

**TC Energy
12411 ST01, Ripley, As Drilled**

**Job No. 11924
Survey Date: Tuesday, August 20, 2024**

**True North Directional Services
Survey Report**

Thursday, August 22, 2024

Surface Coordinates: 14,123,242.91 N, 1,444,319.29 E (38° 53' 30.0078" N, 81° 41' 21.0715" W)
Grid Coordinate System: NAD27 Universal Transverse Mercator, Zone 17 North

Surface Coordinates relative to 12411 ST: 0.00 N, 0.00 E (Grid)

Kelly Bushing Elevation: 635.24ft above Mean Sea Level
Kelly Bushing Elevation: 635.24ft above Mean Sea Level
Kelly Bushing Elevation: 19.00ft above Ground Level
Ground Level: 616.24ft above Mean Sea Level

Survey Ref: svy1298

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02/21/2025



Survey Report for Ripley, 12411, As Drilled

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	-39.90	
2,069.00	11.29	3.59	2,064.12	72.52 N	20.89 E	-68.23	0.645
2,114.00	11.58	2.57	2,108.22	81.43 N	21.36 E	-76.95	0.786
2,158.00	11.75	3.03	2,151.32	90.32 N	21.80 E	-85.65	0.440
2,203.00	13.21	9.23	2,195.25	99.97 N	22.87 E	-95.00	4.399
2,248.00	15.00	13.63	2,238.90	110.71 N	25.06 E	-105.25	4.634
2,292.00	16.09	20.86	2,281.29	121.94 N	28.58 E	-115.77	5.048
2,337.00	17.44	25.05	2,324.38	133.88 N	33.65 E	-126.74	4.025
2,382.00	18.78	29.39	2,367.15	146.30 N	40.06 E	-137.97	4.224
2,427.00	20.20	34.78	2,409.57	158.99 N	48.05 E	-149.22	5.089
2,471.00	20.09	43.31	2,450.89	170.73 N	57.57 E	-159.28	6.676
2,516.00	19.78	49.72	2,493.20	181.28 N	68.68 E	-167.91	4.903
2,560.00	20.15	56.60	2,534.56	190.27 N	80.69 E	-174.85	5.402
2,609.00	21.16	63.31	2,580.42	198.89 N	95.64 E	-180.96	5.248
2,653.00	23.11	67.06	2,621.17	205.82 N	110.69 E	-185.39	5.471
2,698.00	24.88	70.72	2,662.29	212.39 N	127.76 E	-189.13	5.137
2,743.00	25.96	75.31	2,702.93	218.01 N	146.23 E	-191.72	4.991
2,788.00	25.84	80.28	2,743.42	222.17 N	165.42 E	-192.74	4.830
2,832.00	26.35	85.61	2,782.94	224.53 N	184.61 E	-191.99	5.451
2,877.00	26.74	90.16	2,823.20	225.27 N	204.69 E	-189.49	4.600
2,922.00	27.24	93.96	2,863.30	224.53 N	225.09 E	-185.49	3.990
2,966.00	28.87	94.89	2,902.13	222.93 N	245.72 E	-180.60	3.836
3,011.00	31.14	96.18	2,941.10	220.75 N	268.12 E	-174.85	5.244
3,055.00	33.44	94.99	2,978.29	218.47 N	291.51 E	-168.85	5.423
3,100.00	35.97	93.54	3,015.28	216.57 N	317.06 E	-162.88	5.914
3,145.00	38.17	93.86	3,051.18	214.82 N	344.13 E	-156.80	4.908
3,190.00	40.29	94.49	3,086.04	212.75 N	372.51 E	-150.20	4.794
3,234.00	42.34	95.16	3,119.09	210.30 N	401.45 E	-143.14	4.766
3,279.00	44.47	96.50	3,151.78	207.15 N	432.21 E	-135.10	5.156
3,369.00	45.32	98.05	3,215.54	199.10 N	495.22 E	-117.04	1.539
3,458.00	44.13	95.23	3,278.77	191.85 N	557.41 E	-99.89	2.600
3,547.00	43.21	96.77	3,343.15	185.43 N	618.52 E	-83.75	1.580
3,637.00	43.42	97.38	3,408.64	177.83 N	679.79 E	-66.41	0.520
3,726.00	44.25	97.70	3,472.83	169.74 N	740.90 E	-48.62	0.965
3,815.00	46.11	98.00	3,535.57	161.11 N	803.43 E	-30.07	2.104
3,905.00	47.53	97.74	3,597.15	152.13 N	868.44 E	-10.77	1.592
3,994.00	49.31	97.83	3,656.21	143.11 N	934.40 E	8.72	2.001
4,083.00	49.77	97.77	3,713.97	133.92 N	1,001.49 E	28.56	0.519
4,173.00	48.77	96.15	3,772.69	125.65 N	1,069.18 E	47.59	1.759
4,262.00	47.77	94.39	3,831.94	119.54 N	1,135.32 E	64.23	1.855
4,352.00	45.05	97.08	3,893.99	113.06 N	1,200.16 E	81.03	3.717
4,444.00	41.43	105.45	3,961.06	100.93 N	1,261.88 E	102.92	7.364
4,533.00	38.98	113.05	4,029.07	82.11 N	1,316.06 E	130.19	6.157
4,623.00	38.54	119.95	4,099.28	57.01 N	1,366.43 E	163.04	4.823
4,713.00	41.80	124.28	4,168.06	26.11 N	1,415.53 E	201.42	4.768
4,802.00	46.22	128.00	4,232.06	10.40 S	1,465.39 E	245.46	5.751
4,892.00	45.87	135.87	4,294.58	53.62 S	1,513.62 E	295.85	6.305
4,981.00	45.23	147.74	4,357.02	103.36 S	1,559.69 E	351.23	9.539
5,071.00	47.84	157.12	4,419.00	161.18 S	1,582.75 E	413.13	8.095
5,160.00	50.92	166.16	4,477.00	225.21 S	1,603.87 E	479.77	8.445

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Survey Report for Ripley, 12411, As Drilled

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5,250.00	53.80	175.00	4,532.03	295.40 S	1,615.41 E	550.85	8.406
5,339.00	56.68	183.35	4,582.83	368.40 S	1,616.37 E	623.05	8.356
5,428.00	60.77	190.15	4,629.06	443.84 S	1,607.34 E	696.07	7.982
5,473.00	64.37	191.26	4,649.79	483.08 S	1,599.92 E	733.61	8.294
5,518.00	66.19	193.19	4,668.61	523.02 S	1,591.26 E	771.64	5.615
5,607.00	68.81	193.74	4,702.66	602.98 S	1,572.11 E	847.49	2.999
5,696.00	72.08	194.07	4,732.45	684.38 S	1,551.96 E	924.60	3.691
5,786.00	75.19	196.14	4,757.80	767.73 S	1,529.45 E	1,003.25	4.100
5,831.00	76.91	196.82	4,768.65	809.61 S	1,517.06 E	1,042.60	4.094
5,875.00	78.49	197.05	4,778.03	850.73 S	1,504.53 E	1,081.18	3.627
5,919.00	80.58	197.49	4,786.02	892.04 S	1,491.69 E	1,119.90	4.851
5,985.00	81.60	198.20	4,796.24	954.11 S	1,471.71 E	1,177.95	1.876
6,029.00	83.30	198.60	4,802.02	995.50 S	1,457.94 E	1,216.59	3.967
6,074.00	85.70	196.60	4,806.33	1,038.19 S	1,444.40 E	1,256.56	6.929
6,119.00	86.20	196.30	4,809.51	1,081.24 S	1,431.69 E	1,297.01	1.295
6,164.00	88.30	195.00	4,811.67	1,124.52 S	1,419.56 E	1,337.78	5.487
6,208.00	90.10	194.80	4,812.29	1,167.03 S	1,408.25 E	1,377.93	4.116
6,253.00	90.60	194.70	4,812.01	1,210.55 S	1,396.79 E	1,419.04	1.133
6,296.00	89.20	195.90	4,812.09	1,252.02 S	1,385.45 E	1,458.16	4.288
6,342.00	89.10	196.20	4,812.77	1,296.22 S	1,372.73 E	1,499.74	0.687
6,387.00	89.00	196.00	4,813.51	1,339.45 S	1,360.25 E	1,540.41	0.497
6,432.00	88.50	195.80	4,814.50	1,382.72 S	1,347.93 E	1,581.14	1.197
6,477.00	88.30	196.00	4,815.75	1,425.98 S	1,335.61 E	1,621.86	0.628
6,521.00	88.00	195.50	4,817.17	1,468.31 S	1,323.67 E	1,661.72	1.325
6,566.00	88.40	195.30	4,818.59	1,511.67 S	1,311.72 E	1,702.61	0.994
6,611.00	88.90	195.60	4,819.65	1,555.03 S	1,299.74 E	1,743.48	1.296
6,674.00	89.10	194.00	4,820.75	1,615.93 S	1,283.65 E	1,801.01	2.559
6,719.00	89.50	194.50	4,821.30	1,659.54 S	1,272.57 E	1,842.28	1.423
6,764.00	89.30	194.90	4,821.77	1,703.07 S	1,261.16 E	1,883.41	0.994
6,808.00	89.30	194.90	4,822.30	1,745.58 S	1,249.84 E	1,923.56	0.000
6,853.00	88.90	194.90	4,823.01	1,789.07 S	1,238.27 E	1,964.62	0.889
6,898.00	88.30	194.60	4,824.11	1,832.57 S	1,226.82 E	2,005.72	1.491
6,943.00	88.20	194.70	4,825.48	1,876.09 S	1,215.44 E	2,046.84	0.314
6,988.00	89.50	192.80	4,826.39	1,919.78 S	1,204.75 E	2,088.26	5.115
7,032.00	89.00	192.80	4,826.96	1,962.69 S	1,195.00 E	2,129.04	1.136
7,077.00	89.60	194.60	4,827.51	2,006.40 S	1,184.35 E	2,170.48	4.216
7,122.00	90.40	194.90	4,827.51	2,049.92 S	1,172.89 E	2,211.59	1.899
7,166.00	90.00	195.40	4,827.36	2,092.39 S	1,161.39 E	2,251.67	1.455
7,211.00	89.20	195.40	4,827.67	2,135.77 S	1,149.44 E	2,292.57	1.778
7,256.00	88.80	195.50	4,828.46	2,179.14 S	1,137.46 E	2,333.45	0.916
7,301.00	88.70	195.50	4,829.44	2,222.49 S	1,125.43 E	2,374.31	0.222
7,346.00	90.20	193.90	4,829.87	2,266.01 S	1,114.01 E	2,415.44	4.874
7,390.00	90.10	193.70	4,829.76	2,308.74 S	1,102.70 E	2,455.93	0.508
7,435.00	89.80	193.90	4,829.80	2,352.45 S	1,092.00 E	2,497.34	0.801
7,480.00	90.30	194.60	4,829.76	2,396.06 S	1,081.71 E	2,538.61	1.912
7,525.00	89.90	194.40	4,829.68	2,439.63 S	1,070.44 E	2,579.81	0.994
7,570.00	91.20	194.60	4,829.25	2,483.19 S	1,059.18 E	2,621.00	2.923
7,614.00	91.40	195.90	4,828.25	2,525.63 S	1,047.91 E	2,661.03	2.989
7,640.00	91.20	195.60	4,827.66	2,550.65 S	1,040.55 E	2,684.59	1.387
7,659.00	90.90	195.60	4,827.31	2,568.94 S	1,035.44 E	2,701.83	1.579

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Survey Report for Ripley, 12411, As Drilled

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7,672.00	91.00	195.70	4,827.10	2,581.46 S	1,031.93 E	2,713.62	1.088
7,704.00	91.10	197.50	4,826.51	2,612.12 S	1,022.79 E	2,742.42	5.633
7,747.00	90.70	197.00	4,825.83	2,653.18 S	1,010.04 E	2,780.90	1.489
7,792.00	89.40	196.40	4,825.79	2,696.28 S	997.11 E	2,821.36	3.182
7,837.00	88.60	196.40	4,826.58	2,739.44 S	984.41 E	2,861.93	1.778
7,881.00	89.60	196.40	4,827.27	2,781.65 S	971.99 E	2,901.59	2.273
7,926.00	90.60	195.60	4,827.19	2,824.90 S	959.59 E	2,942.30	2.846
7,971.00	90.90	195.40	4,826.60	2,868.26 S	947.56 E	2,983.16	0.801
8,016.00	89.90	194.60	4,826.29	2,911.73 S	935.91 E	3,024.19	2.846
8,060.00	89.20	194.20	4,826.64	2,954.34 S	924.97 E	3,064.50	1.832
8,105.00	89.40	194.20	4,827.18	2,997.97 S	913.93 E	3,105.79	0.444
8,150.00	89.90	195.20	4,827.46	3,041.49 S	902.52 E	3,146.92	2.484
8,195.00	89.80	195.40	4,827.58	3,084.90 S	890.64 E	3,187.85	0.497
8,240.00	89.80	195.20	4,827.73	3,128.30 S	878.77 E	3,228.79	0.444
8,284.00	89.50	195.20	4,828.00	3,170.76 S	867.23 E	3,268.85	0.682
8,329.00	89.40	194.90	4,828.44	3,214.21 S	855.55 E	3,309.86	0.703
8,374.00	89.80	194.70	4,828.75	3,257.72 S	844.05 E	3,350.96	0.994
8,418.00	91.70	195.90	4,828.17	3,300.16 S	832.44 E	3,390.98	5.107
8,463.00	91.20	195.70	4,827.03	3,343.44 S	820.20 E	3,431.74	1.197
8,508.00	90.60	195.50	4,826.33	3,386.78 S	808.10 E	3,472.57	1.405
8,553.00	90.60	194.90	4,825.86	3,430.20 S	796.30 E	3,513.54	1.333
8,598.00	90.30	194.90	4,825.50	3,473.69 S	784.73 E	3,554.60	0.667
8,643.00	88.10	195.50	4,826.13	3,517.10 S	772.93 E	3,595.56	5.067
8,687.00	87.30	195.80	4,827.90	3,559.44 S	761.07 E	3,635.45	1.942
8,704.00	87.20	195.60	4,828.71	3,575.79 S	756.48 E	3,650.84	1.314

Bit Projection

8,759.00	87.20	195.60	4,831.40	3,628.70 S	741.70 E	3,700.70	0.000
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All data is in Feet (US Survey) unless otherwise stated. Directions and coordinates are relative to Grid North. Vertical depths are relative to 12411. Northings and Eastings are relative to 12411 ST.

The dogleg severity is in Degrees per 100 feet (US Survey). Vertical Section is from 12411 ST calculated along an azimuth of 170.76° (Grid).

Based upon minimum curvature calculations, at a measured depth of 8,759.00ft, the bottom hole displacement is 3,703.72ft, in the direction of 168.45° (Grid).

Comments associated with 12411, As Drilled

Survey Depth (ft)	Incl. (°)	Station Coordinates (Grid)			Eastings (ft)	Comment
		Azimuth (°)	Vertical Depth (ft)	Northings (ft)		
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	Safety Meeting on Picking up Whipstock
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	Make up Whipstock & Orient sub
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	Lay down Whipstock
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	Start getting tools around Whipstock
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	Mob To Ripley



Survey Report for Ripley, 12411, As Drilled

Comments associated with 12411, As Drilled

Survey Depth (ft)	Incl. (°)	(Grid) Azimuth (°)	Station Coordinates			Comment
			Vertical Depth (ft)	Northings (ft)	Eastings (ft)	
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	Check On Rig
1,921.00	11.18	358.72	1,918.95	43.72 N	20.30 E	Check In Motel
3,282.00	44.50	96.55	3,153.92	206.91 N	434.30 E	Slip And Cut Drilling Line
3,282.00	44.50	96.55	3,153.92	206.91 N	434.30 E	TiH 19 std
3,282.00	44.50	96.55	3,153.92	206.91 N	434.30 E	Safety Meeting
3,282.00	44.50	96.55	3,153.92	206.91 N	434.30 E	Break circulation
3,325.00	44.90	97.30	3,184.48	203.27 N	464.32 E	Safety Meeting
3,325.00	44.90	97.30	3,184.48	203.27 N	464.32 E	Break circulation
3,325.00	44.90	97.30	3,184.48	203.27 N	464.32 E	TiH 19 std
3,369.00	45.32	98.05	3,215.54	199.10 N	495.22 E	4350 CFM 4 and 1 25 gpm fluid 1 1/2 soap.
4,262.00	47.77	94.39	3,831.94	119.54 N	1,135.32 E	25 gal water 1 gal soap 4 air 1 booster
5,696.00	72.08	194.07	4,732.45	684.38 S	1,551.96 E	4 air 1 booster 30 water 1 1/2 soap
5,939.00	80.89	197.71	4,789.24	910.86 S	1,485.72 E	Wash in Drill DV tool Tag 4309'
5,949.00	81.04	197.81	4,790.81	920.27 S	1,482.71 E	FiT
5,953.00	81.11	197.86	4,791.43	924.03 S	1,481.50 E	Adjust signal on MWD
6,033.00	83.51	198.42	4,802.48	999.26 S	1,456.68 E	Talk with Jimmy on Landing Piont
6,643.00	89.00	194.79	4,820.23	1,585.91 S	1,291.36 E	Shallow hole test 900 psi 295 gpm
7,599.00	91.33	195.46	4,828.61	2,511.19 S	1,051.66 E	Make up new bit, get bit breaker off bit.
7,975.00	90.81	195.33	4,826.54	2,872.12 S	946.50 E	Wash in from 6800'
8,512.00	90.60	195.45	4,826.29	3,390.63 S	807.03 E	Circulate while tripping in the hole from 7845'
8,512.00	90.60	195.45	4,826.29	3,390.63 S	807.03 E	Make up fresh motor and bit, dial to 1.83
8,704.00	87.20	195.60	4,828.71	3,575.79 S	756.48 E	Trip in stands out of derrick

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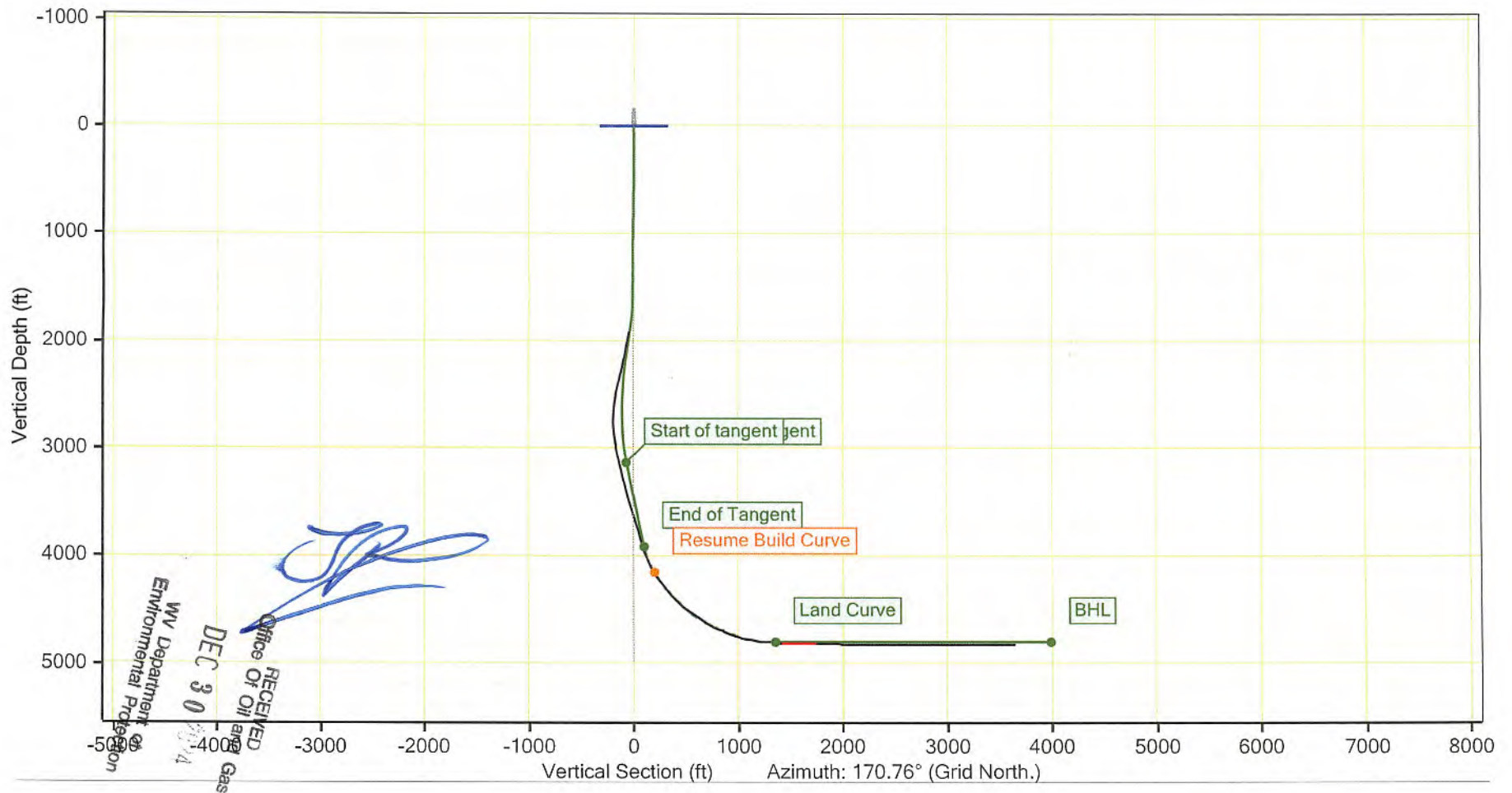
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Ripley, 12411 Vertical Section





Ripley, 12411 Horizontal Section

