



Gyroscopic Survey Report  
for  
K.P. KAUFFMAN  
1675 BROADWAY SUITE 2800  
DENVER, CO 80202

Well Location	WELD COUNTY, CO
Well Name	JACK BERGER #3
Rig Number	NABORS 3312
Survey Date	6/6/2014
Latitude	40.0860800°N
Longitude	104.8750500°W
North Reference	True North
Grid Correction	None
Depth Reference	GROUND LEVEL (4954.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 272.90Azim (deg)
Definitive Survey	JACK BERGER #3
Operator(s)	C JAQUES

**Well Notes**

# Survey Report

**Well Name:** JACK BERGER #3  
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**Survey Date:** 6/6/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS 7100ft	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
100.35	1.03	149.03	100.35	-0.50	-0.77	0.46	1.03	0.90	149.03
125.35	0.96	142.16	125.34	-0.77	-1.13	0.71	0.55	1.34	147.96
150.68	0.92	138.42	150.67	-1.05	-1.45	0.98	0.29	1.75	146.15
175.06	0.89	131.60	175.04	-1.33	-1.73	1.25	0.46	2.13	144.15
200.07	0.87	128.44	200.05	-1.64	-1.97	1.54	0.22	2.51	142.01
225.41	0.82	124.87	225.38	-1.95	-2.20	1.84	0.28	2.87	140.04
250.01	0.74	131.54	249.98	-2.22	-2.40	2.10	0.50	3.19	138.79
275.97	0.70	127.83	275.95	-2.48	-2.61	2.35	0.23	3.51	137.96
300.30	0.66	126.55	300.27	-2.72	-2.78	2.58	0.18	3.80	137.15
325.13	0.50	129.39	325.10	-2.93	-2.94	2.78	0.66	4.05	136.57
351.13	0.36	123.71	351.10	-3.09	-3.05	2.94	0.56	4.24	136.14
375.91	0.22	124.94	375.88	-3.19	-3.13	3.04	0.55	4.36	135.80
400.28	0.17	121.13	400.25	-3.27	-3.17	3.11	0.23	4.44	135.56
425.12	0.11	103.20	425.09	-3.32	-3.20	3.16	0.30	4.50	135.28
451.15	0.10	94.70	451.12	-3.37	-3.20	3.21	0.06	4.54	134.92
475.96	0.11	66.24	475.93	-3.41	-3.20	3.26	0.22	4.56	134.46
500.34	0.29	50.24	500.31	-3.48	-3.15	3.33	0.76	4.58	133.41
525.23	0.37	53.64	525.20	-3.59	-3.06	3.44	0.33	4.60	131.65
550.04	0.40	38.06	550.01	-3.70	-2.94	3.56	0.44	4.62	129.60
576.11	0.51	40.27	576.08	-3.82	-2.78	3.69	0.42	4.62	127.04
600.50	0.49	38.93	600.46	-3.95	-2.62	3.82	0.08	4.63	124.41
625.04	0.47	35.70	625.00	-4.07	-2.45	3.95	0.13	4.65	121.87
651.05	0.51	38.60	651.02	-4.19	-2.28	4.08	0.16	4.67	119.15
675.06	0.50	35.62	675.03	-4.31	-2.11	4.21	0.12	4.71	116.62
700.41	0.55	39.05	700.37	-4.44	-1.92	4.35	0.26	4.76	113.86
725.12	0.52	36.91	725.08	-4.58	-1.74	4.49	0.15	4.82	111.18
750.86	0.46	17.83	750.83	-4.67	-1.55	4.60	0.68	4.85	108.62
775.36	0.48	333.80	775.32	-4.64	-1.36	4.58	1.44	4.78	106.58
801.24	0.56	326.90	801.20	-4.52	-1.16	4.47	0.40	4.61	104.59
825.41	0.53	333.24	825.36	-4.39	-0.96	4.35	0.28	4.46	102.49
851.24	0.51	333.95	851.19	-4.28	-0.76	4.25	0.08	4.31	100.09
875.89	0.54	339.32	875.85	-4.18	-0.55	4.16	0.23	4.19	97.53
900.43	0.53	350.85	900.38	-4.11	-0.33	4.10	0.44	4.11	94.60
925.86	0.66	323.72	925.82	-3.99	-0.10	3.99	1.20	4.00	91.38
950.57	0.64	329.48	950.52	-3.83	0.14	3.84	0.28	3.84	87.96

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS 7100ft	Closure Distance ft	Closure Direction deg
975.33	0.52	341.53	975.28	-3.71	0.36	3.74	0.69	3.75	84.48
1001.07	0.61	336.67	1001.02	-3.61	0.60	3.65	0.40	3.69	80.72
1025.30	0.61	335.80	1025.25	-3.49	0.83	3.54	0.04	3.64	76.78
1051.24	0.57	342.88	1051.18	-3.39	1.08	3.45	0.32	3.61	72.57
1075.85	0.62	338.03	1075.80	-3.29	1.32	3.36	0.28	3.61	68.51
1101.44	0.57	338.50	1101.38	-3.18	1.57	3.26	0.21	3.62	64.31
1125.79	0.61	347.26	1125.73	-3.09	1.81	3.19	0.41	3.67	60.46
1150.43	0.58	344.10	1150.37	-3.02	2.06	3.13	0.18	3.74	56.67
1175.74	0.56	349.40	1175.68	-2.95	2.30	3.07	0.22	3.84	53.13
1200.51	0.54	350.13	1200.45	-2.89	2.54	3.03	0.07	3.95	50.03
1226.61	0.56	349.17	1226.55	-2.84	2.78	2.98	0.07	4.08	46.96
1250.97	0.51	350.61	1250.91	-2.78	3.01	2.94	0.20	4.21	44.35
1275.96	0.38	351.09	1275.89	-2.74	3.20	2.91	0.52	4.33	42.26
1300.69	0.34	350.05	1300.63	-2.71	3.35	2.88	0.20	4.42	40.68
1325.31	0.41	333.28	1325.25	-2.65	3.50	2.83	0.53	4.51	38.95
1350.42	0.34	343.27	1350.36	-2.58	3.66	2.77	0.36	4.59	37.15
1375.65	0.36	322.48	1375.58	-2.51	3.79	2.70	0.50	4.65	35.47
1400.79	0.36	326.20	1400.72	-2.41	3.92	2.61	0.09	4.71	33.66
1425.53	0.30	307.37	1425.46	-2.31	4.02	2.52	0.51	4.74	32.02
1450.77	0.39	294.21	1450.70	-2.18	4.10	2.39	0.49	4.74	30.21
1475.88	0.36	291.22	1475.81	-2.02	4.16	2.23	0.15	4.72	28.23
1500.20	0.37	279.73	1500.13	-1.87	4.20	2.08	0.31	4.69	26.39
1525.58	0.33	297.31	1525.51	-1.72	4.25	1.94	0.46	4.67	24.52
1550.75	0.40	279.86	1550.69	-1.57	4.30	1.79	0.52	4.65	22.58
1576.70	0.33	279.95	1576.63	-1.40	4.33	1.62	0.25	4.62	20.58
1600.16	0.40	271.63	1600.09	-1.25	4.34	1.48	0.35	4.58	18.78
1625.87	0.40	263.56	1625.80	-1.08	4.33	1.30	0.22	4.52	16.67
1651.10	0.42	267.76	1651.03	-0.90	4.32	1.12	0.14	4.46	14.50
1675.93	0.45	257.13	1675.86	-0.71	4.29	0.93	0.34	4.39	12.23
1700.32	0.42	260.50	1700.25	-0.53	4.26	0.75	0.15	4.32	9.97
1725.24	0.49	256.28	1725.16	-0.34	4.22	0.55	0.31	4.25	7.49
1750.88	0.46	256.35	1750.81	-0.14	4.17	0.35	0.13	4.18	4.78
1775.30	0.43	257.32	1775.22	0.05	4.12	0.16	0.10	4.13	2.26
1800.14	0.49	249.58	1800.06	0.23	4.07	-0.03	0.34	4.07	359.60
1826.36	0.49	247.07	1826.29	0.44	3.98	-0.24	0.08	3.99	356.59
1851.16	0.52	245.90	1851.09	0.63	3.89	-0.44	0.12	3.92	353.58

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS 7100ft	Closure Distance ft	Closure Direction deg
1875.61	0.43	249.94	1875.54	0.82	3.82	-0.63	0.40	3.87	350.70
1900.85	0.36	252.00	1900.77	0.98	3.76	-0.79	0.25	3.84	348.14
1925.76	0.34	254.41	1925.68	1.12	3.72	-0.94	0.11	3.83	345.86
1950.62	0.46	241.84	1950.54	1.28	3.65	-1.10	0.60	3.81	343.28
1975.95	0.47	246.20	1975.87	1.46	3.56	-1.28	0.14	3.78	340.20
2000.76	0.39	249.25	2000.68	1.63	3.49	-1.45	0.31	3.78	337.37
2026.03	0.44	247.28	2025.95	1.80	3.42	-1.62	0.18	3.79	334.59
2050.19	0.39	259.83	2050.10	1.96	3.37	-1.79	0.42	3.82	332.00
2273.99	0.73	264.62	2273.90	4.12	3.10	-3.97	0.15	5.03	308.01
2299.54	0.70	254.19	2299.45	4.43	3.04	-4.28	0.52	5.25	305.41
2324.77	0.77	254.21	2324.67	4.73	2.95	-4.59	0.24	5.46	302.76
2349.23	0.78	258.15	2349.12	5.05	2.88	-4.91	0.23	5.69	300.35
2374.82	0.86	257.10	2374.72	5.40	2.80	-5.27	0.31	5.97	297.95
2399.15	0.92	252.90	2399.04	5.77	2.70	-5.64	0.37	6.25	295.58
2424.86	0.98	255.96	2424.75	6.17	2.58	-6.05	0.29	6.58	293.13
2449.95	0.96	253.77	2449.84	6.57	2.47	-6.46	0.18	6.91	290.96
2474.00	1.06	260.40	2473.88	6.98	2.38	-6.87	0.65	7.27	289.11
2499.66	1.10	262.16	2499.54	7.45	2.31	-7.35	0.19	7.70	287.43
2524.52	0.95	262.39	2524.40	7.89	2.25	-7.79	0.57	8.10	286.10
2549.88	1.23	258.75	2549.75	8.36	2.17	-8.26	1.13	8.54	284.69
2573.32	1.22	259.67	2573.19	8.85	2.07	-8.76	0.09	9.00	283.31
2598.73	1.19	256.81	2598.59	9.37	1.96	-9.28	0.26	9.49	281.94
2623.99	1.21	262.33	2623.84	9.88	1.87	-9.80	0.46	9.98	280.79
2649.25	1.28	265.06	2649.10	10.42	1.81	-10.34	0.37	10.50	279.91
2674.09	1.23	258.19	2673.93	10.95	1.73	-10.88	0.64	11.02	279.03
2699.36	1.20	260.56	2699.20	11.47	1.63	-11.41	0.22	11.52	278.14
2724.61	1.25	264.22	2724.44	12.00	1.56	-11.94	0.35	12.04	277.44
2749.36	1.17	259.73	2749.19	12.52	1.49	-12.46	0.49	12.54	276.81
2774.73	1.26	259.42	2774.55	13.04	1.39	-12.99	0.37	13.06	276.11
2799.99	1.20	264.92	2799.80	13.57	1.32	-13.52	0.52	13.59	275.56
2823.55	1.18	263.03	2823.36	14.06	1.26	-14.01	0.20	14.07	275.16
2849.94	1.22	261.74	2849.74	14.60	1.19	-14.56	0.20	14.61	274.67
2874.14	1.19	262.09	2873.94	15.10	1.12	-15.06	0.13	15.11	274.25
2899.34	1.10	262.98	2899.13	15.60	1.05	-15.56	0.39	15.60	273.87
2924.32	1.12	264.46	2924.10	16.07	1.00	-16.04	0.16	16.08	273.57
2949.65	1.12	268.29	2949.43	16.57	0.97	-16.54	0.30	16.57	273.35

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS 7100ft	Closure Distance ft	Closure Direction deg
2974.08	1.22	267.49	2973.86	17.06	0.95	-17.04	0.44	17.06	273.19
2999.32	1.11	263.38	2999.10	17.57	0.91	-17.55	0.55	17.57	272.97
3024.58	1.18	265.61	3024.35	18.07	0.86	-18.05	0.34	18.07	272.74
3049.81	1.14	269.21	3049.57	18.58	0.84	-18.56	0.34	18.58	272.59
3074.21	1.19	270.60	3073.96	19.07	0.84	-19.05	0.23	19.07	272.52
3098.88	1.10	273.89	3098.63	19.56	0.86	-19.55	0.44	19.56	272.51
3124.97	1.11	268.03	3124.72	20.07	0.87	-20.05	0.44	20.07	272.47
3149.79	1.07	266.17	3149.54	20.54	0.84	-20.52	0.21	20.54	272.35
3174.13	1.04	266.72	3173.87	20.98	0.81	-20.97	0.14	20.99	272.22
3198.87	1.06	262.33	3198.60	21.43	0.77	-21.42	0.34	21.43	272.06
3224.72	1.11	264.43	3224.45	21.91	0.71	-21.91	0.23	21.92	271.87
3249.61	1.06	266.61	3249.34	22.38	0.68	-22.38	0.23	22.39	271.73
3273.94	1.25	262.13	3273.66	22.87	0.63	-22.86	0.83	22.87	271.57
3299.92	1.16	262.42	3299.63	23.40	0.55	-23.40	0.34	23.41	271.36
3324.66	1.22	265.59	3324.37	23.91	0.50	-23.91	0.37	23.92	271.20
3349.47	1.16	267.10	3349.17	24.42	0.47	-24.43	0.30	24.43	271.10
3374.96	1.17	266.30	3374.66	24.94	0.44	-24.95	0.09	24.95	271.01
3399.75	1.22	268.10	3399.44	25.45	0.41	-25.46	0.25	25.47	270.93
3424.46	1.24	266.00	3424.15	25.98	0.39	-25.99	0.20	25.99	270.85
3449.19	1.33	271.89	3448.87	26.53	0.38	-26.55	0.65	26.55	270.81
3474.80	1.28	270.21	3474.48	27.11	0.39	-27.13	0.26	27.13	270.82
3499.40	1.29	270.64	3499.07	27.66	0.39	-27.68	0.08	27.68	270.81
3524.19	1.27	275.37	3523.85	28.22	0.42	-28.23	0.44	28.24	270.85
3548.90	1.30	272.69	3548.56	28.77	0.46	-28.79	0.27	28.79	270.91
3574.45	1.14	277.90	3574.10	29.32	0.51	-29.33	0.74	29.33	270.99
3599.09	1.27	278.01	3598.74	29.84	0.58	-29.84	0.51	29.85	271.11
3623.91	1.17	274.86	3623.55	30.36	0.64	-30.37	0.47	30.38	271.21
3649.86	1.15	276.54	3649.50	30.89	0.69	-30.89	0.16	30.90	271.28
3674.17	1.13	277.46	3673.80	31.37	0.75	-31.37	0.10	31.38	271.37
3698.87	1.11	276.76	3698.49	31.85	0.81	-31.85	0.13	31.86	271.46
3724.80	0.99	276.41	3724.42	32.33	0.87	-32.33	0.43	32.34	271.53
3749.59	1.13	278.31	3749.21	32.79	0.92	-32.78	0.55	32.79	271.62
3773.87	1.02	279.44	3773.48	33.24	0.99	-33.23	0.44	33.25	271.71
3799.81	1.07	280.34	3799.42	33.71	1.08	-33.70	0.20	33.71	271.83
3824.52	1.08	279.20	3824.12	34.17	1.15	-34.15	0.09	34.17	271.94
3849.88	1.25	277.20	3849.48	34.68	1.23	-34.66	0.71	34.69	272.03

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3874.07	1.20	277.68	3873.66	35.20	1.29	-35.18	0.24	35.20	272.11
3899.23	1.37	280.38	3898.82	35.76	1.38	-35.73	0.74	35.76	272.22
3924.64	1.24	277.55	3924.22	36.33	1.47	-36.31	0.58	36.33	272.33
3949.97	1.16	275.74	3949.54	36.86	1.54	-36.83	0.35	36.86	272.39
3974.22	1.01	277.31	3973.79	37.32	1.59	-37.29	0.62	37.32	272.44
3999.62	0.84	279.71	3999.19	37.73	1.65	-37.69	0.69	37.73	272.50
4023.40	0.74	274.80	4022.97	38.05	1.69	-38.02	0.52	38.05	272.55
4048.79	0.55	277.42	4048.36	38.34	1.72	-38.30	0.76	38.34	272.57
4074.20	0.56	275.72	4073.76	38.58	1.75	-38.54	0.09	38.58	272.60
4099.64	0.48	278.98	4099.20	38.81	1.78	-38.77	0.32	38.81	272.62
4124.97	0.56	286.19	4124.53	39.04	1.83	-39.00	0.40	39.04	272.68
4149.21	0.66	294.54	4148.77	39.28	1.92	-39.24	0.54	39.28	272.80
4173.81	0.71	283.29	4173.37	39.57	2.01	-39.51	0.58	39.57	272.92
4198.75	0.65	279.05	4198.30	39.86	2.07	-39.80	0.31	39.86	272.98
4223.81	0.81	276.55	4223.36	40.18	2.11	-40.12	0.66	40.18	273.01
4249.20	0.80	270.25	4248.75	40.53	2.13	-40.48	0.35	40.53	273.02
4274.67	0.75	264.81	4274.22	40.88	2.12	-40.82	0.36	40.88	272.97
4298.40	0.70	268.56	4297.95	41.18	2.10	-41.12	0.27	41.18	272.93
4323.87	0.68	286.48	4323.41	41.48	2.14	-41.42	0.85	41.48	272.96
4349.63	0.80	280.92	4349.17	41.80	2.22	-41.75	0.55	41.80	273.04
4373.76	0.89	278.06	4373.29	42.16	2.28	-42.10	0.43	42.16	273.10
4399.30	0.93	270.62	4398.83	42.57	2.31	-42.50	0.49	42.57	273.11
4424.64	1.01	271.35	4424.17	42.99	2.31	-42.93	0.30	43.00	273.09
4449.77	1.02	267.88	4449.30	43.44	2.31	-43.38	0.25	43.44	273.05
4474.14	1.00	275.39	4473.66	43.87	2.32	-43.81	0.55	43.87	273.04
4499.01	1.13	275.62	4498.53	44.33	2.37	-44.27	0.54	44.33	273.06
4524.68	1.20	271.50	4524.19	44.85	2.40	-44.79	0.41	44.85	273.07
4549.49	1.36	269.73	4549.00	45.40	2.40	-45.34	0.67	45.40	273.04
4574.29	1.21	269.87	4573.79	45.96	2.40	-45.89	0.61	45.96	273.00
4600.93	1.18	259.03	4600.42	46.50	2.35	-46.44	0.85	46.50	272.90