



Company: PDC Energy
 Well: Budagher 11-13
 API: 05-123-12843
 Rig Name: Production/ VES
 State/County: Colorado/Weld
 Latitude: 40.405, Longitude: -104.619
 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: 7/15/2014 / 19:16

VES Survey International
 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	0.588	307.611	99.998	0.313	-0.406	0.313	0.513	307.611	0.588
200.000	0.683	281.246	199.992	0.742	-1.397	0.742	1.582	297.982	0.304
300.000	0.963	247.000	299.982	0.530	-2.755	0.530	2.805	280.886	0.554
400.000	0.933	242.357	399.969	-0.176	-4.249	-0.176	4.253	267.625	0.083
500.000	0.891	272.559	499.957	-0.519	-5.747	-0.519	5.770	264.838	0.477
600.000	0.908	270.183	599.944	-0.482	-7.316	-0.482	7.332	266.231	0.041
700.000	0.943	270.955	699.931	-0.466	-8.931	-0.466	8.943	267.015	0.037
800.000	0.819	252.724	799.920	-0.664	-10.436	-0.664	10.457	266.358	0.305
900.000	0.629	245.679	899.912	-1.102	-11.619	-1.102	11.671	264.579	0.210
1000.000	0.532	218.343	999.907	-1.693	-12.407	-1.693	12.522	262.231	0.290
1100.000	0.375	198.575	1099.904	-2.367	-12.799	-2.367	13.016	259.524	0.220
1200.000	0.417	207.544	1199.901	-3.000	-13.072	-3.000	13.411	257.076	0.075
1300.000	0.430	225.351	1299.899	-3.586	-13.507	-3.586	13.975	255.130	0.132
1400.000	0.300	258.826	1399.897	-3.901	-14.031	-3.901	14.563	254.463	0.244
1500.000	0.586	242.720	1499.894	-4.186	-14.743	-4.186	15.326	254.148	0.309
1600.000	0.403	244.861	1599.890	-4.570	-15.516	-4.570	16.175	253.588	0.184
1700.000	0.868	266.310	1699.883	-4.768	-16.590	-4.768	17.261	253.965	0.514
1800.000	0.879	289.775	1799.872	-4.557	-18.067	-4.557	18.633	255.844	0.355
1900.000	0.832	264.874	1899.861	-4.362	-19.512	-4.362	19.994	257.398	0.372
2000.000	0.838	297.445	1999.851	-4.090	-20.884	-4.090	21.281	258.919	0.468
2100.000	0.783	285.739	2099.841	-3.568	-22.191	-3.568	22.476	260.866	0.174
2200.000	0.817	293.234	2199.832	-3.101	-23.504	-3.101	23.708	262.484	0.110
2300.000	0.683	292.230	2299.823	-2.594	-24.711	-2.594	24.847	264.007	0.135
2400.000	0.789	297.265	2399.815	-2.053	-25.875	-2.053	25.956	265.462	0.124
2500.000	0.719	306.827	2499.806	-1.362	-26.989	-1.362	27.023	267.111	0.144
2600.000	0.581	286.405	2599.800	-0.843	-27.977	-0.843	27.990	268.274	0.267
2700.000	0.514	295.136	2699.795	-0.509	-28.870	-0.509	28.875	268.990	0.107
2800.000	0.441	252.437	2799.792	-0.434	-29.644	-0.434	29.647	269.160	0.355
2900.000	0.312	267.315	2899.790	-0.563	-30.283	-0.563	30.288	268.934	0.161
3000.000	0.371	291.909	2999.788	-0.455	-30.855	-0.455	30.858	269.154	0.156
3100.000	0.709	341.804	3099.784	0.253	-31.348	0.253	31.349	270.462	0.549
3200.000	0.683	339.374	3199.777	1.397	-31.751	1.397	31.782	272.520	0.039
3300.000	0.764	324.104	3299.769	2.495	-32.352	2.495	32.448	274.411	0.209
3400.000	1.063	13.161	3399.757	3.939	-32.532	3.939	32.769	276.905	0.806
3500.000	1.512	42.101	3499.733	5.822	-31.436	5.822	31.970	280.492	0.776

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	1.335	27.449	3599.702	7.834	-30.014	7.834	31.020	284.629	0.403
3700.000	1.640	36.189	3699.669	10.023	-28.633	10.023	30.336	289.293	0.379
3800.000	1.732	39.017	3799.625	12.352	-26.836	12.352	29.543	294.715	0.124
3900.000	1.250	29.210	3899.591	14.478	-25.353	14.478	29.196	299.730	0.544
4000.000	1.055	32.683	3999.571	16.205	-24.323	16.205	29.227	303.674	0.207
4100.000	0.524	48.986	4099.561	17.280	-23.481	17.280	29.154	306.351	0.571
4200.000	0.638	55.747	4199.556	17.894	-22.676	17.894	28.886	308.278	0.132
4300.000	0.443	62.355	4299.552	18.387	-21.873	18.387	28.574	310.051	0.204
4400.000	0.505	80.691	4399.548	18.638	-21.095	18.638	28.149	311.461	0.163
4500.000	0.210	77.403	4499.546	18.749	-20.482	18.749	27.767	312.471	0.295
4600.000	0.392	93.909	4599.545	18.765	-19.962	18.765	27.397	313.231	0.199
4700.000	0.324	94.806	4699.543	18.719	-19.339	18.719	26.915	314.065	0.068
4800.000	0.216	100.432	4799.542	18.661	-18.872	18.661	26.540	314.677	0.111
4900.000	0.430	101.763	4899.540	18.550	-18.320	18.550	26.072	315.358	0.214
5000.000	0.444	109.031	4999.537	18.347	-17.587	18.347	25.415	316.213	0.057
5100.000	0.445	136.382	5099.534	17.940	-16.953	17.940	24.683	316.621	0.210
5200.000	0.300	79.455	5199.533	17.707	-16.428	17.707	24.154	317.146	0.377
5300.000	0.545	142.838	5299.530	17.376	-15.883	17.376	23.542	317.570	0.490
5400.000	0.490	117.543	5399.526	16.800	-15.217	16.800	22.667	317.830	0.233
5500.000	0.426	115.909	5499.523	16.439	-14.503	16.439	21.923	318.581	0.065
5600.000	0.734	121.964	5599.518	15.938	-13.625	15.938	20.968	319.473	0.313
5700.000	0.605	154.588	5699.511	15.122	-12.855	15.122	19.848	319.632	0.396
5800.000	0.665	162.507	5799.505	14.092	-12.454	14.092	18.807	318.529	0.107
5900.000	0.502	126.071	5899.500	13.280	-11.926	13.280	17.848	318.075	0.397
6000.000	0.642	176.207	5999.496	12.462	-11.534	12.462	16.981	317.215	0.501
6100.000	0.354	214.252	6099.492	11.648	-11.671	11.648	16.489	314.942	0.424
6200.000	0.107	148.488	6199.492	11.312	-11.796	11.312	16.344	313.800	0.326
6300.000	0.386	124.871	6299.491	11.040	-11.471	11.040	15.921	313.903	0.291
6400.000	0.535	84.576	6399.488	10.892	-10.730	10.892	15.289	315.428	0.347
6500.000	0.489	94.757	6499.484	10.900	-9.840	10.900	14.685	317.927	0.102

HORIZONTAL DISPLACEMENT IS
14.685 FEET AT 317.927 DEGREES