



Company/Rig: Noble Energy/Workover/CoreTech
WELL/API#: DESHAZO 24-14/05-123-23920
DECLINATION: 8.26 Degrees
TD AS DRILLED: 7306'
COUNTY/STATE: WELD/COLORADO
VS-Azi: 0.000 Degrees
Latitude: 40.47430, Longitude: -104.83514
Grid North = True North -0.43 degs (NAD 27)
Grid Correction Applied = -0.43 degs



Depth Reference : RKB=SURFACE ELEVATION=4774'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: run1-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 4/17/2017 / 13:52

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

COMMERCE CITY, COLORADO

303-853-4976

Surveyor: JAY HINMAN / Deshazo 24-14

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	0.315	138.151	99.999	-0.204	0.183	-0.204	0.274	138.151	0.315
200.000	0.341	93.469	199.998	-0.427	0.663	-0.427	0.788	122.782	0.250
300.000	0.491	147.966	299.996	-0.808	1.187	-0.808	1.436	124.254	0.404
400.000	0.218	160.771	399.994	-1.351	1.477	-1.351	2.002	132.460	0.282
500.000	0.438	90.850	499.992	-1.537	1.922	-1.537	2.461	128.646	0.417
600.000	0.570	97.677	599.988	-1.609	2.798	-1.609	3.227	119.906	0.144
700.000	0.335	153.729	699.986	-1.938	3.420	-1.938	3.931	119.535	0.473
800.000	0.127	92.754	799.985	-2.205	3.660	-2.205	4.273	121.068	0.295
900.000	0.389	101.384	899.984	-2.277	4.103	-2.277	4.693	119.030	0.264
1000.000	0.466	164.130	999.982	-2.735	4.547	-2.735	5.307	121.028	0.450
1100.000	0.291	186.753	1099.979	-3.378	4.629	-3.378	5.730	126.125	0.227
1200.000	0.047	222.990	1199.979	-3.661	4.571	-3.661	5.856	128.690	0.254
1300.000	0.072	13.603	1299.979	-3.630	4.557	-3.630	5.826	128.536	0.115
1400.000	0.123	260.677	1399.979	-3.586	4.466	-3.586	5.728	128.765	0.165
1500.000	0.716	290.649	1499.976	-3.383	3.775	-3.383	5.069	131.867	0.613
1600.000	0.689	293.093	1599.968	-2.927	2.637	-2.927	3.939	137.985	0.040

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
1700.000	1.299	272.856	1699.953	-2.634	0.951	-2.634	2.801	160.141	0.694
1800.000	1.541	274.678	1799.922	-2.468	-1.521	-2.468	2.899	211.637	0.247
1900.000	1.563	287.833	1899.886	-1.941	-4.159	-1.941	4.590	244.982	0.356
2000.000	1.269	277.963	1999.855	-1.370	-6.554	-1.370	6.695	258.192	0.381
2100.000	1.213	262.554	2099.832	-1.354	-8.700	-1.354	8.805	261.155	0.337
2200.000	1.262	262.757	2199.809	-1.630	-10.842	-1.630	10.964	261.451	0.049
2300.000	0.916	250.632	2299.791	-2.034	-12.689	-2.034	12.851	260.894	0.414
2400.000	0.665	246.491	2399.781	-2.530	-13.975	-2.530	14.202	259.737	0.257
2500.000	0.864	248.625	2499.772	-3.037	-15.210	-3.037	15.510	258.709	0.202
2600.000	0.988	261.831	2599.759	-3.434	-16.766	-3.434	17.114	258.424	0.246
2700.000	0.515	300.051	2699.751	-3.332	-18.008	-3.332	18.314	259.518	0.665
2800.000	0.405	297.785	2799.748	-2.942	-18.710	-2.942	18.939	261.064	0.112
2900.000	0.478	261.308	2899.745	-2.840	-19.434	-2.840	19.641	261.685	0.285
3000.000	0.822	275.806	2999.738	-2.831	-20.560	-2.831	20.754	262.161	0.378
3100.000	0.544	277.830	3099.731	-2.694	-21.744	-2.694	21.910	262.938	0.278
3200.000	0.612	242.920	3199.726	-2.872	-22.690	-2.872	22.871	262.786	0.353
3300.000	1.040	242.124	3299.716	-3.539	-23.968	-3.539	24.228	261.600	0.429
3400.000	1.485	254.286	3399.691	-4.315	-26.018	-4.315	26.373	260.584	0.517
3500.000	1.540	265.504	3499.657	-4.771	-28.605	-4.771	29.000	260.530	0.301
3600.000	1.501	260.724	3599.622	-5.088	-31.238	-5.088	31.649	260.749	0.133
3700.000	1.585	261.942	3699.585	-5.493	-33.899	-5.493	34.341	260.796	0.089
3800.000	1.596	254.496	3799.547	-6.059	-36.610	-6.059	37.108	260.603	0.207
3900.000	1.652	254.481	3899.507	-6.817	-39.341	-6.817	39.927	260.170	0.056
4000.000	1.650	265.643	3999.465	-7.312	-42.165	-7.312	42.795	260.162	0.321
4100.000	1.181	265.156	4099.435	-7.508	-44.627	-7.508	45.255	260.450	0.469
4200.000	1.521	277.812	4199.407	-7.415	-46.969	-7.415	47.551	261.029	0.451
4300.000	1.234	294.010	4299.378	-6.796	-49.268	-6.796	49.735	262.146	0.481
4400.000	1.145	296.593	4399.357	-5.911	-51.145	-5.911	51.486	263.408	0.105
4500.000	1.154	307.172	4499.337	-4.855	-52.841	-4.855	53.063	264.750	0.212
4600.000	1.367	320.735	4599.313	-3.323	-54.398	-3.323	54.499	266.504	0.365
4700.000	1.163	320.105	4699.288	-1.621	-55.804	-1.621	55.827	268.336	0.204
4800.000	0.837	326.633	4799.273	-0.232	-56.857	-0.232	56.857	269.766	0.345
4900.000	0.582	320.011	4899.265	0.767	-57.585	0.767	57.590	270.763	0.268
5000.000	0.337	287.191	4999.262	1.243	-58.192	1.243	58.205	271.223	0.350
5100.000	0.418	232.216	5099.260	1.106	-58.762	1.106	58.772	271.078	0.356
5200.000	0.529	210.583	5199.257	0.485	-59.285	0.485	59.287	270.468	0.209
5300.000	0.529	197.942	5299.253	-0.352	-59.662	-0.352	59.664	269.662	0.117
5400.000	0.517	184.752	5399.248	-1.241	-59.842	-1.241	59.855	268.812	0.121
5500.000	0.368	192.587	5499.245	-2.004	-59.949	-2.004	59.983	268.085	0.161

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
5600.000	0.486	194.335	5599.243	-2.728	-60.124	-2.728	60.186	267.402	0.119
5700.000	0.530	202.714	5699.239	-3.566	-60.408	-3.566	60.513	266.622	0.086
5800.000	0.471	206.581	5799.235	-4.360	-60.770	-4.360	60.927	265.896	0.068
5900.000	0.364	240.980	5899.232	-4.882	-61.232	-4.882	61.426	265.442	0.267
6000.000	0.065	219.989	5999.232	-5.079	-61.546	-5.079	61.755	265.282	0.304
6100.000	0.314	188.136	6099.231	-5.394	-61.621	-5.394	61.857	264.998	0.261
6200.000	0.391	277.250	6199.230	-5.622	-61.998	-5.622	62.253	264.819	0.497
6300.000	0.167	199.919	6299.229	-5.716	-62.386	-5.716	62.648	264.765	0.390
6400.000	0.435	206.930	6399.227	-6.191	-62.608	-6.191	62.913	264.353	0.270
6500.000	0.399	243.763	6499.225	-6.683	-63.092	-6.683	63.445	263.954	0.266
6600.000	0.318	272.674	6599.223	-6.824	-63.681	-6.824	64.045	263.884	0.195