



Gyroscopic Survey Report  
for  
K.P. Kauffman

Well Location	Weld County, Colorado
Well Name	Wattenberg, Henry E. Unit C-1
Rig Number	KPK 7
Survey Date	5/21/2014
Latitude	40.0315300°N
Longitude	104.8502700°W
North Reference	True North
Grid Correction	None
Depth Reference	Ground Level (4979.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 268.35Azim (deg)
Definitive Survey	WATTENBERG, HENRY E UNIT #C-1
Operator(s)	Jon Valenzuela

**Well Notes**



# Scientific Drilling Survey Report

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
49.54	0.22	327.32	49.54	0.05	0.08	-0.05	0.44	0.10	327.32
99.29	0.25	341.95	99.29	0.13	0.27	-0.14	0.14	0.30	332.66
148.84	0.22	334.36	148.84	0.20	0.45	-0.21	0.10	0.50	335.00
199.75	0.31	343.42	199.75	0.27	0.67	-0.29	0.20	0.73	336.49
249.98	0.38	346.08	249.98	0.34	0.96	-0.37	0.14	1.03	338.94
298.99	0.40	338.16	298.99	0.44	1.28	-0.47	0.12	1.37	339.69
348.74	0.40	340.94	348.73	0.55	1.60	-0.59	0.04	1.71	339.66
399.99	0.40	359.12	399.99	0.60	1.95	-0.66	0.25	2.06	341.44
449.16	0.40	351.77	449.15	0.62	2.30	-0.68	0.10	2.39	343.44
499.10	0.40	350.36	499.10	0.66	2.64	-0.74	0.02	2.74	344.40
549.54	0.45	343.10	549.53	0.74	3.00	-0.82	0.15	3.11	344.66
599.92	0.57	352.72	599.90	0.81	3.44	-0.91	0.29	3.56	345.13
649.73	0.34	305.43	649.72	0.96	3.77	-1.06	0.84	3.92	344.24
699.79	0.68	356.22	699.78	1.08	4.15	-1.20	1.08	4.33	343.84
749.73	0.36	326.54	749.71	1.18	4.58	-1.31	0.83	4.77	344.05
798.59	0.39	337.62	798.57	1.32	4.86	-1.46	0.16	5.08	343.32
849.82	0.32	342.69	849.80	1.42	5.16	-1.57	0.15	5.39	343.12
899.76	0.25	317.10	899.74	1.53	5.37	-1.68	0.29	5.63	342.62
949.33	0.28	324.79	949.31	1.67	5.55	-1.83	0.10	5.84	341.80
999.81	0.25	297.58	999.79	1.83	5.71	-1.99	0.26	6.04	340.73
1049.21	0.20	279.69	1049.19	2.01	5.77	-2.18	0.17	6.17	339.33
1099.82	0.30	319.18	1099.80	2.18	5.88	-2.35	0.37	6.34	338.22
1149.48	0.34	293.65	1149.46	2.39	6.04	-2.57	0.29	6.56	336.96
1199.13	0.27	265.57	1199.11	2.64	6.09	-2.82	0.33	6.71	335.16
1249.71	0.33	235.41	1249.69	2.88	6.00	-3.06	0.33	6.73	332.99
1299.28	0.41	252.79	1299.25	3.18	5.86	-3.35	0.28	6.75	330.29
1349.77	0.33	282.72	1349.74	3.49	5.84	-3.66	0.41	6.89	327.93
1399.95	0.37	243.83	1399.92	3.77	5.80	-3.94	0.47	7.01	325.80
1449.38	0.37	252.70	1449.35	4.07	5.68	-4.24	0.11	7.09	323.31
1498.43	0.36	258.80	1498.40	4.37	5.61	-4.53	0.08	7.21	321.04
1548.99	0.39	256.58	1548.96	4.69	5.54	-4.85	0.07	7.36	318.76
1599.52	0.37	244.07	1599.49	5.01	5.43	-5.17	0.17	7.49	316.40
1649.62	0.29	263.49	1649.59	5.29	5.34	-5.44	0.27	7.63	314.46
1698.90	0.53	271.82	1698.87	5.64	5.33	-5.80	0.49	7.88	312.62
1749.83	0.28	240.68	1749.79	5.99	5.28	-6.14	0.63	8.10	310.69



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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
1799.18	0.42	252.27	1799.15	6.27	5.17	-6.42	0.31	8.24	308.83
1849.41	0.49	253.49	1849.37	6.65	5.05	-6.80	0.15	8.47	306.59
1899.27	0.39	271.29	1899.23	7.03	4.99	-7.17	0.35	8.74	304.83
1948.90	0.40	257.83	1948.86	7.36	4.96	-7.51	0.19	9.00	303.43
1999.30	0.55	255.00	1999.26	7.77	4.86	-7.92	0.30	9.29	301.54
2049.81	0.51	263.02	2049.77	8.23	4.77	-8.37	0.17	9.63	299.67
2099.40	0.51	263.34	2099.35	8.67	4.72	-8.81	0.01	9.99	298.16
2149.28	0.44	281.36	2149.23	9.08	4.73	-9.22	0.33	10.36	297.15
2198.87	0.50	265.47	2198.82	9.48	4.75	-9.62	0.29	10.73	296.27
2249.73	0.69	250.01	2249.68	9.99	4.63	-10.13	0.48	11.13	294.54
2299.31	0.54	279.84	2299.26	10.50	4.56	-10.64	0.70	11.58	293.21
2349.08	0.49	272.98	2349.03	10.95	4.61	-11.08	0.16	12.00	292.60
2398.90	0.37	282.57	2398.84	11.31	4.66	-11.45	0.27	12.36	292.14
2450.00	0.31	295.30	2449.94	11.60	4.76	-11.74	0.19	12.67	292.05
2499.06	0.18	306.82	2499.00	11.78	4.86	-11.92	0.28	12.88	292.17
2548.83	0.27	285.82	2548.77	11.95	4.94	-12.10	0.24	13.07	292.20
2598.27	0.49	292.65	2598.21	12.25	5.05	-12.40	0.46	13.39	292.16
2649.71	0.23	295.17	2649.65	12.55	5.18	-12.70	0.50	13.72	292.19
2698.67	0.13	354.04	2698.61	12.64	5.28	-12.80	0.41	13.84	292.41
2749.20	0.18	1.44	2749.14	12.64	5.42	-12.80	0.11	13.90	292.93
2798.95	0.06	325.15	2798.89	12.65	5.52	-12.82	0.28	13.95	293.29
2848.60	0.17	324.55	2848.54	12.71	5.60	-12.87	0.21	14.04	293.50
2899.38	0.33	314.46	2899.31	12.85	5.76	-13.02	0.34	14.24	293.86
2949.03	0.24	316.05	2948.96	13.02	5.94	-13.20	0.18	14.47	294.22
2999.40	0.44	324.90	2999.34	13.20	6.17	-13.38	0.41	14.73	294.76
3048.95	0.35	332.21	3048.88	13.37	6.46	-13.56	0.21	15.02	295.47
3098.70	0.54	325.34	3098.63	13.56	6.78	-13.76	0.39	15.34	296.24
3148.64	0.62	331.72	3148.57	13.81	7.21	-14.02	0.21	15.77	297.22
3199.55	0.51	287.08	3199.48	14.15	7.52	-14.37	0.86	16.22	297.63
3249.00	0.48	326.93	3248.93	14.47	7.76	-14.69	0.69	16.62	297.84
3299.90	0.24	330.77	3299.83	14.63	8.03	-14.86	0.47	16.90	298.39
3349.80	0.24	317.36	3349.73	14.74	8.20	-14.98	0.11	17.08	298.69
3398.17	0.37	299.89	3398.10	14.94	8.35	-15.19	0.33	17.33	298.81
3449.03	0.09	60.28	3448.95	15.05	8.45	-15.30	0.83	17.48	298.93
3499.61	0.11	350.78	3499.53	15.02	8.52	-15.27	0.23	17.49	299.17
3549.42	0.35	320.99	3549.35	15.12	8.69	-15.37	0.51	17.66	299.47



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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
3599.24	0.28	179.68	3599.16	15.21	8.68	-15.47	1.20	17.74	299.31
3649.76	0.39	86.76	3649.69	15.04	8.57	-15.30	0.97	17.53	299.25
3699.16	0.35	188.88	3699.08	14.91	8.43	-15.15	1.16	17.34	299.07
3749.97	0.47	229.56	3749.89	15.10	8.14	-15.34	0.60	17.36	297.95
3799.46	0.54	170.74	3799.38	15.22	7.78	-15.45	1.00	17.30	296.72
3848.88	0.44	249.04	3848.80	15.37	7.48	-15.59	1.26	17.29	295.63
3899.61	0.66	212.20	3899.53	15.72	7.16	-15.93	0.80	17.47	294.21
3949.40	0.62	206.18	3949.31	16.01	6.68	-16.20	0.15	17.53	292.40
3999.27	0.69	199.97	3999.18	16.24	6.15	-16.43	0.20	17.54	290.53
4049.95	0.43	185.66	4049.85	16.38	5.68	-16.55	0.59	17.50	288.93
4099.39	0.24	158.70	4099.30	16.37	5.40	-16.53	0.49	17.39	288.09
4149.03	0.47	175.65	4148.94	16.32	5.10	-16.48	0.51	17.25	287.20
4198.84	0.39	160.11	4198.74	16.26	4.73	-16.40	0.28	17.07	286.10
4249.96	0.23	132.84	4249.86	16.13	4.50	-16.27	0.43	16.88	285.46
4298.94	0.35	146.70	4298.84	15.99	4.31	-16.12	0.28	16.68	284.97
4348.75	0.35	158.49	4348.66	15.85	4.04	-15.98	0.14	16.48	284.19
4399.54	0.31	185.82	4399.44	15.82	3.76	-15.93	0.32	16.37	283.27
4448.80	0.43	150.71	4448.70	15.75	3.46	-15.86	0.50	16.23	282.32
4498.71	0.42	171.86	4498.61	15.64	3.12	-15.74	0.31	16.05	281.22
4548.90	0.72	163.37	4548.79	15.54	2.64	-15.62	0.63	15.85	279.58
4598.80	0.74	153.88	4598.69	15.33	2.05	-15.39	0.24	15.53	277.58
4649.30	0.89	160.27	4649.19	15.07	1.39	-15.12	0.35	15.18	275.24
4699.10	0.88	147.04	4698.98	14.75	0.70	-14.78	0.41	14.79	272.71
4749.94	0.63	166.88	4749.82	14.49	0.10	-14.50	0.71	14.50	270.39
4798.84	0.64	93.81	4798.72	14.17	-0.18	-14.17	1.55	14.17	269.26
4849.38	0.39	175.50	4849.25	13.88	-0.37	-13.87	1.38	13.88	268.47
4854.19	0.29	150.42	4854.06	13.87	-0.40	-13.86	3.64	13.87	268.35