



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

Well Location	WELD COUNTY, CO
Well Name	RICHARD R FINDLAY 2
Rig Number	NABORS 92-3376
Survey Date	7/17/2014
Latitude	40.0093900°N
Longitude	104.9262000°W
North Reference	True North
Grid Correction	None
Depth Reference	GROUND LEVEL (4988.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 286.50Azim (deg)
Definitive Survey	None
Operator(s)	C JAQUES, C KIRBY

Well Notes

Survey Report

Well Name: RICHARD R FINDLAY 2
Survey: RICHARD R FINDLAY 2 IN RUN
Survey Date: 7/17/2014

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
100.00	0.34	189.58	100.00	-0.04	-0.29	-0.05	0.34	0.30	189.58
126.42	0.35	182.09	126.42	-0.07	-0.45	-0.07	0.18	0.46	188.25
150.42	0.37	184.08	150.42	-0.10	-0.60	-0.07	0.09	0.61	186.97
175.30	0.42	177.67	175.30	-0.15	-0.77	-0.08	0.27	0.78	185.58
200.99	0.41	169.18	200.98	-0.22	-0.96	-0.05	0.24	0.96	183.24
225.61	0.43	163.19	225.60	-0.31	-1.13	-0.01	0.19	1.13	180.54
250.18	0.44	171.69	250.18	-0.40	-1.32	0.03	0.26	1.32	178.71
275.60	0.68	159.03	275.59	-0.53	-1.55	0.10	1.08	1.56	176.40
300.27	0.58	158.11	300.26	-0.70	-1.81	0.20	0.39	1.82	173.77
326.15	0.58	152.23	326.15	-0.87	-2.04	0.31	0.23	2.07	171.46
350.69	0.60	161.73	350.68	-1.03	-2.28	0.40	0.41	2.31	169.91
376.55	0.71	171.15	376.54	-1.18	-2.56	0.47	0.58	2.60	169.56
400.81	0.60	156.41	400.80	-1.33	-2.83	0.55	0.81	2.88	169.07
425.49	0.63	160.22	425.48	-1.49	-3.07	0.64	0.21	3.14	168.16
450.12	0.59	166.83	450.10	-1.63	-3.32	0.72	0.35	3.40	167.80
475.99	0.56	161.74	475.97	-1.77	-3.57	0.79	0.23	3.66	167.55
500.20	0.69	163.56	500.18	-1.92	-3.82	0.87	0.55	3.92	167.23
525.26	0.66	166.81	525.24	-2.07	-4.11	0.94	0.18	4.22	167.09
550.81	0.65	169.66	550.79	-2.21	-4.40	1.00	0.14	4.51	167.16
575.51	0.62	164.64	575.49	-2.34	-4.66	1.06	0.25	4.78	167.16
601.00	0.59	156.93	600.97	-2.50	-4.92	1.15	0.35	5.05	166.83
626.06	0.57	164.48	626.04	-2.65	-5.16	1.23	0.31	5.30	166.53
650.39	0.53	160.73	650.36	-2.78	-5.38	1.30	0.23	5.54	166.37
675.10	0.55	154.40	675.07	-2.93	-5.60	1.39	0.25	5.77	166.01
700.46	0.46	160.79	700.44	-3.07	-5.80	1.48	0.40	5.99	165.69
725.19	0.38	148.66	725.16	-3.19	-5.97	1.56	0.51	6.17	165.39
751.17	0.57	137.44	751.14	-3.36	-6.14	1.69	0.84	6.36	164.62
775.86	0.46	133.18	775.83	-3.56	-6.29	1.84	0.50	6.56	163.68
800.64	0.50	144.04	800.60	-3.73	-6.45	1.98	0.41	6.75	162.94
826.11	0.48	142.35	826.08	-3.91	-6.63	2.11	0.09	6.95	162.33
850.74	0.49	142.87	850.71	-4.07	-6.79	2.24	0.04	7.15	161.76
875.18	0.51	146.19	875.15	-4.24	-6.96	2.36	0.13	7.35	161.27
900.51	0.41	135.32	900.47	-4.41	-7.12	2.49	0.50	7.54	160.75
926.01	0.44	142.08	925.97	-4.57	-7.27	2.61	0.22	7.72	160.22
951.06	0.33	143.79	951.02	-4.70	-7.40	2.71	0.45	7.88	159.86

Survey Report

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Survey Date: 7/17/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS 7100ft	Closure Distance ft	Closure Direction deg
975.38	0.58	139.90	975.35	-4.86	-7.55	2.83	1.03	8.06	159.43
1000.84	0.44	136.87	1000.80	-5.05	-7.72	2.98	0.55	8.27	158.87
1026.28	0.43	132.53	1026.24	-5.22	-7.85	3.12	0.13	8.45	158.34
1050.50	0.32	137.43	1050.46	-5.36	-7.96	3.23	0.45	8.59	157.92
1075.55	0.29	117.28	1075.50	-5.48	-8.04	3.33	0.45	8.71	157.48
1101.04	0.19	143.38	1101.00	-5.58	-8.11	3.42	0.55	8.80	157.15
1125.26	0.22	111.64	1125.22	-5.66	-8.16	3.48	0.48	8.87	156.87
1150.77	0.25	138.07	1150.73	-5.75	-8.22	3.57	0.43	8.96	156.54
1175.01	0.24	138.18	1174.96	-5.84	-8.29	3.64	0.01	9.06	156.33
1201.65	0.22	129.41	1201.61	-5.94	-8.37	3.71	0.16	9.16	156.07
1225.89	0.13	123.07	1225.85	-6.01	-8.41	3.77	0.39	9.22	155.84
1250.95	0.15	174.89	1250.90	-6.05	-8.46	3.80	0.50	9.28	155.82
1275.31	0.15	152.39	1275.26	-6.08	-8.52	3.82	0.24	9.34	155.87
1300.83	0.13	119.13	1300.78	-6.13	-8.57	3.86	0.32	9.40	155.75
1326.23	0.09	223.67	1326.19	-6.15	-8.60	3.87	0.70	9.43	155.76
1350.14	0.14	270.50	1350.09	-6.12	-8.61	3.83	0.44	9.42	156.03
1375.50	0.03	343.99	1375.46	-6.08	-8.60	3.79	0.55	9.40	156.20
1401.04	0.11	320.87	1400.99	-6.06	-8.58	3.78	0.31	9.37	156.23
1425.28	0.13	295.83	1425.24	-6.01	-8.55	3.74	0.24	9.33	156.39
1450.80	0.23	286.67	1450.76	-5.93	-8.52	3.66	0.40	9.27	156.75
1475.85	0.23	282.59	1475.81	-5.83	-8.49	3.56	0.07	9.21	157.25
1500.93	0.21	281.97	1500.88	-5.73	-8.47	3.47	0.08	9.16	157.73
1525.26	0.27	308.02	1525.22	-5.64	-8.43	3.38	0.50	9.08	158.14
1550.72	0.27	300.00	1550.68	-5.52	-8.36	3.28	0.15	8.98	158.57
1575.34	0.34	298.69	1575.30	-5.39	-8.30	3.17	0.28	8.88	159.11
1600.24	0.25	309.17	1600.20	-5.27	-8.23	3.06	0.41	8.78	159.60
1625.38	0.37	295.45	1625.34	-5.14	-8.16	2.94	0.54	8.67	160.16
1650.42	0.35	307.79	1650.37	-4.99	-8.08	2.81	0.31	8.55	160.81
1675.45	0.38	309.85	1675.41	-4.84	-7.98	2.69	0.13	8.42	161.39
1700.53	0.36	338.35	1700.49	-4.72	-7.85	2.59	0.73	8.27	161.72
1725.98	0.39	322.90	1725.93	-4.60	-7.70	2.51	0.41	8.10	161.95
1751.03	0.45	312.79	1750.98	-4.44	-7.57	2.39	0.39	7.94	162.50
1775.28	0.48	317.51	1775.24	-4.26	-7.43	2.25	0.19	7.76	163.17
1800.38	0.56	320.90	1800.33	-4.07	-7.26	2.10	0.35	7.55	163.87
1825.85	0.56	312.37	1825.80	-3.86	-7.07	1.93	0.33	7.33	164.76
1850.20	0.58	312.00	1850.15	-3.64	-6.91	1.75	0.09	7.13	165.80

Survey Report

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Survey Date: 7/17/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS 7100ft	Closure Distance ft	Closure Direction deg
1876.06	0.60	317.74	1876.01	-3.41	-6.72	1.56	0.25	6.90	166.94
1900.02	0.66	313.32	1899.97	-3.17	-6.54	1.37	0.31	6.68	168.12
1925.46	0.65	310.05	1925.40	-2.91	-6.34	1.16	0.15	6.45	169.66
1950.49	0.64	312.48	1950.44	-2.66	-6.16	0.95	0.12	6.23	171.27
1975.78	0.67	315.94	1975.72	-2.40	-5.96	0.74	0.19	6.00	172.92
2000.84	0.67	314.41	2000.78	-2.15	-5.75	0.53	0.07	5.77	174.69
2025.98	0.70	307.25	2025.92	-1.87	-5.55	0.31	0.37	5.56	176.83
2051.17	0.75	302.69	2051.10	-1.57	-5.37	0.05	0.31	5.37	179.51
2076.33	0.80	297.12	2076.26	-1.24	-5.20	-0.25	0.37	5.21	182.76
2101.21	0.77	299.51	2101.15	-0.90	-5.04	-0.55	0.18	5.07	186.25
2125.05	0.83	299.33	2124.98	-0.58	-4.88	-0.84	0.24	4.95	189.81
2150.23	0.80	299.45	2150.16	-0.23	-4.70	-1.15	0.13	4.84	193.81
2175.40	0.88	306.95	2175.32	0.12	-4.50	-1.46	0.53	4.73	198.00
2201.04	0.74	297.58	2200.96	0.47	-4.30	-1.76	0.75	4.65	202.28
2225.00	0.67	299.49	2224.92	0.76	-4.16	-2.02	0.31	4.63	205.89
2250.27	0.86	298.86	2250.19	1.08	-4.00	-2.31	0.75	4.62	210.05
2275.73	0.89	301.26	2275.64	1.46	-3.81	-2.65	0.19	4.64	214.84
2301.07	0.78	292.91	2300.98	1.82	-3.64	-2.98	0.65	4.70	219.28
2325.09	0.86	294.20	2325.00	2.16	-3.50	-3.29	0.35	4.80	223.21
2351.07	0.91	297.25	2350.98	2.56	-3.33	-3.65	0.28	4.94	227.66
2375.90	0.82	311.30	2375.81	2.91	-3.12	-3.96	0.93	5.04	231.77
2401.04	0.82	302.66	2400.94	3.25	-2.90	-4.25	0.49	5.14	235.64
2425.72	0.81	293.46	2425.62	3.59	-2.74	-4.56	0.53	5.31	238.98
2450.55	0.83	297.18	2450.45	3.94	-2.59	-4.88	0.24	5.52	242.06
2476.67	0.90	308.18	2476.56	4.32	-2.37	-5.21	0.68	5.72	245.50
2500.91	0.87	301.32	2500.80	4.67	-2.16	-5.51	0.45	5.92	248.60
2526.08	0.74	306.02	2525.97	5.01	-1.97	-5.81	0.57	6.13	251.30
2550.41	0.78	311.49	2550.30	5.31	-1.76	-6.06	0.34	6.31	253.78
2575.31	0.91	302.52	2575.19	5.65	-1.54	-6.35	0.74	6.54	256.33
2600.79	0.80	305.50	2600.67	6.01	-1.33	-6.67	0.47	6.80	258.69
2625.54	0.82	305.19	2625.42	6.34	-1.13	-6.95	0.09	7.04	260.75
2651.99	0.70	299.21	2651.86	6.68	-0.94	-7.24	0.55	7.31	262.57
2675.57	0.96	303.44	2675.44	7.01	-0.77	-7.53	1.16	7.57	264.20
2701.45	0.90	303.44	2701.32	7.41	-0.53	-7.89	0.26	7.90	266.12
2725.80	0.77	311.19	2725.67	7.74	-0.32	-8.17	0.68	8.17	267.75
2750.60	0.67	314.00	2750.46	8.02	-0.11	-8.40	0.43	8.40	269.25

Survey Report

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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
2775.46	0.86	303.69	2775.32	8.33	0.09	-8.66	0.92	8.66	270.63
2800.46	0.76	310.01	2800.32	8.66	0.31	-8.94	0.52	8.95	271.96
2825.20	0.90	300.41	2825.05	9.00	0.51	-9.24	0.79	9.25	273.16
2850.10	0.81	304.12	2849.95	9.36	0.71	-9.55	0.44	9.58	274.24
2876.18	0.51	334.69	2876.03	9.61	0.92	-9.75	1.72	9.79	275.37
2901.06	0.56	316.52	2900.91	9.79	1.10	-9.88	0.70	9.94	276.38
2925.57	0.53	322.91	2925.42	9.98	1.28	-10.03	0.27	10.11	277.27
2950.62	0.47	346.57	2950.47	10.13	1.47	-10.12	0.85	10.23	278.27
2975.51	0.48	355.58	2975.36	10.21	1.68	-10.16	0.31	10.29	279.37
3000.43	0.51	326.08	3000.27	10.34	1.87	-10.23	1.03	10.40	280.38
3025.35	0.76	311.71	3025.20	10.57	2.08	-10.41	1.16	10.62	281.28
3050.26	0.45	12.29	3050.11	10.73	2.28	-10.51	2.67	10.76	282.25
3075.22	0.39	337.89	3075.06	10.79	2.46	-10.52	1.03	10.81	283.14
3100.87	0.56	309.90	3100.71	10.96	2.62	-10.65	1.12	10.97	283.80
3125.34	0.49	316.86	3125.18	11.16	2.77	-10.82	0.40	11.17	284.36
3150.69	0.77	326.00	3150.53	11.38	2.99	-10.99	1.20	11.39	285.23
3175.09	0.28	328.73	3174.92	11.55	3.18	-11.11	2.05	11.55	285.96
3200.80	0.52	295.62	3200.63	11.72	3.28	-11.25	1.28	11.72	286.26
3225.26	0.78	345.85	3225.09	11.91	3.49	-11.39	2.45	11.91	287.04
3250.51	0.53	314.68	3250.35	12.10	3.74	-11.51	1.69	12.11	287.99
3275.00	0.56	293.57	3274.84	12.32	3.87	-11.70	0.82	12.33	288.28
3300.72	0.68	303.02	3300.55	12.59	4.00	-11.95	0.61	12.60	288.51
3325.22	0.67	294.23	3325.05	12.87	4.14	-12.20	0.42	12.88	288.74
3350.14	0.65	291.57	3349.97	13.16	4.25	-12.46	0.13	13.17	288.83
3375.95	0.59	304.36	3375.77	13.43	4.38	-12.71	0.59	13.44	289.01
3400.37	0.78	292.59	3400.20	13.71	4.51	-12.96	0.99	13.73	289.19
3426.22	0.94	303.36	3426.05	14.09	4.70	-13.31	0.87	14.11	289.44
3450.58	0.98	274.45	3450.40	14.49	4.82	-13.68	1.98	14.51	289.42
3475.40	0.73	298.25	3475.21	14.85	4.91	-14.03	1.75	14.87	289.30
3500.38	0.57	345.99	3500.19	15.07	5.11	-14.20	2.18	15.09	289.79
3525.89	0.79	289.56	3525.70	15.31	5.29	-14.40	2.63	15.34	290.18
3550.24	0.49	291.79	3550.05	15.58	5.39	-14.65	1.23	15.61	290.19
3575.77	0.34	67.47	3575.59	15.63	5.46	-14.68	3.01	15.67	290.39
3600.16	0.47	30.04	3599.97	15.55	5.57	-14.57	1.17	15.60	290.93
3626.12	0.20	321.08	3625.93	15.56	5.70	-14.54	1.69	15.62	291.40
3650.18	0.13	251.32	3649.99	15.62	5.72	-14.60	0.84	15.68	291.41

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3675.82	0.12	61.23	3675.63	15.63	5.73	-14.60	0.95	15.68	291.42
3700.17	0.15	205.10	3699.98	15.61	5.71	-14.59	1.06	15.67	291.37
3725.76	0.20	225.67	3725.57	15.64	5.65	-14.64	0.30	15.69	291.09
3750.18	0.20	207.40	3749.99	15.67	5.58	-14.69	0.26	15.71	290.80
3775.79	0.41	232.42	3775.60	15.73	5.48	-14.78	0.94	15.77	290.35
3800.69	0.27	219.95	3800.50	15.81	5.38	-14.89	0.65	15.83	289.88
3825.41	0.68	199.97	3825.22	15.84	5.20	-14.98	1.79	15.86	289.15
3850.47	0.67	239.32	3850.28	15.95	4.99	-15.16	1.82	15.96	288.21
3875.22	0.90	220.90	3875.02	16.13	4.77	-15.41	1.35	16.13	287.19
3900.33	1.03	210.85	3900.13	16.26	4.42	-15.65	0.87	16.26	285.78
3925.48	0.84	228.35	3925.28	16.42	4.11	-15.91	1.36	16.43	284.47
3951.07	0.65	238.95	3950.87	16.61	3.91	-16.17	0.93	16.64	283.58
3976.14	0.88	220.61	3975.93	16.79	3.69	-16.42	1.31	16.83	282.66
4000.17	0.67	225.52	3999.97	16.93	3.45	-16.64	0.88	16.99	281.71
4025.31	0.61	234.80	4025.10	17.09	3.27	-16.85	0.49	17.17	280.97
4050.46	0.59	241.43	4050.25	17.26	3.13	-17.08	0.28	17.36	280.38
4075.60	0.58	253.58	4075.39	17.46	3.03	-17.31	0.49	17.57	279.93
4100.78	0.69	265.22	4100.57	17.71	2.98	-17.58	0.69	17.84	279.63
4125.95	0.78	268.54	4125.74	18.01	2.97	-17.91	0.40	18.15	279.40
4150.03	0.81	275.74	4149.82	18.34	2.98	-18.24	0.43	18.48	279.27
4175.23	0.88	279.25	4175.00	18.70	3.03	-18.61	0.33	18.86	279.24
4200.05	0.80	280.36	4199.82	19.07	3.09	-18.97	0.33	19.22	279.25
4225.25	0.98	283.13	4225.03	19.45	3.17	-19.35	0.72	19.61	279.30
4250.45	0.99	286.56	4250.22	19.89	3.28	-19.77	0.24	20.04	279.42
4275.68	1.08	285.54	4275.44	20.34	3.41	-20.21	0.36	20.49	279.57
4300.14	1.27	283.76	4299.90	20.84	3.53	-20.69	0.77	20.99	279.69
4325.40	1.15	286.60	4325.16	21.37	3.67	-21.20	0.53	21.52	279.82
4350.64	1.18	290.27	4350.39	21.88	3.83	-21.69	0.32	22.03	280.02
4375.88	1.35	290.24	4375.62	22.44	4.03	-22.21	0.69	22.57	280.27
4400.02	1.16	287.29	4399.75	22.97	4.20	-22.71	0.85	23.10	280.47
4425.26	1.28	285.09	4424.99	23.51	4.35	-23.23	0.52	23.63	280.60
4450.51	1.39	289.06	4450.24	24.10	4.52	-23.79	0.58	24.22	280.76
4475.94	1.29	294.41	4475.66	24.69	4.74	-24.35	0.64	24.80	281.02
4501.14	1.29	296.96	4500.85	25.25	4.98	-24.86	0.23	25.35	281.34
4525.32	1.27	300.64	4525.02	25.78	5.24	-25.33	0.34	25.87	281.70
4550.36	1.56	295.45	4550.06	26.38	5.53	-25.88	1.26	26.46	282.07



Well Name: RICHARD R FINDLAY 2
Survey: RICHARD R FINDLAY 2 IN RUN
Survey Date: 7/17/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS 7100ft	Closure Distance ft	Closure Direction deg
4575.11	1.49	297.56	4574.80	27.03	5.83	-26.47	0.37	27.10	282.42
4601.06	1.61	298.99	4600.74	27.72	6.16	-27.09	0.46	27.78	282.81
4650.20	1.79	298.01	4649.86	29.15	6.86	-28.37	0.39	29.18	283.59
4676.15	1.87	297.04	4675.79	29.96	7.24	-29.10	0.31	29.99	283.97
4700.09	1.90	296.92	4699.72	30.73	7.60	-29.80	0.12	30.76	284.30
4725.90	1.95	298.42	4725.52	31.59	8.00	-30.57	0.29	31.60	284.66
4750.69	2.03	297.54	4750.29	32.43	8.40	-31.33	0.31	32.44	285.01
4775.59	2.24	297.33	4775.18	33.34	8.83	-32.16	0.88	33.35	285.35
4800.30	2.33	296.73	4799.87	34.31	9.28	-33.03	0.35	34.31	285.69
4825.10	2.46	297.41	4824.64	35.33	9.75	-33.96	0.53	35.33	286.02
4851.10	2.07	297.98	4850.62	36.33	10.23	-34.86	1.50	36.33	286.35
4865.33	1.91	298.05	4864.85	36.82	10.46	-35.30	1.14	36.82	286.50