



Company: Anadarko Petroleum
 Well: HSR-Rademacher 13-30
 API: 05-123-18847
 Rig Name: Production/ VES
 State/County: Colorado/Weld
 Latitude: 40.192, Longitude: -104.940
 Directions are relative to True North
 VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= Ground Level

DRILLOG GYRO SURVEY CALCULATIONS

Filename: gyro-de_01.ut
 Minimum Curvature Method
 Report Date/Time: 4/28/2014 / 13:50

Vaughn Energy Services
 Henderson, CO 80640
 303-853-4976
 Sean Bratt

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	0.388	273.524	99.999	0.021	-0.338	0.021	0.338	273.524	0.388
200.000	0.418	269.788	199.997	0.040	-1.040	0.040	1.041	272.216	0.040
300.000	0.105	276.814	299.996	0.050	-1.496	0.050	1.497	271.906	0.314
400.000	0.188	237.312	399.995	-0.028	-1.726	-0.028	1.726	269.071	0.126
500.000	0.123	63.985	499.995	-0.070	-1.768	-0.070	1.769	267.741	0.310
600.000	0.332	133.833	599.994	-0.223	-1.463	-0.223	1.480	261.321	0.312
700.000	0.171	130.566	699.993	-0.521	-1.141	-0.521	1.254	245.454	0.161
800.000	0.486	124.020	799.992	-0.855	-0.676	-0.855	1.090	218.301	0.317
900.000	0.334	81.407	899.989	-1.049	-0.036	-1.049	1.050	181.968	0.330
1000.000	0.336	217.506	999.989	-1.238	0.073	-1.238	1.240	176.605	0.621
1100.000	0.127	238.991	1099.988	-1.528	-0.200	-1.528	1.541	187.454	0.223
1200.000	0.453	278.553	1199.986	-1.526	-0.686	-1.526	1.673	204.198	0.364
1300.000	0.479	278.055	1299.983	-1.409	-1.490	-1.409	2.051	226.616	0.026
1400.000	0.682	231.026	1399.978	-1.725	-2.367	-1.725	2.929	233.924	0.499
1500.000	0.831	264.861	1499.970	-2.164	-3.552	-2.164	4.160	238.651	0.463
1600.000	0.828	242.620	1599.960	-2.561	-4.916	-2.561	5.543	242.482	0.320
1700.000	1.106	260.476	1699.946	-3.053	-6.509	-3.053	7.190	244.872	0.407
1800.000	1.106	263.933	1799.927	-3.315	-8.421	-3.315	9.050	248.513	0.067
1900.000	1.137	255.352	1899.908	-3.668	-10.340	-3.668	10.971	250.470	0.171
2000.000	0.905	276.983	1999.893	-3.822	-12.084	-3.822	12.674	252.446	0.446
2100.000	0.957	280.347	2099.879	-3.576	-13.689	-3.576	14.148	255.358	0.075
2200.000	0.752	262.092	2199.868	-3.517	-15.160	-3.517	15.563	256.940	0.338
2300.000	0.191	175.112	2299.865	-3.773	-15.796	-3.773	16.240	256.567	0.766
2400.000	0.344	122.825	2399.864	-4.101	-15.529	-4.101	16.062	255.207	0.273
2500.000	0.279	137.036	2499.863	-4.442	-15.111	-4.442	15.751	253.619	0.100
2600.000	0.124	306.404	2599.863	-4.556	-15.032	-4.556	15.708	253.138	0.402
2700.000	0.394	287.996	2699.861	-4.386	-15.446	-4.386	16.057	254.148	0.279
2800.000	0.470	318.972	2799.859	-3.970	-16.042	-3.970	16.526	256.099	0.242
2900.000	0.638	234.991	2899.855	-3.980	-16.767	-3.980	17.233	256.646	0.751
3000.000	0.900	194.304	2999.847	-5.060	-17.417	-5.060	18.137	253.799	0.588
3100.000	1.556	184.404	3099.824	-7.175	-17.715	-7.175	19.113	247.950	0.687
3200.000	1.781	193.135	3199.781	-10.042	-18.173	-10.042	20.763	241.075	0.339
3300.000	1.838	184.602	3299.732	-13.154	-18.655	-13.154	22.826	234.812	0.275
3400.000	1.597	183.308	3399.687	-16.143	-18.864	-16.143	24.828	229.444	0.244
3500.000	1.058	169.162	3499.660	-18.442	-18.770	-18.442	26.314	225.506	0.627

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
3600.000	0.864	172.752	3599.646	-20.097	-18.502	-20.097	27.316	222.634	0.204
3700.000	0.818	183.614	3699.635	-21.557	-18.451	-21.557	28.375	220.562	0.166
3800.000	0.589	262.184	3799.629	-22.339	-19.006	-22.339	29.330	220.390	0.908
3900.000	0.588	215.386	3899.624	-22.827	-19.812	-22.827	30.226	220.955	0.467
4000.000	0.847	284.973	3999.618	-23.055	-20.823	-23.055	31.067	222.088	0.846
4100.000	1.159	257.198	4099.603	-23.088	-22.523	-23.088	32.254	224.290	0.569
4200.000	1.337	276.766	4199.580	-23.175	-24.667	-23.175	33.846	226.787	0.459
4300.000	1.541	262.847	4299.549	-23.205	-27.159	-23.205	35.722	229.490	0.403
4400.000	0.944	279.440	4399.525	-23.237	-29.305	-23.237	37.400	231.588	0.691
4500.000	1.011	229.233	4499.512	-23.678	-30.786	-23.678	38.838	232.435	0.832
4600.000	0.957	225.914	4599.498	-24.835	-32.054	-24.835	40.549	232.232	0.079
4700.000	0.983	234.698	4699.483	-25.912	-33.354	-25.912	42.236	232.157	0.151
4800.000	0.764	253.940	4799.472	-26.592	-34.695	-26.592	43.713	232.532	0.363
4900.000	0.506	216.597	4899.466	-27.131	-35.599	-27.131	44.760	232.688	0.475
5000.000	0.324	202.330	4999.463	-27.748	-35.970	-27.748	45.429	232.353	0.209
5100.000	0.294	189.944	5099.462	-28.261	-36.122	-28.261	45.864	231.961	0.073
5200.000	0.657	273.490	5199.459	-28.479	-36.739	-28.479	46.484	232.218	0.689
5300.000	0.619	333.154	5299.454	-27.962	-37.555	-27.962	46.822	233.330	0.636
5400.000	0.650	334.383	5399.448	-26.969	-38.044	-26.969	46.634	234.668	0.034
5500.000	1.368	5.859	5499.432	-25.269	-38.168	-25.269	45.775	236.493	0.882
5600.000	0.767	1.693	5599.415	-23.413	-38.026	-23.413	44.656	238.379	0.606
5700.000	0.527	326.524	5699.408	-22.360	-38.260	-22.360	44.315	239.697	0.453
5800.000	0.383	197.154	5799.407	-22.296	-38.613	-22.296	44.587	239.997	0.825
5900.000	0.716	287.089	5899.404	-22.432	-39.308	-22.432	45.258	240.288	0.811
6000.000	0.725	233.818	5999.397	-22.621	-40.416	-22.621	46.316	240.763	0.646
6100.000	0.579	315.479	6099.392	-22.634	-41.280	-22.634	47.078	241.263	0.859
6200.000	0.619	63.120	6199.389	-22.030	-41.152	-22.030	46.678	241.839	0.968
6300.000	0.565	20.893	6299.384	-21.325	-40.494	-21.325	45.766	242.228	0.430
6400.000	0.915	19.159	6399.376	-20.110	-40.056	-20.110	44.821	243.342	0.351
6500.000	1.189	9.576	6499.359	-18.332	-39.622	-18.332	43.657	245.171	0.324
6600.000	1.571	6.088	6599.330	-15.946	-39.304	-15.946	42.415	247.917	0.392
6700.000	2.450	355.750	6699.267	-12.452	-39.317	-12.452	41.241	252.427	0.947
6800.000	3.317	346.856	6799.140	-7.503	-40.133	-7.503	40.828	259.410	0.974
6900.000	4.265	345.663	6898.920	-1.083	-41.711	-1.083	41.726	268.512	0.951
7000.000	5.129	340.001	6998.584	6.719	-44.161	6.719	44.669	278.652	0.980
7100.000	4.447	338.181	7098.235	14.519	-47.130	14.519	49.316	287.122	0.699

HORIZONTAL DISPLACEMENT IS
49.316 FEET AT 287.122 DEGREES