



Gyroscopic Survey Report  
for  
KPK

Well Location	WELD COUNTY, CO
Well Name	CHIKUMA HARRY S #3
Rig Number	
Survey Date	9/29/2014
Latitude	40.0529200°N
Longitude	104.8463600°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), 268.27Azim (deg)
Definitive Survey	CHIKUMA HARRY S#3
Operator(s)	C KIRBY

**Well Notes**

API-05-123-07604

**Well Name:** CHIKUMA HARRY S #3  
**Survey:** CHIKUMA HARRY S#3  
**Survey Date:** 9/29/2014

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
87.08	0.06	103.55	87.08	-0.04	-0.01	0.04	0.06	0.04	103.55
122.24	0.17	6.96	122.24	-0.06	0.04	0.06	0.53	0.07	58.46
148.62	0.19	13.05	148.62	-0.08	0.12	0.08	0.09	0.14	32.93
174.54	0.14	56.71	174.54	-0.12	0.18	0.12	0.50	0.21	32.60
196.92	0.11	23.48	196.92	-0.15	0.21	0.15	0.36	0.26	34.39
224.35	0.31	5.92	224.35	-0.17	0.31	0.17	0.76	0.35	27.86
246.91	0.21	36.91	246.91	-0.21	0.41	0.20	0.74	0.45	25.81
274.83	0.39	351.81	274.83	-0.23	0.54	0.21	1.01	0.58	21.57
297.83	0.37	1.66	297.83	-0.23	0.69	0.21	0.30	0.72	16.49
324.60	0.31	1.78	324.60	-0.24	0.85	0.21	0.21	0.88	13.84
347.58	0.40	5.65	347.58	-0.25	0.99	0.22	0.37	1.02	12.47
374.25	0.35	11.93	374.25	-0.28	1.17	0.25	0.22	1.19	11.91
397.32	0.45	8.26	397.31	-0.31	1.33	0.27	0.45	1.35	11.66
424.87	0.48	8.67	424.87	-0.35	1.55	0.31	0.11	1.58	11.21
447.15	0.49	354.05	447.14	-0.36	1.74	0.31	0.56	1.76	10.16
474.60	0.45	1.77	474.59	-0.36	1.96	0.30	0.27	1.98	8.78
497.04	0.37	7.79	497.03	-0.38	2.12	0.32	0.39	2.14	8.46
524.34	0.44	12.64	524.33	-0.42	2.31	0.35	0.29	2.34	8.62
547.48	0.48	10.11	547.47	-0.46	2.49	0.39	0.20	2.52	8.82
574.21	0.41	3.03	574.20	-0.49	2.70	0.41	0.34	2.73	8.67
596.50	0.40	12.07	596.49	-0.52	2.86	0.43	0.29	2.89	8.61
623.28	0.34	16.70	623.27	-0.57	3.03	0.48	0.26	3.06	8.92
646.41	0.45	13.75	646.40	-0.61	3.18	0.52	0.48	3.22	9.22
673.86	0.38	18.75	673.85	-0.67	3.37	0.57	0.28	3.42	9.61
696.13	0.34	6.80	696.12	-0.71	3.50	0.60	0.38	3.56	9.75
723.68	0.36	15.18	723.67	-0.75	3.67	0.63	0.21	3.72	9.81
745.97	0.38	25.59	745.96	-0.80	3.80	0.69	0.32	3.87	10.21
773.50	0.35	38.98	773.48	-0.90	3.95	0.78	0.33	4.03	11.14
795.75	0.19	33.64	795.73	-0.96	4.04	0.84	0.74	4.13	11.78
823.03	0.19	52.62	823.02	-1.03	4.10	0.90	0.23	4.20	12.42
845.65	0.32	39.31	845.64	-1.10	4.17	0.97	0.62	4.29	13.12
871.95	0.21	38.79	871.94	-1.18	4.27	1.05	0.40	4.40	13.81
899.12	0.06	237.88	899.10	-1.20	4.30	1.07	0.98	4.43	13.96
921.84	0.27	60.79	921.82	-1.23	4.32	1.11	1.43	4.46	14.35
948.15	0.17	36.48	948.14	-1.31	4.38	1.18	0.50	4.54	15.09

<b>Well Name:</b>		CHIKUMA HARRY S #3							
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<b>Survey Date:</b>		9/29/2014							
MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
970.97	0.01	203.94	970.95	-1.33	4.41	1.20	0.79	4.57	15.24
998.02	0.13	96.25	998.01	-1.36	4.40	1.23	0.51	4.57	15.63
1024.41	0.18	359.64	1024.40	-1.39	4.44	1.26	0.90	4.61	15.86
1047.24	0.08	61.37	1047.22	-1.41	4.48	1.27	0.71	4.66	15.87
1073.67	0.14	144.41	1073.66	-1.44	4.46	1.31	0.59	4.65	16.35
1096.35	0.04	194.34	1096.34	-1.46	4.43	1.32	0.54	4.63	16.63
1123.47	0.01	0.01	1123.46	-1.45	4.43	1.32	0.20	4.62	16.62
1149.74	0.10	151.72	1149.72	-1.46	4.41	1.33	0.44	4.61	16.81
1172.37	0.15	120.82	1172.36	-1.50	4.38	1.37	0.36	4.58	17.35
1198.77	0.08	347.13	1198.76	-1.52	4.38	1.39	0.82	4.59	17.65
1221.42	0.08	317.13	1221.41	-1.51	4.40	1.38	0.19	4.61	17.38
1248.54	0.14	78.44	1248.52	-1.53	4.42	1.40	0.72	4.64	17.54
1274.81	0.04	111.48	1274.79	-1.57	4.43	1.44	0.43	4.66	17.98
1297.46	0.03	171.71	1297.45	-1.58	4.42	1.44	0.14	4.65	18.10
1324.57	0.12	120.77	1324.56	-1.60	4.40	1.47	0.38	4.64	18.47
1346.45	0.04	134.41	1346.44	-1.63	4.38	1.49	0.37	4.63	18.83
1373.48	0.06	204.71	1373.47	-1.63	4.36	1.49	0.23	4.61	18.91
1395.36	0.10	170.25	1395.34	-1.62	4.33	1.49	0.29	4.58	19.02
1422.06	0.06	295.18	1422.04	-1.61	4.32	1.48	0.56	4.56	18.98
1448.72	0.06	307.23	1448.70	-1.59	4.33	1.46	0.05	4.57	18.62
1470.26	0.15	197.91	1470.25	-1.57	4.31	1.44	0.82	4.55	18.48
1496.94	0.12	227.77	1496.93	-1.54	4.26	1.41	0.28	4.49	18.32
1523.47	0.13	251.09	1523.46	-1.49	4.23	1.36	0.20	4.45	17.83
1549.43	0.13	201.49	1549.41	-1.45	4.19	1.32	0.43	4.40	17.48
1571.65	0.10	228.75	1571.63	-1.42	4.16	1.30	0.27	4.36	17.32
1597.42	0.15	245.05	1597.40	-1.37	4.13	1.25	0.21	4.31	16.84
1624.02	0.14	193.11	1624.00	-1.33	4.08	1.21	0.48	4.26	16.53
1646.25	0.12	238.55	1646.23	-1.31	4.04	1.19	0.47	4.21	16.34
1672.14	0.24	239.16	1672.12	-1.24	4.00	1.12	0.47	4.15	15.58
1698.62	0.20	272.82	1698.61	-1.14	3.97	1.02	0.50	4.10	14.42
1720.87	0.21	263.11	1720.86	-1.06	3.97	0.94	0.16	4.08	13.36
1746.73	0.36	272.53	1746.72	-0.93	3.97	0.82	0.63	4.05	11.60
1773.37	0.23	247.78	1773.36	-0.80	3.95	0.68	0.68	4.01	9.77
1799.89	0.40	272.06	1799.87	-0.66	3.94	0.54	0.79	3.97	7.81
1821.47	0.30	252.58	1821.45	-0.53	3.92	0.41	0.70	3.94	5.98
1848.09	0.25	250.90	1848.07	-0.40	3.88	0.29	0.18	3.89	4.24

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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
1874.59	0.29	252.02	1874.58	-0.29	3.84	0.17	0.12	3.85	2.52
1896.11	0.42	236.54	1896.09	-0.17	3.78	0.05	0.76	3.78	0.79
1922.71	0.39	250.28	1922.69	0.00	3.70	-0.11	0.38	3.70	358.23
1948.59	0.36	253.29	1948.57	0.16	3.64	-0.27	0.14	3.65	355.70
1970.81	0.43	256.82	1970.79	0.31	3.61	-0.42	0.34	3.63	353.33
1997.14	0.28	251.45	1997.12	0.47	3.56	-0.58	0.58	3.61	350.78
2022.63	0.41	239.80	2022.61	0.61	3.50	-0.72	0.57	3.57	348.44
2048.73	0.34	252.32	2048.71	0.77	3.43	-0.87	0.41	3.54	345.78
2074.95	0.44	250.79	2074.92	0.94	3.37	-1.04	0.38	3.53	342.90
2096.17	0.47	252.49	2096.14	1.10	3.32	-1.20	0.15	3.53	340.17
2122.35	0.57	250.02	2122.33	1.32	3.24	-1.42	0.38	3.54	336.35
2147.75	0.50	264.80	2147.73	1.55	3.19	-1.65	0.60	3.59	332.68
2173.99	0.38	256.11	2173.97	1.75	3.16	-1.85	0.51	3.66	329.70
2195.86	0.41	241.74	2195.83	1.89	3.10	-1.98	0.46	3.68	327.41
2221.21	0.52	241.11	2221.18	2.07	3.01	-2.16	0.45	3.70	324.25
2247.33	0.43	238.17	2247.30	2.26	2.90	-2.35	0.34	3.73	320.93
2273.39	0.51	215.61	2273.36	2.42	2.75	-2.50	0.76	3.72	317.70
2298.56	0.69	192.99	2298.53	2.52	2.51	-2.60	1.17	3.62	313.99
2324.51	0.86	179.42	2324.48	2.57	2.16	-2.64	0.96	3.41	309.39
2346.05	0.80	166.60	2346.01	2.54	1.86	-2.60	0.91	3.19	305.53
2374.88	0.66	186.18	2374.84	2.52	1.49	-2.57	0.98	2.97	300.17
2397.41	0.85	175.07	2397.37	2.53	1.20	-2.57	1.04	2.84	294.99
2424.01	0.95	167.77	2423.97	2.48	0.79	-2.51	0.57	2.63	287.42
2449.76	0.80	194.45	2449.72	2.49	0.40	-2.51	1.67	2.54	279.18
2473.11	0.74	181.96	2473.07	2.55	0.10	-2.55	0.75	2.55	272.18
2495.84	0.66	192.19	2495.79	2.59	-0.18	-2.58	0.64	2.59	266.06
2523.67	0.67	186.15	2523.62	2.65	-0.50	-2.64	0.26	2.68	259.30
2547.05	0.61	200.28	2546.99	2.71	-0.75	-2.69	0.73	2.80	254.42
2574.19	0.77	193.95	2574.14	2.82	-1.06	-2.79	0.66	2.98	249.11
2597.30	0.72	210.14	2597.25	2.94	-1.34	-2.90	0.94	3.19	245.18
2623.90	0.48	223.79	2623.84	3.10	-1.56	-3.06	1.02	3.44	242.91
2646.85	0.49	207.03	2646.79	3.22	-1.72	-3.17	0.62	3.61	241.49
2674.33	0.46	215.28	2674.27	3.34	-1.92	-3.29	0.28	3.80	239.76
2696.57	0.38	220.07	2696.51	3.45	-2.04	-3.39	0.38	3.95	238.87
2724.04	0.26	269.29	2723.97	3.57	-2.11	-3.51	1.05	4.09	238.90
2747.01	0.12	325.56	2746.95	3.63	-2.10	-3.57	0.96	4.14	239.59



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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
2773.77	0.17	356.84	2773.71	3.65	-2.04	-3.59	0.34	4.13	240.44
2796.74	0.27	319.40	2796.68	3.68	-1.96	-3.63	0.73	4.12	241.58
2823.38	0.36	344.37	2823.32	3.74	-1.83	-3.69	0.62	4.12	243.56
2846.30	0.56	0.00	2846.24	3.76	-1.65	-3.71	1.01	4.06	245.98
2873.77	0.57	19.99	2873.71	3.70	-1.39	-3.66	0.71	3.92	249.21
2896.00	0.59	17.83	2895.94	3.62	-1.18	-3.59	0.14	3.78	251.82
2923.45	0.69	353.06	2923.39	3.59	-0.88	-3.57	1.07	3.67	256.15
2949.79	0.50	352.37	2949.73	3.62	-0.61	-3.60	0.73	3.65	260.44
2972.95	0.47	353.33	2972.88	3.64	-0.41	-3.63	0.14	3.65	263.52
2995.86	0.56	29.72	2995.79	3.59	-0.22	-3.58	1.46	3.59	266.48
3022.53	0.48	17.72	3022.46	3.48	0.00	-3.48	0.51	3.48	270.02
3049.92	0.41	353.71	3049.85	3.45	0.21	-3.46	0.73	3.46	273.45
3072.60	0.38	348.76	3072.53	3.47	0.36	-3.48	0.20	3.50	275.93
3099.40	0.28	43.76	3099.33	3.43	0.50	-3.45	1.18	3.49	278.17
3122.33	0.27	325.25	3122.25	3.42	0.58	-3.44	1.52	3.49	279.56
3149.03	0.36	345.61	3148.96	3.48	0.71	-3.50	0.55	3.57	281.52
3171.92	0.23	305.46	3171.85	3.53	0.81	-3.55	1.05	3.65	282.84
3198.97	0.09	348.87	3198.89	3.57	0.86	-3.60	0.63	3.70	283.47
3220.79	0.31	222.59	3220.71	3.62	0.84	-3.65	1.71	3.74	282.93
3247.66	0.28	228.34	3247.59	3.72	0.74	-3.74	0.16	3.82	281.19
3273.95	0.23	186.97	3273.88	3.78	0.65	-3.80	0.70	3.85	279.66
3296.48	0.38	205.63	3296.40	3.82	0.53	-3.83	0.78	3.87	277.94
3323.45	0.55	245.30	3323.37	3.98	0.40	-3.99	1.32	4.01	275.74
3349.57	0.46	261.42	3349.50	4.20	0.33	-4.21	0.64	4.22	274.52
3372.13	0.24	267.88	3372.05	4.33	0.32	-4.35	0.99	4.36	274.18
3399.09	0.38	213.85	3399.01	4.44	0.24	-4.45	1.15	4.46	273.09
3420.88	0.31	251.13	3420.81	4.54	0.16	-4.55	1.06	4.55	272.03
3447.86	0.37	270.79	3447.79	4.70	0.14	-4.71	0.50	4.71	271.69
3474.73	0.37	244.50	3474.65	4.87	0.10	-4.87	0.63	4.87	271.21
3496.54	0.48	254.13	3496.47	5.02	0.05	-5.02	0.62	5.02	270.55
3523.53	0.67	238.49	3523.45	5.27	-0.07	-5.27	0.89	5.27	269.29
3549.66	0.61	265.48	3549.58	5.54	-0.16	-5.54	1.16	5.54	268.38
3572.16	0.67	250.41	3572.08	5.78	-0.21	-5.78	0.78	5.78	267.92
3599.07	0.84	257.05	3598.99	6.13	-0.31	-6.12	0.71	6.13	267.13
3620.84	0.92	255.73	3620.76	6.45	-0.39	-6.45	0.39	6.46	266.58
3647.75	0.51	256.60	3647.66	6.78	-0.47	-6.77	1.53	6.79	266.06

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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
3673.79	0.74	230.94	3673.70	7.03	-0.60	-7.01	1.37	7.04	265.12
3696.24	1.01	237.09	3696.15	7.31	-0.80	-7.29	1.27	7.34	263.76
3723.08	1.03	251.27	3722.98	7.75	-1.00	-7.72	0.94	7.79	262.59
3749.17	0.73	262.99	3749.07	8.14	-1.10	-8.11	1.34	8.18	262.27
3771.25	0.61	279.68	3771.15	8.39	-1.10	-8.36	1.04	8.44	262.52
3797.55	0.66	244.68	3797.44	8.67	-1.14	-8.64	1.46	8.71	262.49
3823.25	0.87	247.47	3823.14	8.99	-1.28	-8.95	0.83	9.04	261.88
3849.51	0.96	275.05	3849.40	9.39	-1.33	-9.36	1.70	9.45	261.89
3871.74	0.76	273.90	3871.63	9.73	-1.31	-9.69	0.89	9.78	262.32
3898.35	0.91	261.52	3898.23	10.11	-1.33	-10.08	0.87	10.16	262.50
3921.05	0.94	263.03	3920.93	10.47	-1.38	-10.44	0.17	10.53	262.49
3946.97	1.05	262.33	3946.85	10.92	-1.43	-10.88	0.43	10.98	262.50
3974.14	1.06	265.71	3974.01	11.42	-1.49	-11.38	0.24	11.48	262.57
3996.33	1.00	253.38	3996.20	11.81	-1.56	-11.77	1.04	11.88	262.47
4023.46	0.97	269.92	4023.32	12.27	-1.62	-12.23	1.05	12.34	262.43
4046.22	1.00	274.18	4046.09	12.66	-1.61	-12.62	0.36	12.72	262.73
4072.72	0.85	285.56	4072.58	13.08	-1.54	-13.04	0.90	13.13	263.26
4099.81	0.82	279.59	4099.66	13.46	-1.45	-13.42	0.35	13.50	263.82
4121.83	0.87	277.13	4121.68	13.78	-1.41	-13.74	0.28	13.82	264.15
4148.99	0.83	278.63	4148.84	14.18	-1.35	-14.14	0.17	14.21	264.54
4171.71	0.84	285.71	4171.55	14.50	-1.28	-14.46	0.46	14.52	264.93
4198.13	0.95	281.96	4197.98	14.89	-1.18	-14.87	0.46	14.91	265.44
4220.85	0.87	293.20	4220.69	15.23	-1.08	-15.21	0.86	15.25	265.95
4247.91	0.83	283.87	4247.75	15.61	-0.95	-15.59	0.53	15.61	266.51
4274.33	0.94	274.45	4274.17	16.01	-0.89	-15.99	0.70	16.01	266.82
4296.90	0.96	291.46	4296.74	16.36	-0.80	-16.35	1.25	16.37	267.18
4323.86	0.45	299.43	4323.69	16.66	-0.67	-16.65	1.91	16.66	267.70
4349.98	0.55	275.85	4349.80	16.87	-0.61	-16.86	0.86	16.87	267.94
4372.30	0.67	287.73	4372.13	17.10	-0.56	-17.09	0.79	17.10	268.14
4398.27	0.70	293.75	4398.09	17.39	-0.45	-17.38	0.30	17.39	268.53
4424.81	0.66	288.15	4424.64	17.68	-0.33	-17.68	0.29	17.68	268.92
4445.91	0.65	282.41	4445.73	17.91	-0.27	-17.91	0.32	17.91	269.14
4471.84	0.57	286.02	4471.66	18.18	-0.20	-18.18	0.32	18.18	269.37
4498.49	0.49	286.66	4498.31	18.41	-0.13	-18.42	0.33	18.42	269.59
4520.04	0.38	276.40	4519.86	18.57	-0.10	-18.58	0.61	18.58	269.70
4545.86	0.27	276.04	4545.68	18.72	-0.08	-18.72	0.41	18.72	269.75

**Well Name:** CHIKUMA HARRY S #3**Survey:** CHIKUMA HARRY S#3**Survey Date:** 9/29/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
4573.18	0.28	261.86	4573.00	18.85	-0.08	-18.85	0.26	18.85	269.75
4599.02	0.42	257.32	4598.84	19.01	-0.11	-19.01	0.55	19.01	269.66
4621.05	0.45	281.56	4620.87	19.17	-0.11	-19.18	0.85	19.18	269.66
4647.40	0.44	252.61	4647.22	19.37	-0.12	-19.37	0.85	19.38	269.64
4672.51	0.37	259.73	4672.33	19.54	-0.17	-19.55	0.32	19.55	269.51
4699.13	0.56	235.21	4698.95	19.74	-0.26	-19.74	1.01	19.74	269.26
4723.84	0.57	219.32	4723.65	19.92	-0.42	-19.92	0.63	19.92	268.79
4744.59	0.77	220.09	4744.41	20.08	-0.61	-20.07	0.97	20.08	268.27