



Gyroscopic Survey Report
for
KPK

Well Location	WELD
Well Name	SHANNON #24-30
Rig Number	
Survey Date	9/4/2014
Latitude	40.1031710°N
Longitude	104.8229800°W
North Reference	True North
Grid Correction	None
Depth Reference	GL (4878.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 273.99Azim (deg)
Definitive Survey	SHANNON #24-30
Operator(s)	C KIRBY, P HOLBROOK

Well Notes

API 05-123-15997

Survey Report

Well Name: SHANNON #24-30
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Survey Date: 9/4/2014

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
87.43	0.53	195.35	87.42	0.08	-0.39	-0.11	0.61	0.41	195.35
110.21	0.41	192.35	110.21	0.11	-0.58	-0.15	0.54	0.60	194.94
135.66	0.41	198.93	135.66	0.15	-0.75	-0.20	0.19	0.78	195.10
161.15	0.46	197.62	161.14	0.20	-0.94	-0.26	0.19	0.97	195.73
183.98	0.41	191.27	183.98	0.23	-1.11	-0.31	0.31	1.15	195.56
211.90	0.53	197.32	211.90	0.27	-1.33	-0.37	0.45	1.37	195.42
235.00	0.57	200.78	235.00	0.33	-1.53	-0.44	0.23	1.59	195.93
258.89	0.53	197.60	258.88	0.39	-1.75	-0.51	0.20	1.82	196.34
286.74	0.50	200.86	286.73	0.46	-1.99	-0.60	0.14	2.07	196.69
310.54	0.47	219.92	310.53	0.54	-2.16	-0.70	0.69	2.27	197.86
334.39	0.42	217.35	334.38	0.65	-2.30	-0.81	0.23	2.44	199.42
357.61	0.54	218.49	357.60	0.76	-2.46	-0.93	0.50	2.63	200.77
386.16	0.51	221.48	386.15	0.91	-2.66	-1.10	0.13	2.88	202.48
409.24	0.49	219.44	409.23	1.03	-2.81	-1.23	0.12	3.07	203.64
433.07	0.38	227.46	433.06	1.15	-2.94	-1.35	0.52	3.24	204.70
461.59	0.42	225.30	461.58	1.28	-3.08	-1.50	0.14	3.43	205.92
484.65	0.48	228.16	484.64	1.40	-3.21	-1.63	0.30	3.60	206.96
509.22	0.64	229.76	509.21	1.57	-3.36	-1.81	0.65	3.82	208.32
536.02	0.57	234.53	536.00	1.78	-3.54	-2.04	0.35	4.08	209.91
560.23	0.55	233.83	560.22	1.97	-3.68	-2.23	0.06	4.30	211.21
584.03	0.59	236.96	584.01	2.15	-3.81	-2.42	0.20	4.51	212.44
611.81	0.68	244.50	611.79	2.41	-3.96	-2.69	0.46	4.79	214.20
635.57	0.77	248.33	635.55	2.68	-4.08	-2.97	0.41	5.04	216.03
658.49	0.78	241.17	658.46	2.95	-4.21	-3.25	0.42	5.32	217.63
686.32	0.71	247.27	686.29	3.26	-4.37	-3.57	0.38	5.64	219.26
708.93	0.82	238.74	708.90	3.51	-4.51	-3.84	0.70	5.92	220.41
736.68	0.68	242.11	736.65	3.81	-4.69	-4.15	0.53	6.26	221.54
759.89	0.63	240.03	759.85	4.04	-4.81	-4.38	0.23	6.51	222.32
782.59	0.66	241.23	782.55	4.25	-4.94	-4.61	0.12	6.75	223.00
810.52	0.61	247.43	810.48	4.52	-5.07	-4.88	0.30	7.04	223.90
833.82	0.65	249.67	833.78	4.75	-5.17	-5.12	0.21	7.27	224.74
861.00	0.77	254.07	860.96	5.06	-5.27	-5.44	0.49	7.57	225.91
884.32	0.81	252.24	884.28	5.36	-5.36	-5.75	0.20	7.86	226.99
911.51	0.84	247.88	911.46	5.72	-5.50	-6.11	0.25	8.22	228.05
934.88	0.85	247.44	934.83	6.03	-5.63	-6.43	0.06	8.55	228.82

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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
957.57	0.71	252.70	957.52	6.31	-5.73	-6.72	0.67	8.84	229.54
985.11	0.62	258.47	985.06	6.61	-5.81	-7.03	0.41	9.13	230.42
1008.79	0.63	254.50	1008.73	6.86	-5.87	-7.28	0.18	9.36	231.12
1035.70	0.62	257.16	1035.65	7.14	-5.95	-7.57	0.11	9.63	231.85
1059.29	0.59	260.66	1059.23	7.38	-5.99	-7.81	0.21	9.85	232.51
1082.51	0.65	259.19	1082.46	7.62	-6.04	-8.06	0.27	10.07	233.16
1109.69	0.65	265.64	1109.63	7.92	-6.08	-8.36	0.27	10.34	233.99
1133.00	0.78	260.30	1132.94	8.20	-6.12	-8.65	0.65	10.59	234.74
1160.14	0.73	260.70	1160.08	8.55	-6.17	-9.00	0.21	10.92	235.56
1183.42	0.77	255.04	1183.36	8.84	-6.24	-9.30	0.38	11.20	236.14
1211.33	0.69	258.31	1211.27	9.18	-6.32	-9.65	0.32	11.53	236.76
1233.93	0.65	248.02	1233.86	9.43	-6.40	-9.90	0.57	11.79	237.13
1261.69	0.61	255.67	1261.62	9.71	-6.49	-10.19	0.32	12.08	237.49
1284.36	0.67	245.81	1284.29	9.94	-6.58	-10.43	0.56	12.33	237.76
1307.59	0.56	251.00	1307.52	10.17	-6.67	-10.66	0.54	12.57	237.97
1335.56	0.54	255.97	1335.49	10.42	-6.75	-10.92	0.19	12.83	238.28
1357.29	0.57	252.25	1357.22	10.62	-6.80	-11.12	0.24	13.03	238.54
1382.68	0.53	258.60	1382.60	10.85	-6.87	-11.35	0.31	13.27	238.84
1410.53	0.65	253.74	1410.45	11.12	-6.94	-11.63	0.49	13.54	239.19
1432.81	0.63	250.90	1432.73	11.35	-7.01	-11.87	0.18	13.78	239.43
1460.09	0.61	247.04	1460.01	11.62	-7.12	-12.14	0.16	14.07	239.63
1482.94	0.66	242.72	1482.85	11.84	-7.22	-12.37	0.30	14.33	239.72
1509.38	0.57	246.11	1509.29	12.09	-7.35	-12.63	0.35	14.61	239.81
1536.67	0.62	241.48	1536.58	12.33	-7.47	-12.88	0.24	14.89	239.88
1559.46	0.56	242.71	1559.37	12.53	-7.58	-13.09	0.26	15.13	239.92
1585.99	0.73	239.43	1585.90	12.78	-7.73	-13.35	0.65	15.43	239.93
1608.76	0.61	251.09	1608.67	13.01	-7.84	-13.59	0.78	15.69	240.02
1635.28	0.58	270.52	1635.19	13.28	-7.89	-13.86	0.77	15.94	240.36
1658.09	0.82	252.23	1658.00	13.54	-7.93	-14.13	1.42	16.20	240.68
1685.36	0.67	275.73	1685.26	13.88	-7.98	-14.47	1.23	16.53	241.13
1708.38	0.73	265.44	1708.28	14.16	-7.98	-14.75	0.60	16.77	241.60
1732.54	0.81	268.15	1732.44	14.48	-7.99	-15.07	0.37	17.06	242.06
1760.35	0.73	275.60	1760.25	14.85	-7.98	-15.45	0.46	17.39	242.67
1785.03	0.76	278.38	1784.92	15.17	-7.94	-15.76	0.20	17.65	243.25
1809.60	0.75	283.07	1809.49	15.49	-7.88	-16.08	0.25	17.91	243.88
1833.41	0.76	292.12	1833.30	15.80	-7.79	-16.38	0.50	18.14	244.57

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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
1857.79	0.84	282.78	1857.68	16.13	-7.69	-16.70	0.64	18.39	245.28
1886.56	0.91	282.99	1886.44	16.56	-7.59	-17.13	0.24	18.74	246.11
1911.10	0.90	283.73	1910.99	16.95	-7.50	-17.51	0.07	19.05	246.81
1935.00	0.86	283.26	1934.88	17.31	-7.42	-17.87	0.17	19.35	247.46
1959.54	0.86	281.85	1959.42	17.67	-7.34	-18.23	0.09	19.65	248.08
1984.07	0.85	278.42	1983.95	18.04	-7.27	-18.59	0.21	19.96	248.64
2008.03	0.78	286.83	2007.90	18.37	-7.20	-18.92	0.58	20.24	249.17
2032.32	0.82	293.10	2032.19	18.70	-7.08	-19.24	0.39	20.50	249.79
2061.16	0.85	299.08	2061.03	19.08	-6.90	-19.61	0.33	20.79	250.62
2085.67	0.94	291.26	2085.53	19.44	-6.74	-19.96	0.62	21.06	251.35
2109.52	0.96	289.41	2109.38	19.82	-6.60	-20.33	0.14	21.37	252.02
2134.20	0.95	288.21	2134.06	20.22	-6.47	-20.72	0.09	21.70	252.67
2158.68	0.95	282.15	2158.53	20.62	-6.36	-21.11	0.41	22.05	253.23
2186.88	0.87	287.96	2186.73	21.06	-6.24	-21.54	0.44	22.43	253.84
2210.92	0.85	291.18	2210.76	21.40	-6.12	-21.88	0.21	22.72	254.37
2234.18	0.81	297.69	2234.02	21.72	-5.99	-22.19	0.45	22.98	254.90
2258.13	0.80	303.31	2257.98	22.02	-5.82	-22.48	0.33	23.22	255.49
2286.13	0.82	305.68	2285.97	22.36	-5.59	-22.80	0.15	23.48	256.22
2310.08	0.85	299.68	2309.92	22.66	-5.40	-23.10	0.38	23.72	256.83
2334.22	0.81	301.47	2334.06	22.97	-5.23	-23.39	0.20	23.97	257.40
2357.46	0.75	304.73	2357.30	23.25	-5.06	-23.66	0.31	24.19	257.94
2386.19	0.73	305.04	2386.02	23.57	-4.84	-23.96	0.06	24.45	258.57
2409.44	0.65	304.23	2409.27	23.81	-4.68	-24.19	0.37	24.64	259.04
2433.42	0.67	318.68	2433.25	24.03	-4.50	-24.40	0.70	24.81	259.54
2456.85	0.71	310.28	2456.67	24.24	-4.31	-24.60	0.45	24.97	260.07
2485.50	0.70	311.27	2485.32	24.52	-4.08	-24.87	0.05	25.20	260.69
2507.96	0.66	306.63	2507.78	24.74	-3.91	-25.07	0.30	25.37	261.14
2536.71	0.67	312.93	2536.53	25.01	-3.70	-25.33	0.25	25.60	261.70
2560.84	0.62	304.80	2560.66	25.23	-3.53	-25.54	0.42	25.78	262.14
2584.06	0.60	316.49	2583.87	25.43	-3.37	-25.73	0.54	25.94	262.55
2608.08	0.55	306.98	2607.89	25.62	-3.21	-25.90	0.44	26.10	262.95
2636.76	0.62	319.67	2636.57	25.84	-3.00	-26.11	0.51	26.29	263.44
2659.98	0.63	316.40	2659.80	26.02	-2.82	-26.28	0.16	26.43	263.88
2683.97	0.55	317.13	2683.78	26.20	-2.64	-26.45	0.32	26.58	264.30
2711.94	0.49	309.37	2711.75	26.40	-2.46	-26.63	0.33	26.75	264.71
2735.16	0.36	304.95	2734.96	26.54	-2.36	-26.77	0.56	26.87	264.96

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2758.32	0.19	295.73	2758.13	26.64	-2.30	-26.87	0.76	26.96	265.11
2782.42	0.16	304.92	2782.23	26.71	-2.26	-26.93	0.17	27.03	265.20
2810.40	0.17	344.03	2810.21	26.76	-2.20	-26.97	0.40	27.06	265.34
2834.32	0.18	349.60	2834.13	26.78	-2.13	-26.99	0.08	27.08	265.49
2858.08	0.13	357.15	2857.89	26.79	-2.07	-27.00	0.21	27.08	265.63
2886.22	0.13	5.01	2886.03	26.79	-2.00	-27.00	0.07	27.07	265.76
2910.04	0.12	359.79	2909.85	26.80	-1.95	-27.00	0.08	27.07	265.87
2932.90	0.10	56.36	2932.71	26.78	-1.91	-26.98	0.46	27.05	265.94
2960.91	0.15	86.60	2960.72	26.73	-1.90	-26.92	0.28	26.99	265.97
2983.70	0.29	54.28	2983.51	26.65	-1.86	-26.85	0.82	26.91	266.03
3011.61	0.19	39.78	3011.41	26.57	-1.78	-26.76	0.44	26.82	266.19
3035.14	0.23	30.95	3034.95	26.53	-1.71	-26.71	0.23	26.76	266.33
3057.81	0.24	16.22	3057.62	26.50	-1.63	-26.67	0.27	26.72	266.50
3085.87	0.15	355.93	3085.67	26.49	-1.54	-26.66	0.38	26.70	266.70
3109.28	0.16	258.31	3109.08	26.52	-1.51	-26.69	1.02	26.74	266.76
3136.56	0.24	246.32	3136.36	26.61	-1.54	-26.78	0.32	26.83	266.70
3159.96	0.47	241.71	3159.76	26.74	-1.61	-26.91	0.99	26.96	266.58
3186.94	0.57	237.95	3186.75	26.94	-1.73	-27.13	0.39	27.18	266.35
3210.62	0.68	244.92	3210.42	27.16	-1.85	-27.35	0.57	27.42	266.12
3233.34	0.74	247.23	3233.14	27.41	-1.97	-27.61	0.28	27.68	265.92
3261.32	0.86	247.86	3261.12	27.76	-2.12	-27.97	0.43	28.05	265.67
3284.68	1.04	249.11	3284.48	28.11	-2.26	-28.33	0.80	28.42	265.44
3311.93	1.10	245.63	3311.72	28.56	-2.46	-28.80	0.32	28.91	265.13
3335.29	1.10	246.38	3335.08	28.96	-2.64	-29.21	0.06	29.33	264.84
3358.51	1.18	248.42	3358.29	29.37	-2.81	-29.64	0.39	29.77	264.58
3385.85	1.23	251.21	3385.63	29.89	-3.01	-30.18	0.28	30.33	264.30
3409.14	1.30	254.44	3408.91	30.37	-3.16	-30.67	0.43	30.83	264.11
3436.35	1.53	248.34	3436.11	30.99	-3.38	-31.30	1.00	31.48	263.84
3459.68	1.56	251.92	3459.43	31.57	-3.59	-31.89	0.44	32.09	263.57
3482.38	1.38	252.19	3482.12	32.11	-3.77	-32.45	0.79	32.66	263.37
3510.19	1.51	249.22	3509.93	32.75	-4.01	-33.11	0.56	33.35	263.10
3533.64	1.46	250.15	3533.37	33.30	-4.22	-33.68	0.26	33.94	262.86
3560.66	1.46	249.84	3560.38	33.93	-4.45	-34.32	0.03	34.61	262.61
3584.17	1.35	249.47	3583.88	34.46	-4.65	-34.86	0.48	35.17	262.40
3611.70	1.36	247.93	3611.41	35.04	-4.89	-35.47	0.14	35.81	262.15
3634.48	1.52	249.35	3634.18	35.56	-5.10	-36.00	0.70	36.36	261.94

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3661.87	1.52	252.91	3661.56	36.23	-5.33	-36.69	0.34	37.08	261.73
3684.11	1.58	252.80	3683.79	36.79	-5.51	-37.27	0.28	37.67	261.59
3711.47	1.65	250.66	3711.14	37.51	-5.75	-38.00	0.33	38.43	261.39
3734.32	1.68	251.76	3733.98	38.12	-5.96	-38.63	0.19	39.08	261.22
3760.96	1.78	251.53	3760.61	38.86	-6.22	-39.39	0.39	39.88	261.03
3783.78	1.78	250.71	3783.41	39.52	-6.45	-40.06	0.11	40.58	260.86
3810.44	1.75	250.08	3810.06	40.27	-6.72	-40.84	0.13	41.39	260.65
3833.31	1.81	248.35	3832.93	40.92	-6.98	-41.50	0.34	42.08	260.46
3860.72	1.82	251.99	3860.32	41.71	-7.27	-42.32	0.42	42.94	260.25
3882.86	1.85	252.80	3882.45	42.37	-7.48	-42.99	0.19	43.64	260.12
3910.27	1.71	256.24	3909.84	43.17	-7.71	-43.81	0.65	44.49	260.02
3933.96	1.68	259.54	3933.52	43.84	-7.86	-44.50	0.43	45.19	259.98
3959.65	1.60	264.46	3959.21	44.56	-7.96	-45.22	0.64	45.92	260.01
3982.65	1.51	271.63	3982.20	45.18	-7.98	-45.85	0.92	46.54	260.12
4009.42	1.52	273.37	4008.96	45.89	-7.95	-46.55	0.17	47.23	260.30
4036.82	1.53	277.25	4036.35	46.62	-7.89	-47.28	0.38	47.93	260.53
4059.70	1.49	278.44	4059.22	47.22	-7.80	-47.88	0.22	48.51	260.74
4086.38	1.55	282.19	4085.89	47.92	-7.68	-48.57	0.43	49.17	261.02
4109.26	1.49	283.02	4108.76	48.52	-7.54	-49.16	0.27	49.74	261.27
4135.95	1.34	279.31	4135.44	49.17	-7.42	-49.81	0.65	50.36	261.53
4158.79	1.41	280.14	4158.28	49.72	-7.32	-50.35	0.30	50.88	261.72
4186.21	1.56	288.17	4185.69	50.41	-7.15	-51.03	0.93	51.53	262.03
4208.12	1.48	292.70	4207.59	50.97	-6.95	-51.58	0.64	52.04	262.33
4235.52	1.53	299.62	4234.98	51.64	-6.63	-52.22	0.68	52.64	262.77
4258.63	1.54	308.92	4258.09	52.17	-6.28	-52.73	1.08	53.11	263.21
4285.16	1.29	305.51	4284.60	52.72	-5.88	-53.25	0.98	53.58	263.70
4308.10	1.36	321.03	4307.54	53.12	-5.52	-53.64	1.59	53.92	264.12
4334.78	1.66	325.27	4334.21	53.58	-4.96	-54.06	1.22	54.28	264.76
4361.89	1.92	335.94	4361.31	54.04	-4.22	-54.47	1.55	54.63	265.57
4384.26	2.13	339.45	4383.66	54.39	-3.49	-54.76	1.09	54.87	266.36
4410.45	2.42	344.48	4409.83	54.78	-2.50	-55.08	1.33	55.14	267.40
4436.91	2.50	340.46	4436.27	55.19	-1.42	-55.42	0.73	55.44	268.53
4457.77	2.85	339.90	4457.11	55.59	-0.50	-55.75	1.66	55.76	269.48
4483.09	2.60	335.85	4482.40	56.11	0.61	-56.21	1.22	56.21	270.62
4511.05	2.25	320.57	4510.33	56.79	1.61	-56.81	2.63	56.84	271.63
4534.11	2.30	312.17	4533.37	57.46	2.27	-57.44	1.46	57.49	272.27

Well Name: SHANNON #24-30
Survey: SHANNON #24-30
Survey Date: 9/4/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
4559.62	2.16	308.25	4558.86	58.26	2.92	-58.20	0.81	58.27	272.87
4584.27	2.21	308.69	4583.49	59.04	3.50	-58.94	0.20	59.04	273.40
4611.13	2.14	296.28	4610.33	59.93	4.05	-59.79	1.77	59.93	273.87
4618.92	2.04	301.79	4618.12	60.18	4.18	-60.04	2.89	60.18	273.99