

Company: Noble Energy

Well: UPV 31-13G3



Rig Name: Production/VES

Location: Weld County, Colorado

Latitude: 40.437, Longitude: -104.487

GRID North is 0.650 Degrees East of True North

VS-Azi: 0.000 Degrees



Depth Reference : RKB = Ground Level

DRILLOG MV GYRO SURVEY CALCULATIONS

Filename: upv 31-13g3_rev_inc.ut

Minimum Curvature Method

Report Date/Time: 4/16/2013 / 10:12

Vaughn Energy Services

Henderson, CO.

Surveyor: Justin Williams

303-853-4976

UPV 31-13G3 / API 05-123-18634

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
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.090	329.126	100.000	0.067	-0.040	0.067	0.078	329.126	0.090
200.000	0.324	6.879	199.999	0.415	-0.046	0.415	0.418	353.636	0.260
300.000	0.153	70.260	299.999	0.742	0.113	0.742	0.750	8.688	0.290
400.000	0.141	286.399	399.998	0.821	0.121	0.821	0.830	8.402	0.279
500.000	0.233	237.389	499.998	0.746	-0.168	0.746	0.765	347.329	0.176
600.000	0.271	197.025	599.997	0.411	-0.408	0.411	0.579	315.169	0.177
700.000	0.410	195.255	699.995	-0.161	-0.572	-0.161	0.594	254.317	0.140
800.000	0.434	231.142	799.993	-0.744	-0.961	-0.744	1.215	232.267	0.261
900.000	0.583	208.132	899.989	-1.431	-1.496	-1.431	2.070	226.288	0.250
1000.000	0.662	231.085	999.983	-2.243	-2.186	-2.243	3.132	224.269	0.260
1100.000	0.678	219.402	1099.976	-3.062	-3.011	-3.062	4.295	224.514	0.137
1200.000	1.171	231.892	1199.963	-4.150	-4.190	-4.150	5.898	225.277	0.530
1300.000	1.202	235.022	1299.942	-5.382	-5.854	-5.382	7.952	227.405	0.072
1400.000	1.736	226.549	1399.908	-7.025	-7.813	-7.025	10.507	228.040	0.574
1500.000	2.267	231.609	1499.847	-9.295	-10.462	-9.295	13.995	228.383	0.560
1600.000	2.769	236.737	1599.750	-11.848	-14.033	-11.848	18.365	229.825	0.550
1700.000	2.920	238.328	1699.627	-14.510	-18.220	-14.510	23.292	231.467	0.170
1800.000	2.615	238.388	1799.511	-17.043	-22.330	-17.043	28.091	232.648	0.305
1900.000	2.320	240.262	1899.418	-19.242	-26.030	-19.242	32.370	233.526	0.306
2000.000	2.368	235.335	1999.334	-21.421	-29.486	-21.421	36.446	234.002	0.207

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
2100.000	2.496	234.077	2099.244	-23.874	-32.948	-23.874	40.688	234.074	0.139
2200.000	2.796	233.809	2199.137	-26.591	-36.680	-26.591	45.305	234.060	0.301
2300.000	3.049	229.752	2299.007	-29.750	-40.679	-29.750	50.396	233.820	0.326
2400.000	3.284	223.804	2398.855	-33.535	-44.691	-33.535	55.874	233.116	0.404
2500.000	3.628	224.309	2498.673	-37.866	-48.883	-37.866	61.834	232.238	0.346
2600.000	3.776	222.888	2598.464	-42.543	-53.335	-42.543	68.224	231.422	0.174
2700.000	3.436	223.016	2698.266	-47.147	-57.620	-47.147	74.451	230.709	0.340
2800.000	3.032	226.181	2798.107	-51.169	-61.573	-51.169	80.059	230.272	0.442
2900.000	3.099	226.046	2897.964	-54.876	-65.427	-54.876	85.394	230.012	0.067
3000.000	3.181	225.370	2997.813	-58.701	-69.347	-58.701	90.856	229.753	0.090
3100.000	3.634	223.777	3097.636	-62.939	-73.514	-62.939	96.776	229.432	0.463
3200.000	4.820	220.289	3197.363	-68.433	-78.424	-68.433	104.084	228.892	1.213
3300.000	5.714	217.247	3296.940	-75.600	-84.154	-75.600	113.125	228.065	0.936
3400.000	5.401	216.001	3396.470	-83.370	-89.933	-83.370	122.631	227.169	0.335
3500.000	4.911	215.570	3496.065	-90.658	-95.189	-90.658	131.453	226.396	0.491
3600.000	3.899	214.291	3595.768	-96.949	-99.594	-96.949	138.989	225.771	1.017
3700.000	3.006	215.045	3695.586	-101.904	-103.015	-101.904	144.902	225.311	0.893
3800.000	2.570	215.564	3795.467	-105.875	-105.825	-105.875	149.695	224.986	0.437
3900.000	2.390	216.361	3895.373	-109.379	-108.366	-109.379	153.970	224.733	0.183
4000.000	2.106	213.050	3995.296	-112.598	-110.604	-112.598	157.834	224.488	0.313
4100.000	1.805	213.734	4095.238	-115.448	-112.481	-115.448	161.183	224.254	0.301
4200.000	1.539	214.728	4195.195	-117.862	-114.120	-117.862	164.057	224.076	0.268
4300.000	1.648	211.536	4295.157	-120.191	-115.638	-120.191	166.787	223.894	0.140
4400.000	1.614	209.240	4395.116	-122.645	-117.077	-122.645	169.555	223.670	0.074
4500.000	0.966	211.157	4495.090	-124.595	-118.201	-124.595	171.742	223.492	0.649
4600.000	0.596	195.641	4595.081	-125.817	-118.778	-125.817	173.026	223.351	0.423
4700.000	0.786	189.498	4695.074	-126.995	-119.031	-126.995	174.058	223.146	0.203
4800.000	0.434	208.411	4795.068	-128.004	-119.325	-128.004	174.996	222.990	0.401
4900.000	0.526	188.648	4895.064	-128.791	-119.574	-128.791	175.741	222.875	0.188
5000.000	0.404	178.441	4995.061	-129.597	-119.633	-129.597	176.373	222.711	0.147
5099.000	0.164	139.801	5094.060	-130.055	-119.532	-130.055	176.641	222.586	0.297
5100.000	0.169	142.541	5095.060	-130.057	-119.530	-130.057	176.642	222.585	0.956
5200.000	0.057	94.622	5195.060	-130.178	-119.391	-130.178	176.637	222.525	0.138
5300.000	0.258	66.568	5295.059	-130.093	-119.135	-130.093	176.401	222.483	0.209
5400.000	0.338	156.928	5395.058	-130.275	-118.813	-130.275	176.318	222.365	0.426
5500.000	0.228	205.427	5495.057	-130.726	-118.783	-130.726	176.632	222.260	0.253
5600.000	0.515	199.026	5595.055	-131.331	-119.015	-131.331	177.236	222.184	0.289
5700.000	0.307	177.052	5695.052	-132.024	-119.148	-132.024	177.839	222.065	0.258
5800.000	0.441	178.961	5795.050	-132.676	-119.127	-132.676	178.309	221.920	0.134
5900.000	0.435	94.341	5895.048	-133.089	-118.742	-133.089	178.360	221.739	0.589
6000.000	0.701	71.195	5995.043	-132.920	-117.784	-132.920	177.598	221.545	0.347
6100.000	1.584	55.241	6095.023	-131.935	-116.069	-131.935	175.724	221.340	0.930

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
6200.000	1.839	33.599	6194.979	-129.810	-114.045	-129.810	172.792	221.301	0.689
6300.000	1.659	31.266	6294.932	-127.237	-112.406	-127.237	169.778	221.459	0.193
6400.000	1.372	45.426	6394.898	-125.159	-110.802	-125.159	167.158	221.518	0.470
6500.000	1.066	40.009	6494.875	-123.606	-109.351	-123.606	165.034	221.498	0.326
6600.000	1.064	36.370	6594.858	-122.145	-108.202	-122.145	163.178	221.536	0.068
20.1' Ellipse of Uncertainty									
6700.000	0.696	42.366	6694.846	-120.943	-107.252	-120.943	161.648	221.566	0.795