



Company/Rig: Noble Energy/ CoreTech
WELL/API#: RHOADARMER 2-26/05-123-16612
DECLINATION: 8.32 Degrees
TD AS DRILLED: 7352'
COUNTY/STATE: WELD/COLORADO
VS-Azi: 0.000 Degrees
Latitude: 40.37671, Longitude: -104.74506
Grid North = True North -0.49 degs (NAD 83)
Grid Correction Applied = -0.49 degs



Depth Reference : RKB=SURFACE ELEVATION=4773'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 5/2/2016 / 12:23

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: JAY HINMAN / Rhoadarmer 2-26

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	0.247	54.599	100.000	0.125	0.176	0.125	0.215	54.599	0.247
200.000	0.325	89.021	199.999	0.254	0.635	0.254	0.684	68.159	0.185
300.000	0.232	197.579	299.998	0.066	0.857	0.066	0.860	85.569	0.455
400.000	0.677	233.204	399.995	-0.480	0.323	-0.480	0.579	146.075	0.507
500.000	0.626	267.295	499.988	-0.860	-0.696	-0.860	1.106	218.979	0.385
600.000	0.717	242.100	599.982	-1.179	-1.795	-1.179	2.147	236.707	0.306
700.000	0.686	253.861	699.974	-1.638	-2.923	-1.638	3.350	240.736	0.147
800.000	0.545	265.757	799.969	-1.839	-3.972	-1.839	4.377	245.152	0.190
900.000	0.552	274.067	899.964	-1.840	-4.927	-1.840	5.259	249.516	0.080
1000.000	0.733	287.307	999.958	-1.616	-6.018	-1.616	6.231	254.970	0.233
1100.000	0.877	302.653	1099.948	-1.013	-7.273	-1.013	7.343	262.072	0.258
1200.000	1.014	313.420	1199.934	0.008	-8.560	0.008	8.560	270.055	0.224
1300.000	1.073	327.219	1299.918	1.403	-9.709	1.403	9.810	278.225	0.257
1400.000	1.137	334.292	1399.899	3.085	-10.647	3.085	11.085	286.158	0.151
1500.000	1.108	338.409	1499.880	4.878	-11.433	4.878	12.430	293.106	0.086
1600.000	1.064	340.663	1599.862	6.654	-12.096	6.654	13.806	298.813	0.061
1700.000	1.076	347.492	1699.845	8.447	-12.607	8.447	15.175	303.821	0.128
1800.000	0.837	345.468	1799.831	10.070	-12.994	10.070	16.440	307.776	0.241

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	0.789	4.852	1899.821	11.463	-13.119	11.463	17.422	311.146	0.278
2000.000	0.728	350.749	1999.812	12.776	-13.163	12.776	18.344	314.145	0.196
2100.000	0.522	9.142	2099.806	13.853	-13.193	13.853	19.130	316.398	0.285
2200.000	0.246	37.119	2199.804	14.474	-12.991	14.474	19.449	318.091	0.325
2300.000	0.313	21.708	2299.803	14.899	-12.760	14.899	19.616	319.422	0.100
2400.000	0.357	28.244	2399.801	15.427	-12.511	15.427	19.863	320.958	0.059
2500.000	0.208	101.938	2499.800	15.664	-12.186	15.664	19.847	322.118	0.359
2600.000	0.155	140.608	2599.800	15.523	-11.924	15.523	19.573	322.471	0.130
2700.000	0.298	47.043	2699.799	15.596	-11.648	15.596	19.465	323.246	0.344
2800.000	0.240	30.614	2799.798	15.953	-11.351	15.953	19.579	324.568	0.096
2900.000	0.255	84.775	2899.797	16.153	-11.023	16.153	19.556	325.691	0.226
3000.000	0.085	126.425	2999.797	16.130	-10.742	16.130	19.379	326.338	0.199
3100.000	0.237	158.711	3099.797	15.893	-10.607	15.893	19.107	326.281	0.171
3200.000	0.539	166.326	3199.794	15.243	-10.420	15.243	18.464	325.642	0.306
3300.000	0.704	168.775	3299.788	14.183	-10.190	14.183	17.464	324.305	0.167
3400.000	0.187	184.888	3399.785	13.417	-10.084	13.417	16.784	323.073	0.527
3500.000	0.454	114.647	3499.783	13.089	-9.738	13.089	16.314	323.353	0.428
3600.000	0.778	67.256	3599.778	13.187	-8.752	13.187	15.827	326.428	0.577
3700.000	0.855	56.175	3699.768	13.864	-7.506	13.864	15.766	331.570	0.175
3800.000	1.077	23.467	3799.755	15.142	-6.512	15.142	16.483	336.731	0.584
3900.000	1.081	6.562	3899.737	16.942	-6.029	16.942	17.983	340.410	0.317
4000.000	1.147	8.039	3999.718	18.870	-5.782	18.870	19.736	342.965	0.072
4100.000	0.986	357.028	4099.701	20.720	-5.686	20.720	21.486	344.654	0.260
4200.000	0.815	336.247	4199.689	22.230	-6.017	22.230	23.030	344.854	0.366
4300.000	1.067	336.115	4299.675	23.732	-6.681	23.732	24.655	344.277	0.252
4400.000	1.393	335.662	4399.652	25.691	-7.559	25.691	26.780	343.605	0.325
4500.000	1.359	320.351	4499.624	27.711	-8.816	27.711	29.079	342.352	0.368
4600.000	0.998	304.949	4599.602	29.123	-10.287	29.123	30.886	340.546	0.477
4700.000	0.719	250.528	4699.593	29.413	-11.592	29.413	31.614	338.490	0.823
4800.000	0.771	260.013	4799.584	29.087	-12.846	29.087	31.797	336.172	0.134
4900.000	0.793	259.045	4899.575	28.839	-14.188	28.839	32.140	333.803	0.025
5000.000	0.676	290.288	4999.567	28.912	-15.421	28.912	32.767	331.925	0.411
5100.000	0.747	265.336	5099.560	29.063	-16.625	29.063	33.482	330.230	0.315
5200.000	0.560	278.495	5199.553	29.082	-17.758	29.082	34.076	328.591	0.239
5300.000	0.731	286.405	5299.547	29.335	-18.854	29.335	34.871	327.270	0.193
5400.000	0.777	258.732	5399.538	29.383	-20.131	29.383	35.618	325.583	0.363
5500.000	0.721	270.904	5499.530	29.260	-21.426	29.260	36.266	323.786	0.168
5600.000	0.995	273.521	5599.519	29.323	-22.922	29.323	37.219	321.985	0.277
5700.000	1.152	313.907	5699.502	30.074	-24.513	30.074	38.799	320.817	0.756
5800.000	1.009	315.808	5799.485	31.403	-25.851	31.403	40.675	320.538	0.147

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	0.535	299.029	5899.475	32.261	-26.874	32.261	41.988	320.205	0.521
6000.000	1.405	291.856	5999.460	32.944	-28.420	32.944	43.509	319.216	0.877
6100.000	1.554	301.644	6099.427	34.112	-30.712	34.112	45.900	318.002	0.292
6200.000	1.683	307.497	6199.387	35.717	-33.032	35.717	48.650	317.237	0.210
6300.000	1.423	300.698	6299.350	37.245	-35.265	37.245	51.291	316.564	0.319
6400.000	0.954	318.820	6399.329	38.505	-36.880	38.505	53.318	316.235	0.596
6500.000	0.691	293.578	6499.319	39.373	-37.980	39.373	54.706	316.031	0.442
6600.000	1.438	296.242	6599.301	40.168	-39.658	40.168	56.447	315.366	0.749
6700.000	0.988	327.900	6699.279	41.454	-41.242	41.454	58.474	315.147	0.791
6800.000	1.411	300.699	6799.258	42.813	-42.759	42.813	60.508	315.036	0.698
6900.000	0.810	313.030	6899.239	43.923	-44.334	43.923	62.408	314.734	0.644
7000.000	0.878	300.590	6999.228	44.795	-45.510	44.795	63.858	314.547	0.195
7050.000	1.042	321.661	7049.221	45.347	-46.122	45.347	64.680	314.515	0.773