

Company: Anadarko Petroleum Corp.

Well: Czapala Red V1-7

API: 05-123-18584

Rig Name: Production/Coretech

State/County: Colorado/Weld

Latitude: 40.169, Longitude: -104.836

Directions are relative to True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB=Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro\_run02-01-de\_01.ut

Minimum Curvature Method

Report Date/Time: 1/22/2014 / 10:07

Vaughn Energy Services

Henderson, CO

303-853-4976

Levi Sheldon

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N-S FT	+E-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.232	242.371	100.000	-0.094	-0.179	-0.094	0.202	242.371	0.232
200.000	0.241	75.719	199.999	-0.136	-0.155	-0.136	0.206	228.739	0.469
300.000	0.415	23.984	299.998	0.247	0.196	0.247	0.316	38.434	0.326
400.000	0.252	265.172	399.997	0.560	0.124	0.560	0.573	12.520	0.580
500.000	0.066	118.348	499.997	0.514	-0.044	0.514	0.516	355.098	0.310
600.000	0.140	56.012	599.997	0.555	0.108	0.555	0.565	11.034	0.124
700.000	0.524	352.387	699.995	1.076	0.149	1.076	1.087	7.892	0.478
800.000	0.565	340.514	799.990	1.994	-0.076	1.994	1.996	357.821	0.120
900.000	0.474	348.100	899.986	2.864	-0.326	2.864	2.882	353.512	0.114
1000.000	0.499	244.890	999.984	3.083	-0.806	3.083	3.187	345.359	0.763
1100.000	0.557	245.906	1099.980	2.700	-1.644	2.700	3.161	328.667	0.058
1200.000	0.602	323.941	1199.976	2.926	-2.396	2.926	3.782	320.683	0.730
1300.000	0.712	317.371	1299.970	3.807	-3.126	3.807	4.926	320.613	0.133
1400.000	0.630	256.712	1399.964	4.138	-4.081	4.138	5.812	315.396	0.681
1500.000	0.685	253.551	1499.957	3.843	-5.189	3.843	6.457	306.520	0.066
1600.000	0.713	317.801	1599.951	4.134	-6.180	4.134	7.435	303.780	0.743
1700.000	0.651	256.954	1699.945	4.466	-7.151	4.466	8.431	301.989	0.692
1800.000	0.886	301.991	1799.937	4.748	-8.360	4.748	9.614	299.593	0.627
1900.000	1.182	284.365	1899.921	5.413	-10.014	5.413	11.383	298.393	0.431
2000.000	1.221	260.535	1999.900	5.493	-12.064	5.493	13.255	294.484	0.497
2100.000	1.286	249.302	2099.876	4.922	-14.164	4.922	14.995	289.161	0.254
2200.000	1.703	250.824	2199.842	4.037	-16.617	4.037	17.101	283.655	0.419
2300.000	1.572	233.278	2299.802	2.729	-19.120	2.729	19.314	278.123	0.516
2400.000	1.158	269.584	2399.775	1.901	-21.229	1.901	21.314	275.118	0.937
2500.000	1.281	268.887	2499.752	1.872	-23.357	1.872	23.432	274.583	0.124
2600.000	1.305	259.179	2599.727	1.637	-25.592	1.637	25.645	273.660	0.220
2700.000	1.242	276.418	2699.702	1.544	-27.787	1.544	27.830	273.181	0.387
2800.000	1.047	256.661	2799.683	1.455	-29.753	1.455	29.788	272.799	0.437
2900.000	1.460	282.043	2899.659	1.510	-31.888	1.510	31.923	272.711	0.683
3000.000	1.336	273.393	2999.630	1.845	-34.298	1.845	34.347	273.079	0.245
3100.000	1.490	274.242	3099.599	2.010	-36.758	2.010	36.813	273.130	0.155
3200.000	1.543	267.463	3199.564	2.047	-39.399	2.047	39.452	272.973	0.187
3300.000	1.816	259.598	3299.521	1.701	-42.303	1.701	42.338	272.302	0.357
3400.000	2.275	270.233	3399.458	1.423	-45.847	1.423	45.869	271.777	0.594

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
3500.000	2.342	245.342	3499.379	0.578	-49.689	0.578	49.692	270.667	0.997
3600.000	2.096	229.887	3599.305	-1.452	-52.944	-1.452	52.963	268.429	0.644
3700.000	2.189	238.784	3699.235	-3.620	-55.975	-3.620	56.092	266.300	0.345
3800.000	1.607	236.774	3799.180	-5.378	-58.782	-5.378	59.027	264.773	0.585
3900.000	1.131	240.199	3899.151	-6.637	-60.811	-6.637	61.172	263.772	0.483
4000.000	1.501	255.942	3999.125	-7.445	-62.938	-7.445	63.377	263.253	0.514
4100.000	1.191	237.542	4099.098	-8.322	-65.086	-8.322	65.616	262.714	0.528
4200.000	1.312	238.673	4199.074	-9.475	-66.941	-9.475	67.608	261.944	0.123
4300.000	1.121	236.100	4299.051	-10.615	-68.731	-10.615	69.546	261.220	0.198
4400.000	1.464	232.201	4399.026	-11.944	-70.552	-11.944	71.556	260.391	0.354
4500.000	1.627	228.043	4498.989	-13.676	-72.618	-13.676	73.894	259.334	0.198
4600.000	1.454	214.011	4598.954	-15.677	-74.383	-15.677	76.017	258.099	0.414
4700.000	2.385	203.789	4698.897	-18.632	-75.931	-18.632	78.184	256.213	0.988
4800.000	2.573	181.013	4798.805	-22.780	-76.810	-22.780	80.117	253.481	0.996
4900.000	2.060	159.857	4898.725	-26.711	-76.231	-26.711	80.775	250.690	0.988
5000.000	1.367	137.222	4998.681	-29.274	-74.802	-29.274	80.326	248.627	0.956
5100.000	2.106	115.320	5098.635	-30.935	-72.331	-30.935	78.669	246.844	0.980
5200.000	1.871	96.572	5198.576	-31.908	-69.050	-31.908	76.065	245.198	0.688
5300.000	0.938	82.097	5298.545	-31.982	-66.617	-31.982	73.897	244.355	0.990
5400.000	0.113	8.364	5398.541	-31.772	-65.792	-31.772	73.062	244.223	0.913
5500.000	0.506	263.505	5498.539	-31.725	-66.216	-31.725	73.424	244.401	0.546
5600.000	0.944	300.486	5598.532	-31.356	-67.365	-31.356	74.305	245.039	0.620
5700.000	1.750	278.908	5698.504	-30.702	-69.584	-30.702	76.056	246.192	0.939
5800.000	1.668	310.411	5798.461	-29.522	-72.201	-29.522	78.004	247.761	0.931
5900.000	0.842	329.761	5898.437	-27.943	-73.680	-27.943	78.801	249.230	0.917
6000.000	0.375	11.631	5998.432	-26.988	-73.984	-26.988	78.752	249.959	0.616
6100.000	0.475	0.916	6098.429	-26.253	-73.911	-26.253	78.435	250.445	0.128
6200.000	0.295	308.262	6198.427	-25.679	-74.107	-25.679	78.430	250.888	0.378
6300.000	0.202	324.547	6298.426	-25.375	-74.411	-25.375	78.619	251.170	0.116
6400.000	0.444	308.475	6398.424	-24.991	-74.817	-24.991	78.880	251.529	0.256
6500.000	0.495	292.248	6498.421	-24.586	-75.520	-24.586	79.421	251.967	0.142
6600.000	0.261	260.671	6598.419	-24.460	-76.144	-24.460	79.976	252.191	0.305
6700.000	0.258	239.437	6698.418	-24.611	-76.562	-24.611	80.420	252.180	0.096
6800.000	0.609	231.221	6798.415	-25.058	-77.169	-25.058	81.136	252.011	0.356
6900.000	0.325	201.626	6898.411	-25.654	-77.688	-25.654	81.814	251.726	0.364
7000.000	0.265	255.357	6998.410	-25.976	-78.016	-25.976	82.227	251.585	0.272
7100.000	0.143	15.872	7098.410	-25.914	-78.206	-25.914	82.388	251.667	0.360
7200.000	0.278	208.255	7198.410	-26.007	-78.287	-26.007	82.493	251.623	0.419
7250.000	0.292	204.866	7248.409	-26.230	-78.398	-26.230	82.669	251.501	0.045
HORIZONTAL DISPLACEMENT IS 82.669 FEET AT 251.501 DEGREES									