

GyroTracer Directional:

Date: 1/21/2019
 Operator : Adrian Bruner
 API : 05-123-26250
 Well Name : Pappenheim USX AB 13-13
 Field : Noble Energy Inc
 Tool Number: 1717
 Bottom Depth : 6900.00
 Total Well Depth: 7156.00
 Latitude : 40.5679 N
 Longitude : 104.50481 W
 Grid Offset : 0.63
 Datum: NAD 83

**Starting Point Coordinates (in local grid):**

Northing: 0.00 Easting: 0.00 GLE: 4796.00

Description:

Azimuth measured in degrees and referenced to local grid

Inclination measured from Vertical

Length measured in US survey feet

Lat/Long/Elevation obtained by handheld GPS at wellhead. Device error \pm 9 Feet

RKB = Ground Level Elevation

Start Time: 1/16/2019 13:21

End Time: 1/16/2019 14:05

Depth	Inclination	Azimuth	Closure Direction	True Depth	Coordinates		Dogleg Severity	Closure Distance
					+N/-S	+E/-W		
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.000	0.340	222.017	222.017	99.999	-0.220	-0.199	0.102	0.297
200.000	0.491	202.402	213.808	199.997	-0.837	-0.560	0.062	1.007
300.000	0.115	145.629	206.882	299.995	-1.316	-0.667	0.132	1.475
400.000	0.364	195.174	202.133	399.994	-1.705	-0.694	0.091	1.841
500.000	0.335	198.453	200.793	499.993	-2.289	-0.869	0.011	2.449
600.000	0.412	252.069	205.967	599.991	-2.677	-1.304	0.103	2.978
700.000	0.587	224.044	212.389	699.987	-3.156	-2.002	0.089	3.738
800.000	0.645	282.344	220.507	799.982	-3.404	-2.908	0.181	4.477
900.000	0.466	308.377	231.249	899.978	-3.031	-3.777	0.046	4.843
1000.000	0.537	274.042	238.963	999.974	-2.746	-4.563	0.091	5.325
1100.000	0.484	296.486	244.979	1099.970	-2.524	-5.408	0.062	5.969
1200.000	0.723	299.789	252.291	1199.965	-2.023	-6.334	0.072	6.649
1300.000	0.594	294.108	258.492	1299.958	-1.497	-7.355	0.043	7.506
1400.000	0.461	305.835	262.661	1399.954	-1.050	-8.154	0.051	8.221
1500.000	0.650	327.876	267.820	1499.949	-0.334	-8.782	0.085	8.788
1600.000	0.486	318.478	272.835	1599.944	0.464	-9.365	0.056	9.376
1700.000	0.271	267.475	274.460	1699.942	0.771	-9.882	0.057	9.912
1800.000	0.289	300.006	274.902	1799.941	0.887	-10.337	0.047	10.375
1900.000	0.313	355.346	276.926	1899.940	1.285	-10.577	0.084	10.655

2000.000	0.259	93.029	278.472	1999.939	1.545	-10.374	0.130	10.488
2100.000	0.084	92.718	278.634	2099.939	1.530	-10.075	0.053	10.190
2200.000	0.227	102.866	278.593	2199.938	1.482	-9.808	0.044	9.920
2300.000	0.110	76.217	278.723	2299.938	1.461	-9.522	0.021	9.633
2400.000	0.324	133.831	277.948	2399.937	1.288	-9.225	0.084	9.314
2500.000	0.361	123.902	275.973	2499.935	0.916	-8.759	0.021	8.807
2600.000	0.516	105.846	274.381	2599.932	0.618	-8.065	0.062	8.088
2700.000	0.225	54.603	274.657	2699.930	0.609	-7.471	0.124	7.496
2800.000	0.433	38.861	278.177	2799.929	1.017	-7.074	0.067	7.147
2900.000	0.380	344.187	283.239	2899.926	1.630	-6.928	0.056	7.117
3000.000	0.360	42.251	287.770	2999.925	2.181	-6.807	0.108	7.148
3100.000	0.310	89.786	290.898	3099.923	2.415	-6.325	0.082	6.770
3200.000	0.744	111.066	291.830	3199.919	2.183	-5.449	0.141	5.870
3300.000	0.627	111.952	291.922	3299.912	1.745	-4.335	0.018	4.673
3400.000	0.631	121.590	290.439	3399.906	1.252	-3.359	0.032	3.584
3500.000	0.720	75.349	296.188	3499.899	1.122	-2.282	0.161	2.543
3600.000	1.127	95.376	329.698	3599.886	1.189	-0.695	0.154	1.377
3700.000	1.559	102.837	63.740	3699.859	0.795	1.611	0.070	1.796
3800.000	1.504	83.685	81.462	3799.824	0.637	4.241	0.154	4.289
3900.000	1.524	86.931	82.932	3899.789	0.852	6.874	0.026	6.926
4000.000	1.408	93.246	84.825	3999.756	0.854	9.428	0.060	9.467
4100.000	1.557	90.275	86.295	4099.723	0.778	12.013	0.025	12.038
4200.000	1.314	95.965	87.427	4199.691	0.652	14.512	0.042	14.527
4300.000	1.170	94.687	88.455	4299.668	0.450	16.670	0.044	16.676
4400.000	0.730	70.697	88.194	4399.654	0.577	18.289	0.175	18.298
4500.000	0.782	36.358	86.037	4499.646	1.337	19.295	0.067	19.341
4600.000	1.130	43.463	82.723	4599.632	2.602	20.377	0.055	20.543
4700.000	1.617	53.737	79.403	4699.603	4.152	22.193	0.082	22.578
4800.000	1.952	60.295	76.775	4799.554	5.831	24.810	0.059	25.486
4900.000	2.257	65.404	75.056	4899.487	7.494	28.080	0.054	29.063
5000.000	2.194	69.139	74.138	4999.412	8.996	31.659	0.024	32.912
5100.000	2.283	74.620	73.905	5099.335	10.205	35.368	0.035	36.811
5200.000	1.484	63.919	73.619	5199.281	11.303	38.452	0.130	40.079
5300.000	0.965	45.498	72.782	5299.258	12.463	40.215	0.097	42.102
5400.000	0.224	274.739	72.166	5399.254	13.069	40.621	0.169	42.672
5500.000	0.543	260.333	71.971	5499.251	13.006	39.959	0.050	42.023
5600.000	0.699	251.933	71.876	5599.246	12.737	38.912	0.027	40.944
5700.000	0.658	255.427	71.823	5699.239	12.403	37.777	0.009	39.761
5800.000	0.493	250.189	71.788	5799.233	12.113	36.816	0.026	38.758
5900.000	0.548	213.290	72.256	5899.230	11.567	36.149	0.050	37.955
6000.000	0.287	310.266	72.391	5999.228	11.329	35.695	0.097	37.450
6100.000	0.304	268.323	71.950	6099.227	11.484	35.239	0.032	37.063
6200.000	0.663	339.924	70.934	6199.224	12.019	34.775	0.095	36.794
6300.000	0.754	334.086	69.011	6299.216	13.154	34.289	0.017	36.726
6400.000	1.107	342.493	66.486	6399.203	14.668	33.711	0.057	36.764
6500.000	1.016	329.055	63.620	6499.186	16.349	32.965	0.040	36.796
6600.000	0.280	271.908	62.052	6599.179	17.118	32.264	0.134	36.524
6700.000	0.226	147.494	62.170	6699.179	16.960	32.126	0.067	36.328

6800.000	0.716	197.577	63.184	6799.175	16.198	32.043	0.090	35.905
6900.000	0.709	145.152	64.890	6899.169	15.094	32.208	0.094	35.570