



Gyroscopic Survey Report
for
KPK

Well Location	WELD
Well Name	JACK BERGER A #6
Rig Number	
Survey Date	11/12/2014
Latitude	40.0898540°N
Longitude	104.8605730°W
North Reference	True North
Grid Correction	None
Depth Reference	GL (4935.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 284.21Azim (deg)
Definitive Survey	JACK BERGER A #6
Operator(s)	C KIRBY

Well Notes

API-05-123-09077

Survey Report

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Distance ft	Closure Direction deg	DLS %/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
87.98	1.12	133.26	87.97	-0.75	-0.59	0.63	0.86	133.26	1.28
123.90	1.31	149.15	123.88	-1.35	-1.19	1.10	1.61	137.27	1.08
149.43	1.48	158.22	149.41	-1.75	-1.74	1.37	2.22	141.88	1.07
174.09	1.63	160.91	174.06	-2.13	-2.37	1.60	2.86	145.96	0.69
198.80	1.79	165.05	198.76	-2.51	-3.07	1.81	3.57	149.45	0.82
223.07	1.93	166.31	223.01	-2.89	-3.84	2.01	4.33	152.36	0.58
248.05	2.08	167.70	247.98	-3.29	-4.69	2.21	5.18	154.81	0.66
270.67	2.05	176.29	270.59	-3.60	-5.49	2.32	5.96	157.11	1.38
297.38	2.21	185.75	297.28	-3.82	-6.48	2.30	6.88	160.48	1.45
324.93	2.48	192.53	324.81	-3.91	-7.59	2.12	7.88	164.43	1.40
347.80	2.59	193.46	347.65	-3.94	-8.58	1.89	8.78	167.59	0.50
374.66	2.60	193.87	374.49	-3.95	-9.76	1.60	9.89	170.68	0.08
397.62	2.59	192.65	397.42	-3.96	-10.77	1.36	10.86	172.79	0.24
424.94	2.52	192.18	424.71	-4.00	-11.96	1.10	12.01	174.74	0.28
447.25	2.58	194.72	447.01	-4.02	-12.93	0.87	12.96	176.15	0.58
474.51	2.64	192.65	474.24	-4.03	-14.13	0.58	14.14	177.67	0.39
496.66	2.65	188.45	496.36	-4.09	-15.14	0.39	15.14	178.53	0.88
523.23	2.60	188.06	522.90	-4.22	-16.34	0.21	16.34	179.25	0.22
548.97	2.52	190.43	548.62	-4.32	-17.47	0.03	17.47	179.90	0.51
571.77	2.47	189.46	571.40	-4.39	-18.45	-0.14	18.45	180.44	0.29
598.18	2.50	189.76	597.78	-4.48	-19.58	-0.33	19.58	180.97	0.12
621.05	2.52	188.39	620.63	-4.57	-20.57	-0.49	20.58	181.37	0.28
648.23	2.34	192.12	647.79	-4.65	-21.70	-0.69	21.71	181.83	0.90
674.56	2.27	197.48	674.09	-4.64	-22.72	-0.96	22.74	182.43	0.86
697.22	2.29	202.34	696.74	-4.55	-23.57	-1.27	23.60	183.08	0.86
723.57	2.31	204.08	723.07	-4.39	-24.54	-1.69	24.60	183.93	0.28
746.09	2.14	209.62	745.57	-4.20	-25.32	-2.08	25.40	184.69	1.21
772.78	1.92	231.24	772.24	-3.80	-26.03	-2.67	26.17	185.86	2.97
798.07	2.06	233.67	797.51	-3.25	-26.57	-3.37	26.78	187.23	0.65
823.29	2.01	235.15	822.72	-2.68	-27.09	-4.10	27.39	188.60	0.28
846.99	1.95	235.06	846.40	-2.14	-27.55	-4.77	27.96	189.81	0.26
877.29	1.99	243.66	876.69	-1.40	-28.08	-5.66	28.65	191.40	0.99
899.18	2.04	239.65	898.56	-0.84	-28.45	-6.34	29.15	192.56	0.69
921.90	2.06	240.71	921.27	-0.25	-28.85	-7.04	29.70	193.72	0.18
945.71	2.04	241.05	945.06	0.37	-29.27	-7.79	30.29	194.90	0.10

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Distance ft	Closure Direction deg	DLS %/100ft
972.86	1.87	255.37	972.19	1.11	-29.61	-8.64	30.85	196.26	1.89
997.04	1.97	257.51	996.37	1.82	-29.80	-9.43	31.26	197.55	0.49
1021.17	2.01	258.40	1020.48	2.57	-29.98	-10.24	31.68	198.87	0.22
1048.45	1.86	258.96	1047.75	3.40	-30.16	-11.15	32.15	200.29	0.54
1072.18	1.95	259.97	1071.46	4.12	-30.30	-11.92	32.56	201.48	0.42
1099.45	2.10	262.83	1098.72	5.01	-30.45	-12.88	33.06	202.93	0.64
1122.89	2.01	266.29	1122.14	5.80	-30.53	-13.71	33.46	204.19	0.64
1145.26	2.08	268.31	1144.49	6.56	-30.56	-14.51	33.83	205.40	0.43
1172.72	2.06	268.24	1171.94	7.52	-30.59	-15.50	34.30	206.87	0.06
1197.73	2.16	274.79	1196.93	8.41	-30.57	-16.42	34.70	208.24	1.03
1222.40	1.94	266.72	1221.59	9.27	-30.55	-17.30	35.11	209.52	1.45
1246.01	2.00	270.70	1245.18	10.05	-30.57	-18.11	35.53	210.64	0.62
1271.04	2.06	273.51	1270.19	10.92	-30.54	-19.00	35.96	211.88	0.47
1295.92	2.20	276.17	1295.06	11.83	-30.46	-19.92	36.39	213.18	0.69
1324.71	2.15	275.70	1323.83	12.92	-30.35	-21.01	36.91	214.69	0.17
1348.98	2.24	277.43	1348.08	13.84	-30.24	-21.93	37.35	215.95	0.44
1372.11	2.18	277.15	1371.20	14.72	-30.13	-22.81	37.79	217.14	0.26
1395.63	2.07	277.48	1394.69	15.59	-30.01	-23.68	38.23	218.27	0.45
1423.69	2.16	283.57	1422.74	16.62	-29.82	-24.70	38.72	219.63	0.86
1446.45	2.10	281.44	1445.48	17.47	-29.64	-25.53	39.12	220.73	0.43
1473.87	2.13	283.11	1472.88	18.48	-29.42	-26.51	39.61	222.02	0.24
1495.74	1.96	285.96	1494.74	19.26	-29.23	-27.27	39.98	223.01	0.91
1522.70	2.13	290.28	1521.68	20.22	-28.93	-28.18	40.39	224.25	0.85
1549.41	2.03	288.41	1548.37	21.19	-28.61	-29.10	40.81	225.48	0.44
1574.68	2.04	290.81	1573.63	22.08	-28.31	-29.94	41.20	226.61	0.34
1596.59	1.90	296.17	1595.52	22.82	-28.01	-30.63	41.51	227.56	1.04
1622.43	1.93	299.18	1621.35	23.66	-27.61	-31.40	41.81	228.68	0.40
1647.40	1.94	299.61	1646.30	24.47	-27.19	-32.13	42.09	229.76	0.07
1672.87	1.73	299.03	1671.76	25.26	-26.79	-32.84	42.39	230.79	0.81
1697.87	1.81	301.28	1696.75	26.00	-26.41	-33.51	42.66	231.76	0.41
1721.90	1.72	304.25	1720.77	26.70	-26.01	-34.13	42.91	232.69	0.53
1748.28	1.79	302.78	1747.14	27.47	-25.56	-34.81	43.18	233.71	0.31
1773.55	1.65	303.27	1772.39	28.19	-25.15	-35.44	43.46	234.64	0.54
1797.02	1.70	305.11	1795.85	28.83	-24.76	-36.01	43.70	235.49	0.31
1822.45	1.63	304.41	1821.27	29.53	-24.34	-36.62	43.97	236.39	0.29
1849.74	1.64	302.54	1848.56	30.26	-23.91	-37.27	44.28	237.32	0.20

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Distance ft	Closure Direction deg	DLS %/100ft
1874.53	1.50	302.83	1873.34	30.91	-23.54	-37.84	44.57	238.12	0.56
1893.88	1.85	307.55	1892.67	31.43	-23.21	-38.30	44.79	238.78	1.90
1923.07	1.46	303.55	1921.85	32.22	-22.72	-38.99	45.12	239.77	1.37
1946.47	1.28	301.65	1945.25	32.75	-22.42	-39.46	45.38	240.40	0.80
1970.39	1.39	300.40	1969.16	33.28	-22.13	-39.94	45.66	241.01	0.46
1997.75	1.21	297.27	1996.51	33.88	-21.83	-40.48	45.99	241.66	0.72
2021.95	1.11	295.47	2020.71	34.36	-21.61	-40.92	46.27	242.15	0.43
2049.46	1.30	303.77	2048.22	34.91	-21.33	-41.41	46.58	242.75	0.94
2073.38	1.11	296.40	2072.13	35.40	-21.07	-41.85	46.85	243.27	1.03
2096.61	1.08	286.76	2095.35	35.83	-20.91	-42.26	47.15	243.67	0.80
2121.67	1.13	292.89	2120.41	36.32	-20.74	-42.71	47.48	244.10	0.51
2146.83	1.09	299.24	2145.57	36.79	-20.53	-43.15	47.79	244.56	0.51
2170.99	1.21	293.62	2169.71	37.27	-20.32	-43.59	48.09	245.01	0.69
2195.69	1.13	294.12	2194.41	37.77	-20.11	-44.05	48.42	245.46	0.34
2224.25	0.97	303.17	2222.97	38.27	-19.86	-44.51	48.74	245.95	0.81
2248.30	1.04	317.46	2247.02	38.64	-19.59	-44.82	48.92	246.39	1.07
2271.20	0.99	317.41	2269.91	38.98	-19.30	-45.10	49.05	246.84	0.21
2299.06	0.94	316.55	2297.77	39.38	-18.95	-45.42	49.21	247.35	0.19
2322.28	0.89	330.27	2320.99	39.66	-18.66	-45.64	49.30	247.76	0.96
2348.96	0.98	330.66	2347.66	39.96	-18.28	-45.85	49.36	248.27	0.32
2372.83	1.04	327.95	2371.53	40.26	-17.92	-46.07	49.43	248.75	0.32
2399.78	0.96	323.66	2398.47	40.61	-17.53	-46.33	49.54	249.28	0.40
2423.12	1.01	330.51	2421.81	40.91	-17.19	-46.55	49.62	249.73	0.54
2446.15	1.17	340.83	2444.83	41.17	-16.79	-46.73	49.65	250.23	1.11
2472.63	0.95	340.11	2471.31	41.45	-16.33	-46.89	49.65	250.80	0.85
2496.69	1.10	342.36	2495.36	41.68	-15.93	-47.03	49.65	251.29	0.67
2524.88	1.24	345.62	2523.55	41.97	-15.37	-47.18	49.62	251.96	0.56
2548.58	1.22	345.97	2547.25	42.21	-14.88	-47.31	49.59	252.54	0.09
2571.26	1.17	349.24	2569.92	42.42	-14.42	-47.41	49.55	253.09	0.39
2598.74	1.30	350.62	2597.40	42.67	-13.83	-47.51	49.49	253.77	0.50
2621.87	1.38	350.52	2620.52	42.88	-13.30	-47.60	49.43	254.39	0.33
2647.88	1.24	346.80	2646.52	43.14	-12.72	-47.72	49.38	255.08	0.62
2674.97	1.36	354.44	2673.61	43.38	-12.11	-47.82	49.33	255.79	0.78
2697.11	1.37	359.91	2695.74	43.54	-11.59	-47.84	49.23	256.39	0.59
2723.14	1.42	356.14	2721.77	43.71	-10.95	-47.86	49.10	257.11	0.41
2745.75	1.49	353.28	2744.36	43.90	-10.38	-47.92	49.03	257.77	0.44

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Distance ft	Closure Direction deg	DLS %/100ft
2772.36	1.45	353.85	2770.96	44.14	-9.70	-47.99	48.97	258.57	0.15
2798.21	1.41	354.65	2796.81	44.37	-9.06	-48.06	48.91	259.32	0.18
2824.36	1.53	355.50	2822.95	44.58	-8.39	-48.12	48.84	260.10	0.45
2845.47	1.62	355.62	2844.05	44.77	-7.82	-48.16	48.79	260.78	0.45
2871.34	1.47	352.87	2869.91	45.01	-7.12	-48.23	48.75	261.60	0.64
2896.88	1.42	353.42	2895.44	45.24	-6.48	-48.31	48.74	262.36	0.21
2921.34	1.37	355.44	2919.90	45.44	-5.89	-48.37	48.72	263.06	0.30
2946.31	1.33	350.68	2944.86	45.65	-5.31	-48.44	48.73	263.75	0.48
2971.17	1.35	351.96	2969.71	45.88	-4.73	-48.52	48.75	264.43	0.16
2999.47	1.03	346.00	2998.01	46.13	-4.15	-48.63	48.81	265.12	1.22
3023.87	1.06	341.88	3022.40	46.35	-3.73	-48.76	48.90	265.63	0.34
3047.05	1.04	337.80	3045.58	46.59	-3.33	-48.90	49.01	266.11	0.34
3071.91	0.89	345.37	3070.43	46.82	-2.93	-49.04	49.12	266.58	0.77
3097.55	0.97	342.01	3096.07	47.03	-2.53	-49.15	49.22	267.05	0.35
3121.96	0.94	337.32	3120.48	47.26	-2.15	-49.29	49.34	267.50	0.34
3145.88	0.81	333.42	3144.39	47.48	-1.82	-49.44	49.48	267.89	0.59
3174.79	0.76	339.59	3173.30	47.73	-1.46	-49.60	49.62	268.31	0.34
3197.40	1.00	352.42	3195.91	47.88	-1.12	-49.68	49.69	268.70	1.36
3221.17	0.65	337.79	3219.68	48.04	-0.79	-49.76	49.77	269.09	1.70
3249.26	0.86	328.83	3247.76	48.29	-0.47	-49.93	49.93	269.47	0.84
3272.10	1.05	328.02	3270.61	48.56	-0.14	-50.13	50.13	269.84	0.85
3295.78	0.81	307.38	3294.28	48.87	0.15	-50.38	50.38	270.17	1.73
3323.84	0.50	271.78	3322.33	49.17	0.27	-50.66	50.66	270.31	1.78
3348.60	0.66	328.05	3347.09	49.38	0.39	-50.84	50.84	270.44	2.27
3373.23	0.70	304.94	3371.73	49.62	0.60	-51.04	51.04	270.67	1.12
3396.86	0.65	301.97	3395.35	49.89	0.75	-51.27	51.28	270.84	0.27
3421.15	0.56	298.09	3419.64	50.13	0.88	-51.49	51.50	270.98	0.41
3449.02	0.70	298.35	3447.51	50.43	1.03	-51.76	51.77	271.14	0.49
3473.09	0.50	320.51	3471.57	50.66	1.18	-51.96	51.97	271.30	1.24
3495.97	0.25	293.20	3494.46	50.78	1.27	-52.06	52.08	271.40	1.31
3524.09	0.71	293.61	3522.58	51.02	1.37	-52.28	52.30	271.50	1.65
3547.28	0.62	271.45	3545.76	51.28	1.43	-52.54	52.56	271.56	1.17
3573.83	0.55	300.58	3572.32	51.54	1.50	-52.79	52.81	271.62	1.13
3596.61	0.64	293.69	3595.09	51.77	1.60	-53.00	53.03	271.73	0.52
3624.23	0.36	276.47	3622.71	52.01	1.68	-53.23	53.26	271.80	1.14
3647.05	0.32	296.07	3645.54	52.15	1.71	-53.36	53.39	271.84	0.54

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3671.38	0.68	272.33	3669.86	52.35	1.75	-53.56	53.59	271.87	1.67
3699.03	0.43	285.13	3697.51	52.62	1.78	-53.83	53.86	271.89	0.99
3723.23	0.49	296.04	3721.70	52.81	1.85	-54.01	54.04	271.96	0.45
3746.24	0.46	302.27	3744.72	53.00	1.94	-54.18	54.21	272.05	0.26
3774.18	0.67	289.60	3772.65	53.27	2.06	-54.43	54.46	272.17	0.86
3796.68	0.48	300.51	3795.15	53.49	2.15	-54.63	54.67	272.25	0.97
3824.41	0.90	294.06	3822.88	53.81	2.30	-54.93	54.98	272.40	1.54
3847.21	1.09	300.20	3845.68	54.20	2.48	-55.28	55.34	272.57	0.96
3873.93	1.30	291.78	3872.39	54.75	2.72	-55.78	55.85	272.79	1.03
3898.34	1.53	302.24	3896.80	55.33	3.00	-56.32	56.40	273.05	1.39
3921.74	1.64	302.85	3920.19	55.94	3.35	-56.86	56.96	273.37	0.50
3945.73	1.77	303.53	3944.17	56.62	3.74	-57.46	57.58	273.72	0.56
3974.27	1.82	305.42	3972.69	57.46	4.24	-58.20	58.35	274.17	0.25
3997.15	1.98	304.53	3995.56	58.17	4.68	-58.82	59.00	274.55	0.73
4020.62	1.86	302.52	4019.02	58.91	5.11	-59.47	59.69	274.91	0.59
4047.93	1.83	299.59	4046.31	59.75	5.57	-60.23	60.48	275.28	0.36
4071.29	1.94	297.94	4069.66	60.49	5.94	-60.90	61.19	275.57	0.51
4098.95	1.91	299.36	4097.30	61.39	6.38	-61.71	62.04	275.90	0.20
4121.33	1.82	299.39	4119.67	62.10	6.74	-62.35	62.71	276.17	0.37
4149.10	1.74	294.62	4147.43	62.94	7.13	-63.12	63.52	276.45	0.62
4171.16	1.78	296.18	4169.48	63.60	7.42	-63.73	64.16	276.64	0.30
4197.77	1.73	293.01	4196.08	64.40	7.76	-64.47	64.94	276.86	0.42
4224.01	1.80	294.11	4222.30	65.20	8.08	-65.21	65.71	277.07	0.32
4249.53	1.80	288.79	4247.81	65.99	8.38	-65.96	66.49	277.24	0.66
4270.95	1.91	293.96	4269.22	66.68	8.63	-66.60	67.16	277.38	0.93
4299.81	1.62	292.58	4298.07	67.56	8.98	-67.42	68.01	277.59	1.04
4323.09	1.84	293.21	4321.34	68.25	9.26	-68.06	68.69	277.74	0.98
4348.11	1.68	286.38	4346.34	69.02	9.52	-68.79	69.44	277.88	1.05
4372.18	1.79	294.10	4370.40	69.74	9.77	-69.47	70.15	278.01	1.07
4396.74	1.70	296.52	4394.95	70.48	10.09	-70.15	70.87	278.19	0.46
4420.20	1.62	309.49	4418.40	71.12	10.46	-70.71	71.48	278.41	1.64
4447.87	1.49	312.60	4446.06	71.79	10.95	-71.28	72.12	278.73	0.57
4471.34	1.38	317.93	4469.53	72.29	11.37	-71.69	72.59	279.01	0.72
4498.75	1.54	318.52	4496.92	72.87	11.89	-72.16	73.13	279.35	0.56
4522.22	1.42	324.25	4520.39	73.35	12.36	-72.54	73.58	279.67	0.80
4545.04	1.37	328.50	4543.20	73.76	12.82	-72.85	73.97	279.98	0.50

Well Name: JACK BERGER A #6
Survey: JACK BERGER A #6
Survey Date: 11/12/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Distance ft	Closure Direction deg	DLS °/100ft
4572.86	1.34	339.99	4571.01	74.19	13.41	-73.13	74.35	280.39	0.98
4596.00	1.45	344.90	4594.15	74.48	13.95	-73.30	74.62	280.77	0.69
4622.55	1.65	344.00	4620.68	74.84	14.64	-73.49	74.94	281.27	0.76
4646.41	1.54	3.01	4644.54	75.07	15.29	-73.57	75.14	281.74	2.25
4674.18	1.86	11.84	4672.30	75.16	16.11	-73.46	75.20	282.37	1.50
4699.77	1.61	0.63	4697.87	75.27	16.87	-73.37	75.28	282.95	1.65
4724.46	1.58	3.15	4722.55	75.41	17.56	-73.35	75.42	283.46	0.32
4759.19	1.71	3.14	4757.27	75.60	18.56	-73.29	75.60	284.21	0.38