

GyroTracer Directional:

Date: 1/25/2019
 Operator : Adrian Bruner
 API : 05-123-17673
 Well Name : **Cockroft 11-23**
 Field : Noble Energy Inc
 Tool Number: 1820
 Bottom Depth : 6800.00
 Total Well Depth: 7050.00
 Latitude : 40.50246 N
 Longitude : 104.52503 W
 Grid Offset : 0.63
 Datum: NAD 83

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

Northing: 0.00 Easting: 0.00 GLE: 4717.00

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: 1/25/2019 7:58

End Time: 1/25/2019 9:09

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	0.160	165.974	268.025	100.000	-0.010	-0.290	0.160	0.290
200.000	0.165	183.497	251.786	200.000	-0.083	-0.253	0.031	0.267
300.000	0.212	314.654	287.681	299.999	0.088	-0.276	0.231	0.290
400.000	0.816	302.467	306.632	399.995	0.571	-0.768	0.543	0.957
500.000	0.582	308.953	305.500	499.989	1.199	-1.681	0.194	2.065
600.000	0.727	314.431	307.565	599.980	2.061	-2.679	0.145	3.380
700.000	0.788	318.534	310.920	699.968	3.184	-3.674	0.078	4.862
800.000	1.031	316.129	313.736	799.956	4.430	-4.630	0.333	6.408
900.000	1.253	322.712	315.116	899.940	5.778	-5.755	0.288	8.155
1000.000	1.547	331.885	318.533	999.910	7.873	-6.957	0.288	10.506
1100.000	1.682	345.178	322.497	1099.873	10.364	-7.954	0.436	13.064
1200.000	1.631	342.430	326.243	1199.836	13.005	-8.692	0.100	15.642
1300.000	1.409	357.903	329.595	1299.801	15.573	-9.138	0.424	18.056
1400.000	1.604	352.850	332.382	1399.768	18.104	-9.472	0.247	20.432
1500.000	1.294	355.472	334.651	1499.735	20.640	-9.778	0.301	22.839
1600.000	1.332	352.263	336.172	1599.708	22.939	-10.131	0.133	25.076
1700.000	1.010	337.178	336.782	1699.686	24.912	-10.687	0.455	27.108
1800.000	0.670	321.992	336.489	1799.675	26.224	-11.409	0.383	28.598
1900.000	0.276	354.467	336.192	1899.670	27.037	-11.929	0.681	29.552
2000.000	0.229	126.498	336.474	1999.668	27.280	-11.876	0.576	29.753

2100.000	0.547	99.793	337.515	2099.665	27.031	-11.189	0.305	29.255
2200.000	0.773	111.436	339.416	2199.658	26.783	-10.059	0.238	28.609
2300.000	1.236	92.896	342.391	2299.643	26.438	-8.391	0.615	27.738
2400.000	1.580	115.518	347.088	2399.612	26.063	-5.975	0.646	26.739
2500.000	2.137	112.023	353.942	2499.553	25.146	-2.669	0.566	25.287
2600.000	2.603	116.559	2.429	2599.469	23.368	0.991	0.384	23.389
2700.000	2.816	141.366	12.968	2699.360	20.751	4.779	1.235	21.294
2800.000	3.389	149.270	25.742	2799.216	16.428	7.921	0.714	18.238
2900.000	3.732	149.808	44.749	2899.015	10.721	10.627	0.234	15.095
3000.000	3.775	118.769	68.766	2998.768	6.074	15.633	2.018	16.771
3100.000	4.252	108.607	80.682	3098.511	3.662	22.318	0.728	22.616
3200.000	3.498	93.047	84.467	3198.249	2.855	29.473	1.277	29.611
3300.000	3.342	103.683	86.804	3298.015	2.021	36.195	0.964	36.251
3400.000	2.556	100.920	88.924	3397.873	0.776	41.348	0.808	41.355
3500.000	2.021	116.971	90.821	3497.790	-0.647	45.109	0.871	45.114
3600.000	1.399	131.329	92.710	3597.744	-2.254	47.625	0.739	47.678
3700.000	1.680	139.754	94.821	3697.709	-4.169	49.419	0.355	49.595
3800.000	1.602	148.536	96.953	3797.672	-6.240	51.173	0.311	51.552
3900.000	1.679	153.009	99.215	3897.629	-8.581	52.895	0.108	53.586
4000.000	1.583	152.874	101.312	3997.591	-10.878	54.381	0.305	55.459
4100.000	0.985	144.460	102.897	4097.569	-12.682	55.385	0.456	56.818
4200.000	0.797	160.649	104.140	4197.554	-14.174	56.262	0.328	58.020
4300.000	0.078	154.447	104.867	4297.548	-15.070	56.767	0.935	58.733
4400.000	0.384	279.206	104.799	4397.547	-14.957	56.612	0.555	58.555
4500.000	0.508	327.409	104.482	4497.544	-14.486	56.087	0.396	57.927
4600.000	0.621	310.525	103.912	4597.538	-13.722	55.398	0.214	57.072
4700.000	1.103	341.877	102.878	4697.529	-12.525	54.780	0.650	56.193
4800.000	1.260	349.920	101.061	4797.509	-10.605	54.249	0.271	55.276
4900.000	1.474	352.138	98.726	4897.480	-8.262	53.827	0.308	54.457
5000.000	1.511	6.925	96.092	4997.448	-5.743	53.814	0.414	54.120
5100.000	1.428	6.578	93.297	5097.412	-3.106	53.921	0.130	54.010
5200.000	1.560	4.878	90.502	5197.376	-0.476	54.337	0.060	54.339
5300.000	1.691	10.524	87.643	5297.338	2.256	54.815	0.205	54.862
5400.000	1.700	24.097	84.936	5397.298	4.931	55.640	0.436	55.858
5500.000	1.660	48.635	82.408	5497.251	7.605	57.054	0.757	57.558
5600.000	1.874	41.009	80.668	5597.202	9.743	59.292	0.379	60.087
5700.000	2.087	55.098	78.742	5697.147	12.232	61.448	0.558	62.654
5800.000	1.724	44.226	77.374	5797.101	14.264	63.677	0.580	65.255
5900.000	1.672	40.660	76.002	5897.050	16.450	65.985	0.268	68.005
6000.000	1.278	26.720	74.738	5997.012	18.498	67.793	0.568	70.271
6100.000	0.577	44.463	73.814	6096.990	20.065	69.126	0.654	71.979
6200.000	0.835	37.933	73.314	6196.980	21.007	70.083	0.282	73.164
6300.000	0.913	64.419	72.952	6296.970	21.845	71.241	0.388	74.515
6400.000	1.027	58.815	72.646	6396.958	22.666	72.532	0.143	75.991
6500.000	1.304	62.252	72.329	6496.940	23.612	74.115	0.274	77.785
6600.000	1.839	47.103	71.853	6596.904	25.027	76.357	0.719	80.354
6700.000	0.722	83.416	71.866	6696.879	25.662	78.359	1.330	82.454
6800.000	0.371	114.302	72.027	6796.874	25.751	79.381	0.381	83.454