



Gyroscopic Survey Report  
for  
K.P. Kauffman

Well Location	Weld County, Colorado
Well Name	Carl AQ bMiller B-11
Rig Number	KPK 7
Survey Date	5/20/2014
Latitude	40.0745500°N
Longitude	104.9075200°W
North Reference	True North
Grid Correction	None
Depth Reference	Ground Level (5007.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 276.48Azim (deg)
Definitive Survey	CARLA MILLER B #11
Operator(s)	Jon Valenzuela

**Well Notes**



# Scientific Drilling Survey Report

**Well Name:** Carl AQ bMiller B-11  
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**Survey Date:** 5/20/2014

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
49.91	0.43	159.70	49.91	-0.08	-0.18	0.07	0.87	0.19	159.70
99.06	0.57	159.64	99.06	-0.28	-0.58	0.21	0.27	0.62	159.67
148.79	0.56	158.11	148.78	-0.51	-1.04	0.39	0.03	1.11	159.32
199.35	0.39	124.40	199.34	-0.78	-1.37	0.63	0.64	1.50	155.33
249.13	0.62	120.00	249.12	-1.18	-1.60	1.00	0.47	1.89	147.89
299.61	0.68	121.17	299.60	-1.70	-1.89	1.50	0.12	2.41	141.62
349.40	0.61	130.35	349.39	-2.19	-2.21	1.95	0.26	2.95	138.61
398.73	0.64	143.46	398.71	-2.59	-2.60	2.31	0.30	3.48	138.38
448.87	0.63	156.15	448.84	-2.92	-3.08	2.59	0.28	4.03	139.92
499.40	0.80	170.71	499.38	-3.16	-3.68	2.76	0.50	4.60	143.14
549.14	0.95	171.97	549.11	-3.36	-4.43	2.87	0.30	5.28	147.04
599.65	1.02	177.20	599.61	-3.53	-5.29	2.95	0.22	6.06	150.84
649.31	1.28	203.51	649.26	-3.44	-6.24	2.75	1.18	6.82	156.20
699.78	1.55	213.50	699.72	-2.96	-7.33	2.15	0.72	7.64	163.65
749.45	1.67	218.44	749.36	-2.28	-8.46	1.33	0.36	8.56	171.07
799.68	1.69	218.50	799.57	-1.50	-9.61	0.41	0.04	9.62	177.53
849.65	1.67	215.68	849.53	-0.75	-10.78	-0.47	0.17	10.79	182.49
899.70	1.64	217.97	899.55	-0.02	-11.94	-1.33	0.14	12.01	186.38
949.36	1.71	217.06	949.19	0.73	-13.09	-2.22	0.16	13.28	189.62
999.34	1.72	217.09	999.15	1.49	-14.28	-3.12	0.02	14.62	192.33
1048.88	1.73	219.30	1048.67	2.27	-15.46	-4.04	0.14	15.98	194.66
1098.99	1.75	225.22	1098.76	3.16	-16.58	-5.07	0.36	17.34	196.99
1148.65	1.83	229.22	1148.39	4.18	-17.63	-6.20	0.30	18.69	199.38
1199.92	1.66	219.14	1199.64	5.13	-18.74	-7.29	0.68	20.11	201.26
1249.95	2.00	231.13	1249.64	6.14	-19.85	-8.43	1.01	21.57	203.00
1299.19	1.91	227.50	1298.85	7.28	-20.94	-9.70	0.31	23.08	204.85
1349.28	2.11	229.68	1348.91	8.45	-22.10	-11.02	0.42	24.70	206.49
1398.83	2.40	239.44	1398.42	9.90	-23.22	-12.60	0.97	26.42	208.49
1449.98	2.49	239.38	1449.52	11.64	-24.33	-14.48	0.18	28.31	210.76
1499.51	2.57	247.50	1499.01	13.47	-25.30	-16.43	0.74	30.17	213.00
1549.39	2.51	253.85	1548.84	15.46	-26.03	-18.51	0.58	31.94	215.42
1599.25	2.45	258.27	1598.65	17.48	-26.55	-20.61	0.40	33.61	217.81
1649.49	2.39	259.37	1648.85	19.50	-26.96	-22.69	0.16	35.24	220.08
1699.75	2.30	264.26	1699.06	21.49	-27.26	-24.72	0.43	36.80	222.21
1749.98	2.10	267.16	1749.26	23.39	-27.41	-26.65	0.46	38.22	224.20



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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
1799.80	1.91	269.85	1799.05	25.11	-27.45	-28.39	0.43	39.49	225.96
1848.80	1.68	274.16	1848.02	26.64	-27.40	-29.92	0.55	40.58	227.52
1898.95	1.57	274.82	1898.15	28.06	-27.29	-31.34	0.22	41.56	228.95
1948.87	1.46	277.73	1948.06	29.38	-27.15	-32.65	0.28	42.46	230.26
1998.85	1.32	279.08	1998.02	30.59	-26.97	-33.85	0.27	43.28	231.45
2048.95	1.42	269.14	2048.10	31.79	-26.89	-35.05	0.51	44.17	232.50
2099.58	1.28	277.44	2098.73	32.98	-26.83	-36.23	0.48	45.08	233.48
2149.11	1.34	277.37	2148.24	34.11	-26.68	-37.35	0.13	45.90	234.46
2199.34	1.40	284.56	2198.45	35.30	-26.45	-38.53	0.36	46.74	235.53
2249.57	1.39	288.99	2248.67	36.50	-26.10	-39.70	0.21	47.51	236.68
2299.70	1.47	290.51	2298.79	37.72	-25.68	-40.88	0.18	48.27	237.87
2349.32	1.49	288.79	2348.39	38.97	-25.24	-42.08	0.10	49.08	239.04
2399.65	1.45	293.73	2398.71	40.22	-24.78	-43.29	0.26	49.88	240.21
2449.96	1.41	293.44	2449.00	41.42	-24.27	-44.44	0.08	50.64	241.35
2499.26	1.38	301.32	2498.28	42.54	-23.73	-45.50	0.39	51.32	242.46
2549.49	1.28	307.62	2548.50	43.56	-23.07	-46.46	0.35	51.87	243.59
2598.82	1.42	304.60	2597.81	44.57	-22.39	-47.40	0.32	52.42	244.72
2648.98	1.42	304.00	2647.96	45.67	-21.69	-48.42	0.03	53.06	245.87
2699.53	1.40	311.05	2698.49	46.73	-20.93	-49.41	0.35	53.66	247.04
2749.78	1.55	310.46	2748.73	47.80	-20.09	-50.39	0.30	54.25	248.27
2799.10	1.53	316.86	2798.03	48.86	-19.17	-51.35	0.35	54.81	249.52
2849.16	1.56	320.84	2848.08	49.85	-18.16	-52.24	0.22	55.30	250.83
2899.62	1.48	320.18	2898.52	50.81	-17.13	-53.08	0.16	55.78	252.12
2948.59	1.50	320.14	2947.47	51.73	-16.15	-53.90	0.05	56.27	253.32
2999.55	1.64	326.49	2998.41	52.68	-15.03	-54.73	0.43	56.75	254.64
3048.81	1.56	330.80	3047.65	53.53	-13.86	-55.44	0.29	57.15	255.96
3099.97	1.51	328.91	3098.79	54.34	-12.68	-56.13	0.14	57.54	257.27
3149.18	1.49	327.96	3147.99	55.14	-11.58	-56.80	0.07	57.97	258.48
3199.11	1.68	336.61	3197.89	55.90	-10.36	-57.44	0.62	58.36	259.78
3249.44	1.51	334.41	3248.21	56.62	-9.08	-58.02	0.35	58.73	261.10
3299.03	1.60	337.41	3297.78	57.31	-7.85	-58.57	0.24	59.09	262.37
3349.26	1.43	334.45	3347.99	57.98	-6.64	-59.11	0.38	59.48	263.59
3399.95	1.57	335.61	3398.66	58.67	-5.44	-59.67	0.29	59.91	264.79
3449.39	1.40	330.17	3448.08	59.38	-4.30	-60.25	0.45	60.40	265.92
3499.19	1.15	327.04	3497.87	60.05	-3.35	-60.82	0.52	60.91	266.84
3549.86	1.15	324.08	3548.53	60.72	-2.52	-61.39	0.12	61.44	267.65



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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
3598.84	1.11	321.88	3597.50	61.38	-1.75	-61.97	0.12	62.00	268.38
3649.35	0.82	313.42	3648.00	62.01	-1.12	-62.53	0.64	62.54	268.98
3699.99	0.86	306.10	3698.64	62.63	-0.64	-63.10	0.23	63.11	269.41
3748.96	0.90	288.75	3747.60	63.32	-0.30	-63.76	0.55	63.76	269.73
3799.55	0.81	282.89	3798.20	64.07	-0.10	-64.49	0.24	64.49	269.91
3848.99	0.82	283.71	3847.62	64.77	0.06	-65.17	0.03	65.17	270.06
3899.07	0.91	282.46	3897.70	65.52	0.24	-65.91	0.19	65.91	270.21
3949.71	1.18	284.50	3948.34	66.44	0.45	-66.81	0.53	66.81	270.39
3999.03	1.38	291.49	3997.64	67.52	0.80	-67.86	0.52	67.86	270.67
4048.94	1.49	290.21	4047.53	68.73	1.24	-69.03	0.22	69.04	271.03
4099.75	1.67	290.40	4098.32	70.09	1.73	-70.34	0.36	70.36	271.41
4149.39	1.60	293.25	4147.94	71.45	2.26	-71.66	0.22	71.69	271.80
4199.01	1.55	295.47	4197.54	72.75	2.82	-72.90	0.16	72.95	272.21
4249.22	1.52	297.20	4247.74	74.01	3.41	-74.10	0.11	74.18	272.64
4299.97	1.24	296.21	4298.47	75.16	3.96	-75.19	0.56	75.30	273.02
4349.65	1.11	302.03	4348.15	76.10	4.45	-76.08	0.35	76.21	273.35
4399.14	1.17	306.43	4397.62	76.97	5.01	-76.89	0.21	77.05	273.73
4449.76	1.26	310.84	4448.23	77.87	5.68	-77.73	0.26	77.93	274.18
4499.87	1.28	313.67	4498.32	78.77	6.42	-78.55	0.13	78.81	274.67
4549.23	1.34	314.82	4547.68	79.66	7.21	-79.35	0.14	79.68	275.19
4599.76	1.32	306.48	4598.19	80.63	7.97	-80.24	0.39	80.63	275.67
4649.24	1.25	298.32	4647.66	81.62	8.56	-81.17	0.39	81.62	276.02
4699.89	1.34	289.05	4698.30	82.71	9.02	-82.22	0.45	82.71	276.26
4749.73	1.38	280.87	4748.12	83.88	9.32	-83.36	0.40	83.88	276.38
4799.90	1.08	284.93	4798.28	84.95	9.56	-84.41	0.63	84.95	276.46
4806.74	1.19	286.23	4805.12	85.08	9.60	-84.54	1.64	85.08	276.48