

Company: Anadarko Petroleum Corp.

Well/API: HSR-Fred Mayer 6-15/05-123-17928

Tool Type: North Seeking Rate Gyro

Rig Name: Production/CoreTech

County/State: Weld/Colorado

Latitude: 40.227, Longitude: -104.879

Directions are relative to True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB=GL Elevation= 4794 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 10/9/2014 / 18:41

Lat/Long & Elevation Obtained By Handheld GPS At Wellhead

Handheld GPS Reference: NAD83/Device Error: ±9 Feet

VES Survey International - Henderson CO

Mark Simmons

303-853-4976

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	0.279	131.213	100.000	-0.160	0.183	-0.160	0.244	131.213	0.279
200.000	0.531	135.409	199.997	-0.651	0.691	-0.651	0.949	133.258	0.253
300.000	0.792	148.775	299.990	-1.572	1.375	-1.572	2.088	138.819	0.302
400.000	0.960	166.925	399.979	-2.979	1.923	-2.979	3.546	147.156	0.322
500.000	1.135	183.741	499.962	-4.783	2.048	-4.783	5.203	156.821	0.352
600.000	1.264	196.806	599.941	-6.827	1.664	-6.827	7.027	166.299	0.302
700.000	1.421	203.475	699.913	-9.020	0.851	-9.020	9.060	174.608	0.221
800.000	1.473	205.111	799.881	-11.321	-0.188	-11.321	11.323	180.951	0.066
900.000	1.491	206.338	899.848	-13.651	-1.310	-13.651	13.714	185.484	0.036
1000.000	1.395	209.512	999.816	-15.876	-2.487	-15.876	16.069	188.903	0.125
1100.000	1.278	212.575	1099.789	-17.875	-3.687	-17.875	18.251	191.655	0.137
1200.000	1.229	212.830	1199.765	-19.715	-4.869	-19.715	20.308	193.872	0.050
1300.000	1.199	214.884	1299.743	-21.475	-6.049	-21.475	22.311	195.731	0.052
1400.000	1.051	208.067	1399.723	-23.143	-7.079	-23.143	24.201	197.008	0.199
1500.000	1.160	217.175	1499.705	-24.759	-8.122	-24.759	26.057	198.162	0.207
1600.000	1.188	225.543	1599.684	-26.292	-9.474	-26.292	27.947	199.816	0.174
1700.000	1.392	243.497	1699.659	-27.560	-11.301	-27.560	29.787	202.296	0.450
1800.000	1.647	251.897	1799.624	-28.548	-13.753	-28.548	31.689	205.723	0.338
1900.000	1.652	251.970	1899.582	-29.441	-16.490	-29.441	33.745	209.254	0.006
2000.000	1.901	259.488	1999.534	-30.190	-19.492	-30.190	35.936	212.848	0.340
2100.000	2.235	269.929	2099.469	-30.495	-23.072	-30.495	38.240	217.111	0.502
2200.000	2.493	276.105	2199.384	-30.266	-27.185	-30.266	40.682	221.930	0.362
2300.000	2.524	280.320	2299.289	-29.640	-31.514	-29.640	43.263	226.755	0.187
2400.000	2.607	281.976	2399.188	-28.774	-35.905	-28.774	46.012	231.292	0.111
2500.000	2.672	281.786	2499.082	-27.826	-40.412	-27.826	49.065	235.451	0.066
2600.000	2.623	279.473	2598.975	-26.973	-44.951	-26.973	52.423	239.034	0.118
2700.000	2.503	275.531	2698.875	-26.386	-49.382	-26.386	55.989	241.883	0.213
2800.000	2.400	273.879	2798.784	-26.034	-53.644	-26.034	59.628	244.112	0.125
2900.000	2.279	264.796	2898.701	-26.073	-57.713	-26.073	63.329	245.688	0.390
3000.000	2.156	254.631	2998.626	-26.751	-61.507	-26.751	67.073	246.494	0.412
3100.000	2.272	256.498	3098.552	-27.713	-65.248	-27.713	70.889	246.988	0.137
3200.000	1.671	252.371	3198.492	-28.617	-68.565	-28.617	74.297	247.346	0.618
3300.000	1.392	242.954	3298.457	-29.611	-71.036	-29.611	76.960	247.372	0.375

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
3400.000	1.226	232.081	3398.431	-30.821	-72.962	-30.821	79.204	247.100	0.298
3500.000	1.227	222.004	3498.408	-32.274	-74.522	-32.274	81.211	246.584	0.215
3600.000	1.267	224.967	3598.384	-33.852	-76.020	-33.852	83.217	245.997	0.076
3700.000	1.072	227.113	3698.363	-35.271	-77.487	-35.271	85.137	245.526	0.200
3800.000	1.146	226.451	3798.344	-36.597	-78.898	-36.597	86.972	245.116	0.075
3900.000	0.650	218.447	3898.332	-37.730	-79.975	-37.730	88.428	244.743	0.511
4000.000	0.419	145.174	3998.328	-38.474	-80.119	-38.474	88.878	244.349	0.664
4100.000	0.438	142.096	4098.326	-39.076	-79.675	-39.076	88.742	243.875	0.030
4200.000	0.438	183.806	4198.323	-39.759	-79.466	-39.759	88.857	243.420	0.312
4300.000	0.430	220.541	4298.320	-40.426	-79.735	-40.426	89.397	243.115	0.274
4400.000	0.897	273.504	4398.314	-40.663	-80.760	-40.663	90.419	243.275	0.724
4500.000	1.107	274.590	4498.299	-40.538	-82.504	-40.538	91.925	243.833	0.211
4600.000	1.075	273.932	4598.281	-40.396	-84.402	-40.396	93.571	244.424	0.034
4700.000	1.240	276.867	4698.260	-40.202	-86.413	-40.202	95.307	245.051	0.176
4800.000	1.023	279.741	4798.241	-39.922	-88.367	-39.922	96.966	245.688	0.225
4900.000	0.913	282.728	4898.226	-39.595	-90.024	-39.595	98.347	246.259	0.121
5000.000	0.548	299.356	4998.218	-39.185	-91.218	-39.185	99.278	246.753	0.419
5100.000	0.507	281.668	5098.214	-38.861	-92.068	-38.861	99.934	247.116	0.167
5200.000	0.294	310.386	5198.212	-38.606	-92.697	-38.606	100.415	247.390	0.286
5300.000	0.360	311.794	5298.210	-38.230	-93.127	-38.230	100.668	247.681	0.067
5400.000	0.431	23.768	5398.208	-37.676	-93.210	-37.676	100.536	247.991	0.468
5500.000	0.467	199.045	5498.207	-37.717	-93.191	-37.717	100.535	247.965	0.897
5600.000	0.779	202.711	5598.201	-38.730	-93.587	-38.730	101.284	247.518	0.314
5700.000	0.353	232.871	5698.196	-39.543	-94.095	-39.543	102.066	247.206	0.506
5800.000	0.409	313.405	5798.194	-39.484	-94.600	-39.484	102.509	247.346	0.494
5900.000	0.741	298.527	5898.189	-38.929	-95.427	-38.929	103.062	247.807	0.361
6000.000	0.547	273.605	5998.183	-38.591	-96.472	-38.591	103.904	248.198	0.336
6100.000	0.538	262.225	6098.179	-38.624	-97.414	-38.624	104.792	248.372	0.108
6200.000	0.477	254.002	6198.175	-38.802	-98.280	-38.802	105.662	248.455	0.095
6300.000	1.259	277.221	6298.163	-38.779	-99.769	-38.779	107.040	248.760	0.842
6400.000	1.158	308.129	6398.142	-38.017	-101.653	-38.017	108.530	249.495	0.651
6500.000	1.150	343.767	6498.123	-36.429	-102.729	-36.429	108.997	250.475	0.706
6600.000	1.712	10.461	6598.092	-33.996	-102.738	-33.996	108.217	251.691	0.858
6700.000	2.561	18.975	6698.022	-30.414	-101.740	-30.414	106.189	253.356	0.903
6800.000	3.445	22.654	6797.884	-25.530	-99.857	-25.530	103.069	255.659	0.904
6900.000	2.907	33.292	6897.731	-20.638	-97.308	-20.638	99.472	258.026	0.796
7000.000	2.090	37.441	6997.635	-17.071	-94.808	-17.071	96.332	259.793	0.837
HORIZONTAL DISPLACEMENT IS 96.332 FEET AT 259.793 DEGREES									