



Company/Rig: NOBLE ENERGY/ CASEDHOLE
WELL/API#: ALLEN 41-12/05-123-18226
DECLINATION: 8.28 Degrees
TD AS DRILLED: 7,225 FEET
COUNTY/STATE: WELD/COLORADO
VS-Azi: 0.000 Degrees
Latitude: 40.33213, Longitude: -104.60488
Grid North = True North -0.58 degs (NAD 27)
Grid Correction Applied = -0.58 degs



DEPTH REFERENCE : RKB=SURFACE ELEVATION=4,794 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: hagyar_run01-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/20/2015 / 09:17

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

SURVEYOR: LEVI SHELTON / ALLEN 41-12

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	0.351	220.619	99.999	-0.233	-0.200	-0.233	0.307	220.619	0.351
200.000	0.388	182.431	199.997	-0.804	-0.413	-0.804	0.904	207.221	0.244
300.000	0.458	210.121	299.995	-1.488	-0.628	-1.488	1.615	202.894	0.213
400.000	0.393	224.771	399.992	-2.076	-1.070	-2.076	2.336	207.262	0.126
500.000	0.184	215.636	499.991	-2.450	-1.405	-2.450	2.825	209.829	0.213
600.000	0.434	189.055	599.989	-2.955	-1.558	-2.955	3.341	207.803	0.282
700.000	0.575	209.133	699.985	-3.768	-1.862	-3.768	4.203	206.301	0.224
800.000	0.988	202.743	799.976	-5.001	-2.440	-5.001	5.564	206.005	0.422
900.000	0.855	199.077	899.963	-6.502	-3.017	-6.502	7.168	204.893	0.145
1000.000	1.241	208.475	999.946	-8.159	-3.777	-8.159	8.991	204.842	0.421
1100.000	1.403	207.340	1099.919	-10.198	-4.856	-10.198	11.295	205.461	0.164
1200.000	1.386	215.936	1199.890	-12.264	-6.127	-12.264	13.710	206.547	0.210
1300.000	1.090	212.316	1299.867	-14.047	-7.345	-14.047	15.852	207.606	0.306
1400.000	1.262	222.876	1399.846	-15.658	-8.603	-15.658	17.866	208.786	0.276
1500.000	1.023	215.364	1499.826	-17.193	-9.869	-17.193	19.824	209.857	0.282
1600.000	1.006	210.604	1599.810	-18.676	-10.833	-18.676	21.591	210.115	0.086
1700.000	0.659	210.907	1699.799	-19.925	-11.575	-19.925	23.043	210.153	0.348
1800.000	0.848	207.966	1799.791	-21.072	-12.217	-21.072	24.358	210.104	0.194

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	0.377	241.955	1899.785	-21.881	-12.855	-21.881	25.378	210.434	0.576
2000.000	0.399	250.305	1999.783	-22.153	-13.473	-22.153	25.929	211.308	0.060
2100.000	0.547	279.303	2099.779	-22.193	-14.272	-22.193	26.386	212.745	0.277
2200.000	0.460	287.915	2199.775	-21.993	-15.125	-21.993	26.692	214.518	0.116
2300.000	0.716	273.096	2299.770	-21.836	-16.131	-21.836	27.148	216.455	0.296
2400.000	1.067	295.922	2399.758	-21.395	-17.593	-21.395	27.699	219.430	0.493
2500.000	1.105	294.902	2499.740	-20.582	-19.305	-20.582	28.219	223.166	0.042
2600.000	0.860	272.444	2599.726	-20.144	-20.929	-20.144	29.048	226.095	0.452
2700.000	0.850	275.818	2699.715	-20.037	-22.417	-20.037	30.066	228.209	0.051
2800.000	0.767	277.506	2799.705	-19.874	-23.819	-19.874	31.021	230.158	0.087
2900.000	0.965	269.645	2899.693	-19.792	-25.324	-19.792	32.141	231.991	0.231
3000.000	1.045	272.069	2999.678	-19.764	-27.078	-19.764	33.523	233.874	0.090
3100.000	0.938	274.989	3099.663	-19.660	-28.804	-19.660	34.874	235.684	0.118
3200.000	0.833	272.007	3199.651	-19.564	-30.346	-19.564	36.105	237.190	0.114
3300.000	0.554	284.089	3299.644	-19.420	-31.541	-19.420	37.040	238.378	0.314
3400.000	0.658	283.903	3399.638	-19.165	-32.566	-19.165	37.787	239.523	0.104
3500.000	0.743	283.217	3499.631	-18.879	-33.754	-18.879	38.675	240.781	0.086
3600.000	0.550	300.270	3599.624	-18.489	-34.799	-18.489	39.406	242.018	0.271
3700.000	0.551	282.438	3699.620	-18.144	-35.683	-18.144	40.031	243.048	0.171
3800.000	0.347	278.771	3799.617	-17.994	-36.451	-17.994	40.651	243.727	0.205
3900.000	0.211	285.756	3899.615	-17.898	-36.928	-17.898	41.036	244.142	0.141
4000.000	0.412	275.580	3999.614	-17.813	-37.463	-17.813	41.482	244.569	0.208
4100.000	0.461	256.358	4099.611	-17.873	-38.211	-17.873	42.185	244.933	0.153
4200.000	0.572	267.149	4199.607	-17.992	-39.100	-17.992	43.041	245.290	0.147
4300.000	0.318	243.282	4299.604	-18.142	-39.846	-18.142	43.782	245.520	0.309
4400.000	0.364	255.079	4399.602	-18.348	-40.400	-18.348	44.372	245.574	0.084
4500.000	0.551	244.577	4499.599	-18.636	-41.141	-18.636	45.165	245.630	0.204
4600.000	0.434	256.160	4599.595	-18.933	-41.942	-18.933	46.017	245.705	0.153
4700.000	0.432	265.245	4699.592	-19.055	-42.685	-19.055	46.745	245.944	0.069
4800.000	0.229	347.805	4799.591	-18.891	-43.103	-18.891	47.061	246.333	0.462
4900.000	0.176	43.643	4899.591	-18.585	-43.039	-18.585	46.880	246.645	0.195
5000.000	0.999	47.717	4999.585	-17.887	-42.288	-17.887	45.916	247.073	0.824
5100.000	0.912	28.936	5099.571	-16.604	-41.258	-16.604	44.474	248.078	0.323
5200.000	0.298	335.658	5199.565	-15.670	-40.980	-15.670	43.874	249.074	0.772
5300.000	0.312	121.425	5299.565	-15.575	-40.855	-15.575	43.723	249.132	0.583
5400.000	0.031	250.540	5399.564	-15.726	-40.648	-15.726	43.584	248.850	0.332
5500.000	0.179	86.493	5499.564	-15.725	-40.518	-15.725	43.462	248.789	0.208
5600.000	0.545	27.691	5599.562	-15.294	-40.141	-15.294	42.956	249.143	0.478
5700.000	0.324	93.035	5699.560	-14.888	-39.638	-14.888	42.341	249.414	0.505
5800.000	0.790	137.933	5799.555	-15.415	-38.893	-15.415	41.837	248.380	0.606

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	1.057	118.290	5899.542	-16.364	-37.619	-16.364	41.024	246.491	0.411
6000.000	1.688	104.240	5999.513	-17.163	-35.379	-17.163	39.322	244.121	0.710
6100.000	2.120	110.953	6099.458	-18.187	-32.224	-18.187	37.002	240.560	0.486
6200.000	2.287	107.448	6199.384	-19.447	-28.593	-19.447	34.580	235.779	0.214
6300.000	2.200	101.984	6299.308	-20.444	-24.812	-20.444	32.149	230.514	0.231
6400.000	1.850	123.330	6399.246	-21.729	-21.585	-21.729	30.628	224.810	0.825
6450.000	1.784	125.258	6449.221	-22.622	-20.276	-22.622	30.379	221.869	0.181