



Company: Noble Energy
Rig: Production/VES
API # 05-123-35584
Date: 4/6/2013
Surveyor: Rob Lampert
VS: 0.000
Lat : 40.21518
Long: -104.597

Well: Dechant D19-32D
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is 0.58 Degrees East of
Declination: 8.51
Depth Reference: Ground Level
Elevation: 4789
Total Depth as Drilled: 8260

Lat & Long obtained by handheld GPS at wellhead

HA Gyro Survey Calculations

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
0.000	0.000	0.000	0.000	0.000	0.000	****	0.000	0.000	0.000
100.000	0.264	33.125	0.193	0.126	100.000	0.264	0.193	0.231	33.125
200.000	0.316	116.923	0.261	0.498	199.999	0.389	0.261	0.562	62.299
300.000	0.498	136.309	-0.178	1.044	299.996	0.226	-0.178	1.059	99.651
400.000	0.847	219.676	-1.060	0.872	399.991	0.931	-1.060	1.373	140.558
500.000	1.802	227.738	-2.686	-0.763	499.963	0.971	-2.686	2.793	195.861
600.000	3.970	230.856	-5.930	-4.613	599.831	2.173	-5.930	7.513	217.878
700.000	5.747	230.636	-11.291	-11.169	699.467	1.777	-11.291	15.882	224.688
800.000	8.411	235.513	-18.609	-21.070	798.697	2.729	-18.609	28.112	228.549
900.000	10.429	234.665	-27.986	-34.484	897.343	2.023	-27.986	44.411	230.938
1000.000	12.514	233.723	-39.633	-50.603	995.340	2.093	-39.633	64.276	231.932
1100.000	14.644	230.350	-54.111	-69.073	1092.541	2.271	-54.111	87.744	231.925
1200.000	16.302	231.755	-70.867	-89.830	1188.913	1.700	-70.867	114.418	231.730
1300.000	18.864	230.962	-89.740	-113.413	1284.233	2.573	-89.740	144.623	231.647
1400.000	20.968	230.912	-111.206	-139.860	1378.248	2.104	-111.206	178.683	231.511
1500.000	23.103	231.841	-134.611	-169.178	1470.938	2.163	-134.611	216.197	231.491
1600.000	24.919	228.400	-160.723	-200.362	1562.285	2.292	-160.723	256.860	231.265
1700.000	25.579	228.022	-189.149	-232.165	1652.731	0.680	-189.149	299.463	230.830
1800.000	28.119	229.087	-219.026	-266.027	1741.944	2.584	-219.026	344.591	230.535
1900.000	29.047	229.386	-250.263	-302.264	1829.756	0.940	-250.263	392.422	230.377
2000.000	29.251	230.969	-281.452	-339.672	1917.093	0.798	-281.452	441.127	230.355
2100.000	29.126	228.174	-313.068	-376.788	2004.399	1.369	-313.068	489.879	230.277
2200.000	28.114	227.889	-345.098	-412.403	2092.180	1.021	-345.098	537.744	230.077
2300.000	28.879	228.375	-376.938	-447.933	2180.064	0.799	-376.938	585.429	229.919
2400.000	28.739	229.348	-408.641	-484.223	2267.687	0.489	-408.641	633.608	229.839
2500.000	28.097	229.232	-439.680	-520.298	2355.637	0.645	-439.680	681.196	229.800
2600.000	28.336	230.263	-470.228	-556.382	2443.754	0.543	-470.228	728.474	229.797
2700.000	28.466	228.420	-501.216	-592.459	2531.720	0.886	-501.216	776.031	229.769
2800.000	29.136	230.030	-532.672	-628.943	2619.351	1.025	-532.672	824.202	229.738
2900.000	30.003	229.653	-564.498	-666.656	2706.326	0.887	-564.498	873.549	229.743
3000.000	30.234	228.556	-597.349	-704.584	2792.825	0.597	-597.349	923.723	229.709
3100.000	30.198	228.416	-630.706	-742.268	2879.239	0.079	-630.706	974.039	229.645
3200.000	30.517	229.582	-663.859	-780.410	2965.528	0.670	-663.859	1024.573	229.614
3300.000	29.120	229.470	-696.135	-818.236	3052.287	1.398	-696.135	1074.297	229.610
3400.000	29.445	231.541	-727.235	-855.979	3139.511	1.063	-727.235	1123.196	229.649

3500.000	29.032	230.182	-758.060	-893.863	3226.771	0.782	-758.060	1172.027	229.700
3600.000	28.201	230.046	-788.772	-930.614	3314.555	0.833	-788.772	1219.920	229.716
3700.000	29.310	229.527	-819.834	-967.348	3402.221	1.137	-819.834	1268.026	229.718
3800.000	29.953	230.334	-851.657	-1005.190	3489.144	0.756	-851.657	1317.466	229.727
3900.000	29.352	230.261	-883.260	-1043.250	3576.048	0.602	-883.260	1366.937	229.747
4000.000	28.428	228.301	-914.764	-1079.870	3663.604	1.323	-914.764	1415.242	229.732
4100.000	28.489	229.785	-945.997	-1115.850	3751.521	0.710	-945.997	1462.887	229.709
4200.000	29.743	227.322	-978.213	-1152.310	3838.886	1.735	-978.213	1511.525	229.671
4300.000	30.583	224.055	-1013.310	-1188.230	3925.351	1.843	-1013.310	1561.635	229.543
4400.000	31.008	224.135	-1050.080	-1223.860	4011.251	0.427	-1050.080	1612.608	229.370
4500.000	29.654	222.767	-1086.730	-1258.600	4097.563	1.520	-1086.730	1662.844	229.191
4600.000	29.939	220.274	-1123.930	-1291.530	4184.346	1.271	-1123.930	1712.093	228.969
4700.000	30.743	217.744	-1163.190	-1323.300	4270.652	1.510	-1163.190	1761.856	228.685
4800.000	31.814	210.055	-1206.230	-1352.160	4356.151	4.130	-1206.230	1811.998	228.265
4900.000	31.811	209.788	-1251.920	-1378.460	4441.128	0.141	-1251.920	1862.107	227.754
5000.000	30.216	209.117	-1296.780	-1403.800	4526.830	1.633	-1296.780	1911.094	227.269
5100.000	27.384	208.477	-1338.980	-1427.010	4614.453	2.849	-1338.980	1956.844	226.823
5200.000	24.337	207.275	-1377.520	-1447.420	4704.428	3.091	-1377.520	1998.151	226.417
5300.000	23.347	207.153	-1413.470	-1465.910	4795.893	0.991	-1413.470	2036.367	226.043
5400.000	20.162	205.432	-1446.670	-1482.360	4888.760	3.248	-1446.670	2071.292	225.698
5500.000	19.382	208.788	-1476.780	-1497.750	4982.867	1.377	-1476.780	2103.365	225.404
5600.000	19.104	208.218	-1505.740	-1513.480	5077.280	0.336	-1505.740	2134.920	225.147
5700.000	16.650	207.945	-1532.820	-1527.930	5172.445	2.455	-1532.820	2164.284	224.908
5800.000	14.932	206.904	-1556.970	-1540.480	5268.667	1.741	-1556.970	2190.257	224.695
5900.000	13.744	203.265	-1579.370	-1551.000	5365.553	1.491	-1579.370	2213.599	224.481
6000.000	12.827	204.201	-1600.410	-1560.240	5462.875	0.942	-1600.410	2235.101	224.272
6100.000	12.396	204.681	-1620.290	-1569.280	5560.462	0.444	-1620.290	2255.652	224.084
6200.000	10.290	205.770	-1638.090	-1577.640	5658.504	2.117	-1638.090	2274.266	223.923
6300.000	8.650	201.901	-1653.110	-1584.330	5757.139	1.758	-1653.110	2289.731	223.783
6400.000	6.018	202.687	-1664.920	-1589.160	5856.312	2.634	-1664.920	2301.607	223.666
6500.000	4.810	200.380	-1673.690	-1592.640	5955.864	1.226	-1673.690	2310.355	223.579
6600.000	3.705	210.601	-1680.400	-1595.740	6055.588	1.337	-1680.400	2317.359	223.520
6700.000	2.694	212.640	-1685.160	-1598.660	6155.431	1.017	-1685.160	2322.817	223.491
6800.000	0.619	206.052	-1687.630	-1600.160	6255.384	2.080	-1687.630	2325.641	223.476
6900.000	0.335	195.757	-1688.390	-1600.480	6355.380	0.296	-1688.390	2326.415	223.469
7000.000	0.159	68.309	-1688.620	-1600.430	6455.380	0.449	-1688.620	2326.547	223.464
7100.000	0.570	49.521	-1688.250	-1599.920	6555.377	0.423	-1688.250	2325.927	223.461
7200.000	0.766	55.839	-1687.550	-1598.990	6655.371	0.209	-1687.550	2324.780	223.456
7300.000	0.754	58.389	-1686.830	-1597.880	6755.362	0.036	-1686.830	2323.491	223.449
7400.000	1.397	60.431	-1685.880	-1596.260	6855.344	0.644	-1685.880	2321.689	223.436
7500.000	1.545	50.353	-1684.420	-1594.160	6955.311	0.298	-1684.420	2319.185	223.423
7600.000	1.893	54.713	-1682.610	-1591.770	7055.266	0.372	-1682.610	2316.226	223.411
7700.000	1.988	58.978	-1680.760	-1588.940	7155.208	0.172	-1680.760	2312.936	223.391
7800.000	2.077	63.249	-1679.050	-1585.830	7255.146	0.176	-1679.050	2309.561	223.365
7900.000	0.782	72.582	-1678.030	-1583.560	7355.112	1.312	-1678.030	2307.262	223.341
8000.000	0.302	82.198	-1677.790	-1582.650	7455.108	0.486	-1677.790	2306.462	223.329
8025.000	0.826	65.534	-1677.710	-1582.420	7480.106	2.177	-1677.710	2306.244	223.326

True North