



Company/Rig: Noble Energy/ VES
WELL/API#: Baker State B 36-13/05-123-17431
DECLINATION: 8.15 Degrees
TD AS DRILLED: 6867 Feet
COUNTY/STATE: Weld/Colorado
VS-Azi: 0.000 Degrees
Latitude: 40.35049, Longitude: -104.50527
Grid North = True North -0.64 degs (NAD 27)
Grid Correction Applied = -0.64 degs



DEPTH REFERENCE : RKB=GL/ ELEVATION= 4605 Feet

DRILLOG GYRO SURVEY CALCULATIONS

Filename: survey.ut

Minimum Curvature Method

Report Date/Time: 8/29/2016 / 14:21

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Sean Bratt / Baker State B 36-13

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	0.688	244.263	99.998	-0.261	-0.541	-0.261	0.600	244.263	0.688
200.000	0.729	287.640	199.991	-0.328	-1.688	-0.328	1.720	258.989	0.525
300.000	0.840	315.590	299.982	0.388	-2.807	0.388	2.834	277.869	0.394
400.000	0.749	332.318	399.972	1.490	-3.624	1.490	3.918	292.353	0.248
500.000	0.795	275.428	499.964	2.134	-4.618	2.134	5.087	294.804	0.736
600.000	0.845	315.029	599.955	2.722	-5.830	2.722	6.434	295.024	0.558
700.000	1.007	337.924	699.942	4.057	-6.681	4.057	7.817	301.269	0.400
800.000	1.010	336.449	799.927	5.680	-7.364	5.680	9.300	307.644	0.026
900.000	1.006	294.273	899.913	6.849	-8.516	6.849	10.929	308.807	0.725
1000.000	0.805	319.720	999.900	7.746	-9.770	7.746	12.468	308.407	0.444
1100.000	0.747	330.512	1099.891	8.850	-10.546	8.850	13.767	310.002	0.157
1200.000	0.442	355.763	1199.886	9.802	-10.895	9.802	14.656	311.977	0.395
1300.000	0.359	287.366	1299.884	10.281	-11.223	10.281	15.220	312.491	0.456
1400.000	0.293	312.755	1399.882	10.548	-11.710	10.548	15.760	312.011	0.157
1500.000	0.306	290.542	1499.881	10.815	-12.148	10.815	16.264	311.678	0.116
1600.000	0.379	329.607	1599.879	11.194	-12.565	11.194	16.828	311.698	0.239

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	0.443	317.529	1699.877	11.765	-12.994	11.765	17.529	312.159	0.107
1800.000	0.635	263.220	1799.873	11.985	-13.805	11.985	18.282	310.963	0.521
1900.000	0.595	308.274	1899.868	12.241	-14.763	12.241	19.178	309.665	0.473
2000.000	0.554	308.169	1999.863	12.861	-15.551	12.861	20.180	309.593	0.041
2100.000	0.657	290.724	2099.857	13.363	-16.467	13.363	21.207	309.060	0.210
2200.000	0.613	276.972	2199.851	13.631	-17.534	13.631	22.209	307.861	0.158
2300.000	0.613	301.673	2299.846	13.977	-18.520	13.977	23.202	307.041	0.262
2400.000	0.721	259.323	2399.839	14.141	-19.593	14.141	24.163	305.819	0.492
2500.000	0.657	254.486	2499.832	13.871	-20.764	13.871	24.971	303.744	0.086
2600.000	0.679	188.316	2599.827	13.131	-21.402	13.131	25.109	301.531	0.730
2700.000	0.638	232.386	2699.821	12.204	-21.929	12.204	25.096	299.098	0.496
2800.000	0.336	214.283	2799.817	11.623	-22.535	11.623	25.355	297.283	0.336
2900.000	0.354	241.554	2899.815	11.234	-22.971	11.234	25.571	296.060	0.163
3000.000	0.661	262.479	2999.811	11.011	-23.815	11.011	26.237	294.814	0.354
3100.000	0.681	273.285	3099.805	10.970	-24.980	10.970	27.283	293.708	0.128
3200.000	0.500	211.036	3199.800	10.630	-25.799	10.630	27.903	292.393	0.630
3300.000	0.484	189.916	3299.797	9.840	-26.097	9.840	27.890	290.659	0.181
3400.000	0.440	178.761	3399.793	9.040	-26.161	9.040	27.679	289.062	0.100
3500.000	0.320	148.260	3499.791	8.418	-26.006	8.418	27.334	287.937	0.231
3600.000	0.310	112.076	3599.790	8.079	-25.608	8.079	26.852	287.510	0.196
3700.000	0.328	104.146	3699.788	7.907	-25.079	7.907	26.296	287.499	0.048
3800.000	0.502	103.623	3799.786	7.734	-24.376	7.734	25.573	287.603	0.174
3900.000	0.491	101.071	3899.782	7.548	-23.529	7.548	24.710	287.787	0.025
4000.000	0.581	125.124	3999.778	7.174	-22.694	7.174	23.801	287.544	0.240
4100.000	0.468	113.922	4099.773	6.717	-21.905	6.717	22.912	287.047	0.152
4200.000	0.504	76.657	4199.770	6.653	-21.104	6.653	22.127	287.496	0.312
4300.000	0.569	121.116	4299.766	6.497	-20.251	6.497	21.268	287.789	0.410
4400.000	0.624	60.067	4399.762	6.513	-19.354	6.513	20.420	288.599	0.608
4500.000	0.892	93.931	4499.753	6.731	-18.105	6.731	19.316	290.394	0.510
4600.000	0.791	105.323	4599.742	6.495	-16.663	6.495	17.885	291.296	0.195
4700.000	0.945	78.656	4699.731	6.475	-15.189	6.475	16.512	293.089	0.428
4800.000	1.093	68.965	4799.716	6.980	-13.490	6.980	15.189	297.356	0.226
4900.000	1.062	56.626	4899.698	7.832	-11.827	7.832	14.185	303.513	0.234
5000.000	1.208	82.413	4999.679	8.481	-10.008	8.481	13.118	310.279	0.526
5100.000	1.381	72.523	5099.654	8.982	-7.813	8.982	11.905	318.981	0.282
5200.000	1.517	67.146	5199.622	9.858	-5.443	9.858	11.261	331.093	0.192
5300.000	1.669	54.087	5299.583	11.227	-3.044	11.227	11.632	344.832	0.393
5400.000	1.845	68.265	5399.537	12.677	-0.369	12.677	12.682	358.334	0.467
5500.000	1.841	64.312	5499.485	13.969	2.574	13.969	14.204	10.439	0.127

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	2.239	81.093	5599.422	14.968	5.951	14.968	16.108	21.682	0.714
5700.000	1.670	72.945	5699.364	15.698	9.274	15.698	18.232	30.573	0.632
5800.000	1.905	52.194	5799.316	17.144	11.979	17.144	20.914	34.945	0.684
5900.000	1.976	76.760	5899.261	18.557	14.971	18.557	23.844	38.895	0.828
6000.000	2.157	68.895	5999.196	19.630	18.406	19.630	26.909	43.156	0.336
6100.000	2.272	58.190	6099.121	21.353	21.846	21.353	30.548	45.654	0.428
6200.000	2.227	42.564	6199.045	23.828	24.844	23.828	34.424	46.196	0.613
6300.000	2.624	50.405	6298.956	26.718	27.922	26.718	38.646	46.263	0.516
6400.000	3.067	51.712	6398.832	29.834	31.785	29.834	43.593	46.814	0.448
6500.000	3.335	63.657	6498.677	32.782	36.491	32.782	49.054	48.065	0.717
6600.000	3.961	67.954	6598.475	35.369	42.299	35.369	55.138	50.099	0.683