

COMPANY/RIG: Noble Energy/Production/CoreTech

WELL: Sean D 19-9

DECLINATION: 8.32

TD AS DRILLED: 7189

COUNTY/STATE: Weld/Colorado

Latitude: 40.209, Longitude: -104.586

GRID North is 0.590 Degrees East of True North

VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB = GL Elevation = 4767

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro.ut

Minimum Curvature Method

Report Date/Time: 9/26/2014 / 15:13

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JUSTIN WILLIAMS

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	0.263	61.599	100.000	0.109	0.202	0.109	0.230	61.599	0.263
200.000	0.152	210.279	199.999	0.104	0.337	0.104	0.353	72.862	0.401
300.000	0.459	103.383	299.998	-0.103	0.660	-0.103	0.668	98.889	0.524
400.000	0.363	81.030	399.996	-0.147	1.362	-0.147	1.370	96.138	0.185
500.000	0.075	312.451	499.995	-0.053	1.627	-0.053	1.628	91.856	0.414
600.000	0.578	63.400	599.993	0.218	2.029	0.218	2.041	83.882	0.609
700.000	0.084	67.398	699.992	0.472	2.548	0.472	2.591	79.515	0.494
800.000	0.589	22.602	799.990	0.974	2.813	0.974	2.977	70.902	0.532
900.000	0.624	67.080	899.984	1.660	3.512	1.660	3.885	64.698	0.460
1000.000	0.281	17.627	999.982	2.106	4.088	2.106	4.599	62.741	0.490
1100.000	0.593	53.061	1099.979	2.651	4.576	2.651	5.288	59.914	0.398
1200.000	0.471	28.159	1199.974	3.324	5.183	3.324	6.157	57.325	0.258
1300.000	0.480	47.737	1299.971	3.968	5.687	3.968	6.934	55.092	0.162
1400.000	0.532	37.001	1399.967	4.620	6.276	4.620	7.793	53.639	0.108
1500.000	0.318	6.856	1499.965	5.266	6.588	5.266	8.434	51.363	0.303
1600.000	0.290	10.699	1599.963	5.791	6.668	5.791	8.832	49.029	0.034
1700.000	0.454	35.831	1699.961	6.361	6.947	6.361	9.419	47.523	0.227
1800.000	0.420	42.226	1799.958	6.954	7.426	6.954	10.173	46.880	0.059
1900.000	0.354	77.355	1899.956	7.293	7.973	7.293	10.805	47.553	0.242

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	0.396	74.328	1999.954	7.453	8.607	7.453	11.386	49.108	0.046
2100.000	0.359	110.248	2099.952	7.438	9.233	7.438	11.857	51.146	0.235
2200.000	0.631	139.274	2199.948	6.912	9.887	6.912	12.064	55.042	0.362
2300.000	0.665	150.017	2299.942	5.992	10.537	5.992	12.121	60.376	0.126
2400.000	0.960	117.731	2399.932	5.099	11.568	5.099	12.642	66.214	0.533
2500.000	1.033	123.461	2499.917	4.212	13.061	4.212	13.724	72.126	0.123
2600.000	0.992	148.127	2599.902	2.980	14.270	2.980	14.578	78.203	0.434
2700.000	0.510	112.648	2699.893	2.074	15.138	2.074	15.279	82.199	0.648
2800.000	1.077	123.800	2799.883	1.380	16.329	1.380	16.387	85.170	0.585
2900.000	0.618	110.131	2899.872	0.671	17.617	0.671	17.630	87.817	0.498
3000.000	0.686	114.416	2999.866	0.238	18.668	0.238	18.670	89.269	0.083
3100.000	0.837	141.045	3099.857	-0.577	19.672	-0.577	19.681	91.680	0.380
3200.000	0.658	151.529	3199.849	-1.650	20.405	-1.650	20.472	94.622	0.224
3300.000	0.583	163.669	3299.843	-2.643	20.822	-2.643	20.989	97.234	0.151
3400.000	0.600	186.499	3399.838	-3.652	20.906	-3.652	21.223	99.908	0.235
3500.000	0.657	200.595	3499.832	-4.709	20.645	-4.709	21.175	102.848	0.164
3600.000	0.776	203.368	3599.824	-5.867	20.175	-5.867	21.011	106.216	0.124
3700.000	0.740	202.910	3699.815	-7.084	19.655	-7.084	20.892	109.820	0.037
3800.000	0.900	209.916	3799.805	-8.359	19.012	-8.359	20.768	113.734	0.189
3900.000	0.650	209.156	3899.796	-9.535	18.344	-9.535	20.674	117.465	0.250
4000.000	0.947	219.966	3999.786	-10.663	17.537	-10.663	20.524	121.302	0.332
4100.000	0.895	234.976	4099.773	-11.745	16.367	-11.745	20.145	125.664	0.246
4200.000	0.340	233.462	4199.767	-12.370	15.489	-12.370	19.822	128.612	0.556
4300.000	0.890	242.055	4299.761	-12.910	14.565	-12.910	19.463	131.554	0.556
4400.000	0.642	302.947	4399.753	-12.969	13.409	-12.969	18.655	134.046	0.805
4500.000	0.675	317.871	4499.747	-12.228	12.543	-12.228	17.517	134.270	0.174
4600.000	0.699	293.122	4599.740	-11.552	11.588	-11.552	16.362	134.911	0.295
4700.000	0.105	201.726	4699.737	-11.398	10.993	-11.398	15.835	136.035	0.709
4800.000	0.105	264.414	4799.737	-11.492	10.867	-11.492	15.817	136.600	0.110
4900.000	0.453	198.678	4899.736	-11.876	10.649	-11.876	15.951	138.117	0.421
5000.000	0.497	253.822	4999.733	-12.371	10.106	-12.371	15.974	140.756	0.442
5100.000	0.070	183.969	5099.732	-12.553	9.685	-12.553	15.855	142.349	0.478
5200.000	0.627	205.996	5199.730	-13.105	9.441	-13.105	16.151	144.230	0.563
5300.000	0.765	283.218	5299.724	-13.444	8.552	-13.444	15.933	147.539	0.875
5400.000	0.496	2.273	5399.719	-12.859	7.919	-12.859	15.102	148.374	0.829
5500.000	0.464	352.642	5499.716	-12.026	7.884	-12.026	14.380	146.750	0.087
5600.000	0.625	102.238	5599.713	-11.740	8.366	-11.740	14.416	144.526	0.895
5700.000	0.622	131.259	5699.708	-12.213	9.307	-12.213	15.355	142.691	0.312
5800.000	0.807	174.525	5799.701	-13.272	9.782	-13.272	16.488	143.609	0.554
5900.000	0.292	119.450	5899.696	-14.099	10.071	-14.099	17.326	144.462	0.684

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	0.391	165.517	5999.695	-14.554	10.378	-14.554	17.875	144.509	0.282
6100.000	0.639	276.579	6099.692	-14.820	9.909	-14.820	17.828	146.232	0.860
6200.000	0.399	258.329	6199.688	-14.827	9.014	-14.827	17.352	148.702	0.288
6300.000	0.419	3.766	6299.687	-14.533	8.697	-14.533	16.936	149.102	0.651
6400.000	0.122	66.857	6399.686	-14.126	8.819	-14.126	16.653	148.022	0.379
6500.000	0.244	246.053	6499.685	-14.170	8.723	-14.170	16.640	148.385	0.366
6600.000	0.287	40.537	6599.685	-14.066	8.691	-14.066	16.535	148.290	0.518
6700.000	0.409	69.940	6699.683	-13.753	9.189	-13.753	16.541	146.251	0.213
6800.000	0.216	342.229	6799.682	-13.451	9.467	-13.451	16.449	144.861	0.455