



Company/Rig: NOBLE ENERGY / PRODUCTION
WELL/API#: CANNON H 35-09 / 05-123-15841
DECLINATION: 8.3 DEGREES
TD AS DRILLED: 7278 FEET
COUNTY/STATE: WELD / COLORADO
Latitude: 40.180, Longitude: -104.624
GRID North is 0.570 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4824 FEET

DRILLOG GYRO SURVEY CALCULATIONS

Filename: survey.ut
Minimum Curvature Method
Report Date/Time: 12/19/2014 / 15:38

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

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

Surveyor: NORMAN COWAN

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	0.441	336.035	99.999	0.351	-0.156	0.351	0.384	336.035	0.441
200.000	0.387	293.302	199.997	0.836	-0.622	0.836	1.042	323.347	0.306
300.000	0.270	313.785	299.995	1.133	-1.102	1.133	1.580	315.782	0.164
400.000	0.230	301.505	399.994	1.400	-1.443	1.400	2.011	314.140	0.067
500.000	0.252	321.006	499.993	1.676	-1.752	1.676	2.424	313.725	0.084
600.000	0.462	305.015	599.991	2.078	-2.220	2.078	3.041	313.099	0.231
700.000	0.350	356.285	699.989	2.614	-2.570	2.614	3.666	315.477	0.366
800.000	0.513	301.528	799.987	3.152	-2.972	3.152	4.332	316.687	0.423
900.000	1.202	343.527	899.976	4.393	-3.651	4.393	5.712	320.266	0.890
1000.000	0.592	346.112	999.963	5.900	-4.073	5.900	7.169	325.384	0.612
1100.000	0.350	315.920	1099.959	6.621	-4.409	6.621	7.955	326.339	0.339
1200.000	0.467	330.692	1199.957	7.196	-4.821	7.196	8.661	326.179	0.157
1300.000	0.691	337.354	1299.952	8.107	-5.252	8.107	9.660	327.062	0.233
1400.000	0.557	276.446	1399.947	8.718	-5.968	8.718	10.565	325.607	0.643
1500.000	0.492	353.153	1499.944	9.199	-6.502	9.199	11.265	324.746	0.653
1600.000	0.554	343.519	1599.940	10.089	-6.691	10.089	12.106	326.450	0.107
1700.000	0.677	349.258	1699.934	11.133	-6.938	11.133	13.117	328.069	0.137
1800.000	0.769	322.801	1799.926	12.248	-7.454	12.248	14.337	328.676	0.343
1900.000	0.865	326.917	1899.916	13.415	-8.272	13.415	15.760	328.342	0.112

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	0.720	312.766	1999.906	14.474	-9.145	14.474	17.121	327.715	0.243
2100.000	0.583	347.635	2099.900	15.397	-9.715	15.397	18.206	327.750	0.411
2200.000	0.744	333.994	2199.894	16.477	-10.108	16.477	19.330	328.472	0.224
2300.000	1.355	314.190	2299.877	17.884	-11.241	17.884	21.123	327.850	0.702
2400.000	1.309	354.760	2399.852	19.846	-12.193	19.846	23.292	328.434	0.924
2500.000	1.821	355.815	2499.814	22.567	-12.413	22.567	25.756	331.187	0.513
2600.000	1.261	352.544	2599.778	25.243	-12.672	25.243	28.245	333.344	0.567
2700.000	1.340	21.781	2699.753	27.420	-12.381	27.420	30.086	335.700	0.661
2800.000	1.410	19.747	2799.724	29.664	-11.531	29.664	31.826	338.758	0.085
2900.000	1.008	344.523	2899.703	31.670	-11.350	31.670	33.642	340.283	0.826
3000.000	0.984	6.949	2999.688	33.370	-11.481	33.370	35.290	341.014	0.388
3100.000	0.887	357.182	3099.675	34.996	-11.415	34.996	36.810	341.934	0.186
3200.000	0.756	20.755	3199.665	36.386	-11.219	36.386	38.077	342.863	0.359
3300.000	0.769	19.529	3299.656	37.636	-10.761	37.636	39.144	344.043	0.020
3400.000	0.808	18.350	3399.647	38.937	-10.315	38.937	40.280	345.162	0.043
3500.000	0.395	346.693	3499.641	39.942	-10.172	39.942	41.217	345.712	0.515
3600.000	0.804	247.839	3599.637	40.013	-10.901	40.013	41.471	344.760	0.948
3700.000	0.810	249.275	3699.627	39.498	-12.212	39.498	41.343	342.819	0.021
3800.000	1.274	217.502	3799.611	38.366	-13.550	38.366	40.689	340.548	0.724
3900.000	1.223	195.816	3899.588	36.457	-14.518	36.457	39.242	338.287	0.472
4000.000	0.957	231.107	3999.571	34.906	-15.459	34.906	38.176	336.113	0.708
4100.000	0.940	252.789	4099.558	34.139	-16.892	34.139	38.090	333.673	0.357
4200.000	1.449	252.389	4199.536	33.514	-18.881	33.514	38.466	330.604	0.508
4300.000	1.495	261.476	4299.503	32.938	-21.376	32.938	39.266	327.018	0.238
4400.000	1.440	264.054	4399.470	32.614	-23.916	32.614	40.444	323.747	0.086
4500.000	1.553	254.301	4499.436	32.118	-26.470	32.118	41.620	320.506	0.278
4600.000	1.753	276.677	4599.395	31.929	-29.294	31.929	43.331	317.464	0.671
4700.000	1.907	300.340	4699.346	32.947	-32.249	32.947	46.103	315.613	0.765
4800.000	2.124	298.352	4799.284	34.667	-35.316	34.667	49.488	314.469	0.228
4900.000	2.221	297.522	4899.212	36.443	-38.665	36.443	53.132	313.305	0.102
5000.000	2.611	303.118	4999.123	38.583	-42.291	38.583	57.246	312.374	0.455
5100.000	2.657	298.321	5099.018	40.927	-46.239	40.927	61.750	311.512	0.225
5200.000	2.348	319.622	5198.924	43.587	-49.607	43.587	66.035	311.304	0.973
5300.000	2.163	323.290	5298.847	46.661	-52.062	46.661	69.912	311.868	0.235
5400.000	1.484	324.034	5398.796	49.222	-53.951	49.222	73.031	312.375	0.680
5500.000	1.023	3.967	5498.773	51.160	-54.650	51.160	74.860	313.111	0.959
5600.000	1.254	7.747	5598.753	53.136	-54.440	53.136	76.073	314.305	0.243
5700.000	1.341	24.228	5698.728	55.288	-53.813	55.288	77.152	315.775	0.382
5800.000	1.250	31.631	5798.703	57.283	-52.761	57.283	77.878	317.353	0.190
5900.000	1.436	34.105	5898.675	59.249	-51.486	59.249	78.494	319.010	0.195

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	1.507	44.845	5998.642	61.219	-49.856	61.219	78.952	320.841	0.284
6100.000	1.611	29.157	6098.606	63.379	-48.244	63.379	79.652	322.722	0.438
6200.000	1.612	11.047	6198.567	65.988	-47.289	65.988	81.183	324.373	0.507
6300.000	1.542	24.469	6298.529	68.593	-46.462	68.593	82.848	325.888	0.375
6400.000	1.207	358.672	6398.501	70.870	-45.930	70.870	84.452	327.054	0.695
6500.000	0.956	352.040	6498.483	72.750	-46.070	72.750	86.110	327.656	0.280
6600.000	1.423	355.754	6598.462	74.815	-46.277	74.815	87.971	328.261	0.473
6700.000	1.512	324.401	6698.430	77.126	-47.137	77.126	90.389	328.568	0.797