



Company: Noble Energy
Rig: Production/ V.E.S
API # 05-123-13324
Date: 4/30/2013
Surveyor: Jay Hinman
VS:
Lat : 40.423424
Long: -104.529371

Well: Schoenleber 16-3
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid North is -0.63 of 1
Declination: 8.49
Depth Reference: 11'
Elevation: 4606'
Total Depth as Drilled: 6965'

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	0.527	145.096	-0.377	0.263	99.999	0.527	-0.377	0.460
200.000	0.836	184.105	-1.482	0.474	199.992	0.540	-1.482	1.556
300.000	0.742	176.031	-2.856	0.467	299.982	0.145	-2.856	2.894
400.000	0.524	180.118	-3.959	0.511	399.976	0.223	-3.959	3.992
500.000	0.760	212.962	-4.973	0.149	499.970	0.428	-4.973	4.975
600.000	0.720	180.329	-6.158	-0.215	599.962	0.418	-6.158	6.162
700.000	0.542	228.921	-7.097	-0.575	699.957	0.544	-7.097	7.120
800.000	0.618	204.490	-7.898	-1.155	799.952	0.256	-7.898	7.982
900.000	0.745	178.115	-9.039	-1.357	899.945	0.335	-9.039	9.140
1000.000	0.500	202.853	-10.091	-1.505	999.939	0.358	-10.091	10.203
1100.000	0.644	166.233	-11.040	-1.541	1099.935	0.384	-11.040	11.147
1200.000	0.346	222.344	-11.808	-1.611	1199.931	0.535	-11.808	11.918
1300.000	0.648	196.746	-12.573	-1.977	1299.927	0.368	-12.573	12.727
1400.000	0.173	191.074	-13.263	-2.169	1399.925	0.476	-13.263	13.439
1500.000	0.573	153.265	-13.858	-1.973	1499.922	0.449	-13.858	13.997
1600.000	0.650	133.863	-14.697	-1.340	1599.917	0.219	-14.697	14.758
1700.000	1.157	117.322	-15.553	-0.034	1699.904	0.565	-15.553	15.553
1800.000	1.410	130.908	-16.822	1.793	1799.879	0.394	-16.822	16.917
1900.000	1.218	119.298	-18.148	3.649	1899.853	0.327	-18.148	18.511
2000.000	1.468	129.444	-19.481	5.565	1999.826	0.344	-19.481	20.260
2100.000	1.319	137.981	-21.150	7.324	2099.796	0.255	-21.150	22.383
2200.000	1.457	135.669	-22.915	8.983	2199.767	0.148	-22.915	24.613
2300.000	1.693	132.585	-24.823	10.959	2299.729	0.251	-24.823	27.135
2400.000	1.613	131.489	-26.755	13.100	2399.687	0.085	-26.755	29.790
2500.000	1.127	151.520	-28.552	14.624	2499.659	0.676	-28.552	32.079
2600.000	0.869	151.866	-30.085	15.450	2599.644	0.258	-30.085	33.820
2700.000	1.190	141.862	-31.570	16.449	2699.628	0.367	-31.570	35.598
2800.000	0.844	171.788	-33.116	17.196	2799.612	0.623	-33.116	37.314
2900.000	1.026	156.400	-34.665	17.659	2899.599	0.309	-34.665	38.904
3000.000	1.107	170.172	-36.437	18.182	2999.582	0.268	-36.437	40.721
3100.000	1.138	170.385	-38.367	18.513	3099.563	0.031	-38.367	42.600
3200.000	1.419	168.745	-40.560	18.921	3199.538	0.284	-40.560	44.756
3300.000	1.400	179.828	-42.996	19.166	3299.508	0.273	-42.996	47.075
3400.000	1.048	165.123	-45.101	19.404	3399.485	0.469	-45.101	49.098
3500.000	0.963	185.125	-46.822	19.564	3499.470	0.359	-46.822	50.745

3600.000	0.889	163.257	-48.402	19.712	3599.457	0.359	-48.402	52.262
3700.000	0.720	163.576	-49.747	20.113	3699.447	0.169	-49.747	53.659
3800.000	0.758	191.853	-50.997	20.155	3799.439	0.363	-50.997	54.835
3900.000	0.855	160.055	-52.345	20.274	3899.430	0.451	-52.345	56.134
4000.000	0.908	177.663	-53.837	20.560	3999.418	0.275	-53.837	57.630
4100.000	0.909	184.667	-55.419	20.528	4099.406	0.111	-55.419	59.099
4200.000	0.783	166.111	-56.872	20.627	4199.395	0.300	-56.872	60.498
4300.000	0.711	177.888	-58.155	20.814	4299.387	0.169	-58.155	61.768
4400.000	0.374	193.197	-59.092	20.763	4399.382	0.364	-59.092	62.633
4500.000	0.142	151.848	-59.518	20.746	4499.381	0.283	-59.518	63.031
4600.000	0.520	15.120	-59.189	20.923	4599.380	0.631	-59.189	62.778
4700.000	0.193	109.877	-58.808	21.200	4699.378	0.570	-58.808	62.512
4800.000	0.328	100.425	-58.917	21.640	4799.377	0.141	-58.917	62.765
4900.000	0.404	112.229	-59.102	22.249	4899.375	0.107	-59.102	63.151
5000.000	0.127	109.506	-59.273	22.680	4999.374	0.278	-59.273	63.464
5100.000	0.285	16.944	-59.071	22.857	5099.374	0.318	-59.071	63.339
5200.000	0.566	30.939	-58.409	23.184	5199.371	0.297	-58.409	62.842
5300.000	0.432	17.846	-57.627	23.553	5299.367	0.175	-57.627	62.255
5400.000	0.247	122.169	-57.383	23.851	5399.366	0.548	-57.383	62.143
5500.000	0.476	100.311	-57.572	24.442	5499.364	0.264	-57.572	62.546
5600.000	0.506	106.960	-57.775	25.274	5599.360	0.064	-57.775	63.061
5700.000	1.076	108.233	-58.198	26.588	5699.350	0.570	-58.198	63.984
5800.000	1.171	139.200	-59.265	28.147	5799.332	0.607	-59.265	65.610
5900.000	1.167	124.541	-60.616	29.654	5899.311	0.298	-60.616	67.481
6000.000	1.771	121.055	-61.991	31.816	5999.278	0.610	-61.991	69.679
6100.000	1.678	134.993	-63.823	34.175	6099.233	0.429	-63.823	72.397
6200.000	1.982	147.540	-66.317	36.139	6199.182	0.502	-66.317	75.525
6300.000	2.239	146.116	-69.399	38.157	6299.115	0.262	-69.399	79.196
6400.000	2.342	132.420	-72.399	40.754	6399.035	0.556	-72.399	83.081
6500.000	2.453	133.092	-75.239	43.826	6498.948	0.114	-75.239	87.073
6600.000	2.742	139.280	-78.514	46.949	6598.845	0.402	-78.514	91.480
6650.000	3.036	132.401	-80.313	48.706	6648.782	0.908	-80.313	93.928

0

True North

Cbrg

0.000
145.096
162.250
170.711
172.646
178.281
182.001
184.634
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188.540
188.485
187.949
187.769
188.937
189.289
188.104
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