



Company: Noble Energy
Rig: Production/Cable
API # 05-123-19146

Date: 1/19/2012
Surveyor: Robert Davis

VS: 0.000
Lat : 40.216

Long: -104.609

Well: HSR-Sarchet 2-24
Location: Weld County Colorado
North Reference: GRID
Convergence: GRID North is 0.58 Degrees East of

Declination: 8.32 Degrees
Depth Reference: Ground Level

Elevation: 4824'

Total Depth as Drilled: 7229'

Lat & Long obtained by handheld GPS at wellhead

MS 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	0.178	6.848	0.154	0.019	100.000	0.178	0.154	0.155	6.848
200.000	0.207	57.622	0.405	0.189	199.999	0.167	0.405	0.447	25.071
300.000	0.235	54.121	0.622	0.508	299.999	0.031	0.622	0.803	39.253
400.000	0.268	163.659	0.517	0.740	399.998	0.411	0.517	0.903	55.046
500.000	0.478	172.347	-0.121	0.861	499.996	0.217	-0.121	0.870	98.005
600.000	0.820	201.155	-1.202	0.659	599.990	0.462	-1.202	1.371	151.285
700.000	1.362	214.267	-2.852	-0.269	699.971	0.593	-2.852	2.864	185.381
800.000	1.464	210.744	-4.931	-1.591	799.941	0.134	-4.931	5.181	197.877
900.000	1.379	209.138	-7.080	-2.829	899.910	0.094	-7.080	7.624	201.783
1000.000	1.429	206.993	-9.241	-3.981	999.880	0.073	-9.241	10.062	203.304
1100.000	1.500	212.411	-11.457	-5.248	1099.847	0.155	-11.457	12.602	204.611
1200.000	1.462	213.654	-13.623	-6.656	1199.814	0.050	-13.623	15.162	206.039
1300.000	1.376	210.437	-15.720	-7.971	1299.783	0.117	-15.720	17.626	206.888
1400.000	1.348	213.353	-17.737	-9.226	1399.755	0.075	-17.737	19.993	207.481
1500.000	1.236	207.849	-19.673	-10.376	1499.730	0.167	-19.673	22.242	207.808
1600.000	1.126	198.738	-21.557	-11.195	1599.709	0.217	-21.557	24.290	207.445
1700.000	1.086	185.679	-23.429	-11.605	1699.690	0.255	-23.429	26.146	206.349
1800.000	0.930	177.024	-25.183	-11.656	1799.675	0.217	-25.183	27.750	204.838
1900.000	0.456	210.618	-26.336	-11.817	1899.667	0.606	-26.336	28.866	204.165
2000.000	1.062	272.287	-26.642	-12.945	1999.660	0.936	-26.642	29.620	205.915
2100.000	1.652	307.205	-25.733	-15.019	2099.633	0.990	-25.733	29.795	210.269
2200.000	1.901	308.884	-23.821	-17.458	2199.585	0.254	-23.821	29.533	216.237
2300.000	1.770	322.600	-21.552	-19.687	2299.534	0.457	-21.552	29.190	222.410
2400.000	1.464	319.570	-19.352	-21.454	2399.494	0.318	-19.352	28.893	227.948
2500.000	0.937	312.632	-17.826	-22.884	2499.471	0.546	-17.826	29.008	232.082
2600.000	0.649	277.743	-17.196	-24.047	2599.462	0.549	-17.196	29.563	234.430
2700.000	0.254	318.133	-16.955	-24.756	2699.459	0.485	-16.955	30.005	235.593
2800.000	0.436	351.009	-16.414	-24.963	2799.457	0.262	-16.414	29.876	236.673
2900.000	0.675	1.936	-15.450	-25.003	2899.453	0.261	-15.450	29.391	238.287
3000.000	0.660	4.713	-14.287	-24.936	2999.446	0.036	-14.287	28.738	240.189
3100.000	0.724	25.786	-13.145	-24.613	3099.439	0.261	-13.145	27.903	241.896
3200.000	0.820	32.244	-11.971	-23.957	3199.430	0.130	-11.971	26.781	243.450
3300.000	1.158	44.483	-10.644	-22.867	3299.415	0.397	-10.644	25.223	245.039
3400.000	1.716	41.818	-8.807	-21.160	3399.383	0.562	-8.807	22.920	247.402
3500.000	1.815	46.274	-6.596	-19.017	3499.336	0.169	-6.596	20.129	250.870

3600.000	1.170	33.155	-4.647	-17.315	3599.301	0.726	-4.647	17.927	254.976
3700.000	0.896	38.630	-3.182	-16.268	3699.285	0.291	-3.182	16.577	258.933
3800.000	1.430	76.171	-2.273	-14.569	3799.265	0.903	-2.273	14.746	261.132
3900.000	1.464	84.300	-1.848	-12.087	3899.234	0.208	-1.848	12.228	261.306
4000.000	1.785	91.027	-1.749	-9.259	3999.193	0.373	-1.749	9.423	259.301
4100.000	2.605	94.895	-1.971	-5.438	4099.119	0.833	-1.971	5.784	250.074
4200.000	3.052	104.147	-2.816	-0.591	4198.998	0.638	-2.816	2.877	191.862
4300.000	2.499	103.254	-3.966	4.113	4298.880	0.555	-3.966	5.714	133.963
4400.000	2.204	104.728	-4.955	8.095	4398.796	0.301	-4.955	9.491	121.473
4500.000	1.715	107.632	-5.897	11.380	4498.737	0.499	-5.897	12.818	117.393
4600.000	1.396	110.546	-6.778	13.947	4598.700	0.329	-6.778	15.507	115.919
4700.000	1.157	146.053	-8.043	15.651	4698.677	0.811	-8.043	17.597	117.197
4800.000	1.537	143.387	-9.956	17.015	4798.649	0.385	-9.956	19.714	120.335
4900.000	0.933	128.680	-11.542	18.450	4898.625	0.677	-11.542	21.763	122.029
5000.000	0.724	121.252	-12.379	19.627	4998.615	0.234	-12.379	23.205	122.240
5100.000	0.621	91.140	-12.718	20.709	5098.608	0.364	-12.718	24.302	121.555
5200.000	0.441	59.946	-12.536	21.584	5198.604	0.334	-12.536	24.960	120.147
5300.000	0.960	23.153	-11.573	22.247	5298.597	0.661	-11.573	25.077	117.483
5400.000	2.283	80.168	-10.462	24.539	5398.560	1.936	-10.462	26.676	113.091
5500.000	3.610	90.556	-10.153	29.650	5498.426	1.425	-10.153	31.340	108.902
5600.000	4.070	107.048	-11.224	36.191	5598.204	1.191	-11.224	37.892	107.230
5700.000	3.095	119.775	-13.605	41.928	5698.009	1.253	-13.605	44.080	107.977
5800.000	2.224	127.535	-16.127	45.809	5797.901	0.941	-16.127	48.565	109.395
5900.000	1.264	136.230	-18.105	48.110	5897.853	0.993	-18.105	51.404	110.623
6000.000	0.984	136.288	-19.522	49.466	5997.834	0.279	-19.522	53.179	111.537
6100.000	1.705	146.194	-21.379	50.887	6097.806	0.754	-21.379	55.196	112.788
6200.000	1.699	161.952	-24.024	52.174	6197.762	0.466	-24.024	57.439	114.724
6300.000	1.875	163.499	-27.002	53.098	6297.714	0.183	-27.002	59.569	116.954
6400.000	1.280	158.423	-29.609	53.973	6397.675	0.610	-29.609	61.562	118.749
6500.000	0.439	139.990	-30.942	54.631	6497.663	0.875	-30.942	62.784	119.526
6600.000	0.230	78.776	-31.196	55.074	6597.662	0.385	-31.196	63.295	119.529
6700.000	0.567	24.750	-30.707	55.478	6697.660	0.470	-30.707	63.409	118.965
6800.000	0.451	355.642	-29.866	55.655	6797.656	0.279	-29.866	63.162	118.219
6900.000	0.582	6.898	-28.969	55.686	6897.652	0.166	-28.969	62.771	117.485
7000.000	0.584	88.917	-28.455	56.256	6997.648	0.765	-28.455	63.044	116.831

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