



Gyroscopic Survey Report
for
K.P. Kauffman

Well Location	Weld County, Colorado
Well Name	Grenemeyer 1-A
Rig Number	KPK 2
Survey Date	1/22/2014
Latitude	40.0105590°N
North Reference	True North
Grid Correction	None
Depth Reference	Ground Level (5054.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 327.82Azim (deg)
Definitive Survey	Grenemeyer 1-A
Operator(s)	Jon Valenzuela

Well Notes

Survey Report

Well Name:		Grenemeyer 1-A							
Survey:		Grenemeyer 1-A							
Survey Date:		1/22/2014							
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
51.17	0.43	192.96	51.17	-0.14	-0.19	-0.04	0.85	0.19	192.96
100.72	0.16	235.36	100.72	-0.27	-0.41	-0.14	0.67	0.44	199.10
150.14	0.23	336.23	150.14	-0.18	-0.36	-0.24	0.62	0.43	213.63
200.82	0.21	279.23	200.82	-0.01	-0.25	-0.37	0.42	0.45	236.05
250.39	0.19	221.74	250.39	0.02	-0.30	-0.52	0.39	0.60	240.15
300.10	0.26	335.00	300.10	0.11	-0.26	-0.62	0.76	0.67	247.58
350.85	0.24	339.28	350.85	0.33	-0.05	-0.71	0.06	0.71	265.69
400.84	0.39	6.15	400.84	0.57	0.21	-0.72	0.41	0.76	286.29
450.47	0.72	15.69	450.47	0.91	0.68	-0.62	0.69	0.92	317.45
500.66	1.02	32.66	500.65	1.31	1.36	-0.30	0.79	1.39	347.72
550.47	1.81	35.45	550.44	1.80	2.37	0.40	1.58	2.41	9.55
601.46	2.03	40.22	601.41	2.37	3.72	1.45	0.54	3.99	21.29
650.21	2.06	39.56	650.12	2.91	5.05	2.56	0.08	5.66	26.91
700.07	2.04	40.10	699.95	3.46	6.42	3.70	0.06	7.41	29.99
750.25	1.87	41.59	750.10	3.96	7.71	4.82	0.34	9.10	32.01
800.50	1.57	42.96	800.33	4.36	8.83	5.83	0.61	10.58	33.46
850.67	1.43	43.69	850.49	4.69	9.78	6.73	0.28	11.88	34.54
900.08	1.32	44.51	899.88	4.97	10.63	7.56	0.22	13.04	35.40
950.69	1.20	40.45	950.47	5.27	11.45	8.31	0.29	14.15	35.96
1000.49	1.22	38.16	1000.26	5.60	12.27	8.98	0.10	15.20	36.20
1050.51	1.01	42.31	1050.28	5.90	13.01	9.60	0.45	16.17	36.43
1100.35	1.06	40.14	1100.11	6.16	13.69	10.20	0.12	17.07	36.68
1150.72	1.00	45.05	1150.47	6.39	14.36	10.81	0.20	17.97	36.97
1200.41	1.04	43.99	1200.15	6.60	14.99	11.43	0.08	18.85	37.33
1250.01	0.65	50.04	1249.74	6.74	15.49	11.96	0.81	19.57	37.66
1300.88	0.77	49.43	1300.61	6.83	15.90	12.44	0.24	20.18	38.03
1350.59	0.73	51.82	1350.32	6.91	16.31	12.94	0.10	20.82	38.42
1401.49	0.69	44.54	1401.21	7.02	16.73	13.41	0.20	21.44	38.71
1450.90	0.48	43.11	1450.62	7.14	17.09	13.76	0.43	21.94	38.83
1500.88	0.52	9.74	1500.60	7.36	17.47	13.94	0.58	22.35	38.59
1550.77	0.47	9.86	1550.49	7.68	17.89	14.01	0.10	22.72	38.07
1601.15	0.42	16.79	1600.87	7.95	18.27	14.10	0.14	23.08	37.66
1650.08	0.48	9.84	1649.79	8.22	18.64	14.19	0.17	23.43	37.27
1700.75	0.37	1.39	1700.46	8.52	19.02	14.23	0.25	23.75	36.80
1750.62	0.37	1.17	1750.33	8.79	19.34	14.23	0.01	24.01	36.35

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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
1800.80	0.30	2.04	1800.51	9.03	19.63	14.24	0.13	24.25	35.96
1851.06	0.27	4.22	1850.77	9.23	19.88	14.25	0.07	24.46	35.64
1900.11	0.25	358.36	1899.82	9.42	20.10	14.26	0.06	24.65	35.35
1950.92	0.36	3.90	1950.63	9.65	20.37	14.27	0.22	24.87	35.00
2000.00	0.40	358.10	1999.71	9.92	20.70	14.27	0.12	25.14	34.58
2050.04	0.40	16.19	2049.75	10.19	21.04	14.31	0.25	25.45	34.22
2100.30	0.37	343.51	2100.00	10.46	21.37	14.32	0.43	25.72	33.82
2150.49	0.39	308.48	2150.20	10.78	21.63	14.14	0.46	25.84	33.17
2200.30	0.58	292.95	2200.00	11.14	21.83	13.77	0.47	25.81	32.25
2250.91	0.57	293.29	2250.62	11.56	22.03	13.30	0.02	25.74	31.13
2300.36	0.65	294.54	2300.06	12.00	22.25	12.82	0.16	25.68	29.96
2350.88	0.56	286.69	2350.58	12.43	22.44	12.32	0.24	25.60	28.78
2400.59	0.65	293.65	2400.28	12.84	22.62	11.83	0.24	25.53	27.61
2450.24	0.64	276.25	2449.93	13.25	22.76	11.30	0.40	25.41	26.39
2500.80	0.75	266.42	2500.49	13.58	22.77	10.69	0.32	25.16	25.14
2550.54	0.82	242.17	2550.22	13.77	22.59	10.05	0.68	24.72	23.98
2601.45	0.87	234.48	2601.13	13.77	22.19	9.41	0.25	24.10	22.98
2650.76	0.94	227.77	2650.42	13.68	21.70	8.80	0.26	23.42	22.08
2700.36	0.90	229.16	2700.02	13.55	21.17	8.21	0.10	22.71	21.19
2750.24	0.91	223.44	2749.90	13.39	20.63	7.64	0.18	22.00	20.32
2800.41	0.97	223.43	2800.06	13.19	20.03	7.07	0.13	21.25	19.45
2850.13	0.72	221.48	2849.78	13.00	19.49	6.58	0.51	20.57	18.64
2900.17	0.79	212.16	2899.81	12.76	18.96	6.18	0.28	19.95	18.06
2950.70	0.71	224.53	2950.33	12.53	18.45	5.78	0.35	19.33	17.39
3000.81	0.69	212.36	3000.45	12.33	17.97	5.40	0.30	18.76	16.72
3050.55	0.83	230.18	3050.18	12.15	17.48	4.96	0.55	18.17	15.83
3100.32	0.69	222.06	3099.95	12.02	17.03	4.48	0.36	17.60	14.73
3150.87	0.67	223.04	3150.49	11.87	16.58	4.07	0.05	17.08	13.80
3200.21	0.56	227.65	3199.83	11.75	16.21	3.70	0.23	16.63	12.85
3250.44	0.53	230.35	3250.06	11.68	15.90	3.34	0.09	16.24	11.85
3301.22	0.53	227.66	3300.83	11.61	15.59	2.98	0.05	15.87	10.83
3351.18	0.49	233.26	3350.79	11.55	15.31	2.64	0.13	15.53	9.79
3400.90	0.45	224.13	3400.51	11.48	15.04	2.34	0.17	15.22	8.83
3450.27	0.36	212.34	3449.87	11.37	14.77	2.12	0.24	14.92	8.16
3500.72	0.32	240.44	3500.33	11.31	14.56	1.91	0.34	14.69	7.47
3550.57	0.23	206.30	3550.17	11.26	14.40	1.74	0.36	14.51	6.91

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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
3601.11	0.31	238.49	3600.71	11.21	14.24	1.58	0.33	14.33	6.34
3651.03	0.25	231.11	3650.63	11.20	14.10	1.38	0.15	14.17	5.61
3700.84	0.24	240.74	3700.44	11.19	13.99	1.21	0.08	14.04	4.95
3750.32	0.25	201.29	3749.93	11.13	13.83	1.08	0.34	13.87	4.47
3800.99	0.28	246.44	3800.59	11.08	13.68	0.93	0.41	13.71	3.87
3850.94	0.26	256.60	3850.54	11.14	13.60	0.70	0.10	13.62	2.96
3900.45	0.24	250.90	3900.05	11.20	13.54	0.50	0.07	13.55	2.09
3950.68	0.23	250.61	3950.28	11.25	13.48	0.30	0.01	13.48	1.27
4000.14	0.29	257.20	3999.74	11.31	13.41	0.08	0.13	13.41	0.36
4050.73	0.33	263.89	4050.33	11.42	13.37	-0.19	0.12	13.37	359.19
4101.03	0.42	278.61	4100.63	11.60	13.38	-0.52	0.26	13.39	357.78
4150.60	0.53	274.01	4150.20	11.86	13.43	-0.93	0.23	13.46	356.04
4200.24	0.66	283.21	4199.84	12.20	13.51	-1.43	0.32	13.58	353.94
4251.14	0.46	263.12	4250.73	12.49	13.55	-1.92	0.54	13.68	351.93
4300.13	0.76	256.61	4299.72	12.68	13.45	-2.43	0.63	13.67	349.74
4350.04	0.61	255.24	4349.62	12.87	13.31	-3.01	0.32	13.64	347.24
4400.95	0.70	238.60	4400.54	12.95	13.08	-3.54	0.41	13.55	344.86
4450.16	0.66	224.75	4449.74	12.89	12.72	-3.99	0.34	13.33	342.58
4500.02	0.62	258.86	4499.59	12.92	12.46	-4.46	0.75	13.24	340.33
4551.01	0.64	238.67	4550.58	13.02	12.26	-4.97	0.43	13.23	337.94
4600.41	0.48	253.19	4599.98	13.08	12.06	-5.40	0.43	13.21	335.86
4650.74	0.44	214.66	4650.31	13.06	11.84	-5.72	0.61	13.15	334.22
4700.33	0.55	232.05	4699.90	12.96	11.53	-6.01	0.37	13.01	332.46
4750.57	0.31	214.13	4750.13	12.89	11.27	-6.28	0.53	12.90	330.88
4800.12	0.31	208.16	4799.69	12.76	11.04	-6.42	0.07	12.77	329.82
4850.59	0.45	193.65	4850.16	12.56	10.73	-6.53	0.32	12.56	328.66
4894.89	0.50	165.93	4894.46	12.25	10.37	-6.53	0.52	12.25	327.82