

VES

VAUGHN ENERGY SERVICES

Company: Noble Energy**Rig:** Production / VES**API #** 05-123-16823**Date:** 1/14/2014**Surveyor:** DUSTIN SKORUPPA**VS:** 0.000**Lat :** 40.25437**Long:** -104.801**Well:** UPRC 05-06K**Location:** Weld County, Colorado**North Reference:** GRID**Convergence:** Grid north is 0.45 East of True N**Declination:** 8.53**Depth Reference:** Ground Level**Elevation:** 4779**Total Depth as Drilled:** 7711**Lat & Long obtained by handheld GPS at wellhead**

Gyro Survey Calculations

Depth	Inc	AZI	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	0.285	191.431	-0.244	-0.049	100.000	0.285	-0.244	0.249	191.431
200.000	0.372	189.098	-0.809	-0.150	199.998	0.088	-0.809	0.823	190.511
300.000	0.459	186.765	-1.527	-0.249	299.995	0.088	-1.527	1.547	189.246
400.000	0.332	185.091	-2.214	-0.322	399.993	0.127	-2.214	2.237	188.264
500.000	0.205	183.416	-2.681	-0.358	499.992	0.127	-2.681	2.705	187.603
600.000	0.512	213.744	-3.231	-0.617	599.990	0.350	-3.231	3.290	190.803
700.000	0.818	244.072	-3.915	-1.506	699.983	0.456	-3.915	4.195	201.047
800.000	0.595	250.771	-4.398	-2.638	799.976	0.238	-4.398	5.128	210.960
900.000	0.371	257.471	-4.639	-3.444	899.972	0.230	-4.639	5.778	216.594
1000.000	0.308	258.512	-4.763	-4.024	999.970	0.063	-4.763	6.235	220.195
1100.000	0.245	259.554	-4.855	-4.498	1099.969	0.063	-4.855	6.618	222.812
1200.000	0.342	240.007	-5.043	-4.966	1199.968	0.138	-5.043	7.078	224.561
1300.000	0.439	220.460	-5.483	-5.473	1299.965	0.163	-5.483	7.747	224.946
1400.000	0.926	234.294	-6.247	-6.378	1399.958	0.511	-6.247	8.928	225.597
1500.000	1.414	248.129	-7.178	-8.180	1499.937	0.560	-7.178	10.883	228.731
1600.000	1.102	256.974	-7.854	-10.261	1599.913	0.367	-7.854	12.922	232.568
1700.000	1.233	242.684	-8.565	-12.153	1699.892	0.318	-8.565	14.868	234.827
1800.000	0.862	276.522	-8.973	-13.857	1799.876	0.705	-8.973	16.508	237.075
1900.000	0.922	302.930	-8.450	-15.280	1899.865	0.412	-8.450	17.460	241.057
2000.000	0.968	303.200	-7.550	-16.662	1999.851	0.046	-7.550	18.293	245.625
2100.000	1.023	305.289	-6.572	-18.097	2099.836	0.066	-6.572	19.254	250.043
2200.000	1.392	336.873	-4.939	-19.303	2199.815	0.747	-4.939	19.925	255.647
2300.000	1.315	309.337	-3.095	-20.668	2299.788	0.648	-3.095	20.898	261.484
2400.000	1.420	338.856	-1.211	-22.002	2399.761	0.704	-1.211	22.036	266.848
2500.000	0.964	8.215	0.777	-22.329	2499.740	0.748	0.777	22.343	271.994
2600.000	1.196	8.647	2.642	-22.052	2599.722	0.232	2.642	22.210	276.832
2700.000	1.327	9.430	4.816	-21.705	2699.698	0.132	4.816	22.233	282.511
2800.000	1.377	16.220	7.112	-21.180	2799.670	0.168	7.112	22.342	288.562
2900.000	1.344	18.414	9.379	-20.474	2899.642	0.062	9.379	22.520	294.612
3000.000	0.927	41.277	11.100	-19.569	2999.622	0.608	11.100	22.498	299.562
3100.000	0.607	10.163	12.230	-18.942	3099.613	0.514	12.230	22.547	302.848
3200.000	0.991	21.910	13.553	-18.526	3199.604	0.415	13.553	22.954	306.189
3300.000	0.756	306.510	14.748	-18.734	3299.595	1.084	14.748	23.842	308.211
3400.000	0.497	242.799	14.942	-19.650	3399.590	0.697	14.942	24.686	307.251
3500.000	1.017	223.199	14.097	-20.643	3499.581	0.574	14.097	24.997	304.329

3600.000	0.805	233.368	13.031	-21.814	3599.568	0.267	13.031	25.410	300.852
3700.000	0.876	242.099	12.254	-23.053	3699.558	0.146	12.254	26.108	297.994
3800.000	0.938	234.798	11.425	-24.398	3799.545	0.131	11.425	26.940	295.092
3900.000	1.135	231.130	10.331	-25.838	3899.529	0.207	10.331	27.826	291.794
4000.000	1.583	211.983	8.538	-27.340	3999.501	0.632	8.538	28.642	287.344
4100.000	2.022	203.038	5.744	-28.762	4099.451	0.520	5.744	29.330	281.293
4200.000	2.161	195.191	2.301	-29.946	4199.385	0.318	2.301	30.034	274.394
4300.000	1.173	201.535	-0.471	-30.816	4299.341	1.004	-0.471	30.819	269.125
4400.000	0.500	196.721	-1.841	-31.317	4399.330	0.675	-1.841	31.371	266.636
4500.000	1.015	218.723	-2.950	-31.997	4499.321	0.582	-2.950	32.132	264.733
4600.000	0.985	261.000	-3.775	-33.399	4599.307	0.722	-3.775	33.612	263.552
4700.000	1.114	264.619	-4.000	-35.215	4699.291	0.145	-4.000	35.442	263.519
4800.000	1.476	245.227	-4.631	-37.352	4799.265	0.563	-4.631	37.638	262.932
4900.000	1.443	232.520	-5.937	-39.520	4899.233	0.325	-5.937	39.964	261.457
5000.000	1.194	242.083	-7.191	-41.440	4999.207	0.331	-7.191	42.059	260.156
5100.000	0.920	257.948	-7.846	-43.146	5099.190	0.399	-7.846	43.853	259.693
5200.000	0.858	268.698	-8.031	-44.679	5199.178	0.178	-8.031	45.395	259.810
5300.000	0.797	283.656	-7.884	-46.104	5299.168	0.224	-7.884	46.773	260.297
5400.000	1.304	261.389	-7.890	-47.906	5399.151	0.642	-7.890	48.551	260.648
5500.000	1.674	281.483	-7.769	-50.462	5499.118	0.634	-7.769	51.057	261.247
5600.000	2.810	271.386	-7.419	-54.345	5599.040	1.199	-7.419	54.849	262.226
5700.000	3.115	281.374	-6.824	-59.459	5698.907	0.598	-6.824	59.849	263.453
5800.000	4.798	299.815	-4.209	-65.751	5798.669	2.089	-4.209	65.886	266.337
5900.000	11.255	334.035	6.660	-73.664	5897.683	7.765	6.660	73.964	275.166
6000.000	16.341	334.129	28.106	-84.082	5994.766	5.086	28.106	88.655	288.483
6100.000	21.970	336.297	57.916	-97.751	6089.192	5.673	57.916	113.620	300.646
6200.000	26.472	333.552	95.020	-115.208	6180.368	4.640	95.020	149.337	309.515
6300.000	31.726	334.052	138.648	-136.654	6267.716	5.259	138.648	194.673	315.415
6400.000	35.601	331.596	187.914	-162.015	6350.935	4.107	187.914	248.114	319.233
6500.000	36.864	325.780	238.337	-192.740	6431.620	3.661	238.337	306.518	321.038
6600.000	39.059	319.069	286.970	-230.270	6510.492	4.672	286.970	367.935	321.256
6700.000	38.482	316.533	333.357	-272.318	6588.463	1.690	333.357	430.446	320.755
6800.000	38.357	313.686	377.373	-316.163	6666.818	1.774	377.373	492.310	320.044
6900.000	38.845	313.306	420.314	-361.422	6744.969	0.543	420.314	554.337	319.308
7000.000	39.354	317.123	465.066	-405.824	6822.585	2.460	465.066	617.235	318.892
7100.000	39.273	311.096	509.122	-451.266	6899.982	3.818	509.122	680.328	318.447
7200.000	39.567	309.578	550.220	-499.668	6977.235	1.007	550.220	743.242	317.757
7300.000	37.943	301.610	586.651	-550.434	7055.265	5.243	586.651	804.448	316.824
7400.000	37.576	301.049	618.491	-602.739	7134.324	0.503	618.491	863.612	315.739
7500.000	36.746	300.711	649.495	-654.580	7214.017	0.855	649.495	922.127	314.777

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