



Company/Rig: NOBLE ENERGY/ VESSI
 WELL/API#: DKW GREEN STATE BB 18-08/05-123-19280
 DECLINATION: 8.23 DEGREES
 TD AS DRILLED: 6839 FEET
 COUNTY/STATE: WELD/COLORADO
 Latitude: 40.400, Longitude: -104.472
 GRID North is 0.660 Degrees East of True North
 VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4632 FEET

DRILLOG GYRO SURVEY CALCULATIONS

Filename: strapdown-de_01.ut
 Minimum Curvature Method
 Report Date/Time: 1/12/2015 / 13:16

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID
 HENDERSON, COLORADO
 303-853-4976

Surveyor: KEVIN MCDOWELL

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	0.153	63.675	100.000	0.059	0.120	0.059	0.134	63.675	0.153
200.000	0.236	3.823	199.999	0.324	0.253	0.324	0.411	38.051	0.207
300.000	0.213	78.346	299.999	0.566	0.449	0.566	0.723	38.419	0.272
400.000	0.416	88.800	399.997	0.612	0.995	0.612	1.168	58.416	0.210
500.000	0.413	298.727	499.996	0.792	1.042	0.792	1.309	52.752	0.801
600.000	0.483	99.305	599.995	0.897	1.142	0.897	1.453	51.839	0.883
700.000	0.331	87.183	699.993	0.844	1.847	0.844	2.030	65.450	0.174
800.000	0.381	76.672	799.991	0.934	2.459	0.934	2.630	69.194	0.082
900.000	0.389	38.549	899.989	1.277	2.994	1.277	3.255	66.907	0.252
1000.000	0.496	53.336	999.986	1.800	3.553	1.800	3.983	63.123	0.155
1100.000	0.425	23.073	1099.983	2.400	4.045	2.400	4.703	59.321	0.250
1200.000	0.493	27.112	1199.979	3.123	4.386	3.123	5.384	54.545	0.075
1300.000	0.325	23.351	1299.977	3.766	4.694	3.766	6.018	51.259	0.170
1400.000	0.476	45.270	1399.974	4.319	5.102	4.319	6.684	49.750	0.213
1500.000	0.219	244.064	1499.973	4.528	5.225	4.528	6.914	49.090	0.687
1600.000	0.054	279.985	1599.973	4.452	5.007	4.452	6.700	48.357	0.178
1700.000	0.047	261.675	1699.973	4.454	4.920	4.454	6.637	47.845	0.017
1800.000	0.424	314.490	1799.972	4.708	4.616	4.708	6.593	44.434	0.397
1900.000	0.277	321.653	1899.970	5.157	4.201	5.157	6.652	39.171	0.153

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
2000.000	0.261	293.931	1999.969	5.439	3.843	5.439	6.660	35.241	0.130
2100.000	0.572	281.631	2099.966	5.632	3.146	5.632	6.451	29.185	0.321
2200.000	0.922	269.919	2199.958	5.732	1.853	5.732	6.024	17.916	0.380
2300.000	1.432	255.538	2299.937	5.418	-0.161	5.418	5.421	358.294	0.586
2400.000	1.446	248.925	2399.905	4.653	-2.549	4.653	5.305	331.286	0.167
2500.000	1.453	264.607	2499.874	4.080	-4.988	4.080	6.444	309.282	0.395
2600.000	1.516	257.633	2599.840	3.677	-7.542	3.677	8.391	295.994	0.191
2700.000	1.295	254.918	2699.810	3.100	-9.925	3.100	10.398	287.347	0.231
2800.000	1.421	250.025	2799.782	2.382	-12.182	2.382	12.412	281.066	0.171
2900.000	1.235	255.910	2899.755	1.696	-14.393	1.696	14.492	276.722	0.230
3000.000	1.504	271.144	2999.727	1.460	-16.750	1.460	16.813	274.982	0.450
3100.000	2.174	280.216	3099.675	1.823	-19.928	1.823	20.011	275.226	0.729
3200.000	2.231	280.476	3199.601	2.513	-23.708	2.513	23.841	276.050	0.058
3300.000	2.526	298.623	3299.516	3.922	-27.556	3.922	27.834	278.101	0.805
3400.000	2.926	316.358	3399.405	6.825	-31.252	6.825	31.989	282.319	0.929
3500.000	3.308	321.449	3499.257	10.929	-34.812	10.929	36.487	287.429	0.472
3600.000	3.528	330.445	3599.079	15.862	-38.128	15.862	41.296	292.588	0.579
3700.000	3.408	318.641	3698.897	20.770	-41.610	20.770	46.506	296.526	0.723
3800.000	3.235	320.722	3798.730	25.184	-45.360	25.184	51.882	299.039	0.211
3900.000	2.419	332.198	3898.608	29.235	-48.130	29.235	56.314	301.275	0.989
4000.000	2.025	310.201	3998.534	32.242	-50.464	32.242	59.885	302.575	0.932
4100.000	1.400	297.655	4098.489	33.950	-52.896	33.950	62.853	302.693	0.725
4200.000	1.320	312.503	4198.462	35.295	-54.827	35.295	65.205	302.772	0.360
4300.000	1.271	322.250	4298.436	36.950	-56.355	36.950	67.389	303.252	0.225
4400.000	1.168	313.161	4398.414	38.524	-57.777	38.524	69.443	303.694	0.219
4500.000	1.205	274.310	4498.394	39.300	-59.570	39.300	71.366	303.414	0.790
4600.000	1.234	245.308	4598.372	38.929	-61.597	38.929	72.868	302.293	0.611
4700.000	1.447	204.402	4698.347	37.330	-63.097	37.330	73.313	300.610	0.958
4800.000	1.216	188.562	4798.320	35.131	-63.777	35.131	72.812	298.848	0.432
4900.000	1.168	209.140	4898.299	33.191	-64.431	33.191	72.478	297.255	0.428
5000.000	0.832	215.150	4998.283	31.707	-65.345	31.707	72.632	295.884	0.352
5100.000	0.419	237.325	5098.277	30.916	-66.071	30.916	72.946	295.076	0.471
5200.000	0.207	348.436	5198.276	30.896	-66.414	30.896	73.249	294.948	0.530
5300.000	1.607	104.083	5298.264	30.732	-65.091	30.732	71.981	295.274	1.707
5400.000	2.554	112.679	5398.197	29.531	-61.675	29.531	68.380	295.586	0.995
5500.000	2.442	130.006	5498.103	27.303	-57.987	27.303	64.093	295.213	0.760
5600.000	1.748	146.938	5598.037	24.655	-55.523	24.655	60.751	293.943	0.923
5700.000	1.005	147.481	5698.007	22.637	-54.219	22.637	58.755	292.661	0.743
5800.000	0.782	185.439	5797.996	21.218	-53.812	21.218	57.844	291.519	0.619
5900.000	0.903	190.550	5897.985	19.764	-54.021	19.764	57.523	290.096	0.142

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
6000.000	1.253	228.980	5997.969	18.272	-54.990	18.272	57.946	288.380	0.783
6100.000	1.408	234.475	6097.942	16.841	-56.815	16.841	59.258	286.510	0.200
6200.000	2.161	224.592	6197.893	14.784	-59.138	14.784	60.958	284.036	0.811
6300.000	2.347	237.611	6297.816	12.345	-62.190	12.345	63.404	281.228	0.544
6400.000	2.616	220.166	6397.723	9.504	-65.392	9.504	66.079	278.269	0.798
6500.000	3.470	223.154	6497.582	5.552	-68.934	5.552	69.157	274.605	0.868
6600.000	4.262	220.373	6597.353	0.513	-73.411	0.513	73.413	270.400	0.813
6650.000	4.863	222.326	6647.195	-2.469	-76.042	-2.469	76.082	268.140	1.241