



Company: Noble Energy
Rig: Production / CoreTech
API # 05-123-25057
Date: 2/13/2014
Surveyor: CJ Hines
VS: 0.000
Lat : 40.229
Long: -104.466

Well: Gutteresen USX DD #17-19
Location: Weld County, Colorado
North Reference: GRID
Convergence: Grid north is 0.67 East of True Noi
Declination: 8.32
Depth Reference: Ground Level
Elevation: 4836
Total Depth as Drilled: 7678

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	0.000
100.000	0.231	183.520	-0.201	-0.012	100.000	0.231	-0.201	0.202	183.520
200.000	0.207	246.271	-0.475	-0.190	199.999	0.229	-0.475	0.512	201.841
300.000	0.214	257.691	-0.588	-0.538	299.998	0.042	-0.588	0.797	222.483
400.000	0.066	269.619	-0.628	-0.778	399.998	0.149	-0.628	1.000	231.109
500.000	0.095	189.223	-0.710	-0.850	499.998	0.107	-0.710	1.107	230.105
600.000	0.640	291.885	-0.584	-1.381	599.996	0.667	-0.584	1.500	247.074
700.000	1.441	304.586	0.338	-2.935	699.979	0.829	0.338	2.954	276.570
800.000	1.734	300.259	1.814	-5.277	799.940	0.316	1.814	5.580	288.974
900.000	1.596	289.684	3.046	-7.896	899.898	0.336	3.046	8.463	291.096
1000.000	1.480	294.451	4.050	-10.382	999.862	0.173	4.050	11.144	291.308
1100.000	1.392	293.790	5.074	-12.669	1099.831	0.090	5.074	13.647	291.826
1200.000	1.567	305.012	6.348	-14.900	1199.798	0.338	6.348	16.196	293.077
1300.000	1.692	301.495	7.904	-17.279	1299.757	0.160	7.904	19.001	294.581
1400.000	1.434	317.055	9.591	-19.390	1399.721	0.494	9.591	21.632	296.318
1500.000	1.308	305.397	11.167	-21.172	1499.692	0.305	11.167	23.937	297.810
1600.000	1.768	329.452	13.156	-22.886	1599.657	0.783	13.156	26.398	299.893
1700.000	1.594	310.649	15.390	-24.725	1699.615	0.575	15.390	29.124	301.901
1800.000	1.427	294.970	16.822	-26.908	1799.580	0.444	16.822	31.734	302.012
1900.000	1.535	322.834	18.415	-28.846	1899.548	0.721	18.415	34.223	302.554
2000.000	1.510	313.396	20.388	-30.613	1999.513	0.252	20.388	36.781	303.663
2100.000	1.490	295.266	21.848	-32.747	2099.479	0.473	21.848	39.366	303.711
2200.000	1.579	300.565	23.104	-35.109	2199.443	0.168	23.104	42.029	303.348
2300.000	1.527	301.946	24.510	-37.426	2299.407	0.064	24.510	44.738	303.220
2400.000	1.521	302.114	25.921	-39.681	2399.371	0.008	25.921	47.397	303.153
2500.000	1.282	279.602	26.813	-41.909	2499.342	0.595	26.813	49.752	302.611
2600.000	1.369	288.631	27.381	-44.144	2599.315	0.226	27.381	51.946	301.810
2700.000	1.394	278.303	27.938	-46.479	2699.286	0.250	27.938	54.229	301.010
2800.000	1.305	277.456	28.262	-48.811	2799.259	0.091	28.262	56.403	300.071
2900.000	1.309	276.833	28.545	-51.075	2899.233	0.015	28.545	58.511	299.200
3000.000	1.190	268.875	28.661	-53.248	2999.209	0.210	28.661	60.471	298.291
3100.000	1.099	273.853	28.705	-55.244	3099.189	0.135	28.705	62.256	297.457
3200.000	1.168	282.807	28.995	-57.195	3199.169	0.190	28.995	64.125	296.883
3300.000	1.009	305.492	29.733	-58.906	3299.152	0.456	29.733	65.984	296.782
3400.000	0.762	308.277	30.656	-60.145	3399.140	0.250	30.656	67.507	297.008
3500.000	0.886	320.297	31.663	-61.161	3499.130	0.212	31.663	68.871	297.370

3600.000	0.970	309.966	32.801	-62.304	3599.116	0.187	32.801	70.411	297.765
3700.000	0.997	281.186	33.514	-63.806	3699.102	0.489	33.514	72.072	297.710
3800.000	1.090	267.428	33.640	-65.609	3799.086	0.266	33.640	73.731	297.146
3900.000	1.659	276.129	33.752	-67.998	3899.057	0.604	33.752	75.914	296.398
4000.000	1.672	265.707	33.797	-70.891	3999.015	0.303	33.797	78.535	295.489
4100.000	1.977	271.880	33.744	-74.070	4098.964	0.363	33.744	81.394	294.493
4200.000	2.271	251.156	33.161	-77.669	4198.897	0.817	33.161	84.452	293.120
4300.000	2.420	260.863	32.186	-81.628	4298.813	0.424	32.186	87.744	291.519
4400.000	2.510	258.482	31.413	-85.858	4398.721	0.136	31.413	91.424	290.096
4500.000	2.384	252.267	30.343	-89.984	4498.630	0.293	30.343	94.963	288.634
4600.000	2.578	269.533	29.691	-94.215	4598.538	0.769	29.691	98.783	287.492
4700.000	2.417	262.597	29.401	-98.555	4698.443	0.342	29.401	102.847	286.611
4800.000	2.109	259.494	28.794	-102.454	4798.365	0.331	28.794	106.424	285.697
4900.000	1.685	249.450	27.942	-105.640	4898.310	0.538	27.942	109.273	284.816
5000.000	1.469	249.050	26.968	-108.213	4998.272	0.216	26.968	111.523	283.994
5100.000	1.421	243.077	25.948	-110.515	5098.240	0.158	25.948	113.521	283.213
5200.000	1.081	244.270	24.978	-112.471	5198.216	0.340	24.978	115.211	282.521
5300.000	1.096	235.102	24.021	-114.105	5298.198	0.175	24.021	116.606	281.888
5400.000	0.805	241.709	23.140	-115.509	5398.184	0.311	23.140	117.804	281.328
5500.000	0.957	203.869	22.044	-116.466	5498.173	0.589	22.044	118.533	280.718
5600.000	0.769	216.874	20.743	-117.206	5598.162	0.270	20.743	119.028	280.036
5700.000	0.765	228.884	19.767	-118.112	5698.153	0.161	19.767	119.755	279.501
5800.000	0.170	119.075	19.256	-118.485	5798.150	0.838	19.256	120.040	279.231
5900.000	0.318	143.611	18.960	-118.191	5898.149	0.178	18.960	119.702	279.114
6000.000	0.182	4.528	18.895	-118.014	5998.149	0.471	18.895	119.517	279.096
6100.000	0.100	67.082	19.088	-117.921	6098.149	0.163	19.088	119.456	279.195
6200.000	0.269	65.447	19.219	-117.627	6198.148	0.169	19.219	119.187	279.280
6300.000	0.486	61.572	19.519	-117.040	6298.146	0.219	19.519	118.657	279.468
6400.000	0.209	55.223	19.825	-116.518	6398.144	0.280	19.825	118.192	279.656
6500.000	0.585	66.243	20.134	-115.900	6498.141	0.383	20.134	117.636	279.855
6600.000	0.423	61.203	20.518	-115.110	6598.138	0.168	20.518	116.924	280.107
6700.000	0.449	79.666	20.766	-114.401	6698.135	0.142	20.766	116.270	280.288

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