

Company: Anadarko Petroleum

Well: Devon 9-8

API #: 05-123-22514

Rig Name: Production / Frontier

State/County: Colorado/Weld

Latitude: 40.238, Longitude: -104.794

GRID North is 0.000 Degrees West of True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= Ground

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 3/19/2013 / 19:32

Vaughn Energy Services

Henderson, Colorado

866-835-8333

Brian Brewbaker

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	0.413	118.791	99.999	-0.173	0.316	-0.173	0.360	118.791	0.413
200.000	0.088	47.383	199.998	-0.295	0.688	-0.295	0.748	113.195	0.394
300.000	0.081	96.491	299.998	-0.251	0.815	-0.251	0.852	107.102	0.071
400.000	0.107	32.420	399.998	-0.180	0.935	-0.180	0.952	100.879	0.102
500.000	0.075	103.842	499.998	-0.116	1.048	-0.116	1.054	96.328	0.109
600.000	0.245	294.344	599.998	-0.044	0.916	-0.044	0.917	92.728	0.319
700.000	0.323	281.042	699.996	0.098	0.445	0.098	0.456	77.536	0.101
800.000	0.368	298.548	799.995	0.306	-0.113	0.306	0.326	339.645	0.114
900.000	0.418	286.224	899.992	0.561	-0.746	0.561	0.933	306.963	0.098
1000.000	0.432	286.932	999.990	0.773	-1.457	0.773	1.649	297.952	0.015
1100.000	0.497	281.160	1099.986	0.967	-2.243	0.967	2.443	293.316	0.080
1200.000	0.727	270.058	1199.980	1.051	-3.303	1.051	3.466	287.656	0.258
1300.000	0.446	282.228	1299.975	1.135	-4.318	1.135	4.465	284.720	0.306
1400.000	0.403	271.009	1399.972	1.223	-5.051	1.223	5.197	283.615	0.094
1500.000	0.684	243.698	1499.968	0.965	-5.937	0.965	6.015	279.232	0.375
1600.000	0.655	272.434	1599.961	0.725	-7.044	0.725	7.081	275.875	0.333
1700.000	0.736	266.439	1699.954	0.709	-8.256	0.709	8.286	274.910	0.108
1800.000	0.790	265.702	1799.945	0.618	-9.583	0.618	9.603	273.688	0.055
1900.000	0.525	292.577	1899.939	0.742	-10.693	0.742	10.719	273.969	0.399
2000.000	0.306	275.513	1999.936	0.943	-11.382	0.943	11.421	274.739	0.249
2100.000	0.458	306.414	2099.934	1.206	-11.969	1.206	12.030	275.755	0.251
2200.000	0.453	307.379	2199.931	1.683	-12.604	1.683	12.716	277.606	0.009
2300.000	0.491	285.588	2299.928	2.038	-13.331	2.038	13.485	278.692	0.182
2400.000	0.616	271.550	2399.923	2.168	-14.280	2.168	14.443	278.631	0.183
2500.000	0.662	270.209	2499.917	2.184	-15.394	2.184	15.548	278.075	0.048
2600.000	0.666	272.179	2599.910	2.208	-16.552	2.208	16.699	277.599	0.023
2700.000	0.646	269.284	2699.903	2.223	-17.697	2.223	17.836	277.161	0.039
2800.000	0.609	271.598	2799.897	2.231	-18.792	2.231	18.924	276.771	0.044
2900.000	0.676	275.873	2899.891	2.306	-19.910	2.306	20.044	276.608	0.082
3000.000	0.608	275.605	2999.885	2.419	-21.026	2.419	21.165	276.562	0.068
3100.000	0.416	272.315	3099.881	2.485	-21.917	2.485	22.057	276.469	0.195
3200.000	0.325	302.906	3199.879	2.654	-22.517	2.654	22.673	276.722	0.214
3300.000	0.423	291.381	3299.877	2.942	-23.099	2.942	23.285	277.260	0.123
3400.000	0.367	269.106	3399.874	3.072	-23.762	3.072	23.960	277.366	0.162

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	0.465	159.574	3499.873	2.686	-23.941	2.686	24.091	276.402	0.682
3600.000	1.080	96.551	3599.865	2.198	-22.863	2.198	22.968	275.492	0.963
3700.000	1.417	99.790	3699.841	1.881	-20.708	1.881	20.793	275.189	0.344
3800.000	1.644	97.157	3799.805	1.492	-18.067	1.492	18.128	274.720	0.237
3900.000	1.520	106.874	3899.767	0.928	-15.374	0.928	15.402	273.454	0.295
4000.000	1.641	102.895	3999.729	0.223	-12.709	0.223	12.711	271.007	0.163
4100.000	1.996	112.750	4099.679	-0.770	-9.707	-0.770	9.737	265.466	0.471
4200.000	2.043	120.022	4199.617	-2.335	-6.558	-2.335	6.961	250.402	0.260
4300.000	2.314	127.054	4299.545	-4.443	-3.403	-4.443	5.597	217.452	0.380
4400.000	1.766	121.886	4399.481	-6.473	-0.484	-6.473	6.491	184.279	0.578
4500.000	1.288	118.617	4499.445	-7.825	1.810	-7.825	8.032	166.974	0.485
4600.000	0.969	114.583	4599.426	-8.715	3.565	-8.715	9.416	157.750	0.329
4700.000	0.653	109.804	4699.416	-9.260	4.870	-9.260	10.463	152.257	0.322
4800.000	0.434	102.612	4799.411	-9.536	5.776	-9.536	11.149	148.794	0.229
4900.000	0.555	90.119	4899.407	-9.619	6.630	-9.619	11.683	145.423	0.162
5000.000	0.546	98.213	4999.403	-9.688	7.587	-9.688	12.305	141.937	0.078
5100.000	0.580	78.562	5099.398	-9.656	8.554	-9.656	12.900	138.463	0.195
5200.000	0.723	96.658	5199.392	-9.629	9.677	-9.629	13.651	134.858	0.249
5300.000	0.636	79.198	5299.385	-9.598	10.848	-9.598	14.485	131.501	0.224
5400.000	0.827	96.158	5399.377	-9.572	12.111	-9.572	15.437	128.319	0.287
5500.000	0.708	113.662	5499.368	-9.897	13.395	-9.897	16.655	126.459	0.262
5600.000	0.776	60.854	5599.360	-9.815	14.552	-9.815	17.553	123.998	0.663
5700.000	0.884	113.761	5699.351	-9.796	15.850	-9.796	18.633	121.718	0.746
5800.000	0.767	55.171	5799.343	-9.725	17.105	-9.725	19.676	119.619	0.814
5900.000	0.428	33.985	5899.337	-9.033	17.863	-9.033	20.017	116.824	0.398
6000.000	0.450	1.519	5999.334	-8.331	18.083	-8.331	19.909	114.735	0.246
6100.000	0.395	52.884	6099.332	-7.730	18.368	-7.730	19.928	112.824	0.369
6200.000	0.336	73.822	6199.330	-7.441	18.924	-7.441	20.334	111.464	0.145
6300.000	0.447	61.284	6299.328	-7.171	19.548	-7.171	20.822	110.146	0.140
6400.000	0.503	107.846	6399.325	-7.118	20.308	-7.118	21.520	109.316	0.379
6500.000	0.666	118.780	6499.319	-7.533	21.236	-7.533	22.532	109.531	0.197
6600.000	1.086	122.530	6599.307	-8.322	22.544	-8.322	24.031	110.262	0.424
6700.000	1.193	128.578	6699.288	-9.481	24.157	-9.481	25.951	111.429	0.160
6800.000	1.383	138.293	6799.263	-11.031	25.773	-11.031	28.034	113.170	0.289
6900.000	1.251	144.437	6899.236	-12.820	27.211	-12.820	30.080	115.226	0.193
7000.000	1.105	160.931	6999.215	-14.619	28.161	-14.619	31.730	117.435	0.368
7100.000	1.280	166.923	7099.194	-16.619	28.729	-16.619	33.189	120.048	0.215
7200.000	1.175	177.182	7199.171	-18.731	29.032	-18.731	34.550	122.829	0.243
7300.000	1.460	149.511	7299.145	-20.853	29.729	-20.853	36.313	125.048	0.688
HORIZONTAL DISPLACEMENT IS 36.313 FEET AT 125.048 DEGREES									