



Company: PDC Energy

Well: Oster 10-2

API: 05-123-13319

Rig Name: Production / V.E.S.

State/County: Colorado / Weld

Latitude: 40.325, Longitude: -104.869

Directions are relative to True North

VS-Azi: 0.000 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB = Ground Level

DRILLOG GYRO SURVEY CALCULATIONS

Filename: survey.ut

Minimum Curvature Method

Report Date/Time: 3/5/2015 / 17:25

Vaughn Energy Services

Henderson Colorado

303-853-4976

Norman Cowan

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	0.584	285.707	99.998	0.138	-0.491	0.138	0.510	285.707	0.584
200.000	0.792	326.959	199.992	0.855	-1.359	0.855	1.605	302.191	0.522
300.000	0.535	306.288	299.985	1.711	-2.111	1.711	2.717	309.013	0.347
400.000	0.727	311.507	399.979	2.407	-2.962	2.407	3.817	309.094	0.200
500.000	0.805	307.566	499.970	3.255	-3.994	3.255	5.153	309.183	0.094
600.000	0.671	286.494	599.962	3.850	-5.112	3.850	6.399	306.984	0.300
700.000	0.758	243.591	699.955	3.722	-6.266	3.722	7.288	300.708	0.529
800.000	0.731	225.085	799.946	2.977	-7.310	2.977	7.893	292.158	0.241
900.000	0.699	251.491	899.939	2.333	-8.340	2.333	8.660	285.629	0.328
1000.000	0.746	268.892	999.931	2.127	-9.569	2.127	9.803	282.531	0.223
1100.000	0.764	292.553	1099.923	2.370	-10.836	2.370	11.092	282.338	0.310
1200.000	0.947	291.597	1199.911	2.930	-12.220	2.930	12.566	283.483	0.183
1300.000	0.718	290.900	1299.901	3.458	-13.574	3.458	14.007	284.291	0.229
1400.000	0.524	295.556	1399.895	3.878	-14.571	3.878	15.079	284.905	0.201
1500.000	0.764	309.400	1499.889	4.499	-15.499	4.499	16.139	286.186	0.285
1600.000	0.759	307.965	1599.880	5.329	-16.536	5.329	17.374	287.863	0.020
1700.000	0.779	248.385	1699.872	5.486	-17.690	5.486	18.521	287.231	0.764
1800.000	0.953	278.522	1799.861	5.359	-19.144	5.359	19.880	285.639	0.481
1900.000	0.883	286.968	1899.848	5.707	-20.704	5.707	21.476	285.412	0.153
2000.000	0.880	268.906	1999.837	5.918	-22.209	5.918	22.983	284.920	0.277
2100.000	0.742	269.411	2099.827	5.896	-23.624	5.896	24.349	284.014	0.138
2200.000	0.957	229.799	2199.817	5.351	-24.910	5.351	25.478	282.123	0.610
2300.000	0.944	270.974	2299.804	4.826	-26.371	4.826	26.809	280.370	0.668
2400.000	0.911	259.116	2399.791	4.690	-27.975	4.690	28.366	279.516	0.194
2500.000	0.721	292.538	2499.781	4.781	-29.337	4.781	29.724	279.256	0.503
2600.000	0.793	286.092	2599.773	5.214	-30.584	5.214	31.025	279.675	0.111
2700.000	0.618	263.392	2699.765	5.344	-31.783	5.344	32.230	279.544	0.326
2800.000	0.792	219.130	2799.758	4.745	-32.755	4.745	33.097	278.243	0.555
2900.000	0.970	217.687	2899.746	3.539	-33.709	3.539	33.894	275.993	0.179
3000.000	1.136	234.455	2999.730	2.293	-35.033	2.293	35.108	273.745	0.348
3100.000	1.479	242.129	3099.704	1.113	-36.981	1.113	36.997	271.724	0.384
3200.000	1.218	278.862	3199.678	0.674	-39.172	0.674	39.178	270.985	0.885
3300.000	1.458	283.715	3299.650	1.139	-41.458	1.139	41.474	271.574	0.265
3400.000	1.464	266.637	3399.618	1.366	-43.970	1.366	43.991	271.779	0.434

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
3500.000	1.619	279.742	3499.582	1.530	-46.638	1.530	46.663	271.879	0.384
3600.000	1.699	267.944	3599.541	1.716	-49.511	1.716	49.541	271.985	0.350
3700.000	1.733	282.919	3699.496	2.001	-52.466	2.001	52.505	272.184	0.448
3800.000	1.632	260.864	3799.454	2.113	-55.347	2.113	55.387	272.186	0.651
3900.000	1.800	253.248	3899.410	1.434	-58.257	1.434	58.274	271.410	0.282
4000.000	2.547	237.113	3999.338	-0.225	-61.626	-0.225	61.626	269.791	0.959
4100.000	2.178	245.528	4099.253	-2.219	-65.221	-2.219	65.259	268.051	0.505
4200.000	2.270	240.829	4199.178	-3.971	-68.680	-3.971	68.795	266.691	0.204
4300.000	2.364	254.237	4299.097	-5.497	-72.394	-5.497	72.602	265.658	0.549
4400.000	2.299	250.404	4399.014	-6.730	-76.268	-6.730	76.564	264.957	0.169
4500.000	1.557	259.395	4498.957	-7.652	-79.493	-7.652	79.861	264.501	0.799
4600.000	1.734	238.685	4598.916	-8.689	-82.121	-8.689	82.579	263.960	0.616
4700.000	1.280	235.963	4698.882	-10.100	-84.339	-10.100	84.941	263.171	0.459
4800.000	1.700	217.706	4798.848	-11.899	-86.172	-11.899	86.990	262.138	0.629
4900.000	1.301	246.472	4898.815	-13.526	-88.120	-13.526	89.152	261.273	0.840
5000.000	1.139	254.818	4998.792	-14.240	-90.120	-14.240	91.238	261.021	0.240
5100.000	0.590	234.029	5098.781	-14.802	-91.496	-14.802	92.686	260.810	0.624
5200.000	0.962	252.460	5198.772	-15.358	-92.714	-15.358	93.977	260.594	0.444
5300.000	1.195	213.660	5298.755	-16.479	-94.092	-16.479	95.525	260.066	0.749
5400.000	1.606	229.193	5398.725	-18.262	-95.731	-18.262	97.457	259.200	0.556
5500.000	0.719	214.584	5498.704	-19.695	-97.148	-19.695	99.124	258.540	0.928
5600.000	0.597	196.222	5598.698	-20.711	-97.649	-20.711	99.822	258.025	0.242
5700.000	0.780	173.793	5698.690	-21.888	-97.721	-21.888	100.142	257.375	0.322
5800.000	0.741	201.667	5798.682	-23.165	-97.887	-23.165	100.590	256.686	0.368
5900.000	0.851	184.397	5898.672	-24.507	-98.182	-24.507	101.195	255.985	0.263
6000.000	0.539	201.524	5998.665	-25.686	-98.412	-25.686	101.709	255.372	0.371
6100.000	0.654	249.689	6098.660	-26.322	-99.120	-26.322	102.555	255.128	0.498
6200.000	1.036	205.472	6198.650	-27.336	-100.044	-27.336	103.711	254.717	0.728
6300.000	1.696	193.791	6298.621	-29.590	-100.785	-29.590	105.039	253.638	0.713
6400.000	1.278	188.037	6398.588	-32.132	-101.294	-32.132	106.268	252.400	0.443
6500.000	1.336	211.690	6498.562	-34.229	-102.062	-34.229	107.649	251.460	0.539
6600.000	1.970	231.107	6598.521	-36.300	-104.013	-36.300	110.165	250.761	0.838
6700.000	1.326	236.022	6698.479	-38.026	-106.310	-38.026	112.906	250.319	0.658
6800.000	1.864	214.577	6798.441	-40.012	-108.193	-40.012	115.354	249.705	0.795
6900.000	1.373	208.976	6898.401	-42.399	-109.696	-42.399	117.605	248.868	0.516
7000.000	0.515	186.858	6998.386	-43.893	-110.330	-43.893	118.741	248.306	0.916
7100.000	0.670	148.447	7098.381	-44.837	-110.078	-44.837	118.859	247.838	0.416
HORIZONTAL DISPLACEMENT IS 118.859 FEET AT 247.838 DEGREES									