

K. P. Kauffman Company, Inc.
Front Range #11-17-5
NESW section 17-T4N-R66W
Weld Co., Colorado
Directional plot

Well Plan

Well Name	Vertical Section Azimuth	Units
Front Range #11-17-5	326.74	ft,°/100ft

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MD*	INC*	AZI*	TVD*	N*	E*	DLS*	Vert. Sec.*	Description	Reference Note
0.00	0.00	0.0	0.00	0.00	0.00		0.00	tie point RKB	
100.00	0.00	0.0	100.00	0.00	0.00	0.00	0.00	vertical	
200.00	0.00	0.0	200.00	0.00	0.00	0.00	0.00	vertical	
300.00	0.00	0.0	300.00	0.00	0.00	0.00	0.00	vertical	
400.00	0.00	0.0	400.00	0.00	0.00	0.00	0.00	vertical	
500.00	0.00	0.0	500.00	0.00	0.00	0.00	0.00	vertical	
600.00	0.00	0.0	600.00	0.00	0.00	0.00	0.00	vertical	
700.00	0.00	0.0	700.00	0.00	0.00	0.00	0.00	vertical	
800.00	0.00	0.0	800.00	0.00	0.00	0.00	0.00	vertical	
900.00	0.00	0.0	900.00	0.00	0.00	0.00	0.00	vertical	
1000.00	0.00	0.0	1000.00	0.00	0.00	0.00	0.00	vertical	
1100.00	0.00	0.0	1100.00	0.00	0.00	0.00	0.00	vertical	
1200.00	0.00	0.0	1200.00	0.00	0.00	0.00	0.00	vertical	
1300.00	0.00	0.0	1300.00	0.00	0.00	0.00	0.00	vertical	
1400.00	0.00	0.0	1400.00	0.00	0.00	0.00	0.00	vertical	
1500.00	0.00	0.0	1500.00	0.00	0.00	0.00	0.00	vertical	
1550.00	0.00	0.0	1550.00	0.00	0.00	0.00	0.00	End vertical KOP	
1600.00	3.75	326.7	1599.96	1.37	-0.90	7.50	1.64	build	
1700.00	11.25	326.7	1699.04	12.27	-8.05	7.50	14.68	build	
1800.00	18.75	326.7	1795.56	33.90	-22.23	7.50	40.54	build	
1900.00	26.25	326.7	1887.88	65.88	-43.21	7.50	78.78	build	
2000.00	33.75	326.7	1974.42	107.66	-70.61	7.50	128.75	build	
2100.00	41.25	326.7	2053.70	158.53	-103.97	7.50	189.58	build	
2200.00	48.75	326.7	2124.36	217.61	-142.73	7.50	260.24	build	
2300.00	56.25	326.7	2185.20	283.90	-186.21	7.50	339.52	build	
2400.00	63.75	326.7	2235.16	356.27	-233.67	7.50	426.06	build	
2500.00	71.25	326.7	2273.40	433.47	-284.30	7.50	518.38	build	
2600.00	78.75	326.7	2299.26	514.18	-337.24	7.50	614.91	build	
2653.87	82.79	326.7	2307.90	558.63	-366.39	7.50	668.06	End build TOP OF BUILD	

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	Vert. Sec.*	Description	Reference Note
2700.00	81.05	326.7	2314.39	596.82	-391.44	3.77	713.74	drop	
2800.00	77.28	326.7	2333.18	678.93	-445.30	3.77	811.94	drop	
2900.00	73.51	326.7	2358.40	759.84	-498.36	3.77	908.69	drop	
3000.00	69.74	326.7	2389.92	839.18	-550.40	3.77	1003.57	drop	
3100.00	65.96	326.7	2427.62	916.61	-601.18	3.77	1096.17	drop	
3200.00	62.19	326.7	2471.32	991.80	-650.50	3.77	1186.10	drop	
3300.00	58.42	326.7	2520.85	1064.43	-698.13	3.77	1272.95	drop	
3400.00	54.65	326.7	2575.98	1134.18	-743.88	3.77	1356.36	drop	
3500.00	50.88	326.7	2636.48	1200.74	-787.53	3.77	1435.96	drop	
3600.00	47.11	326.7	2702.08	1263.83	-828.91	3.77	1511.41	drop	
3700.00	43.34	326.7	2772.50	1323.17	-867.84	3.77	1582.38	drop	
3800.00	39.56	326.7	2847.44	1378.52	-904.14	3.77	1648.57	drop	
3900.00	35.79	326.7	2926.57	1429.62	-937.65	3.77	1709.68	drop	
4000.00	32.02	326.7	3009.55	1476.26	-968.24	3.77	1765.46	drop	
4100.00	28.25	326.7	3096.02	1518.23	-995.77	3.77	1815.65	drop	
4200.00	24.48	326.7	3185.60	1555.36	-1020.12	3.77	1860.05	drop	
4300.00	20.71	326.7	3277.91	1587.48	-1041.19	3.77	1898.47	drop	
4400.00	16.94	326.7	3372.54	1614.45	-1058.88	3.77	1930.72	drop	
4500.00	13.17	326.7	3469.10	1636.16	-1073.12	3.77	1956.69	drop	
4600.00	9.39	326.7	3567.15	1652.52	-1083.85	3.77	1976.24	drop	
4700.00	5.62	326.7	3666.27	1663.44	-1091.01	3.77	1989.31	drop	
4773.94	2.83	326.7	3740.00	1668.00	-1094.00	3.77	1994.76	End drop	TOP OF DROP
4800.00	2.57	326.7	3766.03	1669.03	-1094.67	1.02	1995.99	drop/invert	
4900.00	1.55	326.7	3865.97	1672.03	-1096.64	1.02	1999.58	drop/invert	
5000.00	0.53	326.7	3965.95	1673.54	-1097.63	1.02	2001.39	drop/invert	
5100.00	0.49	146.7	4065.95	1673.57	-1097.65	1.02	2001.41	drop/invert	
5200.00	1.52	146.7	4165.93	1672.10	-1096.69	1.02	1999.66	drop/invert	
5300.00	2.54	146.7	4265.87	1669.14	-1094.75	1.02	1996.12	drop/invert	
5329.16	2.83	146.7	4295.00	1668.00	-1094.00	1.02	1994.76	End drop/invert	TOP OF SUSSEX
5400.00	1.80	146.7	4365.78	1665.60	-1092.43	1.45	1991.89	drop/invert	
5500.00	0.35	146.7	4465.76	1664.03	-1091.40	1.45	1990.01	drop/invert	

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	Vert. Sec.*	Description	Reference Note
5600.00	1.10	326.7	4565.75	1664.57	-1091.75	1.45	1990.66	drop/invert	
5700.00	2.55	326.7	4665.70	1667.24	-1093.50	1.45	1993.85	drop/invert	
5719.32	2.83	326.7	4685.00	1668.00	-1094.00	1.45	1994.76	End drop/invert	TOP OF SHANNON
5800.00	2.62	326.7	4765.59	1671.21	-1096.11	0.26	1998.60	drop/invert	
5900.00	2.36	326.7	4865.49	1674.85	-1098.49	0.26	2002.95	drop/invert	
6000.00	2.10	326.7	4965.42	1678.11	-1100.63	0.26	2006.85	drop/invert	
6100.00	1.84	326.7	5065.36	1680.99	-1102.52	0.26	2010.29	drop/invert	
6200.00	1.58	326.7	5165.31	1683.49	-1104.16	0.26	2013.28	drop/invert	
6300.00	1.32	326.7	5265.28	1685.60	-1105.55	0.26	2015.81	drop/invert	
6400.00	1.06	326.7	5365.26	1687.34	-1106.69	0.26	2017.89	drop/invert	
6500.00	0.80	326.7	5465.24	1688.70	-1107.58	0.26	2019.51	drop/invert	
6600.00	0.54	326.7	5565.24	1689.68	-1108.22	0.26	2020.68	drop/invert	
6700.00	0.28	326.7	5665.23	1690.28	-1108.61	0.26	2021.40	drop/invert	
6800.00	0.02	326.7	5765.23	1690.49	-1108.75	0.26	2021.66	drop/invert	
6900.00	0.24	146.7	5865.23	1690.33	-1108.65	0.26	2021.46	drop/invert	
7000.00	0.50	146.7	5965.23	1689.79	-1108.29	0.26	2020.81	drop/invert	
7100.00	0.76	146.7	6065.23	1688.87	-1107.68	0.26	2019.71	drop/invert	
7200.00	1.02	146.7	6165.21	1687.56	-1106.83	0.26	2018.15	drop/invert	
7300.00	1.28	146.7	6265.19	1685.88	-1105.73	0.26	2016.14	drop/invert	
7400.00	1.54	146.7	6365.16	1683.82	-1104.37	0.26	2013.67	drop/invert	
7500.00	1.80	146.7	6465.12	1681.37	-1102.77	0.26	2010.75	drop/invert	
7600.00	2.07	146.7	6565.06	1678.55	-1100.92	0.26	2007.38	drop/invert	
7700.00	2.33	146.7	6664.99	1675.35	-1098.82	0.26	2003.54	drop/invert	
7800.00	2.59	146.7	6764.90	1671.76	-1096.47	0.26	1999.26	drop/invert	
7895.21	2.83	146.7	6860.00	1668.00	-1094.00	0.26	1994.76	End drop/invert	TOP OF NIOBRARA
7900.00	2.75	146.7	6864.78	1667.80	-1093.87	1.69	1994.52	drop/invert	
8000.00	1.06	146.7	6964.73	1665.02	-1092.05	1.69	1991.20	drop/invert	
8100.00	0.63	326.7	7064.72	1664.71	-1091.84	1.69	1990.82	drop/invert	
8200.00	2.32	326.7	7164.68	1666.86	-1093.25	1.69	1993.39	drop/invert	
8230.35	2.83	326.7	7195.00	1668.00	-1094.00	1.69	1994.76	End drop/invert	TOP OF CODELL
8300.00	2.05	326.7	7264.59	1670.48	-1095.63	1.12	1997.73	drop/invert	

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	Vert. Sec.*	Description	Reference Note
8400.00	0.93	326.7	7364.55	1672.66	-1097.06	1.12	2000.33	drop/invert	
8500.00	0.19	146.7	7464.55	1673.20	-1097.41	1.12	2000.98	drop/invert	
8600.00	1.31	146.7	7564.54	1672.10	-1096.69	1.12	1999.66	drop/invert	
8700.00	2.44	146.7	7664.49	1669.37	-1094.90	1.12	1996.39	drop/invert	
8735.55	2.83	146.7	7700.00	1668.00	-1094.00	1.12	1994.76	End drop/invert	TOP OF J-SD
8800.00	0.75	146.7	7764.41	1666.32	-1092.90	3.24	1992.74	drop/invert	
8900.00	2.49	326.7	7864.39	1667.59	-1093.73	3.24	1994.26	drop/invert	
8910.62	2.83	326.7	7875.00	1668.00	-1094.00	3.24	1994.76	End drop/invert	TD

DIRECTIONAL PLAN

WELL LOCATION CERTIFICATE

THIS MAP IS A GIS EXHIBIT AND DOES NOT REPRESENT A BOUNDARY SURVEY.

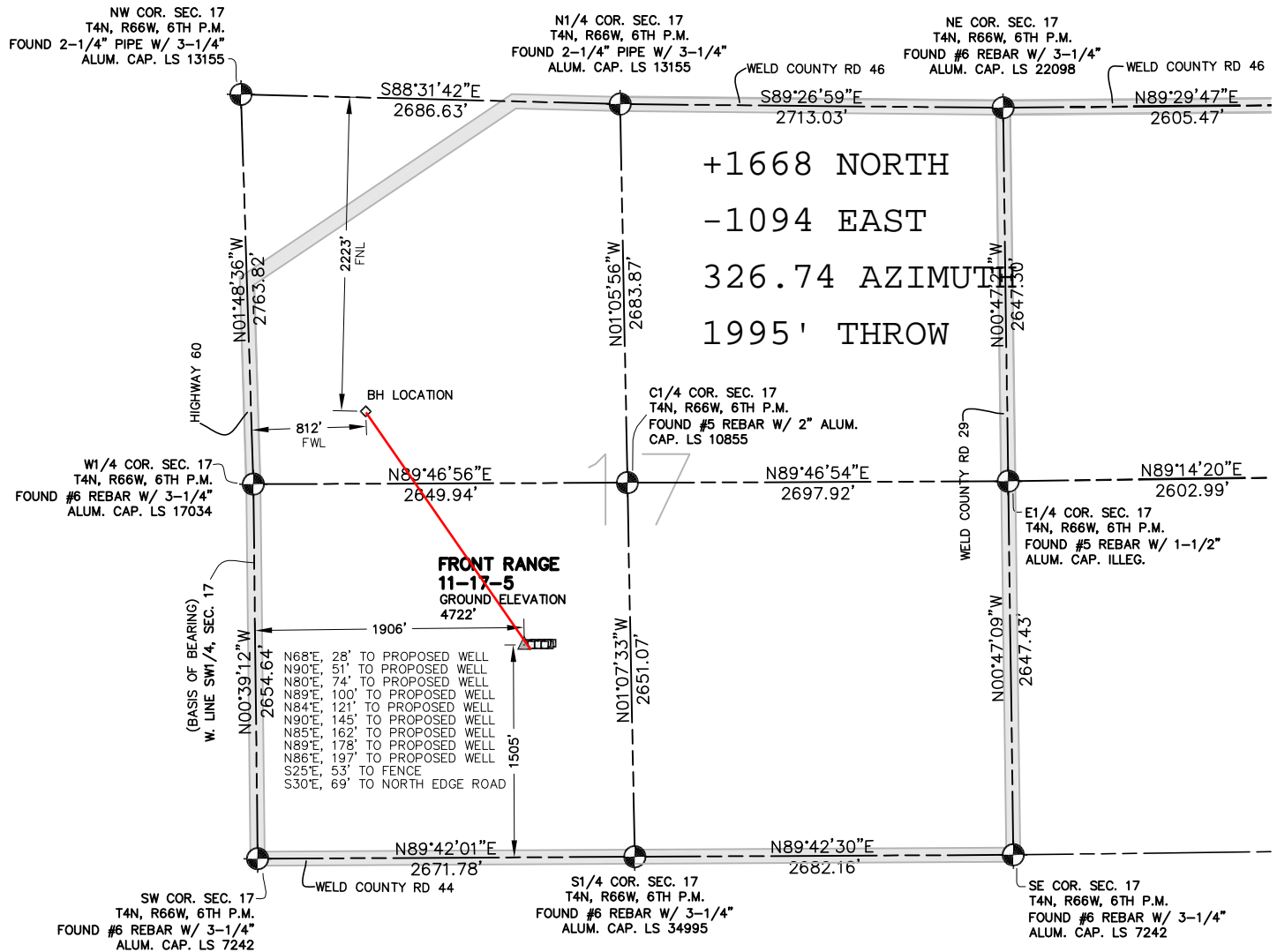


EXHIBIT MAP



WELL LOCATION CERTIFICATE

IN ACCORDANCE WITH A REQUEST FROM SHERRY GLASS OF KP KAUFFMAN INC., CIVIL ARTS-DREXEL GROUP, INC. HAS DETERMINED THE LOCATION OF FRONT RANGE 11-17-5 WELL SITE TO BE 1906' FWL AND 1505' FSL AS MEASURED AT NINETY (90) DEGREES FROM THE SECTION LINES OF SECTION 17, T4N, R66W, OF THE 6TH P.M., WELD COUNTY, CO.

LEGEND

- = FOUND SURVEY MONUMENT
- = ROAD
- (C) = CALCULATED DIMENSION
- ▲ = PROPOSED WELL LOCATION
- ◇ = BOTTOM OF HOLE LOCATION
- = OTHER PROPOSED WELL LOCATION
- = EXISTING WELL LOCATION

NOTES

- BEARINGS SHOWN ON THIS MAP ARE BASED UPON GPS OBSERVATIONS MADE ON 03/01/2010 BY KIPPER GOLDSBERRY BETWEEN THE SOUTHWEST CORNER AND THE W1/4 CORNER OF SECTION 17, T4N, R66W, OF THE 6TH P.M., HAVING A BEARING OF N00°39'12"W, AS MONUMENTED AND SHOWN HEREON.
- ELEVATIONS ARE BASED UPON NAVD 88 DATUM.
- THE LOCATION FALLS IN AN AGRICULTURAL FIELD.

PROPOSED SURFACE HOLE DATA

(NAD 83)
 LATITUDE: 40.30854 N
 LONGITUDE: 104.80424 W
 PDOP: <6

NOTICE

ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVERED SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

I HEREBY CERTIFY THAT THIS WELL LOCATION CERTIFICATE WAS PREPARED UNDER MY RESPONSIBLE CHARGE ON 04/12/2010 FOR AND ON BEHALF OF KP KAUFFMAN, INC. THAT IT IS NOT A LAND SURVEY PLAT OR AN IMPROVEMENT SURVEY PLAT, AND THAT IT IS NOT TO BE RELIED UPON FOR ESTABLISHMENT OF FENCE, BUILDING OR OTHER FUTURE IMPROVEMENT LINES.

PETER D. STEGER
 COLORADO REGISTERED PROFESSIONAL
 LAND SURVEYOR NO. 25379

DATE: APRIL 12, 2010



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