



Company: Noble Energy
Rig: Production/ VES
API # 05-123-32161
Date: 9/11/2013
Surveyor: Sean Bratt
VS: 0.000
Lat : 40.261
Long: -104.598

Well: Hoff PC D06-28D
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is .580 Degr
Declination: 8.46 Degrees
Depth Reference: Ground Level
Elevation: 4838 Feet
Total Depth as Drilled: 7386 Feet

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD
0.000	0.000	0.000	0.000	0.000	0.000	****	0.000	0.000
100.000	1.253	350.848	1.080	-0.174	99.992	1.253	1.080	1.094
200.000	0.787	351.509	2.839	-0.449	199.976	0.466	2.839	2.875
300.000	0.189	36.256	3.652	-0.453	299.972	0.667	3.652	3.680
400.000	0.182	8.267	3.942	-0.333	399.972	0.090	3.942	3.956
500.000	0.080	321.801	4.154	-0.354	499.971	0.139	4.154	4.169
600.000	0.091	87.046	4.213	-0.318	599.971	0.152	4.213	4.225
700.000	0.641	290.599	4.414	-0.762	699.969	0.725	4.414	4.480
800.000	0.689	292.647	4.843	-1.841	799.963	0.054	4.843	5.181
900.000	1.189	76.714	5.313	-1.386	899.956	1.793	5.313	5.491
1000.000	2.942	74.525	6.236	2.097	999.888	1.755	6.236	6.579
1100.000	5.409	76.541	8.018	9.155	1099.614	2.471	8.018	12.170
1200.000	7.512	80.616	10.181	20.190	1198.974	2.151	10.181	22.612
1300.000	8.594	87.631	11.556	34.105	1297.989	1.459	11.556	36.010
1400.000	10.667	92.072	11.530	50.821	1396.576	2.201	11.530	52.112
1500.000	13.161	90.907	11.015	71.456	1494.414	2.505	11.015	72.300
1600.000	14.733	88.404	11.189	95.551	1591.464	1.683	11.189	96.204
1700.000	16.154	87.253	12.210	122.157	1687.851	1.454	12.210	122.766
1800.000	18.033	84.582	14.338	151.464	1783.431	2.036	14.338	152.141
1900.000	18.050	84.562	17.268	182.296	1878.515	0.019	17.268	183.112
2000.000	18.203	85.269	20.024	213.285	1973.552	0.267	20.024	214.223
2100.000	18.139	85.450	22.547	244.368	2068.565	0.085	22.547	245.406
2200.000	18.064	87.551	24.445	275.376	2163.617	0.657	24.445	276.458
2300.000	18.687	90.600	24.939	306.886	2258.519	1.145	24.939	307.897
2400.000	18.038	86.419	25.738	338.359	2353.431	1.468	25.738	339.336
2500.000	17.958	88.503	27.108	369.222	2448.539	0.649	27.108	370.216
2600.000	17.844	88.005	28.045	399.944	2543.698	0.190	28.045	400.926
2700.000	17.524	87.310	29.284	430.294	2638.973	0.383	29.284	431.290
2800.000	19.309	87.558	30.696	461.854	2733.848	1.787	30.696	462.872
2900.000	19.722	84.361	33.058	495.164	2828.105	1.145	33.058	496.266
3000.000	19.697	87.331	35.501	528.790	2922.249	1.002	35.501	529.981
3100.000	19.706	86.235	37.393	562.448	3016.395	0.369	37.393	563.690
3200.000	18.141	86.360	39.488	594.810	3110.987	1.566	39.488	596.120
3300.000	18.309	86.831	41.345	626.030	3205.971	0.224	41.345	627.394
3400.000	17.063	87.041	42.970	656.366	3301.243	1.248	42.970	657.771

3500.000	16.726	86.011	44.729	685.372	3396.927	0.450	44.729	686.830
3600.000	17.222	83.705	47.353	714.442	3492.571	0.836	47.353	716.010
3700.000	17.106	80.685	51.357	743.671	3588.120	0.899	51.357	745.442
3800.000	17.537	81.525	55.958	773.085	3683.585	0.499	55.958	775.108
3900.000	18.093	83.070	60.052	803.402	3778.790	0.729	60.052	805.643
4000.000	19.351	85.376	63.261	835.332	3873.498	1.460	63.261	837.724
4100.000	19.577	86.580	65.596	868.570	3967.783	0.461	65.596	871.043
4200.000	17.981	88.804	66.918	900.728	4062.458	1.750	66.918	903.210
4300.000	16.773	87.043	67.984	930.570	4157.893	1.317	67.984	933.050
4400.000	17.306	89.834	68.772	959.854	4253.505	0.976	68.772	962.314
4500.000	16.715	89.810	68.862	989.108	4349.130	0.591	68.862	991.502
4600.000	17.474	87.368	69.600	1018.487	4444.713	1.044	69.600	1020.862
4700.000	17.718	90.227	70.229	1048.701	4540.036	0.898	70.229	1051.050
4800.000	16.136	89.361	70.324	1077.814	4635.701	1.602	70.324	1080.105
4900.000	14.961	88.279	70.866	1104.612	4732.040	1.210	70.866	1106.883
5000.000	13.574	90.724	71.106	1129.250	4828.954	1.512	71.106	1131.486
5100.000	11.991	93.281	70.363	1151.356	4926.473	1.681	70.363	1153.505
5200.000	10.137	93.563	69.221	1170.512	5024.610	1.855	69.221	1172.557
5300.000	8.659	93.273	68.245	1186.812	5123.265	1.479	68.245	1188.773
5400.000	7.420	94.192	67.343	1200.769	5222.280	1.246	67.343	1202.655
5500.000	5.392	96.023	66.378	1211.882	5321.651	2.039	66.378	1213.699
5600.000	3.577	98.049	65.448	1219.644	5421.341	1.822	65.448	1221.399
5700.000	2.172	105.525	64.504	1224.558	5521.213	1.451	64.504	1226.256
5800.000	1.548	109.349	63.549	1227.659	5621.159	0.635	63.549	1229.302
5900.000	0.216	68.004	63.172	1229.108	5721.146	1.393	63.172	1230.731
6000.000	0.213	334.836	63.411	1229.204	5821.145	0.312	63.411	1230.838
6100.000	0.084	340.771	63.649	1229.101	5921.145	0.130	63.649	1230.748
6200.000	0.081	13.684	63.786	1229.093	6021.145	0.047	63.786	1230.747
6300.000	0.198	73.385	63.905	1229.276	6121.145	0.172	63.905	1230.936
6400.000	0.227	104.616	63.904	1229.633	6221.144	0.118	63.904	1231.293
6500.000	0.072	49.870	63.894	1229.873	6321.144	0.195	63.894	1231.531
6600.000	0.164	132.783	63.837	1230.026	6421.143	0.171	63.837	1231.681
6700.000	0.188	114.712	63.671	1230.280	6521.143	0.060	63.671	1231.926
6800.000	0.386	185.501	63.268	1230.396	6621.142	0.369	63.268	1232.022
6900.000	0.454	199.952	62.561	1230.229	6721.139	0.126	62.561	1231.818
7000.000	0.783	199.025	61.542	1229.871	6821.133	0.329	61.542	1231.409
7100.000	1.350	200.710	59.795	1229.231	6921.116	0.568	59.795	1230.685
7175.000	1.124	202.443	58.288	1228.638	6996.098	0.305	58.288	1230.020

0

degrees East of True North

Cbrg

0.000

350.848

351.006

352.922

355.169

355.132

355.687

350.207

339.188

345.374

18.585

48.789

63.240

71.282

77.217

81.237

83.321

84.292

84.592

84.589

84.637

84.728

84.927

85.354

85.650

85.801

85.989

86.107

86.198

86.180

86.159

86.196

86.202

86.222

86.254

86.266
86.208
86.049
85.860
85.725
85.669
85.681
85.751
85.822
85.902
86.017
86.091
86.169
86.267
86.329
86.397
86.503
86.616
86.709
86.790
86.865
86.928
86.985
87.037
87.058
87.047
87.036
87.029
87.024
87.025
87.026
87.029
87.037
87.056
87.089
87.135
87.215
87.284