



Gyroscopic Survey Report  
for  
K.P. Kauffman

Well Location	Weld County, Colorado
Well Name	Jack Berger A#4
Rig Number	KPK 7
Survey Date	10/28/2014
Latitude	40.0929070°N
Longitude	104.8616610°W
North Reference	True North
Grid Correction	None
Depth Reference	Ground Level (4935.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 276.74Azim (deg)
Definitive Survey	JACK BERGER A#4 (05-123-07717)
Operator(s)	Jon Valenzuela

**Well Notes**

API-05-123-07717

# Survey Report

**Well Name:** Jack Berger A#4  
**Survey:** JACK BERGER A#4 (05-123-07717)  
**Survey Date:** 10/28/2014

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
50.09	0.56	7.03	50.09	0.00	0.24	0.03	1.12	0.25	7.03
73.47	0.58	3.96	73.47	0.00	0.47	0.05	0.14	0.48	6.27
97.97	0.43	15.36	97.97	0.00	0.69	0.08	0.73	0.69	7.05
124.41	0.30	24.00	124.41	-0.04	0.84	0.14	0.52	0.85	9.35
148.30	0.26	38.01	148.29	-0.09	0.94	0.20	0.33	0.96	11.84
171.87	0.30	43.18	171.87	-0.15	1.03	0.27	0.21	1.07	14.85
199.32	0.41	47.83	199.31	-0.26	1.15	0.40	0.42	1.22	19.02
222.33	0.51	18.42	222.32	-0.33	1.30	0.49	1.10	1.39	20.62
249.17	0.58	9.65	249.16	-0.37	1.55	0.55	0.41	1.65	19.56
272.50	0.60	0.49	272.49	-0.36	1.79	0.57	0.41	1.88	17.72
299.45	0.47	3.30	299.44	-0.34	2.04	0.58	0.49	2.12	15.84
322.05	0.54	6.18	322.04	-0.33	2.24	0.60	0.32	2.32	14.91
348.99	0.63	10.89	348.98	-0.34	2.51	0.64	0.40	2.59	14.25
372.00	0.60	11.00	371.99	-0.36	2.76	0.69	0.14	2.84	13.96
398.49	0.68	3.16	398.48	-0.36	3.05	0.72	0.45	3.13	13.29
421.56	0.59	359.47	421.55	-0.33	3.31	0.73	0.43	3.39	12.40
448.46	0.62	1.01	448.44	-0.30	3.59	0.73	0.14	3.66	11.47
471.00	0.53	0.04	470.99	-0.28	3.82	0.73	0.42	3.89	10.83
497.88	0.57	13.22	497.86	-0.28	4.07	0.76	0.50	4.14	10.59
524.75	0.63	9.68	524.73	-0.30	4.35	0.82	0.25	4.43	10.64
547.77	0.54	4.68	547.75	-0.30	4.58	0.85	0.45	4.66	10.47
574.60	0.50	354.58	574.57	-0.27	4.83	0.85	0.37	4.90	9.95
597.10	0.42	346.78	597.07	-0.23	5.01	0.82	0.46	5.07	9.28
623.87	0.35	346.88	623.85	-0.16	5.18	0.78	0.25	5.24	8.53
646.83	0.36	1.00	646.80	-0.13	5.33	0.76	0.38	5.38	8.15
672.98	0.35	7.90	672.95	-0.13	5.49	0.77	0.17	5.54	8.04
699.72	0.36	1.18	699.69	-0.12	5.65	0.79	0.16	5.71	7.93
722.77	0.40	353.30	722.75	-0.09	5.81	0.78	0.29	5.86	7.65
749.52	0.43	348.73	749.49	-0.04	6.00	0.75	0.15	6.05	7.12
771.84	0.34	336.66	771.81	0.02	6.14	0.71	0.53	6.18	6.56
798.55	0.14	298.40	798.53	0.09	6.23	0.65	0.93	6.27	5.92
821.59	0.17	337.13	821.57	0.13	6.28	0.61	0.46	6.31	5.54
848.30	0.16	345.03	848.27	0.17	6.35	0.58	0.09	6.38	5.25
874.36	0.24	279.76	874.33	0.23	6.39	0.52	0.86	6.41	4.66
897.25	0.19	309.66	897.22	0.31	6.43	0.44	0.52	6.44	3.95

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**Survey Date:** 10/28/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
923.91	0.30	270.54	923.88	0.42	6.46	0.34	0.71	6.46	3.02
949.96	0.32	276.57	949.93	0.56	6.46	0.20	0.16	6.47	1.78
972.91	0.44	260.78	972.88	0.71	6.46	0.05	0.69	6.46	0.44
999.35	0.36	268.40	999.32	0.89	6.44	-0.13	0.36	6.44	358.81
1022.41	0.36	265.84	1022.38	1.03	6.43	-0.28	0.07	6.44	357.51
1048.40	0.36	269.28	1048.37	1.19	6.42	-0.44	0.08	6.44	356.05
1074.97	0.43	275.85	1074.94	1.38	6.43	-0.63	0.30	6.46	354.45
1097.61	0.54	277.19	1097.58	1.57	6.46	-0.82	0.52	6.51	352.80
1123.85	0.61	276.55	1123.81	1.83	6.49	-1.08	0.25	6.58	350.58
1149.44	0.56	260.29	1149.40	2.09	6.48	-1.33	0.67	6.62	348.37
1171.90	0.53	265.54	1171.86	2.29	6.45	-1.55	0.25	6.64	346.53
1198.01	0.50	273.67	1197.97	2.53	6.45	-1.78	0.30	6.69	344.57
1224.12	0.35	256.49	1224.08	2.72	6.44	-1.97	0.76	6.74	342.97
1249.62	0.60	276.51	1249.58	2.92	6.44	-2.18	1.15	6.80	341.29
1272.05	0.68	272.94	1272.01	3.17	6.46	-2.43	0.40	6.90	339.39
1297.92	0.64	268.38	1297.87	3.46	6.46	-2.72	0.25	7.01	337.14
1324.14	0.64	261.06	1324.10	3.75	6.44	-3.02	0.31	7.11	334.89
1349.55	0.56	257.45	1349.51	4.00	6.39	-3.28	0.35	7.18	332.84
1371.88	0.55	268.76	1371.83	4.21	6.36	-3.49	0.49	7.25	331.25
1398.67	0.59	277.71	1398.62	4.48	6.38	-3.76	0.37	7.40	329.50
1423.10	0.56	268.59	1423.05	4.72	6.39	-4.00	0.40	7.54	327.95
1449.18	0.65	272.17	1449.13	5.00	6.39	-4.28	0.36	7.69	326.22
1474.34	0.67	267.01	1474.29	5.28	6.39	-4.57	0.25	7.85	324.46
1496.74	0.73	285.66	1496.68	5.55	6.42	-4.83	1.05	8.04	323.03
1524.35	0.62	277.69	1524.29	5.88	6.49	-5.15	0.53	8.29	321.56
1548.03	0.54	272.29	1547.98	6.12	6.51	-5.39	0.39	8.45	320.38
1574.87	0.57	284.41	1574.81	6.38	6.55	-5.65	0.44	8.65	319.24
1598.54	0.63	287.03	1598.49	6.62	6.62	-5.88	0.29	8.85	318.36
1622.54	0.69	287.42	1622.48	6.89	6.70	-6.15	0.26	9.09	317.45
1649.36	0.66	272.56	1649.30	7.21	6.75	-6.46	0.66	9.34	316.28
1673.12	0.67	274.35	1673.05	7.48	6.77	-6.73	0.09	9.55	315.16
1696.88	0.63	270.68	1696.82	7.75	6.78	-7.00	0.25	9.75	314.09
1724.23	0.60	277.10	1724.16	8.04	6.80	-7.29	0.27	9.97	313.01
1747.45	0.52	280.02	1747.39	8.26	6.84	-7.51	0.36	10.16	312.29
1774.98	0.58	296.47	1774.91	8.52	6.92	-7.76	0.61	10.40	311.72
1798.74	0.62	286.49	1798.67	8.76	7.01	-7.99	0.48	10.63	311.25

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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
1821.75	0.69	290.72	1821.68	9.02	7.09	-8.24	0.37	10.87	310.72
1849.28	0.69	286.07	1849.21	9.34	7.20	-8.56	0.20	11.18	310.07
1872.98	0.65	279.56	1872.90	9.62	7.26	-8.83	0.36	11.43	309.43
1896.57	0.58	268.24	1896.50	9.87	7.28	-9.08	0.60	11.64	308.72
1923.43	0.57	274.64	1923.35	10.14	7.29	-9.35	0.24	11.85	307.93
1946.74	0.52	284.83	1946.66	10.36	7.32	-9.57	0.46	12.05	307.43
1973.76	0.60	290.94	1973.68	10.62	7.40	-9.82	0.36	12.30	307.02
1996.32	0.77	292.61	1996.23	10.88	7.50	-10.07	0.78	12.56	306.70
2023.38	0.76	289.07	2023.29	11.23	7.63	-10.41	0.18	12.91	306.26
2049.70	0.72	280.37	2049.61	11.57	7.72	-10.74	0.45	13.22	305.72
2072.49	0.66	274.24	2072.40	11.84	7.76	-11.01	0.41	13.47	305.17
2099.49	0.51	263.47	2099.40	12.12	7.75	-11.28	0.71	13.69	304.50
2122.67	0.46	275.66	2122.57	12.31	7.75	-11.48	0.48	13.85	304.03
2149.69	0.46	280.65	2149.59	12.52	7.78	-11.69	0.15	14.04	303.65
2171.70	0.46	277.76	2171.61	12.70	7.81	-11.86	0.11	14.20	303.36
2199.30	0.55	274.14	2199.21	12.94	7.83	-12.11	0.35	14.42	302.91
2222.57	0.57	250.66	2222.47	13.16	7.80	-12.33	0.98	14.59	302.34
2248.82	0.60	233.74	2248.72	13.38	7.68	-12.56	0.66	14.72	301.44
2272.70	0.57	230.77	2272.60	13.55	7.53	-12.75	0.18	14.81	300.57
2299.02	0.45	224.61	2298.92	13.70	7.38	-12.92	0.50	14.88	299.72
2322.15	0.55	220.08	2322.05	13.82	7.23	-13.06	0.50	14.93	298.96
2348.58	0.52	231.78	2348.47	13.97	7.06	-13.24	0.43	15.00	298.06
2371.67	0.61	227.34	2371.57	14.13	6.91	-13.41	0.44	15.08	297.25
2398.39	0.73	231.36	2398.29	14.34	6.70	-13.65	0.48	15.21	296.16
2421.81	0.74	228.16	2421.70	14.55	6.51	-13.88	0.18	15.33	295.13
2448.10	0.84	217.69	2448.00	14.76	6.24	-14.12	0.67	15.44	293.86
2474.91	0.90	214.60	2474.80	14.96	5.92	-14.36	0.30	15.53	292.39
2498.00	0.93	207.84	2497.88	15.11	5.60	-14.55	0.48	15.59	291.05
2524.40	0.87	206.54	2524.28	15.25	5.23	-14.74	0.23	15.64	289.53
2547.58	0.77	212.20	2547.46	15.38	4.94	-14.90	0.56	15.70	288.34
2574.46	0.79	213.26	2574.34	15.54	4.63	-15.10	0.10	15.80	287.05
2597.52	0.83	215.03	2597.40	15.69	4.36	-15.29	0.20	15.90	285.92
2623.80	0.88	211.00	2623.67	15.87	4.03	-15.50	0.28	16.01	284.58
2646.98	0.83	211.21	2646.85	16.01	3.74	-15.68	0.21	16.12	283.41
2673.84	0.81	212.81	2673.71	16.17	3.41	-15.88	0.11	16.24	282.12
2696.91	0.74	207.20	2696.77	16.30	3.14	-16.04	0.47	16.34	281.08

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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
2722.93	0.70	208.22	2722.80	16.41	2.85	-16.19	0.13	16.44	279.99
2749.97	0.63	208.30	2749.83	16.53	2.57	-16.34	0.26	16.54	278.95
2772.73	0.61	218.89	2772.59	16.64	2.37	-16.47	0.52	16.64	278.18
2798.44	0.60	226.11	2798.30	16.80	2.17	-16.66	0.30	16.80	277.42
2824.93	0.59	230.37	2824.79	16.98	1.99	-16.86	0.18	16.98	276.71
2847.59	0.69	226.54	2847.44	17.15	1.82	-17.05	0.51	17.15	276.08
2873.98	0.69	235.44	2873.83	17.37	1.62	-17.30	0.41	17.37	275.34
2896.12	0.66	238.69	2895.97	17.57	1.48	-17.52	0.23	17.58	274.82
2922.48	0.68	237.38	2922.33	17.81	1.31	-17.78	0.09	17.82	274.23
2948.84	0.58	246.42	2948.69	18.04	1.18	-18.03	0.52	18.07	273.73
2971.46	0.60	252.21	2971.31	18.25	1.09	-18.25	0.28	18.28	273.43
2997.90	0.54	256.92	2997.74	18.49	1.02	-18.50	0.29	18.53	273.17
3023.51	0.63	275.52	3023.36	18.75	1.01	-18.76	0.82	18.79	273.08
3049.85	0.55	277.53	3049.70	19.02	1.04	-19.03	0.33	19.06	273.13
3072.54	0.61	275.75	3072.38	19.25	1.07	-19.26	0.27	19.28	273.17
3098.14	0.79	284.63	3097.98	19.56	1.13	-19.56	0.83	19.59	273.29
3124.55	0.79	285.32	3124.39	19.92	1.22	-19.91	0.04	19.95	273.50
3147.23	0.82	285.75	3147.07	20.23	1.30	-20.22	0.15	20.26	273.69
3173.41	0.85	276.83	3173.24	20.61	1.38	-20.59	0.51	20.64	273.83
3199.14	0.90	279.68	3198.97	21.01	1.44	-20.98	0.26	21.03	273.91
3221.81	0.90	273.82	3221.64	21.36	1.48	-21.34	0.41	21.39	273.96
3248.08	1.16	286.71	3247.90	21.83	1.57	-21.80	1.32	21.85	274.11
3274.36	0.99	280.25	3274.17	22.32	1.68	-22.28	0.78	22.34	274.32
3299.83	1.01	282.52	3299.65	22.76	1.77	-22.71	0.16	22.78	274.46
3322.68	1.06	287.35	3322.49	23.17	1.88	-23.11	0.45	23.19	274.65
3348.92	0.98	285.43	3348.73	23.63	2.01	-23.56	0.32	23.64	274.88
3371.45	1.02	287.15	3371.25	24.02	2.12	-23.94	0.21	24.03	275.07
3396.97	1.05	288.89	3396.77	24.47	2.26	-24.37	0.17	24.48	275.31
3423.31	1.13	291.29	3423.11	24.96	2.44	-24.84	0.37	24.96	275.60
3449.56	1.09	284.89	3449.35	25.46	2.60	-25.33	0.50	25.46	275.85
3471.59	1.11	286.97	3471.37	25.87	2.71	-25.73	0.20	25.88	276.01
3497.83	1.16	284.03	3497.61	26.39	2.85	-26.23	0.30	26.39	276.20
3524.07	1.07	282.74	3523.85	26.89	2.97	-26.73	0.36	26.89	276.34
3546.56	1.17	288.89	3546.33	27.33	3.09	-27.15	0.70	27.33	276.49
3572.63	1.17	286.22	3572.39	27.85	3.25	-27.66	0.21	27.85	276.70
3597.56	1.35	286.61	3597.32	28.39	3.40	-28.19	0.74	28.39	276.89

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3623.54	1.30	283.66	3623.29	28.99	3.56	-28.77	0.33	28.99	277.06
3649.31	1.28	279.21	3649.06	29.56	3.68	-29.33	0.40	29.56	277.14
3674.98	1.26	277.70	3674.72	30.13	3.76	-29.90	0.14	30.13	277.17
3696.71	1.34	276.29	3696.45	30.62	3.82	-30.39	0.41	30.63	277.17
3722.43	1.35	271.63	3722.16	31.23	3.86	-30.99	0.43	31.23	277.10
3748.16	1.42	275.15	3747.88	31.85	3.90	-31.61	0.44	31.85	277.03
3773.89	1.51	280.13	3773.60	32.50	3.99	-32.26	0.59	32.50	277.05
3798.90	1.42	276.22	3798.60	33.14	4.08	-32.89	0.52	33.14	277.07
3824.62	1.38	274.86	3824.32	33.77	4.14	-33.52	0.22	33.77	277.04
3846.79	1.44	279.82	3846.48	34.32	4.21	-34.06	0.62	34.32	277.05
3872.28	1.41	279.46	3871.96	34.95	4.32	-34.68	0.12	34.95	277.09
3897.59	1.53	276.50	3897.26	35.60	4.41	-35.33	0.55	35.60	277.11
3923.25	1.50	280.05	3922.91	36.28	4.50	-36.00	0.38	36.28	277.13
3948.32	1.53	277.90	3947.98	36.94	4.61	-36.65	0.26	36.94	277.16
3974.58	1.59	277.45	3974.23	37.66	4.70	-37.36	0.22	37.66	277.17
3999.63	1.65	275.21	3999.27	38.36	4.78	-38.06	0.35	38.36	277.16
4021.65	1.72	277.95	4021.27	39.01	4.85	-38.71	0.48	39.01	277.15
4047.30	1.70	273.87	4046.91	39.77	4.93	-39.47	0.48	39.77	277.12
4072.93	1.74	273.37	4072.53	40.54	4.98	-40.23	0.18	40.54	277.06
4098.57	1.75	273.19	4098.16	41.32	5.03	-41.02	0.06	41.32	276.99
4123.58	1.78	271.78	4123.16	42.09	5.06	-41.79	0.21	42.09	276.90
4149.18	1.81	267.92	4148.75	42.89	5.06	-42.59	0.48	42.89	276.77
4174.79	1.76	270.30	4174.35	43.68	5.04	-43.39	0.34	43.68	276.63
4196.25	1.73	267.53	4195.79	44.33	5.03	-44.04	0.42	44.33	276.52
4224.78	1.69	266.45	4224.31	45.17	4.99	-44.89	0.18	45.17	276.34
4247.40	1.61	265.47	4246.92	45.81	4.94	-45.54	0.38	45.81	276.19
4272.97	1.56	266.52	4272.48	46.50	4.89	-46.25	0.23	46.51	276.04
4298.34	1.51	266.70	4297.84	47.17	4.85	-46.93	0.20	47.18	275.90
4323.49	1.52	269.71	4322.98	47.83	4.83	-47.59	0.32	47.84	275.80
4349.01	1.59	266.58	4348.50	48.51	4.81	-48.28	0.43	48.52	275.69
4374.31	1.62	273.79	4373.78	49.22	4.81	-48.99	0.81	49.23	275.61
4399.43	1.57	272.37	4398.89	49.91	4.85	-49.69	0.26	49.92	275.57
4424.52	1.72	271.52	4423.98	50.63	4.87	-50.41	0.60	50.64	275.52
4448.86	1.87	275.77	4448.30	51.39	4.92	-51.17	0.83	51.40	275.49
4474.12	1.96	275.88	4473.55	52.24	5.01	-52.01	0.37	52.25	275.50
4499.16	2.01	278.96	4498.58	53.11	5.12	-52.87	0.46	53.12	275.53



**Well Name:** Jack Berger A#4  
**Survey:** JACK BERGER A#4 (05-123-07717)  
**Survey Date:** 10/28/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
4524.12	2.14	282.28	4523.51	54.01	5.29	-53.76	0.72	54.02	275.62
4548.64	2.08	282.57	4548.02	54.90	5.48	-54.64	0.26	54.91	275.73
4573.66	2.10	282.32	4573.02	55.81	5.68	-55.53	0.12	55.82	275.84
4598.66	2.20	290.68	4598.00	56.73	5.95	-56.43	1.32	56.74	276.02
4623.62	2.33	280.37	4622.95	57.71	6.21	-57.37	1.70	57.71	276.17
4646.70	2.08	289.51	4646.01	58.58	6.43	-58.23	1.85	58.58	276.30
4674.21	2.21	288.21	4673.50	59.59	6.76	-59.20	0.51	59.59	276.52
4699.96	2.49	282.27	4699.23	60.63	7.04	-60.22	1.44	60.63	276.67
4713.73	2.30	287.40	4712.99	61.20	7.18	-60.78	2.11	61.20	276.74