

KP KAUFMANN COMPANY INC.

# SURVEY REPORT

UPRR 43 PAN AM B #6

KP

10/5/2018



The **Ultimate Partner** In Wellbore Placement

CUSTOMER **KP Kaufmann Company Inc.**  
PROJECT **KPK 10-5-18**  
FIELD **Spindle**

SDI JOB NO. **OP.013575**  
SDI DISTRICT **Casper**  
SDI KIT/UNIT

### SITE INFORMATION

Site Name **Weld County, Colorado**  
Lat/Long **40.074599° N, 104.987754° W**  
Northing  
Easting

Section **SWSE 3**  
Township **1N**  
Range **68W 6PM**

### MAP INFORMATION

North Reference **True North**  
Grid Correction  
System  
Datum  
Map Zone



### WELL INFORMATION

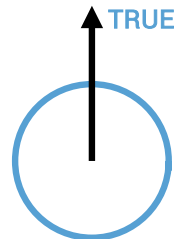
Lat/Long **40.074599° N, 104.987754° W**  
Northing  
Easting  
UWI **05-123-09429 UWBI 05-123-09429**

### DEPTH AND ELEVATION REFERENCE

Ground Level **5066 ft above Mean Sea Level**  
Reference Datum **GL**  
Reference Height **0 ft above G.L.**  
Reference Elevation **5066 ft**

### VERTICAL SECTION REFERENCE

+N/-S **0 ft**  
+E/-W **0 ft**  
Proposal Direction **328.03°**  
Calculation Method **Minimum Curvature**



### LOCAL GRAVITY REFERENCE INFORMATION

Local Gravity **999.030 mG [computed]**

### WELL NOTES

Memory gyro ran in 2 3/8 tubing  
571 fsl,2159fel

### OPERATORS

Jon Valenzuela

SDI Operator Name (Printed)

SIGNATURE

DATE

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
25.00	0.23	240.55	25.00	0.00	-0.02	-0.04	0.90	0.05	240.55
50.00	0.45	240.55	50.00	0.01	-0.10	-0.17	0.90	0.20	240.55
75.00	0.68	240.55	75.00	0.02	-0.22	-0.38	0.90	0.44	240.55
100.00	0.90	240.55	100.00	0.03	-0.39	-0.68	0.90	0.79	240.55
125.00	0.93	246.50	124.99	0.07	-0.56	-1.04	0.40	1.18	241.57
150.00	0.97	252.03	149.99	0.15	-0.71	-1.43	0.40	1.60	243.57
175.00	1.02	257.08	174.99	0.28	-0.82	-1.85	0.40	2.02	245.92
200.00	1.07	261.66	199.98	0.44	-0.91	-2.29	0.40	2.47	248.39
225.00	1.05	263.92	224.98	0.64	-0.97	-2.75	0.19	2.92	250.65
250.00	1.02	266.29	249.97	0.84	-1.00	-3.20	0.19	3.35	252.57
275.00	1.00	268.76	274.97	1.06	-1.02	-3.64	0.19	3.78	254.29
300.00	0.98	271.34	299.97	1.29	-1.02	-4.07	0.19	4.20	255.89
325.00	0.92	277.70	324.96	1.53	-0.99	-4.49	0.48	4.60	257.54
350.00	0.88	284.78	349.96	1.80	-0.92	-4.87	0.48	4.96	259.36
375.00	0.85	292.48	374.96	2.09	-0.80	-5.23	0.48	5.29	261.35
400.00	0.84	300.56	399.95	2.41	-0.63	-5.56	0.48	5.60	263.52
425.00	0.82	301.92	424.95	2.73	-0.44	-5.87	0.10	5.89	265.68
450.00	0.81	303.34	449.95	3.05	-0.25	-6.17	0.10	6.17	267.66
475.00	0.79	304.82	474.95	3.37	-0.06	-6.46	0.10	6.46	269.50
500.00	0.77	306.36	499.94	3.69	0.14	-6.74	0.10	6.74	271.20
525.00	0.80	306.66	524.94	4.01	0.35	-7.01	0.09	7.02	272.82
550.00	0.82	306.94	549.94	4.33	0.56	-7.29	0.09	7.31	274.37
575.00	0.84	307.21	574.94	4.67	0.78	-7.58	0.09	7.62	275.84
600.00	0.87	307.47	599.93	5.02	1.00	-7.88	0.09	7.94	277.25
625.00	0.83	312.63	624.93	5.37	1.24	-8.16	0.34	8.26	278.64
650.00	0.81	318.19	649.93	5.72	1.49	-8.41	0.34	8.55	280.07
675.00	0.79	324.07	674.93	6.07	1.76	-8.63	0.34	8.81	281.55
700.00	0.78	330.16	699.92	6.41	2.05	-8.82	0.34	9.05	283.09
725.00	0.85	327.42	724.92	6.76	2.35	-9.00	0.32	9.30	284.66
750.00	0.92	325.10	749.92	7.15	2.67	-9.22	0.32	9.60	286.18
775.00	0.99	323.12	774.91	7.57	3.01	-9.46	0.32	9.93	287.66

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
800.00	1.07	321.41	799.91	8.01	3.37	-9.74	0.32	10.30	289.08
825.00	1.07	320.76	824.91	8.48	3.73	-10.03	0.05	10.70	290.41
850.00	1.06	320.10	849.90	8.94	4.09	-10.33	0.05	11.11	291.60
875.00	1.06	319.44	874.90	9.39	4.44	-10.63	0.05	11.52	292.69
900.00	1.06	318.77	899.89	9.85	4.79	-10.93	0.05	11.93	293.68
925.00	1.07	322.95	924.89	10.31	5.15	-11.22	0.31	12.35	294.66
950.00	1.08	327.02	949.88	10.78	5.54	-11.49	0.31	12.75	295.73
975.00	1.10	330.97	974.88	11.26	5.94	-11.73	0.31	13.15	296.87
1000.00	1.13	334.75	999.87	11.74	6.38	-11.96	0.31	13.55	298.08
1025.00	1.10	333.12	1024.87	12.22	6.81	-12.17	0.17	13.95	299.25
1050.00	1.08	331.41	1049.87	12.70	7.24	-12.39	0.17	14.35	300.28
1075.00	1.05	329.61	1074.86	13.16	7.64	-12.62	0.17	14.75	301.19
1100.00	1.03	327.73	1099.86	13.62	8.03	-12.85	0.17	15.15	301.98
1125.00	1.07	328.66	1124.85	14.07	8.41	-13.10	0.17	15.57	302.72
1150.00	1.11	329.53	1149.85	14.55	8.82	-13.34	0.17	15.99	303.48
1175.00	1.15	330.34	1174.84	15.04	9.25	-13.58	0.17	16.43	304.24
1200.00	1.19	331.09	1199.84	15.54	9.69	-13.83	0.17	16.89	305.01
1225.00	1.16	332.09	1224.83	16.06	10.14	-14.08	0.13	17.35	305.77
1250.00	1.14	333.13	1249.83	16.56	10.59	-14.31	0.13	17.80	306.50
1275.00	1.11	334.21	1274.82	17.04	11.03	-14.53	0.13	18.24	307.20
1300.00	1.09	335.34	1299.82	17.52	11.46	-14.73	0.13	18.66	307.88
1325.00	1.09	337.20	1324.81	17.99	11.90	-14.92	0.14	19.09	308.56
1350.00	1.10	339.05	1349.81	18.46	12.34	-15.10	0.14	19.50	309.26
1375.00	1.10	340.89	1374.81	18.93	12.79	-15.26	0.14	19.92	309.96
1400.00	1.10	342.71	1399.80	19.40	13.25	-15.42	0.14	20.33	310.67
1425.00	1.03	340.30	1424.80	19.85	13.69	-15.56	0.33	20.73	311.34
1450.00	0.97	337.54	1449.79	20.28	14.10	-15.72	0.33	21.11	311.89
1475.00	0.90	334.37	1474.79	20.69	14.47	-15.89	0.33	21.49	312.33
1500.00	0.84	330.73	1499.79	21.06	14.81	-16.06	0.33	21.84	312.67
1525.00	0.86	331.44	1524.78	21.43	15.13	-16.24	0.08	22.20	312.98
1550.00	0.87	332.13	1549.78	21.81	15.46	-16.42	0.08	22.55	313.29
1575.00	0.89	332.79	1574.78	22.19	15.80	-16.59	0.08	22.92	313.60

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
1600.00	0.91	333.42	1599.77	22.58	16.15	-16.77	0.08	23.29	313.92
1625.00	0.85	333.57	1624.77	22.97	16.50	-16.94	0.23	23.65	314.23
1650.00	0.79	333.74	1649.77	23.32	16.82	-17.10	0.23	23.99	314.52
1675.00	0.73	333.94	1674.77	23.65	17.12	-17.25	0.23	24.30	314.78
1700.00	0.68	334.17	1699.76	23.96	17.39	-17.38	0.23	24.59	315.02
1725.00	0.68	337.62	1724.76	24.25	17.66	-17.50	0.16	24.87	315.26
1750.00	0.68	341.08	1749.76	24.54	17.94	-17.61	0.16	25.14	315.53
1775.00	0.68	344.52	1774.76	24.83	18.22	-17.70	0.16	25.40	315.84
1800.00	0.69	347.92	1799.76	25.11	18.51	-17.77	0.16	25.66	316.17
1825.00	0.69	345.59	1824.76	25.39	18.80	-17.84	0.11	25.92	316.51
1850.00	0.69	343.28	1849.75	25.68	19.09	-17.92	0.11	26.18	316.82
1875.00	0.70	341.01	1874.75	25.98	19.38	-18.01	0.11	26.46	317.10
1900.00	0.70	338.77	1899.75	26.28	19.67	-18.11	0.11	26.74	317.36
1925.00	0.66	339.34	1924.75	26.57	19.95	-18.22	0.16	27.02	317.59
1950.00	0.62	339.99	1949.75	26.85	20.21	-18.32	0.16	27.28	317.81
1975.00	0.58	340.72	1974.75	27.10	20.46	-18.41	0.16	27.52	318.02
2000.00	0.54	341.57	1999.74	27.34	20.69	-18.49	0.16	27.75	318.22
2025.00	0.58	333.53	2024.74	27.59	20.92	-18.58	0.36	27.98	318.39
2050.00	0.64	326.66	2049.74	27.85	21.15	-18.72	0.36	28.24	318.49
2075.00	0.70	320.90	2074.74	28.14	21.38	-18.89	0.36	28.53	318.55
2100.00	0.76	316.07	2099.74	28.45	21.62	-19.10	0.36	28.85	318.55
2125.00	0.76	315.15	2124.74	28.78	21.86	-19.33	0.05	29.18	318.51
2150.00	0.75	314.21	2149.73	29.10	22.09	-19.56	0.05	29.51	318.47
2175.00	0.75	313.27	2174.73	29.41	22.31	-19.80	0.05	29.83	318.42
2200.00	0.75	312.32	2199.73	29.73	22.54	-20.04	0.05	30.16	318.36
2225.00	0.72	318.29	2224.73	30.04	22.76	-20.26	0.32	30.48	318.32
2250.00	0.71	324.57	2249.73	30.35	23.01	-20.46	0.32	30.79	318.36
2275.00	0.70	331.05	2274.72	30.66	23.27	-20.62	0.32	31.09	318.45
2300.00	0.71	337.54	2299.72	30.96	23.54	-20.76	0.32	31.39	318.60
2325.00	0.70	337.85	2324.72	31.26	23.83	-20.87	0.04	31.68	318.78
2350.00	0.69	338.17	2349.72	31.56	24.11	-20.98	0.04	31.96	318.96
2375.00	0.68	338.50	2374.72	31.85	24.38	-21.09	0.04	32.24	319.14

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
2400.00	0.67	338.84	2399.71	32.14	24.66	-21.20	0.04	32.52	319.31
2425.00	0.68	341.82	2424.71	32.43	24.93	-21.30	0.15	32.79	319.49
2450.00	0.69	344.72	2449.71	32.72	25.22	-21.39	0.15	33.06	319.70
2475.00	0.70	347.52	2474.71	33.00	25.51	-21.46	0.15	33.34	319.93
2500.00	0.72	350.21	2499.71	33.29	25.82	-21.52	0.15	33.61	320.19
2525.00	0.69	348.27	2524.71	33.58	26.12	-21.58	0.13	33.88	320.44
2550.00	0.67	346.22	2549.70	33.86	26.41	-21.64	0.13	34.14	320.67
2575.00	0.65	344.02	2574.70	34.14	26.69	-21.71	0.13	34.41	320.86
2600.00	0.63	341.69	2599.70	34.41	26.95	-21.80	0.13	34.66	321.04
2625.00	0.62	349.23	2624.70	34.67	27.22	-21.87	0.33	34.91	321.22
2650.00	0.63	356.82	2649.70	34.91	27.49	-21.90	0.33	35.15	321.46
2675.00	0.64	4.21	2674.70	35.15	27.76	-21.90	0.33	35.36	321.74
2700.00	0.66	11.18	2699.69	35.37	28.05	-21.86	0.33	35.56	322.07
2725.00	0.63	6.35	2724.69	35.58	28.32	-21.81	0.27	35.75	322.40
2750.00	0.59	0.91	2749.69	35.79	28.59	-21.80	0.27	35.95	322.68
2775.00	0.56	354.86	2774.69	36.01	28.84	-21.81	0.27	36.16	322.91
2800.00	0.54	348.25	2799.69	36.23	29.08	-21.84	0.27	36.37	323.09
2825.00	0.56	350.06	2824.69	36.46	29.31	-21.89	0.12	36.58	323.25
2850.00	0.59	351.72	2849.69	36.69	29.56	-21.93	0.12	36.81	323.43
2875.00	0.61	353.26	2874.69	36.92	29.82	-21.96	0.12	37.03	323.63
2900.00	0.64	354.67	2899.68	37.17	30.09	-21.99	0.12	37.27	323.84
2925.00	0.59	352.42	2924.68	37.41	30.36	-22.02	0.19	37.50	324.05
2950.00	0.55	349.83	2949.68	37.64	30.60	-22.06	0.19	37.72	324.22
2975.00	0.51	346.84	2974.68	37.86	30.83	-22.10	0.19	37.94	324.36
3000.00	0.48	343.38	2999.68	38.07	31.04	-22.16	0.19	38.14	324.48
3025.00	0.51	342.56	3024.68	38.27	31.25	-22.22	0.12	38.34	324.58
3050.00	0.54	341.83	3049.68	38.49	31.46	-22.29	0.12	38.56	324.68
3075.00	0.56	341.17	3074.68	38.73	31.69	-22.37	0.12	38.79	324.78
3100.00	0.59	340.58	3099.67	38.97	31.93	-22.45	0.12	39.03	324.89
3125.00	0.55	349.18	3124.67	39.21	32.17	-22.52	0.38	39.27	325.01
3150.00	0.52	358.95	3149.67	39.42	32.40	-22.54	0.38	39.47	325.17
3175.00	0.51	9.48	3174.67	39.60	32.63	-22.52	0.38	39.65	325.38



MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
3200.00	0.52	20.12	3199.67	39.76	32.84	-22.47	0.38	39.79	325.62
3225.00	0.55	21.00	3224.67	39.90	33.06	-22.39	0.15	39.93	325.90
3250.00	0.59	21.76	3249.67	40.05	33.29	-22.29	0.15	40.07	326.19
3275.00	0.63	22.44	3274.67	40.20	33.54	-22.19	0.15	40.22	326.51
3300.00	0.67	23.04	3299.66	40.37	33.80	-22.08	0.15	40.38	326.84
3325.00	0.63	22.82	3324.66	40.53	34.06	-21.97	0.15	40.54	327.17
3350.00	0.59	22.58	3349.66	40.68	34.31	-21.87	0.15	40.69	327.48
3375.00	0.55	22.31	3374.66	40.83	34.54	-21.78	0.15	40.83	327.77
3400.00	0.52	21.99	3399.66	40.97	34.76	-21.69	0.15	40.97	328.04
3425.00	0.55	25.64	3424.66	41.10	34.97	-21.59	0.19	41.10	328.30
3450.00	0.58	28.87	3449.66	41.22	35.19	-21.48	0.19	41.23	328.60
3475.00	0.62	31.74	3474.66	41.34	35.41	-21.35	0.19	41.35	328.92
3500.00	0.66	34.28	3499.65	41.46	35.65	-21.20	0.19	41.47	329.26
3525.00	0.57	32.79	3524.65	41.57	35.87	-21.05	0.37	41.59	329.59
3550.00	0.48	30.72	3549.65	41.67	36.06	-20.93	0.37	41.69	329.87
3575.00	0.39	27.69	3574.65	41.76	36.22	-20.84	0.37	41.79	330.09
3600.00	0.30	22.88	3599.65	41.84	36.36	-20.77	0.37	41.87	330.26
3625.00	0.29	21.16	3624.65	41.92	36.48	-20.72	0.04	41.95	330.40
3650.00	0.29	19.37	3649.65	42.00	36.60	-20.68	0.04	42.04	330.53
3675.00	0.28	17.50	3674.65	42.07	36.71	-20.64	0.04	42.12	330.65
3700.00	0.28	15.56	3699.65	42.16	36.83	-20.61	0.04	42.20	330.77
3725.00	0.29	9.42	3724.65	42.24	36.95	-20.58	0.14	42.30	330.88
3750.00	0.31	4.03	3749.65	42.35	37.08	-20.56	0.14	42.40	330.99
3775.00	0.34	359.35	3774.65	42.47	37.23	-20.56	0.14	42.53	331.09
3800.00	0.36	355.29	3799.65	42.60	37.38	-20.57	0.14	42.66	331.18
3825.00	0.35	359.02	3824.65	42.74	37.53	-20.58	0.11	42.80	331.27
3850.00	0.34	3.01	3849.65	42.86	37.69	-20.57	0.11	42.94	331.37
3875.00	0.33	7.26	3874.65	42.98	37.83	-20.56	0.11	43.06	331.48
3900.00	0.32	11.73	3899.65	43.09	37.97	-20.54	0.11	43.17	331.59
3925.00	0.28	353.74	3924.65	43.19	38.10	-20.53	0.41	43.28	331.68
3950.00	0.28	332.78	3949.65	43.31	38.22	-20.56	0.41	43.40	331.72
3975.00	0.31	313.65	3974.65	43.43	38.32	-20.64	0.41	43.52	331.69

MD ft	INC deg	AZIM deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	DLS °/100ft	CLOSURE DIST ft	CLOSURE DIR deg
4000.00	0.37	299.27	3999.64	43.57	38.40	-20.76	0.41	43.65	331.61
4025.00	0.44	295.30	4024.64	43.72	38.48	-20.92	0.32	43.80	331.47
4050.00	0.52	292.50	4049.64	43.89	38.57	-21.11	0.32	43.97	331.31
4075.00	0.60	290.42	4074.64	44.09	38.66	-21.33	0.32	44.15	331.11
4100.00	0.67	288.82	4099.64	44.31	38.75	-21.59	0.32	44.36	330.87
4125.00	0.65	286.36	4124.64	44.53	38.84	-21.87	0.14	44.57	330.61
4150.00	0.63	283.73	4149.64	44.73	38.91	-22.14	0.14	44.77	330.36
4175.00	0.61	280.92	4174.64	44.92	38.97	-22.40	0.14	44.95	330.10
4200.00	0.59	277.93	4199.63	45.09	39.01	-22.66	0.14	45.11	329.84
4225.00	0.61	281.74	4224.63	45.27	39.05	-22.92	0.18	45.28	329.59
4250.00	0.63	285.30	4249.63	45.46	39.12	-23.19	0.18	45.47	329.34
4275.00	0.66	288.62	4274.63	45.67	39.20	-23.45	0.18	45.68	329.11
4300.00	0.68	291.70	4299.63	45.90	39.30	-23.73	0.18	45.91	328.88
4325.00	0.62	297.79	4324.63	46.14	39.42	-23.99	0.36	46.14	328.68
4350.00	0.57	305.05	4349.63	46.37	39.55	-24.21	0.36	46.38	328.53
4375.00	0.53	313.52	4374.62	46.60	39.71	-24.40	0.36	46.60	328.43
4400.00	0.51	323.08	4399.62	46.82	39.88	-24.55	0.36	46.83	328.38
4425.00	0.45	324.61	4424.62	47.03	40.04	-24.67	0.24	47.03	328.36
4450.00	0.39	326.60	4449.62	47.22	40.20	-24.78	0.24	47.22	328.35
4475.00	0.34	329.27	4474.62	47.38	40.33	-24.86	0.24	47.38	328.35
4500.00	0.28	333.02	4499.62	47.51	40.45	-24.92	0.24	47.51	328.36
4525.00	0.23	330.61	4524.62	47.62	40.54	-24.98	0.22	47.62	328.37
4550.00	0.17	326.75	4549.62	47.71	40.62	-25.02	0.22	47.71	328.37
4575.00	0.12	319.66	4574.62	47.77	40.67	-25.06	0.22	47.77	328.36
4600.00	0.08	303.50	4599.62	47.81	40.70	-25.09	0.22	47.81	328.35
4625.00	0.10	279.55	4624.62	47.84	40.71	-25.13	0.18	47.84	328.32
4650.00	0.14	266.41	4649.62	47.87	40.72	-25.18	0.18	47.87	328.27
4675.00	0.18	258.86	4674.62	47.90	40.71	-25.25	0.18	47.90	328.19
4700.00	0.22	254.13	4699.62	47.93	40.69	-25.33	0.18	47.93	328.09
4725.00	0.27	320.63	4724.62	48.00	40.72	-25.41	1.09	48.00	328.03
4738.00	0.38	336.61	4737.62	48.07	40.78	-25.45	1.09	48.07	328.03



