

Company: ANADARKO PETROLEUM

Well: PSC 12-10A

API: 05-123-17925

Rig Name: PRODUCTION/CORE-TECH

State/County: COLORADO / WELD

Latitude: 40.242, Longitude: -104.884

Directions are relative to True North

VS-Azi: 0.000 Degrees

**FIELD COPY ONLY (NOT DEFINITIVE)**

Depth Reference : RKB = GROUND LEVEL

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 10/28/2013 / 16:21

VAUGHN ENERGY SERVICES

HENDERSON, COLORADO

303-853-4976

NICK KULA

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	0.156	296.308	100.000	0.060	-0.122	0.060	0.136	296.308	0.156
200.000	0.219	271.564	199.999	0.126	-0.435	0.126	0.453	286.134	0.101
300.000	0.396	276.582	299.998	0.171	-0.970	0.171	0.985	279.986	0.179
400.000	0.183	286.895	399.997	0.257	-1.466	0.257	1.488	279.935	0.219
500.000	0.436	260.441	499.995	0.240	-1.994	0.240	2.008	276.861	0.284
600.000	0.549	277.565	599.991	0.240	-2.845	0.240	2.855	274.819	0.184
700.000	0.420	260.379	699.988	0.242	-3.682	0.242	3.690	273.755	0.193
800.000	0.593	284.794	799.984	0.312	-4.543	0.312	4.554	273.933	0.272
900.000	0.524	265.908	899.979	0.412	-5.499	0.412	5.515	274.282	0.195
1000.000	0.706	259.884	999.974	0.271	-6.562	0.271	6.568	272.364	0.193
1100.000	0.880	275.617	1099.964	0.238	-7.933	0.238	7.936	271.717	0.277
1200.000	0.886	262.000	1199.952	0.205	-9.462	0.205	9.465	271.243	0.209
1300.000	0.818	277.512	1299.941	0.191	-10.936	0.191	10.938	271.001	0.240
1400.000	1.023	274.659	1399.928	0.357	-12.534	0.357	12.540	271.631	0.210
1500.000	0.965	279.945	1499.913	0.575	-14.254	0.575	14.266	272.310	0.109
1600.000	1.139	289.239	1599.897	1.048	-16.023	1.048	16.057	273.742	0.243
1700.000	0.937	294.292	1699.880	1.712	-17.706	1.712	17.789	275.522	0.222
1800.000	0.915	300.912	1799.867	2.459	-19.137	2.459	19.294	277.321	0.109
1900.000	1.180	296.738	1899.850	3.332	-20.741	3.332	21.007	279.126	0.275
2000.000	0.951	305.217	1999.833	4.274	-22.339	4.274	22.744	280.831	0.277
2100.000	0.951	318.672	2099.819	5.376	-23.565	5.376	24.170	282.851	0.223
2200.000	1.026	320.161	2199.804	6.687	-24.687	6.687	25.576	285.156	0.079
2300.000	0.959	305.911	2299.790	7.865	-25.938	7.865	27.104	286.868	0.255
2400.000	1.247	302.249	2399.771	8.936	-27.536	8.936	28.949	287.980	0.297
2500.000	1.375	301.151	2499.745	10.137	-29.483	10.137	31.177	288.975	0.131
2600.000	1.236	289.023	2599.719	11.110	-31.529	11.110	33.430	289.410	0.309
2700.000	1.826	299.125	2699.683	12.237	-33.941	12.237	36.080	289.826	0.647
2800.000	1.731	289.399	2799.635	13.514	-36.758	13.514	39.163	290.186	0.316
2900.000	2.116	279.843	2899.579	14.331	-40.001	14.331	42.490	289.711	0.500

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
3000.000	2.175	267.232	2999.509	14.555	-43.715	14.555	46.074	288.415	0.475
3100.000	1.600	251.829	3099.455	14.028	-46.938	14.028	48.989	286.639	0.762
3200.000	1.295	243.645	3199.423	13.091	-49.277	13.091	50.986	284.877	0.368
3300.000	1.511	230.715	3299.393	11.754	-51.310	11.754	52.639	282.903	0.382
3400.000	1.729	238.961	3399.354	10.141	-53.624	10.141	54.574	280.709	0.318
3500.000	1.950	246.654	3499.302	8.689	-56.479	8.689	57.143	278.746	0.331
3600.000	2.004	263.649	3599.243	7.821	-59.778	7.821	60.288	277.454	0.587
3700.000	1.949	256.670	3699.184	7.236	-63.170	7.236	63.584	276.535	0.247
3800.000	1.966	251.776	3799.126	6.307	-66.454	6.307	66.753	275.422	0.168
3900.000	1.220	262.197	3899.087	5.626	-69.138	5.626	69.367	274.652	0.798
4000.000	0.811	284.077	3999.071	5.654	-70.879	5.654	71.105	274.561	0.556
4100.000	0.793	294.374	4099.061	6.112	-72.197	6.112	72.455	274.839	0.145
4200.000	0.658	251.394	4199.054	6.214	-73.371	6.214	73.633	274.841	0.546
4300.000	0.719	168.146	4299.049	5.418	-73.786	5.418	73.984	274.199	0.915
4400.000	0.749	138.146	4399.041	4.317	-73.221	4.317	73.348	273.374	0.381
4500.000	0.778	159.246	4499.032	3.196	-72.545	3.196	72.615	272.523	0.281
4600.000	0.885	166.357	4599.022	1.811	-72.122	1.811	72.145	271.438	0.149
4700.000	0.631	188.059	4699.013	0.515	-72.017	0.515	72.019	270.410	0.379
4800.000	0.639	208.017	4799.007	-0.523	-72.356	-0.523	72.358	269.586	0.220
4900.000	0.509	206.942	4899.002	-1.412	-72.820	-1.412	72.833	268.890	0.130
5000.000	0.667	167.311	4998.997	-2.376	-72.893	-2.376	72.932	268.133	0.425
5100.000	0.703	193.992	5098.990	-3.538	-72.914	-3.538	73.000	267.222	0.318
5200.000	0.460	204.037	5198.985	-4.500	-73.226	-4.500	73.364	266.484	0.262
5300.000	0.468	263.329	5298.982	-4.913	-73.795	-4.913	73.958	266.191	0.459
5400.000	0.383	268.920	5398.980	-4.967	-74.534	-4.967	74.699	266.187	0.095
5500.000	1.259	256.411	5498.969	-5.232	-75.935	-5.232	76.115	266.059	0.889
5600.000	1.413	265.301	5598.941	-5.591	-78.232	-5.591	78.431	265.912	0.258
5700.000	1.219	241.785	5698.916	-6.194	-80.398	-6.194	80.636	265.594	0.569
5800.000	1.152	250.559	5798.894	-7.032	-82.283	-7.032	82.583	265.115	0.193
5900.000	1.044	244.901	5898.876	-7.753	-84.056	-7.753	84.413	264.730	0.153
6000.000	0.951	242.387	5998.861	-8.524	-85.616	-8.524	86.040	264.314	0.103
6100.000	1.057	235.563	6098.846	-9.430	-87.112	-9.430	87.621	263.822	0.159
6200.000	1.024	231.032	6198.829	-10.513	-88.567	-10.513	89.189	263.230	0.089
6300.000	1.075	238.912	6298.812	-11.560	-90.065	-11.560	90.804	262.686	0.153
6400.000	1.401	222.635	6398.789	-12.943	-91.696	-12.943	92.605	261.965	0.476
6500.000	1.186	242.006	6498.764	-14.329	-93.438	-14.329	94.531	261.282	0.484
6600.000	0.391	272.970	6598.754	-14.797	-94.693	-14.797	95.842	261.119	0.874
6700.000	0.708	27.701	6698.751	-14.232	-94.746	-14.232	95.809	261.457	0.941
6800.000	0.897	23.863	6798.742	-12.969	-94.142	-12.969	95.032	262.156	0.197
6900.000	1.198	35.710	6898.725	-11.404	-93.215	-11.404	93.910	263.025	0.369
7000.000	1.014	44.579	6998.706	-9.925	-91.984	-9.925	92.518	263.842	0.251
7050.000	1.010	53.086	7048.699	-9.346	-91.321	-9.346	91.798	264.157	0.300
HORIZONTAL DISPLACEMENT IS 91.798 FEET AT 264.157 DEGREES									