



COMPANY/RIG: Noble Energy/Production/VES  
WELL/API: Baker State B 36-12/05-123-17430  
DECLINATION: 8.15 Degrees  
TD AS DRILLED: 6847 Feet  
COUNTY/STATE: Weld/Colorado  
VS-Azi: 0.000 Degrees  
Latitude: 40.35411, Longitude: -104.50489  
Grid North = True North -0.64 degs (NAD 27)  
Grid Correction Applied = -0.64 degs



DEPTH REFERENCE : RKB = GL Elevation = 4599

DRILLOG GYRO SURVEY CALCULATIONS

Filename: mvgyrosurvey.ut

Minimum Curvature Method

Report Date/Time: 8/15/2016 / 15:53

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS / Baker State B 36-12

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	0.491	27.022	99.999	0.382	0.195	0.382	0.429	27.022	0.491
200.000	0.413	38.792	199.996	1.045	0.616	1.045	1.213	30.499	0.121
300.000	0.236	324.863	299.994	1.495	0.723	1.495	1.660	25.803	0.415
400.000	0.594	0.708	399.992	2.182	0.610	2.182	2.266	15.629	0.425
500.000	0.528	254.985	499.989	2.581	0.171	2.581	2.586	3.799	0.896
600.000	0.296	308.840	599.987	2.623	-0.475	2.623	2.666	349.728	0.427
700.000	0.499	2.368	699.984	3.220	-0.659	3.220	3.287	348.439	0.401
800.000	0.445	352.080	799.981	4.039	-0.694	4.039	4.098	350.249	0.100
900.000	0.363	199.883	899.980	4.125	-0.856	4.125	4.213	348.284	0.785
1000.000	0.085	295.265	999.979	3.859	-1.031	3.859	3.994	345.047	0.381
1100.000	0.457	320.965	1099.978	4.200	-1.349	4.200	4.411	342.197	0.382
1200.000	0.458	324.637	1199.975	4.836	-1.831	4.836	5.171	339.260	0.029
1300.000	0.263	232.393	1299.974	5.021	-2.244	5.021	5.500	335.916	0.537
1400.000	0.406	290.040	1399.972	5.002	-2.759	5.002	5.713	331.118	0.346
1500.000	0.481	358.274	1499.970	5.544	-3.105	5.544	6.354	330.748	0.502
1600.000	0.237	334.115	1599.968	6.150	-3.208	6.150	6.936	332.452	0.282

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
1700.000	0.127	274.321	1699.967	6.344	-3.409	6.344	7.202	331.748	0.205
1800.000	0.172	11.435	1799.967	6.499	-3.490	6.499	7.377	331.763	0.226
1900.000	0.322	51.132	1899.966	6.822	-3.242	6.822	7.553	334.582	0.219
2000.000	0.447	72.762	1999.964	7.114	-2.651	7.114	7.592	339.563	0.189
2100.000	0.467	126.939	2099.961	6.985	-1.953	6.985	7.253	344.378	0.416
2200.000	0.262	155.756	2199.959	6.532	-1.534	6.532	6.709	346.786	0.269
2300.000	0.549	186.731	2299.957	5.848	-1.496	5.848	6.036	345.650	0.351
2400.000	0.989	253.435	2399.949	5.126	-2.380	5.126	5.652	335.101	0.922
2500.000	1.695	271.769	2499.922	4.926	-4.685	4.926	6.798	316.435	0.818
2600.000	1.968	271.411	2599.870	5.014	-7.880	5.014	9.340	302.469	0.273
2700.000	1.806	293.912	2699.817	5.695	-11.036	5.695	12.419	297.294	0.753
2800.000	1.633	289.987	2799.772	6.821	-13.816	6.821	15.408	296.274	0.209
2900.000	1.222	290.989	2899.741	7.689	-16.150	7.689	17.887	295.460	0.412
3000.000	0.647	251.280	2999.728	7.890	-17.680	7.890	19.361	294.050	0.834
3100.000	0.190	275.600	3099.726	7.725	-18.380	7.725	19.938	292.797	0.480
3200.000	0.639	136.214	3199.724	7.339	-18.160	7.339	19.587	292.006	0.793
3300.000	0.739	89.258	3299.717	6.945	-17.129	6.945	18.484	292.071	0.557
3400.000	0.528	125.804	3399.711	6.684	-16.111	6.684	17.442	292.533	0.445
3500.000	0.744	103.284	3499.705	6.266	-15.106	6.266	16.354	292.528	0.326
3600.000	0.592	126.735	3599.699	5.807	-14.060	5.807	15.212	292.443	0.309
3700.000	0.996	91.538	3699.690	5.475	-12.777	5.475	13.901	293.195	0.615
3800.000	0.880	144.209	3799.678	4.829	-11.459	4.829	12.435	292.850	0.839
3900.000	0.939	143.941	3899.665	3.544	-10.528	3.544	11.109	288.603	0.059
4000.000	0.864	164.487	3999.653	2.156	-9.845	2.156	10.078	282.350	0.330
4100.000	0.659	186.703	4099.644	0.858	-9.710	0.858	9.748	275.049	0.355
4200.000	0.787	188.583	4199.637	-0.393	-9.880	-0.393	9.888	267.724	0.130
4300.000	1.101	231.350	4299.624	-1.672	-10.732	-1.672	10.862	261.147	0.748
4400.000	0.667	291.005	4399.614	-2.063	-12.026	-2.063	12.201	260.265	0.956
4500.000	1.104	319.423	4499.602	-1.123	-13.195	-1.123	13.243	265.137	0.607
4600.000	1.503	356.556	4599.578	0.918	-13.901	0.918	13.931	273.778	0.912
4700.000	2.133	15.746	4699.528	4.018	-13.475	4.018	14.061	286.604	0.868
4800.000	2.033	36.208	4799.463	7.240	-11.922	7.240	13.948	301.270	0.746
4900.000	1.687	45.190	4899.410	9.708	-9.830	9.708	13.816	314.643	0.452
5000.000	2.322	62.198	4999.350	11.690	-6.994	11.690	13.623	329.110	0.864
5100.000	2.406	75.385	5099.265	13.165	-3.171	13.165	13.541	346.458	0.549
5200.000	2.437	90.402	5199.177	13.680	0.986	13.680	13.715	4.124	0.633
5300.000	2.477	99.052	5299.085	13.325	5.247	13.325	14.321	21.494	0.373
5400.000	1.514	101.957	5399.023	12.711	8.674	12.711	15.388	34.309	0.968
5500.000	1.618	114.995	5498.986	11.841	11.245	11.841	16.330	43.522	0.370

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
5600.000	1.500	136.366	5598.950	10.297	13.428	10.297	16.922	52.518	0.589
5700.000	1.204	122.077	5698.923	8.791	15.222	8.791	17.578	59.991	0.446
5800.000	1.097	108.764	5798.903	7.925	17.019	7.925	18.774	65.029	0.287
5900.000	0.849	80.840	5898.889	7.735	18.657	7.735	20.197	67.481	0.528
6000.000	1.042	73.593	5998.875	8.110	20.261	8.110	21.824	68.185	0.227
6100.000	0.579	66.718	6098.865	8.567	21.598	8.567	23.235	68.364	0.473
6200.000	1.126	79.859	6198.853	8.940	23.029	8.940	24.703	68.784	0.577
6300.000	0.745	78.814	6298.840	9.239	24.633	9.239	26.309	69.442	0.381
6400.000	0.698	126.826	6398.833	8.999	25.759	8.999	27.285	70.742	0.589
6500.000	0.468	171.935	6498.828	8.230	26.304	8.230	27.561	72.626	0.495
6600.000	0.723	169.723	6598.823	7.205	26.473	7.205	27.436	74.775	0.256