



Company: Noble Energy
Rig: Production/ V.E.S
API # 05-123-25291
Date: 12/29/2013
Surveyor: Jay Hinman
VS: 0.000
Lat : 40.49075
Long: -104.50199

Well: McKenney 13-25
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is 0.64 Deg
Declination: 8.38
Depth Reference: Ground Level
Elevation: 4664'
Total Depth as Drilled: 7055'

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	0.597	213.032	-0.437	-0.284	99.998	0.597	-0.437	0.521
200.000	0.700	227.144	-1.289	-1.015	199.992	0.189	-1.289	1.640
300.000	0.454	252.938	-1.820	-1.842	299.987	0.352	-1.820	2.589
400.000	0.441	237.760	-2.142	-2.546	399.984	0.119	-2.142	3.327
500.000	0.575	239.309	-2.603	-3.304	499.980	0.134	-2.603	4.206
600.000	0.730	246.909	-3.109	-4.321	599.973	0.177	-3.109	5.323
700.000	0.834	250.823	-3.598	-5.594	699.964	0.117	-3.598	6.651
800.000	0.515	257.600	-3.934	-6.721	799.957	0.329	-3.934	7.787
900.000	0.794	291.934	-3.771	-7.802	899.951	0.470	-3.771	8.666
1000.000	0.681	272.690	-3.485	-9.039	999.943	0.271	-3.485	9.688
1100.000	1.124	272.964	-3.406	-10.613	1099.930	0.442	-3.406	11.146
1200.000	0.932	280.150	-3.212	-12.392	1199.914	0.231	-3.212	12.802
1300.000	0.740	263.982	-3.136	-13.835	1299.903	0.302	-3.136	14.186
1400.000	0.977	283.993	-2.998	-15.305	1399.892	0.378	-2.998	15.596
1500.000	0.901	300.308	-2.395	-16.811	1499.879	0.277	-2.395	16.981
1600.000	0.855	297.336	-1.656	-18.153	1599.867	0.065	-1.656	18.228
1700.000	0.478	258.624	-1.395	-19.225	1699.861	0.567	-1.395	19.276
1800.000	0.552	226.646	-1.808	-19.984	1799.857	0.292	-1.808	20.066
1900.000	0.517	279.554	-2.064	-20.779	1899.853	0.477	-2.064	20.881
2000.000	0.454	253.518	-2.101	-21.604	1999.850	0.227	-2.101	21.706
2100.000	0.610	252.995	-2.370	-22.494	2099.845	0.156	-2.370	22.618
2200.000	0.947	258.341	-2.692	-23.812	2199.836	0.344	-2.692	23.964
2300.000	0.982	257.827	-3.040	-25.459	2299.822	0.036	-3.040	25.640
2400.000	0.966	263.332	-3.319	-27.134	2399.807	0.095	-3.319	27.336
2500.000	0.878	237.927	-3.823	-28.620	2499.795	0.414	-3.823	28.874
2600.000	0.722	264.653	-4.289	-29.896	2599.785	0.400	-4.289	30.202
2700.000	0.590	231.719	-4.666	-30.927	2699.779	0.393	-4.666	31.278
2800.000	0.410	236.587	-5.183	-31.630	2799.775	0.186	-5.183	32.052
2900.000	0.241	282.737	-5.333	-32.134	2899.774	0.299	-5.333	32.573
3000.000	0.321	257.354	-5.348	-32.612	2999.773	0.146	-5.348	33.048
3100.000	0.286	224.883	-5.586	-33.062	3099.771	0.173	-5.586	33.531
3200.000	0.072	120.892	-5.796	-33.184	3199.771	0.312	-5.796	33.686
3300.000	0.322	209.713	-6.072	-33.269	3299.770	0.329	-6.072	33.819
3400.000	0.486	188.297	-6.736	-33.470	3399.768	0.220	-6.736	34.141
3500.000	0.747	196.989	-7.780	-33.721	3499.762	0.276	-7.780	34.607

3600.000	0.594	220.183	-8.799	-34.246	3599.755	0.308	-8.799	35.359
3700.000	0.572	184.505	-9.693	-34.620	3699.750	0.358	-9.693	35.951
3800.000	0.988	166.488	-11.029	-34.458	3799.741	0.478	-11.029	36.180
3900.000	1.455	171.081	-13.121	-34.060	3899.718	0.477	-13.121	36.500
4000.000	1.297	179.758	-15.507	-33.858	3999.689	0.261	-15.507	37.240
4100.000	1.043	189.149	-17.538	-33.998	4099.669	0.317	-17.538	38.255
4200.000	1.077	209.206	-19.256	-34.601	4199.652	0.371	-19.256	39.599
4300.000	0.762	150.674	-20.656	-34.734	4299.641	0.940	-20.656	40.412
4400.000	0.748	129.060	-21.646	-33.902	4399.632	0.283	-21.646	40.223
4500.000	0.498	173.243	-22.489	-33.344	4499.627	0.522	-22.489	40.219
4600.000	0.432	203.937	-23.264	-33.446	4599.624	0.254	-23.264	40.741
4700.000	0.270	195.492	-23.836	-33.662	4699.622	0.169	-23.836	41.247
4800.000	0.436	249.365	-24.198	-34.081	4799.620	0.353	-24.198	41.798
4900.000	0.600	243.382	-24.567	-34.906	4899.616	0.172	-24.567	42.684
5000.000	0.448	234.626	-25.028	-35.693	4999.612	0.171	-25.028	43.594
5100.000	0.535	242.395	-25.471	-36.426	5099.608	0.109	-25.471	44.448
5200.000	0.629	235.971	-25.994	-37.295	5199.603	0.114	-25.994	45.460
5300.000	0.823	255.776	-26.478	-38.446	5299.595	0.314	-26.478	46.682
5400.000	0.423	229.192	-26.896	-39.421	5399.589	0.483	-26.896	47.722
5500.000	0.644	242.739	-27.394	-40.200	5499.585	0.253	-27.394	48.646
5600.000	0.256	268.729	-27.656	-40.922	5599.582	0.429	-27.656	49.391
5700.000	0.203	257.745	-27.699	-41.319	5699.581	0.068	-27.699	49.744
5800.000	0.279	198.094	-27.968	-41.568	5799.580	0.249	-27.968	50.101
5900.000	0.127	260.319	-28.219	-41.752	5899.579	0.247	-28.219	50.394
6000.000	0.140	106.522	-28.272	-41.744	5999.579	0.260	-28.272	50.417
6100.000	0.318	69.767	-28.211	-41.367	6099.579	0.222	-28.211	50.070
6200.000	0.220	13.414	-27.928	-41.062	6199.578	0.268	-27.928	49.659
6300.000	0.232	124.636	-27.857	-40.850	6299.577	0.373	-27.857	49.445
6400.000	0.245	12.727	-27.764	-40.636	6399.577	0.396	-27.764	49.215
6500.000	0.152	33.951	-27.445	-40.515	6499.576	0.117	-27.445	48.936
6600.000	0.337	238.636	-27.489	-40.693	6599.576	0.479	-27.489	49.107
6700.000	0.209	222.341	-27.777	-41.067	6699.574	0.149	-27.777	49.579

0

rees East of True North

Cbrg

0.000
213.032
218.238
225.339
229.931
231.760
234.261
237.251
239.659
244.203
248.919
252.207
255.469
257.227
258.917
261.891
264.789
265.850
264.831
264.328
264.445
263.986
263.549
263.191
263.027
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259.656
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255.590
254.359
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237.442
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235.178
234.697
234.625
234.862
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