



Company/Rig: Noble Energy/ CoreTech
WELL/API#: CONNELL C 4-29/05-123-24872
DECLINATION: 8.21 Degrees
TD AS DRILLED: 7085'
COUNTY/STATE: WELD/COLORADO
VS-Azi: 0.000 Degrees
Latitude: 40.34805, Longitude: -104.55975
Grid North = True North -0.61 degs (NAD 27)
Grid Correction Applied = -0.61 degs



Depth Reference : RKB=SURFACE ELEVATION=4689'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 5/31/2016 / 15:54

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JAY HINMAN / Connell C 4-29

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	0.116	157.295	100.000	-0.093	0.039	-0.093	0.101	157.295	0.116
200.000	0.526	218.982	199.998	-0.543	-0.211	-0.543	0.583	201.184	0.482
300.000	0.098	148.951	299.997	-0.973	-0.455	-0.973	1.075	205.065	0.501
400.000	0.410	262.098	399.996	-1.096	-0.766	-1.096	1.337	214.939	0.457
500.000	0.218	201.103	499.995	-1.322	-1.188	-1.322	1.778	221.947	0.359
600.000	0.223	218.483	599.994	-1.652	-1.378	-1.652	2.151	219.833	0.067
700.000	0.472	226.731	699.992	-2.086	-1.799	-2.086	2.755	220.767	0.254
800.000	0.734	247.185	799.986	-2.617	-2.690	-2.617	3.753	225.780	0.335
900.000	0.602	214.355	899.980	-3.299	-3.576	-3.299	4.866	227.309	0.398
1000.000	0.780	245.931	999.973	-4.010	-4.494	-4.010	6.023	228.257	0.413
1100.000	0.570	205.915	1099.967	-4.735	-5.333	-4.735	7.132	228.398	0.502
1200.000	0.353	195.385	1199.963	-5.480	-5.632	-5.480	7.858	225.787	0.232
1300.000	0.562	200.119	1299.960	-6.238	-5.883	-6.238	8.574	223.324	0.213
1400.000	0.802	224.595	1399.953	-7.196	-6.543	-7.196	9.726	222.276	0.372
1500.000	0.485	215.353	1499.947	-8.040	-7.279	-8.040	10.845	222.156	0.332
1600.000	0.231	9.608	1599.946	-8.186	-7.490	-8.186	11.095	222.458	0.701
1700.000	0.636	336.222	1699.943	-7.479	-7.680	-7.479	10.720	225.760	0.461
1800.000	0.793	353.287	1799.935	-6.284	-7.985	-6.284	10.161	231.798	0.263

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
1900.000	0.448	343.566	1899.929	-5.222	-8.176	-5.222	9.701	237.437	0.360
2000.000	0.481	357.185	1999.926	-4.427	-8.307	-4.427	9.413	241.946	0.115
2100.000	0.694	31.377	2099.921	-3.491	-8.013	-3.491	8.740	246.460	0.401
2200.000	0.941	326.071	2199.913	-2.292	-8.156	-2.292	8.472	254.304	0.907
2300.000	1.281	342.373	2299.894	-0.545	-8.953	-0.545	8.969	266.516	0.461
2400.000	1.426	329.284	2399.866	1.590	-9.927	1.590	10.054	279.101	0.341
2500.000	1.382	343.823	2499.836	3.818	-10.899	3.818	11.548	289.307	0.358
2600.000	1.380	334.446	2599.807	6.063	-11.754	6.063	13.225	297.284	0.226
2700.000	1.302	334.118	2699.780	8.171	-12.770	8.171	15.160	302.616	0.079
2800.000	1.394	321.460	2799.753	10.145	-14.023	10.145	17.308	305.884	0.311
2900.000	1.273	295.477	2899.726	11.575	-15.784	11.575	19.573	306.253	0.611
3000.000	0.612	306.701	2999.712	12.371	-17.215	12.371	21.199	305.703	0.683
3100.000	0.656	281.810	3099.706	12.808	-18.204	12.808	22.258	305.130	0.277
3200.000	0.840	251.602	3199.698	12.694	-19.459	12.694	23.234	303.117	0.428
3300.000	0.813	293.410	3299.689	12.744	-20.806	12.744	24.398	301.489	0.590
3400.000	0.321	343.010	3399.684	13.294	-21.538	13.294	25.311	301.684	0.652
3500.000	0.588	49.670	3499.681	13.895	-21.229	13.895	25.372	303.205	0.547
3600.000	0.905	33.685	3599.673	14.884	-20.399	14.884	25.252	306.116	0.376
3700.000	0.518	40.889	3699.665	15.883	-19.665	15.883	25.279	308.927	0.397
3800.000	0.525	52.718	3799.661	16.503	-19.005	16.503	25.170	310.970	0.108
3900.000	0.054	121.446	3899.659	16.756	-18.600	16.756	25.034	312.015	0.508
4000.000	0.457	177.002	3999.658	16.333	-18.539	16.333	24.707	311.381	0.429
4100.000	0.613	173.324	4099.654	15.403	-18.456	15.403	24.039	309.849	0.160
4200.000	0.298	188.627	4199.651	14.615	-18.432	14.615	23.523	308.410	0.335
4300.000	0.175	151.980	4299.650	14.222	-18.400	14.222	23.256	307.703	0.189
4400.000	0.475	273.727	4399.649	14.114	-18.742	14.114	23.462	306.983	0.587
4500.000	0.765	351.517	4499.644	14.801	-19.254	14.801	24.286	307.551	0.811
4600.000	0.567	345.825	4599.637	15.941	-19.474	15.941	25.167	309.304	0.208
4700.000	1.110	310.069	4699.627	17.044	-20.336	17.044	26.534	309.968	0.729
4800.000	1.226	309.787	4799.606	18.353	-21.899	18.353	28.573	309.964	0.117
4900.000	0.956	305.204	4899.588	19.518	-23.403	19.518	30.474	309.828	0.284
5000.000	0.933	324.942	4999.575	20.665	-24.552	20.665	32.091	310.087	0.324
5100.000	0.818	320.756	5099.563	21.884	-25.471	21.884	33.581	310.668	0.131
5200.000	0.710	323.807	5199.554	22.937	-26.288	22.937	34.888	311.105	0.116
5300.000	0.311	269.059	5299.550	23.432	-26.925	23.432	35.693	311.032	0.588
5400.000	0.580	342.891	5399.548	23.911	-27.345	23.911	36.325	311.168	0.577
5500.000	0.498	7.129	5499.544	24.826	-27.440	24.826	37.004	312.138	0.240
5600.000	0.596	52.524	5599.539	25.574	-26.973	25.574	37.170	313.475	0.432
5700.000	0.414	43.954	5699.536	26.151	-26.309	26.151	37.095	314.827	0.196
5800.000	0.350	47.999	5799.533	26.616	-25.831	26.616	37.090	315.857	0.069

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
5900.000	0.702	66.492	5899.529	27.065	-25.042	27.065	36.873	317.223	0.386
6000.000	0.462	65.433	5999.524	27.477	-24.113	27.477	36.557	318.731	0.241
6100.000	0.855	84.283	6099.517	27.719	-23.004	27.719	36.021	320.311	0.444
6200.000	0.695	107.543	6199.508	27.610	-21.683	27.610	35.107	321.856	0.350
6300.000	0.588	115.180	6299.502	27.209	-20.640	27.209	34.152	322.817	0.136
6400.000	0.983	139.703	6399.493	26.337	-19.621	26.337	32.842	323.313	0.510
6500.000	0.717	121.828	6499.482	25.353	-18.535	25.353	31.406	323.830	0.372
6600.000	0.457	236.267	6599.479	24.801	-18.335	24.801	30.843	323.525	0.997
6700.000	0.228	230.117	6699.477	24.452	-18.820	24.452	30.856	322.416	0.231
6800.000	0.898	274.633	6799.472	24.388	-19.754	24.388	31.384	320.993	0.752