

Company: Anadarko Petroleum Corp.

Well/API: HSR-Rademacher 14-30/05-123-18848

Tool Type: North Seeking Rate Gyro

Rig Name: Production/CoreTech

County/State: Weld/Colorado

Latitude: 40.191, Longitude: -104.934

Directions are relative to True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB=GL Elevation= 4848 Feet

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 11/18/2014 / 14:42

Lat/Long 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	0.935	21.057	99.996	0.761	0.293	0.761	0.816	21.057	0.935
200.000	0.999	13.655	199.981	2.370	0.792	2.370	2.499	18.480	0.140
300.000	1.749	31.863	299.952	4.513	1.803	4.513	4.860	21.781	0.858
400.000	1.957	34.054	399.900	7.223	3.565	7.223	8.055	26.267	0.220
500.000	2.061	42.153	499.839	9.971	5.728	9.971	11.499	29.875	0.302
600.000	2.253	48.629	599.768	12.603	8.410	12.603	15.151	33.713	0.310
700.000	2.833	66.374	699.671	14.893	12.149	14.893	19.219	39.206	0.971
800.000	2.507	68.790	799.562	16.674	16.452	16.674	23.424	44.615	0.344
900.000	2.450	60.835	899.469	18.507	20.357	18.507	27.513	47.725	0.348
1000.000	2.463	58.690	999.377	20.666	24.060	20.666	31.716	49.340	0.093
1100.000	2.101	52.565	1099.298	22.897	27.351	22.897	35.670	50.066	0.436
1200.000	1.737	47.254	1199.241	25.040	29.920	25.040	39.015	50.074	0.405
1300.000	1.182	42.156	1299.209	26.834	31.726	26.834	41.552	49.775	0.569
1400.000	0.801	39.326	1399.193	28.139	32.861	28.139	43.262	49.426	0.385
1500.000	0.291	22.716	1499.189	28.913	33.401	28.913	44.177	49.120	0.528
1600.000	0.190	282.214	1599.188	29.183	33.337	29.183	44.305	48.802	0.375
1700.000	0.574	258.651	1699.186	29.119	32.684	29.119	43.774	48.301	0.406
1800.000	0.934	248.875	1799.177	28.727	31.433	28.727	42.582	47.575	0.381
1900.000	0.936	245.451	1899.164	28.094	29.929	28.094	41.049	46.812	0.056
2000.000	1.034	249.822	1999.149	27.443	28.339	27.443	39.449	45.920	0.123
2100.000	0.969	243.330	2099.134	26.752	26.737	26.752	37.823	44.983	0.130
2200.000	0.908	224.061	2199.120	25.804	25.430	25.804	36.229	44.583	0.320
2300.000	0.603	225.076	2299.112	24.863	24.507	24.863	34.911	44.587	0.305
2400.000	0.806	218.573	2399.104	23.942	23.696	23.942	33.686	44.705	0.217
2500.000	0.481	238.200	2499.098	23.171	22.901	23.171	32.578	44.664	0.388
2600.000	0.827	239.985	2599.091	22.589	21.919	22.589	31.475	44.138	0.347
2700.000	0.571	242.934	2699.083	22.001	20.850	22.001	30.311	43.462	0.259
2800.000	0.953	264.426	2799.075	21.693	19.579	21.693	29.222	42.068	0.470
2900.000	1.049	262.208	2899.059	21.488	17.845	21.488	27.932	39.708	0.104
3000.000	0.749	259.848	2999.047	21.249	16.294	21.249	26.777	37.482	0.303
3100.000	0.954	260.307	3099.036	20.994	14.831	20.994	25.704	35.239	0.205
3200.000	0.957	246.546	3199.022	20.521	13.244	20.521	24.424	32.838	0.229
3300.000	0.797	273.699	3299.011	20.234	11.784	20.234	23.415	30.217	0.440

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	1.091	277.278	3398.997	20.399	10.146	20.399	22.783	26.445	0.300
3500.000	1.649	273.524	3498.968	20.608	7.766	20.608	22.023	20.648	0.565
3600.000	2.106	272.448	3598.914	20.775	4.493	20.775	21.256	12.204	0.458
3700.000	2.114	273.875	3698.846	20.978	0.817	20.978	20.994	2.229	0.053
3800.000	2.168	273.836	3798.776	21.230	-2.911	21.230	21.428	352.193	0.053
3900.000	1.910	296.091	3898.715	22.089	-6.294	22.089	22.968	344.096	0.826
4000.000	2.068	314.165	3998.655	24.079	-9.085	24.079	25.735	339.329	0.644
4100.000	2.886	314.232	4098.561	27.092	-12.183	27.092	29.705	335.788	0.818
4200.000	2.661	318.091	4198.444	30.575	-15.536	30.575	34.296	333.063	0.292
4300.000	2.823	304.778	4298.331	33.707	-19.109	33.707	38.747	330.450	0.656
4400.000	2.119	316.013	4398.238	36.441	-22.416	36.441	42.784	328.404	0.851
4500.000	1.904	321.478	4498.176	39.071	-24.734	39.071	46.242	327.664	0.288
4600.000	2.168	325.543	4598.113	41.931	-26.839	41.931	49.785	327.377	0.301
4700.000	2.390	337.956	4698.034	45.423	-28.692	45.423	53.726	327.721	0.540
4800.000	1.490	342.742	4797.976	48.597	-29.860	48.597	57.038	328.431	0.914
4900.000	1.144	323.041	4897.950	50.635	-30.846	50.635	59.291	328.651	0.565
5000.000	1.301	304.610	4997.928	52.078	-32.380	52.078	61.323	328.128	0.421
5100.000	1.062	324.029	5097.907	53.472	-33.859	53.472	63.291	327.658	0.463
5200.000	0.720	312.630	5197.894	54.648	-34.865	54.648	64.823	327.462	0.383
5300.000	1.226	316.000	5297.880	55.844	-36.071	55.844	66.480	327.140	0.509
5400.000	1.537	323.061	5397.851	57.685	-37.621	57.685	68.869	326.889	0.353
5500.000	1.272	321.996	5497.820	59.631	-39.110	59.631	71.312	326.741	0.266
5600.000	1.371	324.246	5597.794	61.476	-40.492	61.476	73.613	326.629	0.112
5700.000	1.309	338.936	5697.767	63.513	-41.601	63.513	75.925	326.775	0.348
5800.000	2.243	345.486	5797.718	66.474	-42.502	66.474	78.900	327.406	0.954
5900.000	2.343	341.573	5897.638	70.307	-43.639	70.307	82.749	328.173	0.186
6000.000	1.769	337.785	5997.573	73.675	-44.868	73.675	86.263	328.658	0.589
6100.000	2.468	318.101	6097.505	76.707	-46.890	76.707	89.903	328.563	0.999
6200.000	2.981	308.435	6197.393	79.926	-50.365	79.926	94.471	327.783	0.687
6300.000	2.025	306.077	6297.296	82.583	-53.829	82.583	98.577	326.903	0.961
6400.000	0.817	298.357	6397.263	83.962	-55.885	83.962	100.860	326.352	1.220
6500.000	1.002	208.195	6497.255	83.530	-56.926	83.530	101.083	325.725	1.295
6600.000	1.716	191.103	6597.227	81.290	-57.627	81.290	99.644	324.667	0.813
6700.000	2.664	191.205	6697.152	77.541	-58.367	77.541	97.054	323.030	0.949
6800.000	3.260	186.031	6797.019	72.434	-59.117	72.434	93.497	320.780	0.652
6900.000	3.222	185.150	6896.859	66.808	-59.668	66.808	89.575	318.231	0.062
7000.000	3.712	178.326	6996.676	60.774	-59.826	60.774	85.280	315.450	0.639
7100.000	4.472	186.680	7096.421	53.667	-60.185	53.667	80.637	311.723	0.964
7200.000	5.391	185.041	7196.050	45.115	-61.051	45.115	75.912	306.463	0.930
7300.000	5.460	185.307	7295.602	35.699	-61.904	35.699	71.460	299.971	0.073
HORIZONTAL DISPLACEMENT IS 71.460 FEET AT 299.971 DEGREES									