



Gyroscopic Survey Report
for
KPK

Well Location	WELD
Well Name	JAMES H MATHISEN UNIT #1
Rig Number	
Survey Date	10/3/2014
Latitude	40.0601800°N
Longitude	104.8461500°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), 284.68Azim (deg)
Definitive Survey	JAMES H MATHISEN UNIT #1 OUTFLOW
Operator(s)	C KIRBY

Well Notes

API-05-123-07550

Survey Report

Well Name: JAMES H MATHISEN UNIT #1
Survey: JAMES H MATHISEN UNIT #1 OUTRUN
Survey Date: 10/3/2014

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
86.99	0.28	26.64	86.99	-0.04	0.19	0.10	0.32	0.21	26.64
98.92	0.19	30.07	98.92	-0.06	0.23	0.12	0.77	0.26	26.90
121.12	0.04	51.46	121.11	-0.07	0.27	0.14	0.67	0.31	27.95
146.68	0.06	228.09	146.68	-0.07	0.27	0.14	0.39	0.30	27.87
173.43	0.03	264.24	173.43	-0.05	0.26	0.12	0.14	0.29	25.74
195.86	0.15	258.04	195.85	-0.02	0.25	0.09	0.52	0.27	19.75
221.95	0.04	243.06	221.95	0.01	0.24	0.05	0.40	0.24	11.49
248.37	0.03	227.23	248.37	0.03	0.23	0.03	0.06	0.23	8.46
274.69	0.02	211.23	274.69	0.03	0.22	0.03	0.04	0.22	6.68
296.08	0.02	211.41	296.08	0.03	0.21	0.02	0.00	0.21	5.67
323.11	0.06	211.70	323.11	0.04	0.20	0.01	0.12	0.20	3.24
345.79	0.10	253.21	345.79	0.06	0.18	-0.01	0.31	0.18	355.58
373.86	0.12	116.21	373.86	0.05	0.16	-0.01	0.75	0.16	356.27
397.21	0.21	106.87	397.21	-0.02	0.14	0.05	0.39	0.15	21.32
424.53	0.27	103.21	424.53	-0.13	0.11	0.16	0.21	0.20	56.59
448.11	0.25	106.29	448.11	-0.24	0.08	0.27	0.10	0.28	73.07
470.80	0.21	107.65	470.80	-0.33	0.05	0.35	0.15	0.36	81.28
498.72	0.16	142.58	498.71	-0.41	0.01	0.43	0.44	0.43	89.03
522.14	0.21	143.75	522.14	-0.47	-0.05	0.47	0.21	0.48	96.47
549.44	0.31	117.15	549.44	-0.58	-0.13	0.57	0.57	0.58	102.69
572.86	0.31	122.00	572.86	-0.71	-0.19	0.68	0.11	0.71	105.70
595.52	0.41	120.26	595.52	-0.84	-0.26	0.80	0.42	0.84	108.26
623.52	0.46	127.17	623.52	-1.04	-0.38	0.98	0.27	1.05	111.39
646.90	0.52	137.68	646.90	-1.22	-0.52	1.12	0.45	1.24	114.75
673.98	0.57	144.71	673.97	-1.42	-0.72	1.28	0.30	1.47	119.22
697.43	0.48	151.62	697.42	-1.58	-0.90	1.40	0.44	1.66	122.77
719.99	0.56	146.98	719.98	-1.73	-1.08	1.50	0.38	1.85	125.60
747.73	0.53	150.47	747.72	-1.92	-1.30	1.64	0.16	2.09	128.43
770.97	0.55	148.40	770.96	-2.07	-1.49	1.75	0.13	2.30	130.39
798.01	0.53	156.52	798.00	-2.25	-1.72	1.87	0.29	2.54	132.55
821.19	0.54	158.16	821.18	-2.38	-1.92	1.95	0.07	2.74	134.46
848.18	0.52	171.56	848.17	-2.50	-2.16	2.02	0.47	2.96	136.89
871.32	0.57	180.89	871.31	-2.57	-2.38	2.03	0.43	3.13	139.46
899.06	0.65	179.26	899.05	-2.65	-2.67	2.03	0.28	3.36	142.72
921.41	0.69	172.66	921.39	-2.73	-2.93	2.05	0.40	3.58	145.00

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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
948.86	0.60	197.76	948.84	-2.78	-3.23	2.03	1.08	3.82	147.88
971.89	0.63	193.12	971.87	-2.78	-3.47	1.96	0.26	3.99	150.50
998.64	0.57	196.43	998.62	-2.78	-3.75	1.89	0.27	4.20	153.18
1021.59	0.66	207.67	1021.57	-2.75	-3.97	1.80	0.66	4.36	155.63
1047.79	0.58	211.05	1047.76	-2.68	-4.22	1.66	0.36	4.53	158.51
1074.67	0.60	218.36	1074.64	-2.58	-4.44	1.50	0.29	4.69	161.30
1097.37	0.63	215.78	1097.34	-2.49	-4.64	1.36	0.21	4.83	163.68
1124.25	0.70	221.40	1124.22	-2.36	-4.88	1.16	0.35	5.02	166.62
1145.97	0.65	226.62	1145.94	-2.24	-5.07	0.98	0.36	5.16	169.02
1172.01	0.74	222.40	1171.98	-2.08	-5.29	0.76	0.38	5.35	171.81
1198.66	0.64	220.43	1198.62	-1.94	-5.53	0.55	0.39	5.56	174.32
1220.99	0.67	218.91	1220.95	-1.83	-5.73	0.39	0.17	5.74	176.13
1246.90	0.63	217.08	1246.86	-1.71	-5.96	0.21	0.18	5.97	178.02
1273.36	0.62	221.38	1273.32	-1.59	-6.19	0.02	0.18	6.19	179.79
1299.88	0.73	224.07	1299.84	-1.44	-6.42	-0.19	0.40	6.42	181.69
1321.37	0.61	227.69	1321.33	-1.31	-6.59	-0.37	0.55	6.60	183.21
1347.81	0.54	230.59	1347.76	-1.16	-6.77	-0.57	0.30	6.79	184.82
1374.10	0.60	229.41	1374.06	-1.01	-6.94	-0.77	0.24	6.98	186.35
1399.66	0.66	234.93	1399.61	-0.84	-7.11	-0.99	0.33	7.18	187.97
1422.01	0.66	227.46	1421.96	-0.69	-7.27	-1.20	0.39	7.37	189.34
1449.06	0.67	223.06	1449.01	-0.53	-7.49	-1.42	0.19	7.62	190.72
1474.93	0.74	231.08	1474.88	-0.36	-7.71	-1.65	0.46	7.88	192.09
1497.65	0.61	220.23	1497.60	-0.22	-7.89	-1.84	0.79	8.10	193.14
1523.76	0.57	227.49	1523.70	-0.09	-8.08	-2.03	0.32	8.33	194.08
1546.12	0.44	219.35	1546.07	0.01	-8.23	-2.17	0.67	8.51	194.75
1572.70	0.46	224.47	1572.64	0.11	-8.38	-2.31	0.17	8.69	195.38
1598.57	0.43	236.13	1598.52	0.22	-8.51	-2.46	0.37	8.86	196.13
1620.75	0.46	233.18	1620.69	0.33	-8.61	-2.60	0.15	9.00	196.81
1647.11	0.57	244.42	1647.05	0.50	-8.73	-2.81	0.57	9.17	197.81
1673.74	0.67	247.80	1673.68	0.73	-8.85	-3.07	0.40	9.36	199.13
1697.11	0.58	239.87	1697.05	0.92	-8.96	-3.30	0.55	9.55	200.21
1724.18	0.49	247.10	1724.12	1.11	-9.07	-3.52	0.42	9.73	201.22
1746.16	0.57	246.97	1746.10	1.27	-9.15	-3.71	0.38	9.87	202.06
1773.28	0.45	245.32	1773.22	1.46	-9.25	-3.93	0.46	10.05	203.01
1795.91	0.45	245.01	1795.84	1.59	-9.32	-4.09	0.03	10.18	203.68
1822.26	0.43	263.24	1822.19	1.76	-9.38	-4.28	0.54	10.31	204.54

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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
1848.81	0.53	265.54	1848.74	1.97	-9.40	-4.50	0.37	10.42	205.60
1870.25	0.57	263.14	1870.18	2.16	-9.42	-4.71	0.22	10.53	206.55
1896.40	0.58	265.93	1896.33	2.41	-9.44	-4.97	0.11	10.67	207.74
1922.43	0.55	267.29	1922.35	2.65	-9.46	-5.22	0.11	10.81	208.91
1948.60	0.63	267.24	1948.53	2.91	-9.47	-5.49	0.31	10.95	210.11
1971.17	0.64	259.42	1971.10	3.15	-9.50	-5.74	0.39	11.10	211.15
1998.00	0.66	260.38	1997.93	3.42	-9.55	-6.04	0.10	11.30	212.31
2024.22	0.68	260.38	2024.15	3.70	-9.61	-6.35	0.07	11.51	213.45
2046.61	0.72	256.00	2046.53	3.95	-9.66	-6.61	0.30	11.71	214.40
2073.46	0.79	254.60	2073.38	4.26	-9.75	-6.96	0.25	11.98	215.50
2099.82	0.62	244.87	2099.73	4.52	-9.86	-7.26	0.79	12.24	216.36
2122.48	0.70	280.58	2122.39	4.75	-9.89	-7.51	1.81	12.41	217.21
2148.54	0.72	267.41	2148.46	5.07	-9.87	-7.83	0.63	12.59	218.42
2174.71	0.71	264.01	2174.62	5.38	-9.89	-8.15	0.17	12.82	219.49
2197.11	0.70	264.03	2197.02	5.63	-9.92	-8.42	0.03	13.01	220.34
2223.19	0.60	266.63	2223.10	5.91	-9.94	-8.72	0.41	13.22	221.24
2249.87	0.56	270.38	2249.77	6.17	-9.95	-8.99	0.21	13.41	222.08
2271.48	0.49	269.79	2271.39	6.36	-9.95	-9.18	0.31	13.54	222.70
2298.20	0.37	287.47	2298.11	6.56	-9.92	-9.38	0.65	13.65	223.38
2324.78	0.32	282.73	2324.68	6.72	-9.88	-9.53	0.24	13.73	223.97
2345.64	0.20	278.03	2345.54	6.81	-9.86	-9.63	0.58	13.78	224.30
2372.98	0.28	286.99	2372.88	6.92	-9.84	-9.74	0.32	13.84	224.70
2399.65	0.24	270.47	2399.56	7.04	-9.82	-9.85	0.31	13.91	225.10
2421.24	0.21	276.72	2421.14	7.13	-9.81	-9.94	0.18	13.97	225.37
2447.74	0.18	289.56	2447.64	7.22	-9.79	-10.03	0.20	14.02	225.68
2473.85	0.23	283.46	2473.76	7.31	-9.77	-10.12	0.22	14.06	226.02
2496.14	0.18	316.42	2496.05	7.39	-9.73	-10.19	0.58	14.09	226.31
2523.24	0.13	13.14	2523.14	7.42	-9.67	-10.21	0.56	14.06	226.55
2549.62	0.19	343.31	2549.53	7.45	-9.60	-10.21	0.39	14.02	226.78
2572.29	0.04	40.36	2572.19	7.46	-9.56	-10.22	0.76	13.99	226.92
2599.38	0.12	38.69	2599.29	7.45	-9.53	-10.20	0.27	13.96	226.94
2621.05	0.08	23.84	2620.96	7.44	-9.50	-10.18	0.19	13.92	226.98
2647.69	0.24	6.68	2647.59	7.44	-9.42	-10.16	0.62	13.86	227.16
2674.21	0.26	348.23	2674.11	7.48	-9.31	-10.17	0.31	13.78	227.53
2699.36	0.38	23.31	2699.26	7.49	-9.18	-10.15	0.89	13.68	227.87
2721.63	0.39	6.48	2721.53	7.49	-9.03	-10.11	0.51	13.56	228.21

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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
2747.48	0.52	9.68	2747.38	7.51	-8.83	-10.08	0.52	13.40	228.78
2774.14	0.51	16.07	2774.04	7.52	-8.60	-10.02	0.22	13.21	229.39
2795.69	0.56	15.94	2795.58	7.51	-8.40	-9.97	0.22	13.04	229.87
2822.28	0.48	11.53	2822.18	7.52	-8.17	-9.91	0.31	12.84	230.51
2848.75	0.50	12.09	2848.65	7.53	-7.95	-9.87	0.05	12.67	231.15
2874.63	0.48	13.90	2874.52	7.54	-7.73	-9.82	0.07	12.49	231.78
2896.86	0.46	9.66	2896.76	7.54	-7.55	-9.78	0.20	12.35	232.32
2923.34	0.52	4.22	2923.24	7.58	-7.33	-9.75	0.30	12.20	233.08
2949.12	0.43	8.29	2949.01	7.61	-7.11	-9.73	0.38	12.05	233.83
2971.48	0.61	14.49	2971.37	7.62	-6.91	-9.69	0.85	11.90	234.49
2997.29	0.54	24.02	2997.18	7.60	-6.67	-9.60	0.47	11.69	235.22
3023.85	0.48	17.97	3023.74	7.57	-6.45	-9.52	0.29	11.49	235.89
3046.40	0.47	18.24	3046.29	7.56	-6.27	-9.46	0.06	11.35	236.47
3072.39	0.47	25.31	3072.28	7.53	-6.07	-9.38	0.22	11.17	237.10
3099.17	0.33	22.12	3099.06	7.50	-5.90	-9.30	0.55	11.01	237.63
3121.78	0.38	36.78	3121.67	7.47	-5.78	-9.23	0.47	10.89	237.97
3147.84	0.38	12.73	3147.73	7.44	-5.62	-9.16	0.61	10.75	238.46
3174.73	0.16	3.16	3174.62	7.45	-5.50	-9.14	0.83	10.67	238.96
3197.21	0.15	310.34	3197.09	7.48	-5.45	-9.16	0.60	10.66	239.25
3223.39	0.17	265.41	3223.27	7.55	-5.43	-9.22	0.47	10.71	239.51
3245.84	0.22	256.49	3245.72	7.62	-5.44	-9.30	0.26	10.78	239.65
3271.86	0.38	258.73	3271.75	7.74	-5.47	-9.43	0.63	10.91	239.88
3298.72	0.41	261.59	3298.61	7.91	-5.51	-9.62	0.12	11.08	240.21
3321.16	0.42	256.20	3321.04	8.05	-5.54	-9.78	0.18	11.24	240.48
3347.28	0.53	268.09	3347.16	8.26	-5.56	-9.99	0.55	11.44	240.89
3373.99	0.74	270.39	3373.87	8.54	-5.57	-10.29	0.81	11.70	241.58
3395.43	0.90	272.45	3395.30	8.84	-5.56	-10.60	0.76	11.97	242.32
3421.83	1.09	277.42	3421.71	9.30	-5.52	-11.05	0.79	12.35	243.48
3448.14	1.16	281.77	3448.01	9.81	-5.43	-11.57	0.42	12.78	244.85
3473.86	1.25	282.10	3473.72	10.35	-5.32	-12.10	0.35	13.21	246.27
3495.95	1.38	278.86	3495.81	10.86	-5.23	-12.59	0.64	13.64	247.46
3522.38	1.27	280.94	3522.23	11.47	-5.12	-13.20	0.44	14.15	248.79
3547.99	1.26	284.62	3547.83	12.03	-5.00	-13.75	0.32	14.63	250.02
3574.43	1.26	292.95	3574.27	12.61	-4.81	-14.30	0.69	15.08	251.40
3596.53	1.18	298.94	3596.36	13.07	-4.61	-14.72	0.70	15.42	252.63
3622.15	1.21	313.72	3621.98	13.56	-4.29	-15.14	1.21	15.74	254.18

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3648.59	1.27	323.55	3648.42	14.03	-3.86	-15.52	0.83	15.99	256.03
3670.69	1.26	327.65	3670.50	14.40	-3.46	-15.80	0.41	16.17	257.65
3696.44	1.13	335.48	3696.25	14.77	-2.99	-16.05	0.80	16.33	259.45
3722.76	1.08	346.32	3722.57	15.05	-2.51	-16.22	0.82	16.41	261.20
3749.21	1.01	356.05	3749.01	15.25	-2.04	-16.30	0.72	16.42	262.88
3774.83	0.86	5.18	3774.62	15.35	-1.62	-16.29	0.83	16.37	264.33
3796.92	0.74	1.70	3796.72	15.41	-1.31	-16.27	0.59	16.33	265.41
3822.65	0.75	10.75	3822.44	15.46	-0.97	-16.24	0.46	16.27	266.56
3849.08	0.59	8.50	3848.87	15.49	-0.67	-16.19	0.61	16.20	267.63
3874.69	0.32	16.22	3874.49	15.50	-0.47	-16.15	1.08	16.15	268.33
3896.77	0.49	4.62	3896.56	15.51	-0.32	-16.12	0.85	16.12	268.88
3923.19	0.43	355.15	3922.98	15.57	-0.10	-16.12	0.38	16.12	269.63
3948.20	0.35	354.06	3947.99	15.62	0.06	-16.14	0.30	16.14	270.23
3974.50	0.48	7.00	3974.28	15.67	0.25	-16.13	0.60	16.13	270.90
3996.45	0.49	4.55	3996.24	15.70	0.44	-16.11	0.11	16.12	271.56
4022.30	0.47	1.91	4022.08	15.74	0.65	-16.10	0.13	16.11	272.33
4048.60	0.45	350.65	4048.39	15.81	0.86	-16.11	0.35	16.14	273.07
4074.99	0.43	342.98	4074.77	15.90	1.06	-16.16	0.24	16.19	273.75
4096.34	0.54	331.43	4096.12	16.01	1.22	-16.23	0.68	16.28	274.32
4122.61	0.55	329.43	4122.39	16.18	1.44	-16.35	0.09	16.42	275.04
4148.04	0.57	332.45	4147.82	16.36	1.66	-16.47	0.13	16.56	275.75
4173.95	0.54	320.65	4173.73	16.54	1.87	-16.61	0.45	16.72	276.42
4199.86	0.51	321.09	4199.64	16.73	2.05	-16.76	0.13	16.89	276.98
4224.88	0.58	328.62	4224.66	16.91	2.25	-16.90	0.41	17.04	277.57
4246.79	0.60	316.66	4246.57	17.09	2.42	-17.03	0.57	17.20	278.10
4272.74	0.59	320.66	4272.51	17.31	2.63	-17.21	0.17	17.41	278.68
4297.88	0.60	319.55	4297.66	17.53	2.83	-17.38	0.06	17.61	279.24
4323.81	0.52	314.72	4323.58	17.74	3.01	-17.55	0.37	17.81	279.74
4349.57	0.58	327.52	4349.34	17.93	3.20	-17.70	0.53	17.99	280.26
4374.82	0.60	308.15	4374.60	18.15	3.39	-17.87	0.79	18.19	280.74
4396.50	0.58	300.78	4396.27	18.36	3.52	-18.06	0.35	18.40	281.02
4422.45	0.46	320.91	4422.22	18.57	3.67	-18.24	0.84	18.60	281.37
4447.60	0.52	323.47	4447.36	18.74	3.84	-18.37	0.23	18.76	281.79
4472.86	0.50	334.19	4472.62	18.90	4.03	-18.48	0.38	18.92	282.29
4498.01	0.51	324.77	4497.77	19.06	4.22	-18.59	0.33	19.07	282.78
4523.96	0.39	297.96	4523.72	19.23	4.35	-18.74	0.91	19.24	283.08

Well Name: JAMES H MATHISEN UNIT #1
Survey: JAMES H MATHISEN UNIT #1 OUTRUN
Survey Date: 10/3/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
4549.80	0.35	302.21	4549.57	19.39	4.44	-18.89	0.20	19.40	283.22
4570.80	0.43	316.00	4570.56	19.52	4.53	-18.99	0.59	19.53	283.41
4596.75	0.24	293.55	4596.51	19.66	4.62	-19.11	0.88	19.66	283.59
4622.71	0.15	315.24	4622.47	19.74	4.67	-19.19	0.45	19.75	283.67
4647.86	0.19	319.13	4647.62	19.81	4.72	-19.24	0.16	19.81	283.79
4673.69	0.20	328.36	4673.46	19.87	4.79	-19.29	0.12	19.88	283.95
4698.27	0.33	303.62	4698.04	19.97	4.87	-19.37	0.70	19.97	284.11
4723.13	0.32	32.92	4722.90	20.02	4.97	-19.39	1.85	20.02	284.36
4748.01	0.15	30.78	4747.78	19.99	5.05	-19.34	0.71	19.99	284.64
4774.38	0.20	263.17	4774.14	20.02	5.08	-19.37	1.17	20.02	284.69
4778.55	0.06	34.84	4778.31	20.03	5.08	-19.37	5.82	20.03	284.68