

Tug Hill Operating
R.D.H. Trust # 1-19H
Comanche County, Kansas
Patterson 172



Minimum of Curvature
Slot Location: 1462505.77', 1076500.88'
Plane of Vertical Section: 180.37°

Measured Depth Feet	BORE Inc Degrees	HOLE Direction Degrees	True Vertical Depth Feet	RECTANGULAR COORDINATES		LAMBERT COORDINATES		Vertical Section Feet	CLOSURES		Dogleg Severity Deg/100'
				North(-South) Feet	East(-West) Feet	Y Feet	X Feet		Distance Feet	Direction Deg	
5921.00	89.00	179.20	5453.42	-767.76	-3.52	1461738.01	1076497.36	767.77	767.77	180.26	0.00
5974.00	89.20	179.70	5454.25	-820.75	-3.01	1461685.02	1076497.87	820.75	820.76	180.21	1.02
6066.00	88.70	181.00	5455.94	-912.73	-3.57	1461593.04	1076497.31	912.74	912.74	180.22	1.51
6158.00	91.20	182.70	5456.02	-1004.67	-6.54	1461501.10	1076494.34	1004.69	1004.69	180.37	3.29
6249.00	91.50	181.50	5453.87	-1095.58	-9.88	1461410.19	1076491.00	1095.63	1095.63	180.52	1.36
6341.00	90.60	180.80	5452.19	-1187.55	-11.72	1461318.22	1076489.16	1187.60	1187.61	180.57	1.24
6432.00	89.30	181.70	5452.27	-1278.52	-13.71	1461227.25	1076487.17	1278.59	1278.60	180.61	1.74
6524.00	86.80	178.90	5455.40	-1370.45	-14.19	1461135.32	1076486.69	1370.52	1370.53	180.59	4.08
6616.00	88.10	181.20	5459.49	-1462.35	-14.27	1461043.42	1076486.61	1462.42	1462.42	180.56	2.87
6707.00	89.20	179.00	5461.64	-1553.32	-14.43	1460952.45	1076486.45	1553.38	1553.39	180.53	2.70
6799.00	89.40	178.60	5462.76	-1645.29	-12.50	1460860.48	1076488.38	1645.34	1645.34	180.44	0.49
6891.00	89.70	178.30	5463.48	-1737.26	-10.02	1460768.51	1076490.86	1737.29	1737.29	180.33	0.46
6983.00	89.70	178.70	5463.97	-1829.22	-7.61	1460676.55	1076493.27	1829.24	1829.24	180.24	0.43
7074.00	89.70	179.30	5464.44	-1920.21	-6.02	1460585.56	1076494.86	1920.21	1920.22	180.18	0.66
7166.00	91.60	179.60	5463.40	-2012.19	-5.14	1460493.58	1076495.74	2012.19	2012.20	180.15	2.09
7260.00	89.30	180.00	5462.66	-2106.18	-4.81	1460399.59	1076496.07	2106.17	2106.19	180.13	2.48
7355.00	87.90	179.20	5464.98	-2201.15	-4.14	1460304.62	1076496.74	2201.13	2201.16	180.11	1.70
7450.00	89.30	179.90	5467.30	-2296.12	-3.40	1460209.65	1076497.48	2296.09	2296.12	180.08	1.65
7544.00	91.10	181.60	5466.97	-2390.10	-4.63	1460115.67	1076496.25	2390.08	2390.11	180.11	2.63
7638.00	87.50	180.80	5468.12	-2484.06	-6.60	1460021.71	1076494.28	2484.05	2484.07	180.15	3.92
7769.00	86.60	180.90	5474.86	-2614.87	-8.54	1459890.90	1076492.34	2614.87	2614.88	180.19	0.69
7861.00	88.60	180.30	5478.72	-2706.78	-9.50	1459798.99	1076491.38	2706.78	2706.79	180.20	2.27
7953.00	90.50	180.80	5479.44	-2798.77	-10.38	1459707.00	1076490.50	2798.77	2798.78	180.21	2.14
8044.00	89.20	182.50	5479.68	-2889.72	-13.00	1459616.05	1076487.88	2889.75	2889.75	180.26	2.35
8136.00	89.10	183.30	5481.04	-2981.59	-17.66	1459524.18	1076483.22	2981.65	2981.65	180.34	0.88
8228.00	89.00	183.70	5482.57	-3073.41	-23.27	1459432.36	1076477.61	3073.50	3073.50	180.43	0.45
8319.00	88.50	183.80	5484.55	-3164.19	-29.22	1459341.58	1076471.66	3164.31	3164.33	180.53	0.56

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				North(-South) Feet	East(-West) Feet	Y Feet	X Feet		Distance Feet	Direction Deg	
8411.00	88.50	182.50	5486.96	-3256.02	-34.28	1459249.75	1076466.60	3256.17	3256.20	180.60	1.41
8502.00	88.00	179.70	5489.74	-3346.95	-36.02	1459158.82	1076464.86	3347.11	3347.14	180.62	3.12
8594.00	89.40	178.10	5491.83	-3438.91	-34.26	1459066.86	1076466.62	3439.05	3439.08	180.57	2.31
8686.00	91.30	178.80	5491.27	-3530.87	-31.77	1458974.90	1076469.11	3531.00	3531.01	180.52	2.20
8778.00	91.50	180.30	5489.02	-3622.83	-31.05	1458882.94	1076469.83	3622.96	3622.97	180.49	1.64
8869.00	89.50	181.40	5488.22	-3713.81	-32.40	1458791.96	1076468.48	3713.94	3713.95	180.50	2.51
8961.00	88.80	181.10	5489.59	-3805.78	-34.40	1458699.99	1076466.48	3805.92	3805.94	180.52	0.83
9053.00	88.50	179.70	5491.76	-3897.75	-35.05	1458608.02	1076465.83	3897.89	3897.91	180.52	1.56
9144.00	89.80	179.90	5493.11	-3988.74	-34.73	1458517.03	1076466.15	3988.88	3988.89	180.50	1.45
9281.00	89.90	180.00	5493.46	-4125.74	-34.61	1458380.03	1076466.27	4125.87	4125.88	180.48	0.10
9373.00	89.60	178.60	5493.87	-4217.73	-33.48	1458288.04	1076467.40	4217.85	4217.86	180.45	1.56
9465.00	88.90	179.20	5495.07	-4309.70	-31.72	1458196.07	1076469.16	4309.82	4309.82	180.42	1.00
9557.00	89.60	179.90	5496.27	-4401.69	-31.00	1458104.08	1076469.88	4401.80	4401.80	180.40	1.08
9648.00	90.70	180.30	5496.04	-4492.69	-31.15	1458013.08	1076469.73	4492.79	4492.79	180.40	1.29
9740.00	89.30	179.90	5496.04	-4584.68	-31.32	1457921.09	1076469.56	4584.79	4584.79	180.39	1.58
9832.00	88.80	180.50	5497.56	-4676.67	-31.64	1457829.10	1076469.24	4676.78	4676.78	180.39	0.85
9923.00	90.20	180.60	5498.36	-4767.66	-32.51	1457738.11	1076468.37	4767.77	4767.77	180.39	1.54
10015.00	89.20	180.30	5498.84	-4859.65	-33.23	1457646.12	1076467.65	4859.77	4859.77	180.39	1.13
10106.00	88.30	180.30	5500.82	-4950.63	-33.71	1457555.14	1076467.17	4950.75	4950.75	180.39	0.99
10198.00	88.20	180.30	5503.63	-5042.59	-34.19	1457463.18	1076466.69	5042.70	5042.70	180.39	0.11
10290.00	88.80	178.50	5506.04	-5134.55	-33.23	1457371.22	1076467.65	5134.65	5134.65	180.37	2.06
Final Station Closure Distance: 5134.65' Direction: 180.37°											