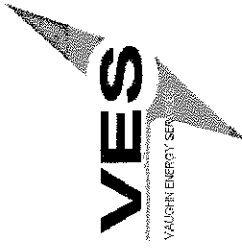




Company: Exxon  
Lease/Well: FRU/197-33B2



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 / 16:25  
Vaughn Energy Services  
Rifle, Colorado  
970-456-2071  
Surveyor: Garry Fowler  
FRU #197-33B2

Duplicate Copy  
USP DR # 52426.065

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	18.28	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

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	13.96	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
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

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
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
12590.00	1.83	190.75	12431.50	768.84	619.42	768.84	987.32	38.86	0.05



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

