

Company: Anadarko Petroleum Corp

Well: HSR-Melvin Camp 12-31

Rig Name: Production/Cable

Location: Weld County, Colorado

Latitude: 40.180

Directions are relative to True North

VS-Azi: 0.000 Degrees



Depth Reference : RKB = Ground Level

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01_ed2.ut

Minimum Curvature Method

Report Date/Time: 5/7/2012 / 09:18

Vaughn Energy Services

Henderson, CO.

303-853-4976

Surveyor: Justin Williams

HSR-Melvin Camp 12-31 / API 05-123-18279

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	0.634	323.020	99.998	0.442	-0.333	0.442	0.553	323.020	0.634
200.000	0.499	4.279	199.993	1.318	-0.633	1.318	1.463	334.342	0.419
300.000	0.214	295.127	299.992	1.832	-0.770	1.832	1.987	337.203	0.468
400.000	0.278	140.876	399.991	1.723	-0.786	1.723	1.894	335.476	0.480
500.000	0.254	352.420	499.991	1.755	-0.663	1.755	1.876	339.316	0.511
600.000	0.256	0.027	599.990	2.198	-0.692	2.198	2.304	342.529	0.034
700.000	0.209	185.870	699.990	2.240	-0.710	2.240	2.350	342.406	0.464
800.000	0.303	172.646	799.989	1.797	-0.695	1.797	1.926	338.851	0.110
900.000	0.268	336.255	899.988	1.749	-0.755	1.749	1.905	336.637	0.565
1000.000	0.305	302.808	999.987	2.107	-1.073	2.107	2.365	333.012	0.168
1100.000	0.167	22.006	1099.986	2.387	-1.242	2.387	2.690	332.513	0.319
1200.000	0.206	327.056	1199.986	2.673	-1.285	2.673	2.966	334.329	0.176
1300.000	0.302	235.049	1299.985	2.674	-1.599	2.674	3.115	329.124	0.371
1400.000	0.128	110.876	1399.985	2.483	-1.710	2.483	3.015	325.446	0.388
1500.000	0.236	337.732	1499.985	2.634	-1.684	2.634	3.126	327.413	0.337
1600.000	0.150	79.759	1599.984	2.848	-1.633	2.848	3.283	330.176	0.305
1700.000	0.106	281.203	1699.984	2.889	-1.594	2.889	3.300	331.115	0.251
1800.000	0.452	323.933	1799.983	3.226	-1.916	3.226	3.752	329.287	0.381
1900.000	0.340	320.219	1899.980	3.772	-2.338	3.772	4.438	328.208	0.114
2000.000	0.799	335.264	1999.975	4.634	-2.820	4.634	5.425	328.677	0.479

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
2100.000	1.066	322.042	2099.962	6.000	-3.684	6.000	7.041	328.453	0.341
2200.000	1.332	316.727	2199.940	7.580	-5.052	7.580	9.109	326.314	0.288
2300.000	1.261	316.348	2299.915	9.222	-6.608	9.222	11.345	324.375	0.071
2400.000	1.199	310.813	2399.892	10.702	-8.160	10.702	13.458	322.676	0.134
2500.000	1.126	303.894	2499.871	11.934	-9.767	11.934	15.421	320.701	0.158
2600.000	1.308	304.005	2599.848	13.120	-11.529	13.120	17.466	318.692	0.182
2700.000	1.838	297.384	2699.810	14.496	-13.900	14.496	20.084	316.203	0.559
2800.000	2.215	289.636	2799.748	15.883	-17.144	15.883	23.371	312.814	0.465
2900.000	2.376	296.630	2899.668	17.462	-20.818	17.462	27.172	309.990	0.323
3000.000	2.147	295.075	2999.590	19.185	-24.367	19.185	31.013	308.214	0.238
3100.000	2.006	291.368	3099.524	20.616	-27.693	20.616	34.525	306.666	0.194
3200.000	1.697	290.747	3199.472	21.779	-30.708	21.779	37.647	305.345	0.309
3300.000	1.108	296.203	3299.442	22.730	-32.961	22.730	40.038	304.591	0.604
3400.000	1.384	278.256	3399.418	23.331	-35.023	23.331	42.083	303.669	0.475
3500.000	1.856	302.248	3499.379	24.368	-37.588	24.368	44.796	302.955	0.817
3600.000	2.234	304.364	3599.315	26.332	-40.567	26.332	48.364	302.988	0.385
3700.000	2.399	322.378	3699.235	29.090	-43.453	29.090	52.292	303.801	0.743
3800.000	3.169	315.891	3799.116	32.732	-46.655	32.732	56.992	305.053	0.831
3900.000	3.770	310.266	3898.933	36.842	-51.087	36.842	62.985	305.797	0.690
4000.000	4.125	313.617	3998.696	41.447	-56.199	41.447	69.830	306.409	0.423
4100.000	4.201	314.341	4098.432	46.488	-61.423	46.488	77.032	307.121	0.093
4200.000	4.154	314.997	4198.166	51.610	-66.604	51.610	84.259	307.771	0.067
4300.000	4.104	315.532	4297.906	56.724	-71.671	56.724	91.402	308.360	0.063
4400.000	3.870	317.078	4397.664	61.748	-76.476	61.748	98.292	308.918	0.257
4500.000	3.134	316.703	4497.477	66.208	-80.648	66.208	104.344	309.384	0.736
4600.000	3.010	319.130	4597.333	70.183	-84.241	70.183	109.646	309.799	0.179
4700.000	2.729	315.652	4697.208	73.871	-87.623	73.871	114.606	310.133	0.331
4800.000	2.391	308.737	4797.108	76.879	-90.914	76.879	119.062	310.219	0.457
4900.000	2.081	300.187	4897.032	79.097	-94.111	79.097	122.936	310.046	0.455
5000.000	1.548	281.279	4996.983	80.274	-97.005	80.274	125.913	309.609	0.795
5100.000	1.289	264.947	5096.952	80.440	-99.450	80.440	127.909	308.968	0.478
5200.000	1.146	264.301	5196.930	80.241	-101.565	80.241	129.438	308.310	0.143
5300.000	0.830	250.056	5296.915	79.895	-103.241	79.895	130.545	307.735	0.398
5400.000	0.689	279.354	5396.906	79.746	-104.516	79.746	131.464	307.344	0.408
5500.000	0.327	69.894	5496.905	79.942	-104.841	79.942	131.842	307.326	0.988
5600.000	1.013	88.979	5596.897	80.056	-103.689	80.056	130.997	307.671	0.711
5700.000	1.167	73.826	5696.879	80.355	-101.828	80.355	129.714	308.278	0.325
5800.000	0.849	25.934	5796.865	81.305	-100.526	81.305	129.290	308.966	0.868
5900.000	0.875	15.249	5896.854	82.708	-100.001	82.708	129.772	309.593	0.163
6000.000	0.963	22.010	5996.841	84.224	-99.485	84.224	130.349	310.251	0.139
6100.000	0.251	305.820	6096.836	85.131	-99.348	85.131	130.833	310.593	0.935
6200.000	0.057	123.382	6196.836	85.232	-99.484	85.232	131.002	310.588	0.308

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
6300.000	0.404	288.221	6296.835	85.314	-99.777	85.314	131.279	310.532	0.460
6400.000	0.259	39.346	6396.834	85.600	-99.969	85.600	131.609	310.572	0.553
6500.000	0.292	329.259	6496.833	85.994	-99.956	85.994	131.856	310.706	0.318
6600.000	0.155	293.547	6596.832	86.267	-100.210	86.267	132.227	310.724	0.189
6700.000	0.093	319.272	6696.832	86.382	-100.386	86.382	132.436	310.712	0.082
6800.000	0.047	251.156	6796.832	86.430	-100.478	86.430	132.536	310.702	0.087
6900.000	0.109	307.043	6896.832	86.474	-100.592	86.474	132.652	310.684	0.091
7000.000	0.031	101.748	6996.832	86.525	-100.641	86.525	132.723	310.687	0.137
7050.000	0.059	80.429	7046.832	86.527	-100.603	86.527	132.695	310.698	0.066