



Gyroscopic Survey Report
for
K.P. Kauffman

Well Location	Weld County, Colorado
Well Name	UPRR 43 Pan Am 1 No.17
Rig Number	KPK 8
Survey Date	10/13/2014
Latitude	40.0716240°N
Longitude	104.9771870°W
North Reference	True North
Grid Correction	None
Depth Reference	Ground Level (5039.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 245.05Azim (deg)
Definitive Survey	KPK UPRR 43 Pan Am 1 #17
Operator(s)	Jon Valenzuela

Well Notes

API-05-123-09206

Well Name: UPRR 43 Pan Am 1 No.17
Survey: KPK UPRR 43 Pan Am 1 #17
Survey Date: 10/13/2014

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
49.98	0.12	0.21	49.98	-0.02	0.05	0.00	0.23	0.05	0.21
61.84	0.07	338.98	61.84	-0.03	0.07	0.00	0.50	0.07	358.15
83.63	0.13	115.61	83.63	-0.04	0.07	0.02	0.84	0.07	12.03
109.32	0.28	57.67	109.32	-0.13	0.09	0.09	0.94	0.13	45.65
134.77	0.34	23.29	134.77	-0.24	0.20	0.18	0.75	0.26	42.31
161.63	0.28	24.63	161.63	-0.35	0.33	0.24	0.21	0.40	35.80
186.65	0.20	64.71	186.65	-0.44	0.40	0.30	0.73	0.50	36.84
210.21	0.27	47.86	210.21	-0.54	0.46	0.38	0.43	0.59	39.71
234.22	0.43	36.49	234.22	-0.67	0.57	0.48	0.73	0.74	39.94
257.82	0.38	7.52	257.82	-0.79	0.72	0.54	0.89	0.90	36.89
285.46	0.25	20.86	285.45	-0.89	0.87	0.57	0.56	1.04	33.47
309.32	0.36	47.44	309.32	-0.99	0.97	0.65	0.76	1.16	33.81
333.20	0.49	19.57	333.19	-1.14	1.11	0.74	1.01	1.34	33.49
360.26	0.28	11.30	360.25	-1.26	1.29	0.79	0.83	1.51	31.50
384.13	0.20	29.14	384.12	-1.33	1.38	0.82	0.45	1.61	30.73
411.61	0.41	29.57	411.60	-1.44	1.51	0.89	0.77	1.75	30.62
435.44	0.25	338.77	435.43	-1.52	1.63	0.92	1.33	1.87	29.34
458.61	0.12	302.82	458.61	-1.51	1.69	0.88	0.70	1.90	27.43
486.37	0.07	28.95	486.36	-1.50	1.72	0.86	0.49	1.92	26.56
509.97	0.23	337.82	509.96	-1.52	1.77	0.85	0.81	1.97	25.56
536.96	0.26	266.25	536.95	-1.46	1.82	0.77	1.06	1.97	22.87
560.74	0.09	238.57	560.73	-1.39	1.81	0.70	0.77	1.94	21.12
584.53	0.26	319.73	584.52	-1.36	1.84	0.65	1.11	1.95	19.36
611.49	0.30	262.90	611.49	-1.28	1.88	0.54	1.01	1.95	15.92
635.26	0.17	221.11	635.25	-1.18	1.84	0.45	0.88	1.90	13.72
658.89	0.23	278.79	658.89	-1.11	1.82	0.38	0.86	1.86	11.75
686.45	0.26	235.38	686.44	-1.00	1.80	0.27	0.67	1.82	8.62
709.45	0.22	227.77	709.44	-0.91	1.74	0.20	0.22	1.75	6.46
733.19	0.21	270.13	733.18	-0.83	1.71	0.12	0.66	1.71	3.99
760.74	0.54	224.73	760.73	-0.66	1.61	-0.02	1.54	1.61	359.14
783.84	0.68	213.55	783.83	-0.44	1.42	-0.18	0.79	1.43	352.88
811.24	0.60	234.06	811.23	-0.16	1.20	-0.38	0.88	1.26	342.27
834.93	0.73	218.18	834.92	0.10	1.01	-0.58	0.95	1.16	330.21
858.64	0.63	220.02	858.62	0.35	0.79	-0.75	0.42	1.09	316.29
885.32	0.67	232.91	885.31	0.64	0.58	-0.97	0.57	1.14	300.86

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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
908.99	0.75	223.92	908.97	0.92	0.39	-1.19	0.58	1.25	287.97
936.58	0.52	229.92	936.57	1.21	0.18	-1.41	0.88	1.42	277.11
959.62	0.75	231.23	959.60	1.45	0.01	-1.61	1.03	1.61	270.51
982.94	0.75	220.06	982.92	1.74	-0.20	-1.83	0.63	1.84	263.81
1010.62	0.57	229.57	1010.59	2.04	-0.43	-2.05	0.77	2.09	258.27
1033.64	0.75	228.79	1033.61	2.29	-0.60	-2.25	0.82	2.33	255.09
1061.09	0.58	214.51	1061.06	2.59	-0.83	-2.47	0.86	2.60	251.32
1084.60	0.50	230.30	1084.57	2.79	-1.00	-2.61	0.72	2.80	249.09
1111.64	0.80	227.00	1111.61	3.08	-1.20	-2.84	1.10	3.09	247.07
1134.27	0.61	223.50	1134.23	3.34	-1.40	-3.04	0.87	3.34	245.32
1161.25	0.50	242.78	1161.22	3.59	-1.55	-3.24	0.79	3.59	244.39
1184.51	0.66	228.82	1184.48	3.82	-1.69	-3.43	0.90	3.82	243.81
1211.39	0.45	218.21	1211.36	4.07	-1.87	-3.61	0.87	4.07	242.62
1234.01	0.63	247.35	1233.97	4.27	-1.99	-3.78	1.42	4.27	242.27
1260.72	0.57	215.73	1260.68	4.53	-2.15	-3.99	1.24	4.54	241.68
1283.94	0.40	235.57	1283.90	4.71	-2.29	-4.13	1.04	4.72	240.95
1310.46	0.61	238.24	1310.42	4.94	-2.42	-4.32	0.79	4.95	240.78
1333.52	0.47	210.98	1333.48	5.14	-2.56	-4.48	1.25	5.16	240.20
1360.38	0.48	242.92	1360.34	5.34	-2.71	-4.63	0.96	5.36	239.69
1383.38	0.62	232.63	1383.34	5.56	-2.83	-4.82	0.77	5.58	239.58
1409.71	0.38	237.42	1409.66	5.78	-2.96	-5.00	0.94	5.81	239.38
1436.46	0.60	245.09	1436.42	6.01	-3.07	-5.20	0.85	6.04	239.48
1459.58	0.43	222.38	1459.54	6.21	-3.18	-5.37	1.13	6.24	239.36
1486.37	0.45	251.63	1486.33	6.41	-3.29	-5.54	0.83	6.44	239.30
1508.75	0.66	235.76	1508.71	6.62	-3.39	-5.73	1.16	6.65	239.39
1535.42	0.37	243.52	1535.37	6.86	-3.51	-5.93	1.14	6.89	239.36
1558.46	0.57	255.02	1558.41	7.05	-3.58	-6.11	0.96	7.08	239.65
1584.68	0.54	233.75	1584.62	7.29	-3.68	-6.33	0.79	7.32	239.82
1611.34	0.50	259.34	1611.29	7.53	-3.78	-6.55	0.87	7.56	240.02
1634.19	0.62	238.79	1634.14	7.75	-3.86	-6.75	1.00	7.78	240.25
1660.82	0.42	233.11	1660.77	7.99	-3.99	-6.95	0.78	8.01	240.13
1683.34	0.57	258.46	1683.29	8.17	-4.06	-7.13	1.16	8.20	240.31
1710.80	0.51	231.22	1710.75	8.43	-4.17	-7.35	0.95	8.45	240.46
1734.35	0.41	263.52	1734.29	8.61	-4.24	-7.52	1.17	8.63	240.57
1761.72	0.56	249.84	1761.66	8.83	-4.30	-7.74	0.69	8.86	240.96
1784.53	0.44	239.93	1784.47	9.03	-4.38	-7.92	0.65	9.05	241.06

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
1811.86	0.68	271.91	1811.80	9.28	-4.43	-8.18	1.42	9.30	241.56
1836.39	0.67	261.60	1836.32	9.55	-4.45	-8.47	0.50	9.56	242.30
1859.65	0.43	240.03	1859.59	9.77	-4.51	-8.68	1.33	9.78	242.54
1882.72	0.38	268.20	1882.66	9.93	-4.55	-8.83	0.89	9.93	242.71
1910.19	0.58	270.11	1910.12	10.13	-4.56	-9.06	0.74	10.14	243.29
1933.65	0.67	247.16	1933.59	10.38	-4.61	-9.30	1.12	10.38	243.64
1960.64	0.33	250.87	1960.57	10.61	-4.70	-9.52	1.26	10.62	243.74
1983.28	0.68	254.96	1983.21	10.81	-4.75	-9.71	1.54	10.81	243.92
2010.24	0.74	244.89	2010.17	11.14	-4.87	-10.02	0.51	11.14	244.09
2033.40	0.37	247.57	2033.33	11.36	-4.96	-10.22	1.61	11.36	244.13
2060.33	0.55	273.89	2060.26	11.56	-4.98	-10.43	1.02	11.56	244.47
2086.63	0.71	251.99	2086.56	11.83	-5.02	-10.71	1.08	11.83	244.87
2109.82	0.79	249.49	2109.75	12.13	-5.12	-11.00	0.38	12.13	245.02
2136.72	0.55	272.09	2136.64	12.43	-5.18	-11.30	1.31	12.43	245.35
2159.06	0.65	255.80	2158.98	12.65	-5.21	-11.53	0.88	12.65	245.67
2186.02	0.55	247.50	2185.95	12.93	-5.30	-11.79	0.49	12.93	245.81
2209.21	0.43	245.07	2209.13	13.12	-5.38	-11.97	0.52	13.13	245.82
2235.73	0.55	266.57	2235.64	13.34	-5.43	-12.19	0.83	13.34	246.01
2258.38	0.63	253.33	2258.30	13.57	-5.47	-12.42	0.70	13.57	246.24
2285.96	0.62	242.99	2285.87	13.87	-5.58	-12.70	0.41	13.87	246.28
2310.35	0.51	250.25	2310.26	14.11	-5.68	-12.92	0.53	14.11	246.28
2334.84	0.48	260.43	2334.76	14.31	-5.73	-13.12	0.38	14.32	246.41
2358.57	0.75	262.52	2358.48	14.56	-5.77	-13.37	1.14	14.56	246.67
2386.97	0.70	238.69	2386.88	14.90	-5.88	-13.70	1.06	14.91	246.77
2411.35	0.45	230.65	2411.26	15.15	-6.02	-13.90	1.05	15.15	246.59
2435.17	0.43	237.58	2435.08	15.32	-6.13	-14.05	0.25	15.33	246.45
2460.08	0.63	257.82	2459.98	15.55	-6.20	-14.26	1.08	15.56	246.49
2484.02	0.47	230.28	2483.92	15.77	-6.30	-14.47	1.26	15.78	246.48
2511.72	0.65	228.03	2511.63	16.04	-6.47	-14.67	0.66	16.04	246.19
2536.21	0.39	223.96	2536.12	16.25	-6.63	-14.84	1.09	16.25	245.93
2560.66	0.38	252.43	2560.56	16.40	-6.71	-14.97	0.78	16.41	245.85
2584.47	0.52	252.07	2584.37	16.59	-6.77	-15.15	0.58	16.59	245.92
2608.98	0.53	251.88	2608.88	16.81	-6.84	-15.36	0.04	16.82	246.00
2633.33	0.56	220.28	2633.23	17.03	-6.96	-15.55	1.22	17.03	245.87
2661.03	0.36	218.90	2660.93	17.23	-7.14	-15.69	0.71	17.23	245.54
2685.49	0.28	225.69	2685.39	17.36	-7.24	-15.78	0.36	17.36	245.36

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
2709.84	0.33	230.98	2709.74	17.49	-7.32	-15.88	0.22	17.49	245.24
2733.63	0.46	226.74	2733.53	17.64	-7.43	-16.00	0.55	17.64	245.08
2761.75	0.50	218.49	2761.65	17.86	-7.61	-16.16	0.28	17.86	244.79
2785.64	0.49	219.15	2785.54	18.04	-7.77	-16.29	0.03	18.05	244.51
2809.66	0.44	203.85	2809.56	18.21	-7.93	-16.39	0.57	18.21	244.18
2836.85	0.27	219.75	2836.74	18.34	-8.08	-16.47	0.70	18.35	243.89
2860.75	0.25	229.72	2860.65	18.45	-8.15	-16.55	0.21	18.45	243.77
2884.74	0.48	244.83	2884.63	18.60	-8.23	-16.68	1.00	18.60	243.74
2908.08	0.40	232.56	2907.98	18.77	-8.32	-16.83	0.51	18.78	243.70
2935.89	0.48	216.75	2935.78	18.97	-8.47	-16.98	0.51	18.98	243.48
2959.76	0.60	212.62	2959.65	19.16	-8.66	-17.11	0.52	19.17	243.16
2983.73	0.47	210.82	2983.62	19.35	-8.85	-17.23	0.54	19.37	242.81
3010.86	0.38	203.96	3010.75	19.51	-9.03	-17.32	0.38	19.53	242.48
3035.45	0.41	215.58	3035.34	19.65	-9.17	-17.40	0.36	19.67	242.21
3058.65	0.42	210.13	3058.54	19.79	-9.31	-17.49	0.18	19.82	241.97
3085.78	0.56	253.62	3085.67	20.00	-9.44	-17.67	1.42	20.03	241.90
3109.71	0.58	244.06	3109.60	20.24	-9.52	-17.89	0.41	20.27	241.98
3133.53	0.77	254.20	3133.41	20.52	-9.62	-18.16	0.93	20.55	242.08
3160.64	0.86	251.61	3160.52	20.90	-9.73	-18.52	0.36	20.92	242.28
3184.54	0.83	244.63	3184.42	21.25	-9.86	-18.85	0.45	21.27	242.38
3208.35	0.92	245.42	3208.23	21.62	-10.02	-19.18	0.39	21.64	242.42
3236.06	0.80	243.21	3235.93	22.03	-10.20	-19.55	0.45	22.05	242.46
3259.10	0.87	244.47	3258.97	22.37	-10.35	-19.86	0.30	22.39	242.48
3283.08	0.84	244.31	3282.95	22.72	-10.50	-20.18	0.12	22.75	242.51
3310.47	0.82	250.31	3310.34	23.12	-10.65	-20.54	0.32	23.14	242.59
3334.62	0.90	243.17	3334.48	23.48	-10.80	-20.88	0.55	23.50	242.65
3359.26	0.88	249.89	3359.12	23.87	-10.95	-21.23	0.43	23.89	242.71
3383.96	0.96	251.39	3383.82	24.26	-11.08	-21.60	0.33	24.28	242.84
3408.61	1.07	250.96	3408.46	24.70	-11.22	-22.02	0.43	24.71	242.99
3436.94	1.02	249.96	3436.79	25.21	-11.39	-22.50	0.19	25.22	243.14
3461.64	1.09	253.17	3461.48	25.66	-11.54	-22.93	0.40	25.67	243.29
3485.78	1.02	246.68	3485.62	26.10	-11.69	-23.35	0.59	26.11	243.41
3510.44	1.08	251.98	3510.28	26.55	-11.85	-23.77	0.47	26.56	243.51
3535.10	1.13	254.83	3534.93	27.02	-11.98	-24.23	0.31	27.03	243.68
3559.21	1.10	247.90	3559.04	27.49	-12.13	-24.67	0.58	27.49	243.81
3583.60	1.00	248.97	3583.42	27.93	-12.30	-25.09	0.42	27.94	243.89

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3611.85	0.82	242.96	3611.67	28.38	-12.48	-25.49	0.70	28.38	243.92
3635.44	0.79	253.88	3635.26	28.71	-12.60	-25.80	0.66	28.71	243.97
3659.76	0.76	245.23	3659.57	29.04	-12.71	-26.11	0.50	29.04	244.04
3683.97	0.80	250.17	3683.78	29.36	-12.84	-26.41	0.32	29.37	244.08
3711.48	0.84	237.93	3711.29	29.75	-13.01	-26.76	0.65	29.76	244.08
3735.79	0.79	231.30	3735.60	30.09	-13.21	-27.05	0.43	30.10	243.97
3760.08	0.95	242.06	3759.89	30.46	-13.41	-27.36	0.95	30.47	243.89
3783.63	0.86	252.73	3783.44	30.83	-13.55	-27.70	0.81	30.84	243.93
3811.81	0.83	256.37	3811.60	31.24	-13.66	-28.10	0.23	31.25	244.07
3836.10	0.77	253.64	3835.90	31.58	-13.75	-28.43	0.28	31.58	244.18
3860.28	0.68	243.72	3860.08	31.88	-13.86	-28.71	0.65	31.88	244.23
3883.92	0.75	244.52	3883.72	32.17	-13.99	-28.98	0.31	32.18	244.23
3908.08	0.97	230.59	3907.87	32.53	-14.19	-29.28	1.26	32.53	244.15
3936.23	1.30	233.22	3936.01	33.08	-14.53	-29.72	1.19	33.08	243.94
3959.82	1.37	230.77	3959.60	33.61	-14.87	-30.15	0.36	33.62	243.75
3984.06	1.49	235.03	3983.83	34.20	-15.23	-30.64	0.68	34.21	243.56
4008.19	1.57	238.46	4007.95	34.84	-15.59	-31.17	0.50	34.85	243.44
4036.27	1.54	241.64	4036.02	35.60	-15.97	-31.84	0.33	35.62	243.36
4059.84	1.51	239.68	4059.59	36.22	-16.27	-32.38	0.25	36.24	243.32
4083.95	1.61	233.78	4083.68	36.87	-16.64	-32.93	0.79	36.89	243.20
4108.16	1.85	232.70	4107.88	37.59	-17.07	-33.51	0.97	37.61	243.00
4135.58	2.03	238.08	4135.29	38.50	-17.60	-34.28	0.93	38.53	242.82
4159.69	2.06	237.72	4159.38	39.35	-18.05	-35.00	0.14	39.39	242.72
4183.88	2.09	243.85	4183.55	40.23	-18.48	-35.77	0.93	40.26	242.68
4211.29	1.92	239.06	4210.95	41.18	-18.94	-36.61	0.88	41.22	242.65
4235.35	1.95	232.33	4235.00	41.98	-19.39	-37.28	0.95	42.02	242.52
4260.19	2.12	233.67	4259.82	42.85	-19.92	-37.99	0.73	42.89	242.32
4286.97	2.32	241.22	4286.58	43.87	-20.48	-38.86	1.32	43.93	242.21
4311.06	2.16	240.81	4310.65	44.81	-20.94	-39.68	0.65	44.87	242.19
4335.22	1.87	244.24	4334.80	45.66	-21.33	-40.44	1.29	45.72	242.19
4360.04	1.81	236.56	4359.60	46.46	-21.72	-41.13	1.03	46.51	242.16
4386.16	1.82	239.16	4385.71	47.28	-22.16	-41.83	0.32	47.34	242.09
4409.77	1.89	241.34	4409.31	48.04	-22.54	-42.50	0.42	48.11	242.06
4433.82	1.86	249.23	4433.34	48.83	-22.87	-43.21	1.09	48.89	242.11
4460.70	1.70	251.72	4460.21	49.65	-23.15	-43.99	0.66	49.71	242.25
4484.30	1.31	251.69	4483.81	50.27	-23.34	-44.58	1.62	50.32	242.36

Well Name: UPRR 43 Pan Am 1 No.17
Survey: KPK UPRR 43 Pan Am 1 #17
Survey Date: 10/13/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	Closure Distance ft	Closure Direction deg
4511.68	1.34	243.41	4511.18	50.90	-23.59	-45.17	0.71	50.96	242.43
4535.26	1.40	245.86	4534.75	51.47	-23.83	-45.68	0.34	51.52	242.45
4558.42	1.56	247.62	4557.90	52.06	-24.06	-46.23	0.75	52.12	242.50
4585.88	1.66	249.19	4585.35	52.84	-24.35	-46.95	0.38	52.88	242.59
4609.54	1.65	255.42	4609.00	53.51	-24.56	-47.59	0.76	53.56	242.71
4636.34	1.44	258.30	4635.79	54.22	-24.72	-48.30	0.84	54.26	242.89
4659.90	1.37	253.53	4659.34	54.78	-24.86	-48.86	0.57	54.82	243.03
4683.53	1.26	247.84	4682.97	55.32	-25.04	-49.37	0.73	55.35	243.11
4709.65	1.44	250.05	4709.08	55.93	-25.26	-49.94	0.74	55.96	243.17
4733.77	1.42	247.58	4733.19	56.53	-25.48	-50.50	0.28	56.56	243.23
4761.13	1.32	245.73	4760.55	57.19	-25.73	-51.10	0.40	57.21	243.27
4784.69	1.45	246.27	4784.10	57.75	-25.96	-51.62	0.56	57.78	243.30
4811.41	1.47	251.47	4810.81	58.43	-26.21	-52.25	0.50	58.46	243.36
4834.98	1.42	255.04	4834.37	59.02	-26.38	-52.82	0.44	59.04	243.46
4858.43	1.47	254.97	4857.81	59.60	-26.53	-53.39	0.22	59.62	243.58
4885.76	1.62	257.67	4885.13	60.32	-26.71	-54.11	0.59	60.34	243.73
4908.67	1.65	257.75	4908.04	60.96	-26.85	-54.75	0.15	60.97	243.88
4935.97	1.51	258.67	4935.33	61.69	-27.00	-55.48	0.53	61.70	244.05
4959.42	1.64	260.66	4958.77	62.32	-27.11	-56.11	0.61	62.32	244.21
4985.98	1.48	260.97	4985.31	63.01	-27.23	-56.83	0.61	63.01	244.40
5009.37	1.25	264.23	5008.70	63.54	-27.30	-57.38	1.03	63.54	244.55
5036.84	1.19	262.77	5036.17	64.10	-27.37	-57.96	0.23	64.10	244.72
5059.59	1.14	263.90	5058.91	64.53	-27.42	-58.42	0.26	64.53	244.85
5086.84	1.04	263.15	5086.16	65.02	-27.48	-58.93	0.38	65.02	245.00
5110.22	1.08	249.60	5109.53	65.45	-27.58	-59.35	1.08	65.45	245.07
5133.55	0.89	248.33	5132.85	65.84	-27.73	-59.72	0.83	65.84	245.10
5159.93	0.78	236.38	5159.24	66.23	-27.90	-60.06	0.77	66.23	245.08
5186.53	0.88	233.08	5185.83	66.61	-28.12	-60.38	0.42	66.61	245.02
5211.22	1.00	247.76	5210.52	67.01	-28.32	-60.73	1.09	67.01	245.00
5236.83	0.69	255.66	5236.13	67.39	-28.44	-61.09	1.30	67.39	245.03
5250.06	0.55	248.28	5249.36	67.53	-28.49	-61.22	1.24	67.53	245.05