Company/Rig: NOBLE ENERGY/VESSI
WELL/API#: BOHLENDER H 14-09/05-123-15745
DECLINATION: 8.31 DEGREES
TD AS DRILLED: 7278 FEET
COUNTY/STATE: WELD/COLORADO
Latitude: 40.223, Longitude: -104.623
GRID North is 0.570 Degrees East of True North
VS-Azi: 0.000 Degrees

DEPTH REFERENCE : RKB=SURFACE ELEVATION=4821 FEET

DRILLOG GYRO SURVEY CALCULATIONS
Filename: strapdown-de_01.ut
Minimum Curvature Method
Report Date/Time: 12/9/2014 / 15:34

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	0.670	314.091	99.998	0.407	-0.420	0.407	0.585	314.091	0.670
200.000	0.375	34.027	199.995	1.084	-0.657	1.084	1.268	328.796	0.708
300.000	0.406	324.642	299.993	1.644	-0.679	1.644	1.779	337.564	0.445
400.000	0.479	319.234	399.990	2.249	-1.157	2.249	2.529	332.788	0.084
500.000	0.347	315.477	499.987	2.782	-1.642	2.782	3.230	329.452	0.135
600.000	0.088	58.755	599.986	3.037	-1.788	3.037	3.524	329.508	0.376
700.000	0.209	239.437	699.986	2.984	-1.880	2.984	3.527	327.781	0.297
800.000	0.338	308.517	799.985	3.075	-2.269	3.075	3.821	323.578	0.328
900.000	0.076	40.602	899.985	3.309	-2.456	3.309	4.121	323.411	0.349
1000.000	0.178	291.843	999.985	3.417	-2.557	3.417	4.268	323.190	0.215
1100.000	0.366	284.532	1099.983	3.555	-3.010	3.555	4.658	319.740	0.191
1200.000	0.241	290.056	1199.982	3.707	-3.517	3.707	5.110	316.506	0.128
1300.000	0.232	329.983	1299.981	3.955	-3.816	3.955	5.496	316.023	0.162
1400.000	0.220	338.689	1399.980	4.310	-3.987	4.310	5.871	317.224	0.036
1500.000	0.160	289.491	1499.980	4.535	-4.189	4.535	6.174	317.276	0.168
1600.000	0.488	344.495	1599.978	4.992	-4.434	4.992	6.677	318.391	0.418
1700.000	0.543	320.124	1699.974	5.766	-4.851	5.766	7.536	319.925	0.224
1800.000	0.453	334.018	1799.971	6.485	-5.328	6.485	8.394	320.593	0.150
1900.000	0.538	359.655	1899.967	7.311	-5.504	7.311	9.151	323.022	0.235

V.E.S. Survey Date: 11/24/2014

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	0.207	343.756	1999.965	7.954	-5.558	7.954	9.703	325.055	0.345
2100.000	0.271	339.349	2099.964	8.348	-5.692	8.348	10.104	325.714	0.067
2200.000	0.161	23.314	2199.963	8.698	-5.720	8.698	10.410	326.672	0.191
2300.000	0.335	10.846	2299.962	9.114	-5.609	9.114	10.702	328.391	0.182
2400.000	0.215	294.377	2399.961	9.479	-5.725	9.479	11.074	328.871	0.354
2500.000	0.138	106.319	2499.961	9.523	-5.780	9.523	11.139	328.745	0.353
2600.000	0.264	59.444	2599.961	9.606	-5.466	9.606	11.052	330.360	0.197
2700.000	0.443	78.281	2699.959	9.801	-4.889	9.801	10.953	333.490	0.211
2800.000	0.185	32.267	2799.957	10.016	-4.424	10.016	10.950	336.168	0.342
2900.000	0.298	92.415	2899.957	10.141	-4.079	10.141	10.931	338.090	0.261
3000.000	0.382	87.491	2999.955	10.145	-3.487	10.145	10.727	341.032	0.089
3100.000	0.106	305.599	3099.954	10.213	-3.229	10.213	10.712	342.454	0.470
3200.000	0.227	124.705	3199.954	10.154	-3.142	10.154	10.629	342.808	0.333
3300.000	0.577	340.563	3299.953	10.516	-3.147	10.516	10.977	343.342	0.772
3400.000	0.341	350.569	3399.949	11.285	-3.363	11.285	11.776	343.406	0.248
3500.000	0.935	19.934	3499.943	12.347	-3.134	12.347	12.738	345.759	0.659
3600.000	1.796	12.358	3599.914	14.644	-2.520	14.644	14.860	350.236	0.878
3700.000	2.475	29.304	3699.845	18.058	-1.128	18.058	18.093	356.427	0.921
3800.000	3.094	24.369	3799.726	22.400	1.043	22.400	22.424	2.665	0.663
3900.000	3.245	42.094	3899.575	26.958	4.054	26.958	27.261	8.551	0.987
4000.000	4.049	34.360	3999.373	31.973	7.944	31.973	32.946	13.953	0.941
4100.000	4.148	43.276	4099.118	37.521	12.416	37.521	39.522	18.309	0.644
4200.000	4.343	35.507	4198.844	43.237	17.094	43.237	46.493	21.572	0.607
4300.000	4.164	46.538	4298.571	48.816	21.929	48.816	53.515	24.190	0.836
4400.000	3.955	59.577	4398.322	53.060	27.537	53.060	59.780	27.429	0.944
4500.000	3.044	64.247	4498.135	55.960	32.902	55.960	64.916	30.454	0.954
4600.000	2.555	48.519	4598.016	58.590	36.964	58.590	69.276	32.247	0.906
4700.000	1.803	61.335	4697.944	60.821	40.014	60.821	72.804	33.341	0.892
4800.000	1.873	62.827	4797.892	62.322	42.849	62.322	75.631	34.510	0.085
4900.000	1.548	90.402	4897.849	63.059	45.653	63.059	77.851	35.904	0.874
5000.000	1.981	74.088	4997.802	63.524	48.666	63.524	80.023	37.456	0.659
5100.000	2.069	72.102	5097.740	64.552	52.046	64.552	82.921	38.878	0.112
5200.000	2.046	79.372	5197.676	65.437	55.519	65.437	85.816	40.313	0.262
5300.000	2.514	81.974	5297.596	66.072	59.445	66.072	88.878	41.978	0.478
5400.000	2.117	98.338	5397.515	66.110	63.444	66.110	91.628	43.821	0.767
5500.000	1.513	122.072	5497.466	65.141	66.390	65.141	93.011	45.544	0.952
5600.000	1.321	137.469	5597.436	63.591	68.288	63.591	93.312	47.040	0.425
5700.000	0.733	175.740	5697.421	62.104	69.115	62.104	92.918	48.058	0.873
5800.000	0.533	154.139	5797.415	61.048	69.365	61.048	92.403	48.649	0.308
5900.000	0.831	145.940	5897.407	60.029	69.974	60.029	92.195	49.375	0.313

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	0.278	28.914	5997.404	59.640	70.497	59.640	92.341	49.769	0.988
6100.000	0.608	277.966	6097.402	59.926	70.089	59.926	92.215	49.470	0.753
6200.000	0.791	187.933	6197.397	59.316	69.469	59.316	91.347	49.508	0.998
6300.000	0.361	219.139	6297.392	58.388	69.175	58.388	90.522	49.834	0.517
6400.000	0.240	170.465	6397.391	57.937	69.010	57.937	90.106	49.985	0.271
6500.000	0.126	148.459	6497.390	57.637	69.102	57.637	89.984	50.169	0.132
6600.000	0.800	235.030	6597.387	57.143	68.587	57.143	89.272	50.201	0.803
6700.000	1.559	204.504	6697.366	55.505	67.451	55.505	87.352	50.549	0.960
6800.000	2.114	213.718	6797.314	52.733	65.863	52.733	84.372	51.318	0.627
6900.000	1.940	256.582	6897.257	50.806	63.192	50.806	81.083	51.201	1.490
6950.000	1.957	245.790	6947.228	50.259	61.591	50.259	79.495	50.785	0.734

V.E.S. Survey Date: 11/24/2014