

Company: ANADARKO PETROLEUM
 Well: JACK BERGER C GAS UNIT 2
 API: 05-123-10039
 Rig Name: PRODUCTION/CORE-TECH
 State/County: COLORADO / WELD
 Latitude: 40.076, Longitude: -104.873
 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_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 2/3/2014 / 13:57

VAUGHN ENERGY SERVICES

HENDERSON, COLORADO

303-853-4976

NICK KULA

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	0.245	291.440	100.000	0.078	-0.199	0.078	0.214	291.440	0.245
200.000	0.355	322.990	199.998	0.404	-0.584	0.404	0.710	304.635	0.195
300.000	1.083	359.208	299.990	1.596	-0.784	1.596	1.778	333.837	0.824
400.000	1.118	345.346	399.972	3.485	-1.044	3.485	3.638	343.323	0.268
500.000	1.388	2.533	499.948	5.639	-1.237	5.639	5.773	347.624	0.460
600.000	1.415	356.556	599.918	8.081	-1.258	8.081	8.178	351.152	0.149
700.000	1.331	358.700	699.890	10.474	-1.358	10.474	10.562	352.611	0.098
800.000	1.360	2.227	799.862	12.821	-1.339	12.821	12.891	354.040	0.088
900.000	1.481	11.144	899.832	15.275	-1.043	15.275	15.311	356.095	0.252
1000.000	1.418	7.010	999.800	17.770	-0.642	17.770	17.782	357.931	0.122
1100.000	1.528	11.411	1099.767	20.305	-0.227	20.305	20.306	359.358	0.158
1200.000	1.590	22.434	1199.730	22.893	0.566	22.893	22.900	1.415	0.306
1300.000	1.377	22.509	1299.696	25.285	1.555	25.285	25.333	3.519	0.212
1400.000	1.207	35.685	1399.671	27.251	2.630	27.251	27.378	5.512	0.341
1500.000	1.305	33.978	1499.647	29.051	3.881	29.051	29.309	7.608	0.104
1600.000	1.049	34.662	1599.626	30.748	5.037	30.748	31.158	9.304	0.257
1700.000	0.897	25.065	1699.611	32.210	5.890	32.210	32.744	10.362	0.222
1800.000	0.815	35.353	1799.600	33.500	6.633	33.500	34.150	11.200	0.174
1900.000	0.427	13.159	1899.594	34.443	7.130	34.443	35.173	11.695	0.450
2000.000	0.266	36.452	1999.593	34.992	7.352	34.992	35.756	11.866	0.210
2100.000	0.223	340.449	2099.592	35.363	7.425	35.363	36.134	11.858	0.233
2200.000	0.264	323.218	2199.591	35.730	7.222	35.730	36.453	11.427	0.083
2300.000	0.159	354.380	2299.590	36.053	7.071	36.053	36.740	11.096	0.152
2400.000	0.397	293.728	2399.589	36.331	6.740	36.331	36.951	10.510	0.348
2500.000	0.457	306.306	2499.586	36.706	6.101	36.706	37.210	9.437	0.111
2600.000	0.497	302.953	2599.583	37.178	5.416	37.178	37.571	8.288	0.049
2700.000	0.526	333.380	2699.579	37.825	4.846	37.825	38.134	7.301	0.270
2800.000	0.544	335.144	2799.575	38.666	4.441	38.666	38.920	6.552	0.024
2900.000	0.475	332.696	2899.571	39.466	4.051	39.466	39.673	5.861	0.072

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
3000.000	0.682	324.604	2999.566	40.319	3.516	40.319	40.472	4.984	0.222
3100.000	0.730	322.530	3099.558	41.310	2.784	41.310	41.403	3.855	0.054
3200.000	0.690	323.262	3199.550	42.298	2.036	42.298	42.347	2.756	0.041
3300.000	0.808	315.598	3299.542	43.284	1.183	43.284	43.300	1.565	0.155
3400.000	0.827	316.491	3399.532	44.312	0.192	44.312	44.312	0.248	0.022
3500.000	1.015	315.103	3499.519	45.462	-0.930	45.462	45.472	358.829	0.189
3600.000	1.120	322.719	3599.501	46.867	-2.146	46.867	46.916	357.378	0.177
3700.000	1.113	328.137	3699.482	48.469	-3.251	48.469	48.578	356.163	0.106
3800.000	1.298	326.865	3799.460	50.242	-4.383	50.242	50.433	355.015	0.187
3900.000	1.295	314.943	3899.435	51.989	-5.802	51.989	52.312	353.632	0.269
4000.000	1.425	292.096	3999.407	53.256	-7.754	53.256	53.817	351.716	0.554
4100.000	2.112	280.028	4099.359	54.044	-10.721	54.044	55.097	348.780	0.777
4200.000	2.416	273.451	4199.281	54.492	-14.639	54.492	56.424	344.963	0.400
4300.000	2.337	280.669	4299.196	54.996	-18.747	54.996	58.104	341.177	0.309
4400.000	2.314	272.275	4399.114	55.454	-22.768	55.454	59.946	337.678	0.341
4500.000	2.269	272.830	4499.034	55.632	-26.763	55.632	61.734	334.309	0.050
4600.000	2.357	267.404	4598.952	55.636	-30.794	55.636	63.590	331.036	0.236
4700.000	2.396	274.800	4698.866	55.718	-34.932	55.718	65.763	327.915	0.309
4800.000	2.001	280.160	4798.793	56.201	-38.733	56.201	68.255	325.426	0.444
4900.000	1.719	278.397	4898.740	56.728	-41.935	56.728	70.545	323.527	0.288
5000.000	1.556	281.982	4998.699	57.229	-44.747	57.229	72.646	321.978	0.192
5100.000	1.228	258.967	5098.670	57.306	-47.127	57.306	74.195	320.567	0.642
5200.000	1.222	247.540	5198.648	56.693	-49.165	56.693	75.042	319.068	0.244
5300.000	1.318	240.479	5298.623	55.719	-51.151	55.719	75.637	317.448	0.184
5400.000	1.169	243.034	5398.599	54.690	-53.061	54.690	76.200	315.866	0.159
5500.000	1.901	241.800	5498.563	53.443	-55.432	53.443	76.999	313.953	0.733
5600.000	1.819	224.468	5598.511	51.526	-58.006	51.526	77.587	311.615	0.566
5700.000	1.140	242.961	5698.478	49.941	-60.004	49.941	78.068	309.770	0.822
5800.000	0.601	256.231	5798.466	49.364	-61.400	49.364	78.783	308.798	0.572
5900.000	0.555	218.887	5898.461	48.862	-62.213	48.862	79.108	308.146	0.373
6000.000	1.014	263.055	5998.452	48.378	-63.395	48.378	79.746	307.348	0.727
6100.000	0.597	222.078	6098.443	47.885	-64.622	47.885	80.430	306.538	0.686
6200.000	1.234	272.646	6198.431	47.548	-66.047	47.548	81.382	305.751	0.972
6300.000	0.372	268.780	6298.420	47.591	-67.447	47.591	82.547	305.207	0.863
6400.000	1.286	286.745	6398.409	47.908	-68.847	47.908	83.875	304.832	0.940
6500.000	1.066	314.558	6498.388	48.884	-70.584	48.884	85.859	304.705	0.604
6600.000	1.102	293.872	6598.371	49.925	-72.126	49.925	87.720	304.691	0.391
6700.000	0.439	250.339	6698.362	50.186	-73.366	50.186	88.889	304.374	0.840
6800.000	0.519	313.418	6798.359	50.368	-74.055	50.368	89.561	304.221	0.505
6900.000	0.780	247.434	6898.354	50.418	-75.012	50.418	90.382	303.906	0.740
7000.000	0.990	282.405	6998.343	50.342	-76.484	50.342	91.565	303.353	0.568
7100.000	1.466	245.139	7098.321	49.990	-78.488	49.990	93.056	302.493	0.905
7200.000	0.721	211.576	7198.303	48.917	-79.979	48.917	93.752	301.451	0.953
7300.000	0.748	166.447	7298.295	47.746	-80.155	47.746	93.298	300.781	0.564
7400.000	1.279	140.470	7398.280	46.250	-79.291	46.250	91.794	300.255	0.689
7500.000	1.375	133.710	7498.253	44.560	-77.713	44.560	89.582	299.829	0.184
7550.000	1.458	151.998	7548.238	43.584	-76.981	43.584	88.462	299.517	0.915

<div> HORIZONTAL DISPLACEMENT IS 88.462 FEET AT 299.517 DEGREES </div>
