



Company: Anadarko Petroleum
 Well: St. Acacius 18-35
 API: 05-123-24911
 Rig Name: Production/ VES
 State/County: Colorado/Weld
 Latitude: 40.186, Longitude: -104.975
 Directions are relative to True North
 VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= Ground Level

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: hagyar-de_01.ut
 Minimum Curvature Method
 Report Date/Time: 11/16/2013 / 15:24

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	0.909	4.670	99.996	0.791	0.065	0.791	0.793	4.670	0.909
200.000	0.857	358.128	199.984	2.328	0.105	2.328	2.331	2.575	0.113
300.000	0.627	345.494	299.976	3.606	-0.057	3.606	3.606	359.099	0.281
400.000	0.528	329.139	399.971	4.531	-0.430	4.531	4.551	354.576	0.191
500.000	0.796	332.915	499.964	5.546	-0.983	5.546	5.632	349.946	0.272
600.000	1.462	4.010	599.945	7.437	-1.210	7.437	7.535	350.756	0.882
700.000	2.302	18.761	699.890	10.612	-0.475	10.612	10.623	357.436	0.963
800.000	3.045	29.585	799.781	14.824	1.482	14.824	14.898	5.709	0.895
900.000	3.659	39.517	899.611	19.595	4.823	19.595	20.180	13.829	0.843
1000.000	3.323	40.600	999.425	24.257	8.740	24.257	25.783	19.815	0.342
1100.000	2.650	37.996	1099.289	28.279	12.049	28.279	30.739	23.078	0.687
1200.000	2.015	24.084	1199.206	31.706	14.190	31.706	34.736	24.111	0.847
1300.000	1.377	5.864	1299.163	34.505	15.030	34.505	37.637	23.537	0.828
1400.000	1.435	337.333	1399.134	36.856	14.670	36.856	39.668	21.704	0.695
1500.000	1.211	310.726	1499.108	38.701	13.386	38.701	40.951	19.080	0.647
1600.000	1.519	313.123	1599.079	40.297	11.618	40.297	41.938	16.083	0.313
1700.000	1.677	320.260	1699.041	42.328	9.715	42.328	43.428	12.927	0.254
1800.000	1.537	323.582	1799.001	44.533	7.983	44.533	45.242	10.163	0.168
1900.000	1.142	334.822	1898.974	46.514	6.763	46.514	47.003	8.273	0.472
2000.000	1.187	290.686	1998.955	47.782	5.370	47.782	48.083	6.412	0.876
2100.000	1.375	283.205	2098.930	48.422	3.232	48.422	48.530	3.819	0.251
2200.000	0.973	261.160	2198.909	48.566	1.226	48.566	48.581	1.446	0.598
2300.000	0.760	260.083	2298.898	48.321	-0.267	48.321	48.322	359.684	0.213
2400.000	0.770	243.713	2398.889	47.909	-1.523	47.909	47.933	358.180	0.218
2500.000	0.680	236.759	2498.881	47.286	-2.621	47.286	47.359	356.827	0.126
2600.000	0.436	235.034	2598.876	46.743	-3.430	46.743	46.868	355.804	0.244
2700.000	0.330	190.982	2698.874	46.242	-3.797	46.242	46.397	355.306	0.304
2800.000	0.456	226.055	2798.872	45.683	-4.138	45.683	45.870	354.824	0.266
2900.000	1.230	251.911	2898.861	45.073	-5.445	45.073	45.401	353.112	0.843
3000.000	1.156	253.668	2998.839	44.456	-7.434	44.456	45.073	350.507	0.082
3100.000	1.391	253.399	3098.814	43.825	-9.565	43.825	44.857	347.688	0.234
3200.000	1.460	249.308	3198.783	43.029	-11.920	43.029	44.649	344.516	0.123
3300.000	1.510	230.840	3298.750	41.747	-14.133	41.747	44.074	341.297	0.479
3400.000	1.410	196.225	3398.720	39.734	-15.498	39.734	42.649	338.692	0.874
3500.000	1.244	180.390	3498.693	37.466	-15.849	37.466	40.681	337.070	0.401

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	1.528	168.624	3598.664	35.074	-15.594	35.074	38.384	336.030	0.400
3700.000	1.426	162.241	3698.631	32.582	-14.951	32.582	35.848	335.350	0.193
3800.000	1.501	175.014	3798.599	30.092	-14.458	30.092	33.385	334.338	0.334
3900.000	1.436	189.028	3898.566	27.550	-14.541	27.550	31.152	332.175	0.364
4000.000	0.833	177.704	3998.546	25.586	-14.708	25.586	29.512	330.107	0.641
4100.000	0.463	188.331	4098.540	24.460	-14.738	24.460	28.556	328.930	0.388
4200.000	0.486	239.314	4198.537	23.844	-15.161	23.844	28.255	327.550	0.409
4300.000	0.554	263.613	4298.533	23.573	-16.006	23.573	28.494	325.824	0.229
4400.000	0.478	324.204	4398.529	23.858	-16.730	23.858	29.140	324.960	0.525
4500.000	0.765	357.649	4498.524	24.863	-17.002	24.863	30.121	325.635	0.451
4600.000	0.829	336.074	4598.514	26.191	-17.323	26.191	31.401	326.520	0.305
4700.000	0.668	345.839	4698.506	27.417	-17.758	27.417	32.666	327.069	0.205
4800.000	0.768	328.410	4798.498	28.553	-18.252	28.553	33.888	327.412	0.239
4900.000	0.730	319.374	4898.489	29.607	-19.018	29.607	35.189	327.286	0.124
5000.000	1.027	308.802	4998.478	30.653	-20.131	30.653	36.672	326.705	0.337
5100.000	0.942	321.784	5098.463	31.860	-21.338	31.860	38.346	326.188	0.238
5200.000	0.748	320.136	5198.452	33.007	-22.265	33.007	39.814	325.998	0.195
5300.000	1.060	322.845	5298.439	34.245	-23.242	34.245	41.388	325.835	0.315
5400.000	1.107	321.190	5398.421	35.736	-24.407	35.736	43.275	325.668	0.057
5500.000	0.964	352.053	5498.406	37.322	-25.129	37.322	44.993	326.048	0.568
5600.000	1.023	11.999	5598.391	39.029	-25.059	39.029	46.381	327.297	0.349
5700.000	0.947	4.934	5698.376	40.726	-24.803	40.726	47.684	328.658	0.143
5800.000	0.869	348.733	5798.364	42.293	-24.880	42.293	49.068	329.533	0.267
5900.000	1.164	333.034	5898.348	43.943	-25.489	43.943	50.800	329.884	0.403
6000.000	1.451	333.425	5998.322	45.980	-26.516	45.980	53.078	330.029	0.287
6100.000	1.701	329.653	6098.284	48.393	-27.832	48.393	55.826	330.096	0.270
6200.000	1.945	322.796	6198.234	51.025	-29.608	51.025	58.993	329.875	0.327
6300.000	2.045	326.006	6298.173	53.856	-31.631	53.856	62.458	329.573	0.150
6400.000	2.245	309.631	6398.104	56.584	-34.137	56.584	66.084	328.898	0.642
6500.000	2.228	326.529	6498.029	59.455	-36.717	59.455	69.879	328.302	0.657
6600.000	2.613	318.083	6597.940	62.773	-39.312	62.773	74.067	327.943	0.524
6700.000	2.798	307.587	6697.829	65.958	-42.769	65.958	78.610	327.039	0.528
6800.000	2.537	300.217	6797.721	68.560	-46.615	68.560	82.906	325.787	0.430
6900.000	1.559	298.760	6897.656	70.328	-49.720	70.328	86.129	324.741	0.980
7000.000	1.375	308.964	6997.623	71.737	-51.845	71.737	88.511	324.144	0.318
7100.000	5.022	329.678	7097.453	76.271	-54.989	76.271	94.027	324.210	3.767
7200.000	5.310	336.114	7197.047	84.280	-59.073	84.280	102.921	324.973	0.647
HORIZONTAL DISPLACEMENT IS 102.921 FEET AT 324.973 DEGREES									