



**Company:** Anadarko Petroleum C  
**Rig:** Production / V.E.S.  
**Latitude:** 40.319  
**Longitude:** 0.000  
**API #** 05-123-18272  
**Date:** 8/28/12

**Well:** Karich 2-32  
**Location:** Colorado / Weld  
**Grid North** Directions are Relative to True Nort  
**Depth Reference:** Ground Level  
**Surveyor:** Norman Cowan  
**VS:** 0.000

**MV Gyro Survey Calculations**

Depth	Inc	AzG	N/-S	E/-W	TVD	DL	VS	CD	Cbrg
100	0.234	84.934	0.018	0.203	100	0.234	0.018	0.204	84.934
200	0.209	127.214	-0.075	0.552	199.999	0.162	-0.075	0.557	97.684
300	0.442	175.79	-0.57	0.726	299.998	0.342	-0.57	0.923	128.118
400	0.408	171.049	-1.306	0.81	399.995	0.049	-1.306	1.537	148.197
500	0.394	179.574	-2.001	0.868	499.992	0.061	-2.001	2.181	156.557
600	0.319	201.038	-2.605	0.77	599.99	0.152	-2.605	2.717	163.525
700	0.367	216.136	-3.124	0.481	699.989	0.102	-3.124	3.161	171.24
800	0.717	221.611	-3.85	-0.123	799.984	0.353	-3.85	3.852	181.831
900	0.74	220.397	-4.81	-0.957	899.976	0.028	-4.81	4.904	191.252
1000	0.681	220.736	-5.752	-1.763	999.968	0.059	-5.752	6.016	197.042
1100	0.681	223.541	-6.633	-2.56	1099.96	0.033	-6.633	7.11	201.106
1200	0.748	226.007	-7.518	-3.44	1199.95	0.074	-7.518	8.267	204.587
1300	0.781	227.524	-8.431	-4.412	1299.95	0.038	-8.431	9.516	207.623
1400	0.745	231.884	-9.292	-5.426	1399.94	0.068	-9.292	10.761	210.281
1500	0.766	233.777	-10.089	-6.477	1499.93	0.033	-10.089	11.989	212.699
1600	0.675	243.262	-10.749	-7.542	1599.92	0.15	-10.749	13.13	215.055
1700	0.702	245.296	-11.269	-8.624	1699.91	0.036	-11.269	14.19	217.424
1800	0.732	232	-11.918	-9.683	1799.9	0.169	-11.918	15.356	219.092
1900	0.628	212.178	-12.776	-10.478	1899.9	0.255	-12.776	16.523	219.358
2000	0.406	186.046	-13.592	-10.808	1999.89	0.319	-13.592	17.365	218.49
2100	0.273	189.935	-14.179	-10.886	2099.89	0.135	-14.179	17.876	217.516
2200	0.149	272.307	-14.408	-11.057	2199.89	0.293	-14.408	18.162	217.502
2300	0.227	338.945	-14.218	-11.258	2299.89	0.217	-14.218	18.135	218.372
2400	0.603	14.075	-13.523	-11.201	2399.89	0.437	-13.523	17.559	219.636
2500	0.701	12.72	-12.416	-10.939	2499.88	0.1	-12.416	16.547	221.381
2600	0.653	3.659	-11.25	-10.767	2599.87	0.117	-11.25	15.573	223.743
2700	0.511	353.221	-10.239	-10.784	2699.87	0.177	-10.239	14.871	226.483
2800	0.378	342.081	-9.483	-10.938	2799.87	0.157	-9.483	14.476	229.075
2900	0.272	344.187	-8.941	-11.104	2899.87	0.107	-8.941	14.256	231.16
3000	0.313	346.701	-8.447	-11.232	2999.86	0.044	-8.447	14.053	233.055
3100	0.417	344.822	-7.829	-11.39	3099.86	0.104	-7.829	13.821	235.495
3200	0.518	355.117	-7.028	-11.523	3199.86	0.131	-7.028	13.497	238.623
3300	0.54	355.11	-6.107	-11.602	3299.85	0.022	-6.107	13.111	242.238
3400	0.499	350.769	-5.207	-11.712	3399.85	0.057	-5.207	12.818	246.029
3500	0.468	356.866	-4.369	-11.804	3499.85	0.06	-4.369	12.587	249.688
3600	0.537	22.723	-3.53	-11.646	3599.84	0.234	-3.53	12.169	253.139
3700	0.832	44.377	-2.579	-10.957	3699.84	0.387	-2.579	11.257	256.757
3800	1.276	78.252	-1.833	-9.36	3799.82	0.747	-1.833	9.537	258.918
3900	0.677	95.202	-1.66	-7.681	3899.8	0.659	-1.66	7.859	257.805

4000	0.666	115.014	-1.959	-6.566	3999.8	0.231	-1.959	6.852	253.384
4100	0.789	100.916	-2.336	-5.363	4099.79	0.216	-2.336	5.85	246.465
4200	0.808	99.229	-2.579	-3.991	4199.78	0.03	-2.579	4.752	237.123
4300	0.846	108.975	-2.932	-2.596	4299.77	0.145	-2.932	3.917	221.519
4400	1.138	92.024	-3.208	-0.906	4399.75	0.411	-3.208	3.333	195.765
4500	1.243	87.57	-3.197	1.171	4499.73	0.14	-3.197	3.404	159.889
4600	1.325	84.627	-3.042	3.405	4599.71	0.105	-3.042	4.566	131.782
4700	1.313	76.306	-2.663	5.669	4699.68	0.192	-2.663	6.263	115.162
4800	1.336	66.135	-1.92	7.848	4799.66	0.236	-1.92	8.08	103.747
4900	1.397	60.835	-0.854	9.979	4899.63	0.14	-0.854	10.015	94.894
5000	1.227	63.88	0.211	12.004	4999.6	0.184	0.211	12.006	88.995
5100	0.723	50.001	1.087	13.448	5099.59	0.553	1.087	13.492	85.378
5200	0.458	45.554	1.772	14.216	5199.58	0.268	1.772	14.326	82.894
5300	0.303	40.763	2.253	14.675	5299.58	0.158	2.253	14.846	81.273
5400	0.363	49.878	2.657	15.09	5399.58	0.079	2.657	15.322	80.013
5500	0.284	40.19	3.05	15.491	5499.58	0.096	3.05	15.789	78.86
5600	0.41	60.093	3.418	15.962	5599.57	0.173	3.418	16.323	77.913
5700	0.53	77.407	3.697	16.723	5699.57	0.184	3.697	17.127	77.533
5800	0.724	92.89	3.766	17.805	5799.56	0.256	3.766	18.199	78.056
5900	0.355	105.496	3.652	18.734	5899.56	0.385	3.652	19.087	78.97
6000	0.404	109.048	3.454	19.366	5999.56	0.055	3.454	19.672	79.888
6100	0.697	118.886	3.045	20.232	6099.55	0.307	3.045	20.46	81.442
6200	0.969	131.237	2.194	21.401	6199.54	0.324	2.194	21.513	84.147
6300	0.863	119.558	1.265	22.691	6299.53	0.214	1.265	22.726	86.809
6400	0.682	106.774	0.722	23.916	6399.52	0.248	0.722	23.926	88.27
6500	1.519	102.49	0.264	25.779	6499.5	0.84	0.264	25.781	89.414
6600	1.615	103.981	-0.363	28.441	6599.46	0.105	-0.363	28.443	90.732
6700	1.881	105.334	-1.138	31.391	6699.42	0.269	-1.138	31.412	92.076
6800	2.145	108.541	-2.167	34.748	6799.36	0.287	-2.167	34.816	93.568
6900	2.385	108.708	-3.429	38.493	6899.28	0.24	-3.429	38.646	95.091
7000	2.744	112.921	-5.029	42.669	6999.18	0.405	-5.029	42.965	96.722
7100	2.911	115.754	-7.065	47.161	7099.05	0.218	-7.065	47.687	98.52
7200	3.107	113.638	-9.255	51.931	7198.92	0.225	-9.255	52.749	100.105
7299	2.95	117.326	-11.5	56.652	7297.78	0.252	-11.5	57.808	101.475
7300	2.942	117.449	-11.524	56.698	7298.78	1.052	-11.524	57.857	101.489