



K. P. Kauffman Company, Inc.

Front Range #11-17-25R

NESW section 17-T4N-R66W

Weld Co., Colorado

Directional plot

Well Plan

Well Name	Vertical Section Azimuth	Units
Front Range #11-17-25R	33.17	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	End vertical KOP	
1300.00	4.25	33.2	1299.91	3.10	2.03	4.25	3.71	build	
1400.00	8.50	33.2	1399.27	12.39	8.10	4.25	14.81	build	
1500.00	12.75	33.2	1497.53	27.82	18.19	4.25	33.24	build	
1600.00	17.00	33.2	1594.16	49.31	32.23	4.25	58.91	build	
1700.00	21.25	33.2	1688.62	76.72	50.16	4.25	91.66	build	
1800.00	25.50	33.2	1780.39	109.92	71.86	4.25	131.33	build	
1900.00	29.75	33.2	1868.97	148.72	97.23	4.25	177.69	build	
2000.00	34.00	33.2	1953.87	192.91	126.12	4.25	230.48	build	
2100.00	38.25	33.2	2034.62	242.25	158.37	4.25	289.42	build	
2200.00	42.50	33.2	2110.79	296.46	193.81	4.25	354.19	build	
2300.00	46.75	33.2	2181.94	355.24	232.24	4.25	424.42	build	
2400.00	51.00	33.2	2247.70	418.27	273.45	4.25	499.73	build	
2500.00	55.25	33.2	2307.69	485.21	317.21	4.25	579.70	build	
2600.00	59.50	33.2	2361.59	555.69	363.29	4.25	663.91	build	
2652.94	61.75	33.2	2387.56	594.30	388.53	4.25	710.04	End build TOP OF BUILD	
2700.00	60.05	33.2	2410.45	628.72	411.03	3.62	751.15	drop	

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	Vert. Sec.*	Description	Reference Note
2800.00	56.42	33.2	2463.09	699.87	457.54	3.62	836.16	drop	
2900.00	52.80	33.2	2520.99	768.09	502.15	3.62	917.67	drop	
3000.00	49.18	33.2	2583.93	833.12	544.66	3.62	995.36	drop	
3100.00	45.55	33.2	2651.65	894.68	584.90	3.62	1068.91	drop	
3200.00	41.93	33.2	2723.89	952.54	622.73	3.62	1138.04	drop	
3300.00	38.31	33.2	2800.34	1006.47	657.98	3.62	1202.47	drop	
3400.00	34.68	33.2	2880.72	1056.24	690.52	3.62	1261.93	drop	
3500.00	31.06	33.2	2964.70	1101.66	720.22	3.62	1316.20	drop	
3600.00	27.44	33.2	3051.93	1142.55	746.95	3.62	1365.05	drop	
3700.00	23.81	33.2	3142.08	1178.74	770.61	3.62	1408.29	drop	
3800.00	20.19	33.2	3234.78	1210.10	791.11	3.62	1445.75	drop	
3900.00	16.57	33.2	3329.67	1236.48	808.36	3.62	1477.27	drop	
4000.00	12.94	33.2	3426.35	1257.80	822.29	3.62	1502.74	drop	
4100.00	9.32	33.2	3524.45	1273.96	832.86	3.62	1522.05	drop	
4200.00	5.70	33.2	3623.58	1284.90	840.01	3.62	1535.11	drop	
4300.00	2.08	33.2	3723.33	1290.57	843.72	3.62	1541.89	drop	
4316.67	1.47	33.2	3740.00	1291.00	844.00	3.62	1542.41	End drop	TOP OF DROP
4400.00	1.03	33.2	3823.31	1292.52	844.99	0.53	1544.22	drop/invert	
4500.00	0.50	33.2	3923.30	1293.64	845.72	0.53	1545.56	drop/invert	
4600.00	0.03	213.2	4023.30	1293.98	845.95	0.53	1545.97	drop/invert	
4700.00	0.56	213.2	4123.29	1293.55	845.67	0.53	1545.45	drop/invert	
4800.00	1.09	213.2	4223.28	1292.34	844.88	0.53	1544.01	drop/invert	
4871.74	1.47	213.2	4295.00	1291.00	844.00	0.53	1542.41	End drop/invert	TOP OF SUSSEX
4900.00	1.26	213.2	4323.26	1290.44	843.63	0.75	1541.73	drop/invert	
5000.00	0.50	213.2	4423.24	1289.15	842.79	0.75	1540.20	drop/invert	
5100.00	0.25	33.2	4523.24	1288.97	842.67	0.75	1539.98	drop/invert	
5200.00	1.01	33.2	4623.24	1289.88	843.27	0.75	1541.07	drop/invert	
5261.78	1.47	33.2	4685.00	1291.00	844.00	0.75	1542.41	End drop/invert	TOP OF SHANNON
5300.00	1.42	33.2	4723.21	1291.81	844.53	0.14	1543.37	drop/invert	
5400.00	1.28	33.2	4823.18	1293.78	845.82	0.14	1545.73	drop/invert	
5500.00	1.15	33.2	4923.16	1295.56	846.98	0.14	1547.85	drop/invert	

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	Vert. Sec.*	Description	Reference Note
5600.00	1.01	33.2	5023.14	1297.14	848.01	0.14	1549.74	drop/invert	
5700.00	0.88	33.2	5123.13	1298.52	848.92	0.14	1551.39	drop/invert	
5800.00	0.74	33.2	5223.12	1299.70	849.69	0.14	1552.81	drop/invert	
5900.00	0.61	33.2	5323.11	1300.69	850.34	0.14	1553.98	drop/invert	
6000.00	0.47	33.2	5423.11	1301.48	850.85	0.14	1554.93	drop/invert	
6100.00	0.34	33.2	5523.10	1302.07	851.24	0.14	1555.63	drop/invert	
6200.00	0.20	33.2	5623.10	1302.47	851.50	0.14	1556.10	drop/invert	
6300.00	0.07	33.2	5723.10	1302.66	851.62	0.14	1556.34	drop/invert	
6400.00	0.07	213.2	5823.10	1302.66	851.62	0.14	1556.34	drop/invert	
6500.00	0.20	213.2	5923.10	1302.46	851.49	0.14	1556.10	drop/invert	
6600.00	0.34	213.2	6023.10	1302.07	851.23	0.14	1555.63	drop/invert	
6700.00	0.47	213.2	6123.10	1301.47	850.85	0.14	1554.92	drop/invert	
6800.00	0.61	213.2	6223.09	1300.68	850.33	0.14	1553.97	drop/invert	
6900.00	0.74	213.2	6323.09	1299.69	849.68	0.14	1552.79	drop/invert	
7000.00	0.88	213.2	6423.08	1298.50	848.91	0.14	1551.37	drop/invert	
7100.00	1.02	213.2	6523.06	1297.12	848.00	0.14	1549.72	drop/invert	
7200.00	1.15	213.2	6623.05	1295.54	846.97	0.14	1547.83	drop/invert	
7300.00	1.29	213.2	6723.02	1293.76	845.80	0.14	1545.70	drop/invert	
7400.00	1.42	213.2	6822.99	1291.78	844.51	0.14	1543.34	drop/invert	
7437.02	1.47	213.2	6860.00	1291.00	844.00	0.14	1542.41	End drop/invert	TOP OF NIOBRARA
7500.00	0.88	213.2	6922.97	1289.92	843.29	0.93	1541.11	drop/invert	
7600.00	0.05	33.2	7022.97	1289.31	842.89	0.93	1540.39	drop/invert	
7700.00	0.98	33.2	7122.96	1290.07	843.39	0.93	1541.29	drop/invert	
7752.05	1.47	33.2	7175.00	1291.00	844.00	0.93	1542.41	End drop/invert	TOP OF FT HAYS
7772.05	1.47	213.2	7195.00	1291.00	844.00	14.71	1542.41	End drop/invert	TOP OF CODELL
7800.00	1.31	213.2	7222.94	1290.43	843.63	0.58	1541.73	drop/invert	
7900.00	0.73	213.2	7322.92	1288.95	842.66	0.58	1539.95	drop/invert	
8000.00	0.14	213.2	7422.92	1288.31	842.24	0.58	1539.20	drop/invert	
8100.00	0.44	33.2	7522.92	1288.53	842.38	0.58	1539.45	drop/invert	
8200.00	1.02	33.2	7622.91	1289.60	843.08	0.58	1540.73	drop/invert	
8277.11	1.47	33.2	7700.00	1291.00	844.00	0.58	1542.41	End drop/invert	TOP OF J-SAND

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	Vert. Sec.*	Description	Reference Note
8300.00	1.09	33.2	7722.88	1291.43	844.28	1.68	1542.92	drop/invert	
8400.00	0.59	213.2	7822.88	1291.79	844.51	1.68	1543.35	drop/invert	
8452.13	1.47	213.2	7875.00	1291.00	844.00	1.68	1542.41	End drop/invert	TD