



Gyroscopic Survey Report
for
KPK

Well Location	WELD COUNTY
Well Name	MATHISEN UNIT A #2
Rig Number	KPK
Survey Date	9/9/2014
Latitude	40.0602900°N
Longitude	104.8502200°W
North Reference	True North
Grid Correction	None
Depth Reference	GL (0.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 32.68Azim (deg)
Definitive Survey	MATHISEN UNIT A #2
Operator(s)	C KIRBY

Well Notes

05-123-09036

Survey Report

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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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
86.29	0.47	40.66	86.29	0.35	0.27	0.23	0.55	0.36	40.66
110.33	0.47	41.83	110.33	0.55	0.42	0.36	0.04	0.56	40.87
133.86	0.43	52.50	133.85	0.73	0.55	0.50	0.40	0.74	42.39
161.17	0.46	43.39	161.16	0.93	0.69	0.66	0.27	0.95	43.60
184.12	0.45	37.63	184.12	1.12	0.83	0.77	0.20	1.13	43.10
211.36	0.49	41.72	211.36	1.34	1.00	0.92	0.19	1.36	42.55
234.69	0.47	37.10	234.68	1.53	1.15	1.04	0.20	1.55	42.16
261.79	0.47	32.14	261.78	1.76	1.34	1.17	0.15	1.78	41.21
284.47	0.47	43.77	284.46	1.94	1.48	1.28	0.42	1.96	40.90
311.42	0.57	53.94	311.41	2.17	1.64	1.47	0.49	2.20	41.83
334.73	0.58	64.70	334.72	2.38	1.76	1.67	0.46	2.42	43.47
361.71	0.64	72.33	361.70	2.61	1.86	1.93	0.37	2.68	46.06
384.18	0.75	86.35	384.16	2.79	1.91	2.20	0.92	2.91	49.03
411.75	0.86	92.32	411.74	3.01	1.91	2.59	0.48	3.22	53.52
435.19	0.89	95.42	435.18	3.18	1.89	2.94	0.25	3.50	57.32
459.33	0.93	91.13	459.31	3.37	1.87	3.33	0.33	3.81	60.71
485.43	0.86	96.06	485.40	3.56	1.84	3.73	0.42	4.16	63.74
509.13	0.68	90.87	509.10	3.72	1.82	4.05	0.80	4.44	65.79
535.10	0.60	93.02	535.07	3.87	1.81	4.34	0.32	4.70	67.34
560.55	0.70	97.62	560.52	4.00	1.78	4.62	0.43	4.96	68.91
583.07	0.63	95.89	583.04	4.11	1.75	4.88	0.29	5.19	70.26
610.32	0.68	99.27	610.28	4.24	1.71	5.19	0.21	5.47	71.76
632.71	0.65	96.96	632.68	4.35	1.67	5.45	0.18	5.70	72.91
659.06	0.70	98.66	659.03	4.48	1.63	5.75	0.21	5.98	74.16
685.48	0.68	100.78	685.44	4.60	1.58	6.07	0.13	6.27	75.41
707.35	0.66	97.69	707.31	4.71	1.54	6.32	0.18	6.50	76.32
733.89	0.68	90.25	733.84	4.85	1.52	6.63	0.34	6.80	77.11
760.66	0.78	75.43	760.62	5.07	1.56	6.96	0.79	7.14	77.36
786.68	0.80	79.59	786.63	5.33	1.64	7.31	0.24	7.50	77.37
809.00	0.76	72.12	808.95	5.55	1.71	7.61	0.49	7.80	77.31
835.71	0.70	64.10	835.66	5.83	1.84	7.93	0.46	8.14	76.94
861.71	1.05	82.78	861.66	6.11	1.94	8.30	1.74	8.53	76.86
884.00	0.74	78.97	883.94	6.35	1.99	8.65	1.41	8.88	77.03
910.68	0.70	69.18	910.62	6.60	2.08	8.97	0.49	9.21	76.93
936.41	0.87	81.05	936.35	6.85	2.17	9.31	0.91	9.56	76.89

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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
958.08	0.61	63.80	958.02	7.06	2.25	9.58	1.56	9.84	76.81
984.05	0.65	70.31	983.99	7.30	2.36	9.84	0.31	10.12	76.53
1010.70	0.57	65.70	1010.64	7.53	2.46	10.10	0.36	10.40	76.31
1032.94	0.60	68.89	1032.88	7.71	2.55	10.31	0.21	10.62	76.12
1058.86	0.49	59.07	1058.80	7.92	2.66	10.54	0.57	10.87	75.85
1085.49	0.50	53.47	1085.42	8.13	2.78	10.73	0.18	11.08	75.46
1111.97	0.44	47.01	1111.90	8.34	2.92	10.89	0.29	11.28	74.99
1133.62	0.49	46.94	1133.55	8.51	3.04	11.02	0.24	11.43	74.58
1160.08	0.47	57.54	1160.01	8.72	3.18	11.20	0.35	11.64	74.16
1185.96	0.47	43.00	1185.89	8.92	3.31	11.36	0.46	11.83	73.75
1208.15	0.44	48.52	1208.07	9.09	3.44	11.49	0.24	11.99	73.35
1234.58	0.38	48.65	1234.51	9.27	3.56	11.63	0.26	12.16	72.97
1260.41	0.33	36.71	1260.34	9.43	3.68	11.74	0.34	12.30	72.61
1286.98	0.29	30.21	1286.91	9.57	3.80	11.81	0.18	12.41	72.19
1308.49	0.28	38.14	1308.41	9.68	3.88	11.88	0.19	12.49	71.89
1335.01	0.21	30.85	1334.93	9.80	3.98	11.94	0.30	12.59	71.57
1361.39	0.17	17.46	1361.31	9.88	4.06	11.98	0.23	12.65	71.28
1382.92	0.27	4.34	1382.84	9.96	4.14	11.99	0.48	12.69	70.95
1409.38	0.21	347.05	1409.31	10.05	4.25	11.99	0.33	12.72	70.48
1435.98	0.31	345.34	1435.91	10.13	4.37	11.96	0.36	12.73	69.94
1461.83	0.18	331.29	1461.75	10.20	4.47	11.92	0.55	12.73	69.44
1483.98	0.27	342.81	1483.90	10.25	4.55	11.89	0.46	12.73	69.05
1510.55	0.24	342.98	1510.47	10.32	4.66	11.85	0.10	12.74	68.52
1536.30	0.28	340.44	1536.22	10.40	4.78	11.81	0.14	12.74	67.99
1558.83	0.28	350.93	1558.75	10.47	4.88	11.79	0.23	12.76	67.51
1585.41	0.28	346.96	1585.34	10.57	5.01	11.76	0.07	12.79	66.94
1611.35	0.32	333.80	1611.28	10.65	5.14	11.72	0.31	12.79	66.33
1633.62	0.31	343.98	1633.54	10.72	5.25	11.67	0.26	12.80	65.78
1658.86	0.41	337.17	1658.78	10.82	5.40	11.62	0.42	12.81	65.08
1685.34	0.39	331.70	1685.26	10.91	5.56	11.54	0.15	12.81	64.26
1711.94	0.42	324.09	1711.86	10.99	5.72	11.44	0.24	12.79	63.42
1733.44	0.39	323.57	1733.36	11.05	5.85	11.35	0.16	12.77	62.75
1760.03	0.35	329.68	1759.95	11.12	5.99	11.25	0.22	12.75	61.98
1785.89	0.42	328.00	1785.81	11.19	6.14	11.16	0.30	12.74	61.20
1808.05	0.44	328.82	1807.97	11.27	6.28	11.08	0.09	12.73	60.44
1834.63	0.41	330.40	1834.54	11.36	6.45	10.97	0.12	12.73	59.55

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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
1859.79	0.44	330.98	1859.71	11.44	6.62	10.88	0.09	12.74	58.71
1886.24	0.40	328.94	1886.15	11.53	6.78	10.79	0.14	12.74	57.84
1907.82	0.43	330.31	1907.73	11.60	6.92	10.71	0.15	12.75	57.13
1934.27	0.39	336.89	1934.19	11.70	7.09	10.62	0.24	12.77	56.29
1960.72	0.42	336.01	1960.64	11.80	7.26	10.55	0.13	12.80	55.47
1986.70	0.44	338.12	1986.61	11.91	7.44	10.47	0.09	12.85	54.62
2008.73	0.43	339.05	2008.64	12.01	7.59	10.41	0.04	12.89	53.90
2034.66	0.42	337.56	2034.57	12.12	7.77	10.34	0.08	12.94	53.07
2061.05	0.38	334.28	2060.96	12.23	7.94	10.27	0.15	12.98	52.28
2083.06	0.38	319.65	2082.97	12.29	8.06	10.19	0.44	12.99	51.64
2108.95	0.46	341.71	2108.86	12.38	8.23	10.10	0.68	13.02	50.83
2135.39	0.41	346.10	2135.30	12.51	8.42	10.04	0.21	13.10	50.02
2161.74	0.31	336.56	2161.65	12.61	8.58	9.99	0.46	13.17	49.35
2183.27	0.26	313.16	2183.17	12.65	8.66	9.93	0.57	13.18	48.90
2209.62	0.27	335.40	2209.53	12.70	8.76	9.86	0.39	13.19	48.38
2236.10	0.13	334.34	2236.00	12.75	8.84	9.82	0.53	13.22	48.00
2261.78	0.07	137.39	2261.69	12.76	8.86	9.82	0.76	13.23	47.95
2284.00	0.18	147.29	2283.91	12.74	8.82	9.85	0.49	13.22	48.16
2310.44	0.25	171.33	2310.35	12.68	8.73	9.88	0.44	13.18	48.55
2336.15	0.24	148.61	2336.05	12.61	8.63	9.92	0.38	13.14	48.98
2358.22	0.32	138.69	2358.12	12.58	8.54	9.98	0.42	13.14	49.45
2383.93	0.32	146.06	2383.83	12.53	8.43	10.07	0.16	13.13	50.07
2410.13	0.38	149.37	2410.04	12.46	8.29	10.15	0.24	13.11	50.77
2435.99	0.47	137.43	2435.90	12.39	8.14	10.27	0.48	13.10	51.60
2461.31	0.41	136.91	2461.21	12.35	8.00	10.40	0.25	13.12	52.44
2483.01	0.54	159.29	2482.92	12.27	7.85	10.49	1.03	13.10	53.20
2509.03	0.77	144.29	2508.94	12.13	7.59	10.63	1.10	13.06	54.48
2534.39	0.76	157.38	2534.29	11.97	7.30	10.80	0.69	13.03	55.95
2560.27	0.90	156.51	2560.16	11.76	6.95	10.94	0.56	12.97	57.58
2586.26	0.97	161.81	2586.16	11.51	6.55	11.10	0.43	12.89	59.43
2611.56	0.87	169.00	2611.45	11.23	6.16	11.20	0.60	12.78	61.18
2633.06	0.87	170.47	2632.95	10.99	5.84	11.26	0.11	12.68	62.58
2658.54	0.86	176.56	2658.42	10.70	5.46	11.30	0.36	12.55	64.22
2684.34	0.68	189.38	2684.23	10.40	5.11	11.29	0.96	12.39	65.62
2710.13	0.54	203.24	2710.02	10.14	4.85	11.21	0.78	12.22	66.61
2735.65	0.45	203.38	2735.53	9.92	4.65	11.13	0.35	12.06	67.33



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2761.47	0.43	214.32	2761.35	9.72	4.47	11.03	0.34	11.90	67.92
2783.54	0.39	228.70	2783.42	9.57	4.36	10.93	0.50	11.77	68.26
2808.90	0.40	231.98	2808.78	9.40	4.25	10.80	0.11	11.60	68.53
2835.01	0.42	230.26	2834.89	9.22	4.13	10.65	0.09	11.42	68.81
2861.10	0.42	251.79	2860.97	9.06	4.04	10.49	0.60	11.24	68.94
2886.51	0.39	245.77	2886.38	8.92	3.97	10.32	0.19	11.06	68.94
2908.29	0.41	255.27	2908.17	8.80	3.92	10.17	0.32	10.90	68.92
2934.34	0.43	266.56	2934.22	8.67	3.89	9.99	0.33	10.72	68.70
2959.64	0.40	278.63	2959.52	8.58	3.90	9.80	0.37	10.55	68.30
2985.61	0.42	293.91	2985.49	8.52	3.95	9.62	0.43	10.40	67.67
3011.52	0.50	308.98	3011.40	8.52	4.06	9.45	0.56	10.29	66.73
3036.72	0.59	312.74	3036.59	8.56	4.22	9.27	0.37	10.18	65.51
3058.54	0.73	319.80	3058.41	8.62	4.40	9.10	0.77	10.11	64.17
3084.48	0.73	316.84	3084.35	8.71	4.65	8.87	0.15	10.02	62.34
3109.80	0.86	312.38	3109.66	8.78	4.90	8.62	0.57	9.92	60.41
3135.74	0.91	315.50	3135.60	8.86	5.17	8.34	0.26	9.81	58.17
3161.53	0.76	318.19	3161.39	8.95	5.45	8.08	0.59	9.74	56.01
3186.77	0.79	318.26	3186.63	9.04	5.70	7.85	0.13	9.70	54.01
3208.34	0.96	314.91	3208.19	9.12	5.94	7.63	0.80	9.67	52.08
3233.46	0.88	313.81	3233.31	9.20	6.22	7.34	0.31	9.62	49.71
3259.08	1.10	307.74	3258.93	9.26	6.51	7.00	0.95	9.56	47.09
3284.45	0.99	310.05	3284.29	9.31	6.80	6.64	0.45	9.50	44.33
3309.07	1.24	313.11	3308.91	9.38	7.12	6.28	1.04	9.49	41.43
3334.37	1.12	310.54	3334.21	9.47	7.47	5.89	0.53	9.51	38.28
3360.43	1.29	311.28	3360.26	9.55	7.83	5.48	0.64	9.55	35.00
3377.14	1.31	307.72	3376.97	9.59	8.07	5.19	0.50	9.59	32.74
3377.65	1.18	306.39	3377.48	9.59	8.07	5.18	26.10	9.59	32.68