



Gyroscopic Survey Report
for
K.P. Kauffman

Well Location	Weld County, Colorado
Well Name	Carl a Miller A4
Rig Number	KPK 8
Survey Date	4/22/2014
Latitude	40.0889500°N
North Reference	True North
Grid Correction	None
Depth Reference	Ground Level (5029.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 313.89Azim (deg)
Definitive Survey	Carl A. Miller A No.4
Operator(s)	Jon Valenzuela

Well Notes

Survey Report

Well Name: Carl a Miller A4
Survey: Carl A. Miller A No.4
Survey Date: 4/22/2014

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
49.79	0.79	315.35	49.79	0.34	0.24	-0.24	1.59	0.34	315.35
99.06	1.00	321.21	99.05	1.11	0.82	-0.75	0.47	1.11	317.62
149.62	0.50	300.46	149.60	1.76	1.28	-1.22	1.12	1.77	316.42
199.48	0.56	305.39	199.46	2.22	1.53	-1.60	0.16	2.22	313.68
248.68	0.59	309.89	248.66	2.70	1.83	-1.99	0.10	2.70	312.59
299.59	0.57	300.01	299.57	3.21	2.12	-2.41	0.20	3.21	311.38
349.64	0.65	286.45	349.62	3.71	2.33	-2.90	0.33	3.72	308.77
399.78	0.68	287.90	399.75	4.23	2.50	-3.46	0.06	4.27	305.88
449.01	0.62	284.75	448.98	4.73	2.66	-4.00	0.14	4.80	303.65
499.44	0.55	280.67	499.41	5.17	2.78	-4.50	0.16	5.29	301.66
549.45	0.50	264.10	549.42	5.51	2.80	-4.96	0.32	5.69	299.46
598.67	0.46	245.02	598.64	5.72	2.69	-5.35	0.33	5.99	296.74
649.15	0.48	239.73	649.11	5.85	2.50	-5.71	0.09	6.23	293.68
699.09	0.60	242.35	699.05	5.99	2.28	-6.12	0.25	6.53	290.42
748.53	0.69	238.53	748.49	6.15	2.00	-6.60	0.21	6.90	286.88
799.63	0.71	253.05	799.58	6.38	1.75	-7.17	0.35	7.38	283.71
848.91	0.65	255.91	848.86	6.68	1.59	-7.73	0.14	7.90	281.63
899.61	0.69	249.28	899.56	6.96	1.41	-8.30	0.17	8.42	279.67
948.79	0.77	256.35	948.73	7.26	1.23	-8.90	0.24	8.98	277.88
999.72	0.53	248.97	999.66	7.55	1.07	-9.45	0.49	9.51	276.44
1049.13	0.59	250.91	1049.06	7.76	0.90	-9.90	0.14	9.94	275.19
1099.82	0.63	248.06	1099.76	7.99	0.71	-10.41	0.10	10.44	273.90
1149.03	0.53	252.74	1148.96	8.22	0.54	-10.88	0.24	10.89	272.84
1199.55	0.50	252.57	1199.48	8.43	0.41	-11.31	0.05	11.32	272.06
1249.21	0.60	260.11	1249.13	8.69	0.30	-11.77	0.25	11.78	271.44
1299.88	0.40	245.46	1299.81	8.91	0.18	-12.20	0.47	12.20	270.83
1349.16	0.37	248.54	1349.08	9.04	0.05	-12.50	0.07	12.50	270.22
1399.58	0.40	247.17	1399.51	9.18	-0.08	-12.82	0.06	12.82	269.64
1448.79	0.36	270.04	1448.71	9.36	-0.15	-13.13	0.32	13.13	269.35
1499.64	0.35	264.13	1499.56	9.58	-0.16	-13.45	0.08	13.45	269.30
1549.20	0.35	264.27	1549.12	9.77	-0.19	-13.75	0.01	13.75	269.19
1598.73	0.32	263.56	1598.65	9.96	-0.23	-14.04	0.06	14.04	269.08
1649.85	0.38	264.96	1649.77	10.17	-0.26	-14.35	0.11	14.36	268.98
1699.26	0.45	266.09	1699.18	10.40	-0.28	-14.71	0.14	14.71	268.89
1749.94	0.53	260.69	1749.86	10.67	-0.33	-15.13	0.18	15.14	268.73

Survey Report

Well Name: Carl a Miller A4
Survey: Carl A. Miller A No.4
Survey Date: 4/22/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
1799.60	0.55	259.80	1799.52	10.95	-0.41	-15.59	0.05	15.60	268.48
1849.59	0.67	270.27	1849.50	11.30	-0.46	-16.12	0.33	16.13	268.38
1898.75	0.76	277.54	1898.65	11.78	-0.41	-16.74	0.26	16.74	268.59
1949.36	0.87	279.73	1949.26	12.37	-0.30	-17.45	0.22	17.46	269.01
1999.98	0.95	288.95	1999.88	13.07	-0.10	-18.23	0.33	18.23	269.69
2049.60	1.03	289.52	2049.49	13.85	0.18	-19.04	0.16	19.05	270.55
2098.62	1.22	297.77	2098.50	14.75	0.57	-19.92	0.50	19.93	271.65
2149.27	1.53	313.82	2149.14	15.95	1.29	-20.88	0.97	20.92	273.54
2199.82	1.57	319.19	2199.67	17.31	2.28	-21.82	0.30	21.94	275.97
2249.16	1.67	325.60	2248.99	18.68	3.38	-22.67	0.42	22.92	278.49
2299.78	1.71	331.79	2299.58	20.12	4.66	-23.44	0.37	23.90	281.24
2349.13	1.54	343.63	2348.92	21.40	5.94	-23.98	0.76	24.70	283.92
2399.86	1.73	346.34	2399.63	22.64	7.34	-24.35	0.42	25.43	286.78
2448.89	1.71	354.63	2448.63	23.81	8.79	-24.59	0.51	26.12	289.66
2498.73	1.86	359.35	2498.44	24.94	10.34	-24.67	0.42	26.75	292.73
2549.46	1.75	6.24	2549.15	25.99	11.93	-24.60	0.48	27.34	295.87
2598.79	1.56	16.84	2598.46	26.76	13.32	-24.32	0.72	27.73	298.71
2649.86	1.80	23.68	2649.51	27.35	14.72	-23.80	0.61	27.98	301.74
2699.40	1.02	18.28	2699.03	27.81	15.85	-23.34	1.59	28.22	304.18
2748.73	1.56	40.79	2748.35	28.04	16.78	-22.77	1.48	28.28	306.40
2799.83	1.61	14.88	2799.43	28.43	18.00	-22.13	1.39	28.53	309.13
2849.06	0.92	50.99	2848.65	28.71	18.92	-21.64	2.07	28.75	311.16
2898.46	1.09	51.02	2898.05	28.61	19.46	-20.97	0.33	28.61	312.87
2949.48	0.69	23.82	2949.05	28.65	20.05	-20.47	1.12	28.65	314.41
2999.44	0.31	101.10	2999.01	28.64	20.30	-20.21	1.38	28.65	315.12
3049.16	0.36	21.69	3048.74	28.58	20.42	-20.02	0.87	28.59	315.56
3099.36	0.46	172.31	3098.94	28.48	20.36	-19.94	1.57	28.50	315.60
3149.88	0.41	262.59	3149.46	28.44	20.14	-20.09	1.22	28.44	315.07
3199.59	0.26	223.47	3199.16	28.55	20.03	-20.34	0.53	28.55	314.56
3249.31	0.44	244.70	3248.89	28.62	19.87	-20.59	0.44	28.62	313.98
3299.03	1.00	201.20	3298.60	28.52	19.38	-20.92	1.50	28.52	312.81
3348.86	0.38	301.67	3348.43	28.51	19.06	-21.22	2.28	28.52	311.93
3399.92	0.63	186.57	3399.49	28.50	18.87	-21.40	1.68	28.53	311.41
3449.52	0.57	278.64	3449.08	28.54	18.64	-21.67	1.74	28.58	310.70
3499.19	0.23	260.60	3498.75	28.80	18.66	-22.01	0.72	28.86	310.29
3549.04	0.83	296.51	3548.60	29.20	18.80	-22.43	1.31	29.27	309.97

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Survey:	Carl A. Miller A No.4
Survey Date:	4/22/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
3598.53	0.49	276.30	3598.09	29.71	18.99	-22.96	0.81	29.79	309.59
3648.19	0.39	341.81	3647.74	30.03	19.17	-23.23	0.98	30.12	309.54
3699.72	0.69	288.94	3699.27	30.46	19.44	-23.57	1.07	30.55	309.51
3749.58	1.01	336.45	3749.13	31.14	19.94	-24.03	1.50	31.23	309.68
3799.28	0.79	313.58	3798.82	31.89	20.58	-24.46	0.85	31.96	310.08
3848.67	1.12	343.78	3848.20	32.65	21.28	-24.84	1.21	32.70	310.59
3899.94	0.90	2.68	3899.47	33.35	22.16	-24.96	0.78	33.38	311.61
3948.72	0.88	356.13	3948.24	33.88	22.92	-24.97	0.22	33.89	312.55
3998.74	0.81	32.35	3998.26	34.24	23.60	-24.80	1.06	34.24	313.58
4049.13	0.79	13.14	4048.64	34.49	24.24	-24.53	0.53	34.49	314.66
4099.42	0.95	14.05	4098.93	34.87	24.98	-24.35	0.31	34.89	315.74
4149.45	0.91	17.46	4148.95	35.25	25.77	-24.13	0.13	35.30	316.88
4199.44	0.85	11.78	4198.93	35.63	26.51	-23.94	0.21	35.71	317.92
4249.50	0.68	2.75	4248.99	36.02	27.17	-23.85	0.41	36.15	318.72
4299.49	0.48	332.51	4298.98	36.41	27.65	-23.93	0.72	36.57	319.13
4348.96	0.51	302.67	4348.45	36.83	27.95	-24.21	0.52	36.98	319.10
4398.91	0.87	294.11	4398.39	37.41	28.23	-24.75	0.74	37.54	318.76
4448.90	1.06	277.46	4448.37	38.13	28.45	-25.55	0.67	38.24	318.07
4498.90	1.47	282.53	4498.36	39.06	28.64	-26.64	0.86	39.12	317.08
4549.26	1.78	287.51	4548.71	40.31	29.02	-28.01	0.66	40.33	316.01
4599.15	1.48	284.26	4598.58	41.56	29.41	-29.38	0.62	41.57	315.03
4649.54	1.75	297.80	4648.95	42.87	29.93	-30.69	0.92	42.87	314.28
4699.81	1.66	313.38	4699.19	44.33	30.79	-31.90	0.94	44.33	313.99
4749.51	1.66	309.24	4748.86	45.77	31.74	-32.98	0.24	45.77	313.90
4778.50	1.78	317.34	4777.84	46.64	32.34	-33.61	0.93	46.64	313.89