Azi: 0.00 Degrees



Depth Reference : KB = 0 FEET

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01.ut
 Minimum Curvature Method
 Report Date/Time: 9/24/2010 / 16:29

Vaughn Energy Services
 Rifle, Colorado
 970-456-2071
 Surveyor: Garry Fowler
 FRU #197-33B2

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	1.46	28.10	199.98	2.25	1.20	2.25	2.56	28.10	0.73
400.00	4.52	44.62	399.68	10.12	7.95	10.12	12.87	38.14	1.57
600.00	8.03	31.53	598.47	27.64	20.79	27.64	34.59	36.95	1.88
800.00	12.26	28.75	795.29	58.18	38.32	58.18	69.66	33.37	2.13
1000.00	16.21	28.26	989.11	101.40	61.76	101.40	118.73	31.34	1.98
1200.00	18.46	27.67	1180.02	154.05	89.69	154.05	178.26	30.21	1.13
1400.00	18.60	27.30	1369.64	210.44	119.03	210.44	241.77	29.49	0.09
1600.00	18.38	26.58	1559.32	267.00	147.77	267.00	305.16	28.96	0.16
1800.00	18.26	27.17	1749.18	323.08	176.18	323.08	367.99	28.61	0.11
2000.00	18.16	28.10	1939.17	378.43	205.16	378.43	430.47	28.46	0.15
2200.00	17.63	28.18	2129.49	432.62	234.14	432.62	491.91	28.42	0.26
2400.00	17.44	28.35	2320.20	485.69	262.67	485.69	552.17	28.41	0.10
2600.00	17.19	29.78	2511.14	537.72	291.58	537.72	611.69	28.47	0.25
2800.00	18.22	28.08	2701.66	590.95	320.98	590.95	672.50	28.51	0.57
3000.00	18.44	32.44	2891.53	645.23	352.67	645.23	735.32	28.66	0.69
3200.00	18.68	32.24	3081.12	699.02	386.72	699.02	798.86	28.95	0.12
3400.00	18.29	32.29	3270.81	752.63	420.57	752.63	862.17	29.20	0.20
3600.00	16.53	31.04	3461.64	803.53	452.00	803.53	921.94	29.36	0.90
3800.00	13.96	31.49	3654.59	848.49	479.27	848.49	974.49	29.46	1.28
4000.00	10.78	31.63	3849.92	884.99	501.69	884.99	1017.30	29.55	1.59

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	7.38	28.38	4047.39	912.22	517.61	912.22	1048.84	29.57	1.72
4400.00	4.01	30.00	4246.37	929.58	527.21	929.58	1068.67	29.56	1.69
4600.00	3.09	32.42	4445.99	940.17	533.59	940.17	1081.04	29.58	0.47
4800.00	2.20	33.38	4645.77	947.93	538.59	947.93	1090.25	29.60	0.44
5000.00	1.94	49.11	4845.64	953.36	543.27	953.36	1097.28	29.68	0.31
5200.00	1.93	58.04	5045.53	957.35	548.68	957.35	1103.44	29.82	0.15
5400.00	2.12	63.82	5245.41	960.77	554.86	960.77	1109.48	30.01	0.14
5600.00	2.19	70.07	5445.26	963.70	561.77	963.70	1115.49	30.24	0.12
5800.00	1.77	90.46	5645.15	964.98	568.46	964.98	1119.98	30.50	0.41
6000.00	1.49	117.72	5845.07	963.75	573.86	963.75	1121.66	30.77	0.41
6200.00	1.47	144.57	6045.00	960.45	577.64	960.45	1120.78	31.02	0.34
6400.00	1.48	151.28	6244.94	956.09	580.38	956.09	1118.45	31.26	0.09
6600.00	1.65	154.67	6444.86	951.22	582.85	951.22	1115.59	31.50	0.09
6800.00	1.68	158.94	6644.78	945.89	585.13	945.89	1112.24	31.74	0.06
7000.00	1.78	150.09	6844.69	940.46	587.73	940.46	1109.01	32.00	0.14
7200.00	2.17	145.38	7044.57	934.66	591.43	934.66	1106.07	32.32	0.21
7400.00	2.23	131.63	7244.42	928.97	596.48	928.97	1103.98	32.70	0.26
7600.00	2.27	130.42	7444.27	923.81	602.41	923.81	1102.87	33.11	0.03
7800.00	2.01	130.18	7644.13	918.98	608.11	918.98	1101.96	33.49	0.13
8000.00	2.00	136.96	7844.01	914.16	613.17	914.16	1100.76	33.85	0.12
8200.00	1.71	157.60	8043.90	908.85	616.69	908.85	1098.33	34.16	0.36
8400.00	1.43	161.31	8243.83	903.73	618.63	903.73	1095.19	34.39	0.15
8600.00	1.23	162.11	8443.78	899.32	620.09	899.32	1092.38	34.59	0.10
8800.00	1.24	159.90	8643.73	895.23	621.50	895.23	1089.82	34.77	0.02
9000.00	1.51	158.44	8843.67	890.75	623.21	890.75	1087.12	34.98	0.13
9200.00	1.65	159.32	9043.59	885.61	625.19	885.61	1084.05	35.22	0.07
9400.00	1.64	159.25	9243.51	880.24	627.22	880.24	1080.85	35.47	0.01
9600.00	1.59	174.14	9443.43	874.80	628.52	874.80	1077.18	35.70	0.21
9800.00	1.44	183.69	9643.36	869.53	628.64	869.53	1072.97	35.87	0.15
10000.00	1.54	186.60	9843.30	864.35	628.17	864.35	1068.50	36.01	0.06
10200.00	2.05	188.24	10043.20	858.13	627.35	858.13	1062.99	36.17	0.26
10400.00	2.34	189.14	10243.05	850.55	626.19	850.55	1056.20	36.36	0.14
10600.00	2.34	187.36	10442.88	842.47	625.01	842.47	1049.00	36.57	0.04
10800.00	2.35	186.55	10642.72	834.35	624.02	834.35	1041.89	36.79	0.02
11000.00	2.33	180.65	10842.55	826.21	623.51	826.21	1035.08	37.04	0.12
11200.00	2.13	179.68	11042.40	818.43	623.48	818.43	1028.86	37.30	0.10
11400.00	2.12	179.64	11242.26	811.02	623.53	811.02	1023.00	37.55	0.01
11600.00	2.12	178.64	11442.12	803.62	623.64	803.62	1017.21	37.81	0.02
11800.00	2.15	185.78	11641.99	796.19	623.35	796.19	1011.18	38.06	0.13
12000.00	2.18	188.60	11841.84	788.71	622.40	788.71	1004.71	38.28	0.06
12200.00	1.94	187.47	12041.71	781.58	621.39	781.58	998.50	38.49	0.12
12400.00	1.90	188.63	12241.60	774.94	620.46	774.94	992.72	38.68	0.03

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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12590.00	1.83	190.75	12431.50	768.84	619.42	768.84	987.32	38.86	0.05
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