

Actual Wellpath Report

SWN A WTZ 405H AWP Proj: 25954'

Page 1 of 13

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Atenjen
Scale	0.999612	Report Generated	7/9/2019 at 2:31:22 PM
Convergence at slot	0.23° East	Database/Source file	WA_MPL_EASTERNUS_Defn/SWN_A_WTZ_405H_AWP_Proj_25954_.xml

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-6.10	134.02	1741818.74	14411385.44	39°40'57.590"N	80°38'22.484"W
Facility Reference Pt			1741684.77	14411391.54	39°40'57.656"N	80°38'24.198"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM		
Calculation method	Minimum curvature	SDC 46 (KB) to Facility Vertical Datum
Horizontal Reference Pt	Slot	SDC 46 (KB) to Mean Sea Level
Vertical Reference Pt	SDC 46 (KB)	SDC 46 (KB) to Ground Level at Slot (Slot 405)
MD Reference Pt	SDC 46 (KB)	Section Origin
Field Vertical Reference	Mean Sea Level	Section Azimuth
		1368.30ft
		1368.30ft
		26.00ft
		N 0.00, E 0.00 ft
		317.60°

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	160.860	0.00	0.00	0.00	0.00	1741818.74	14411385.44	39°40'57.590"N	80°38'22.484"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	160.860	26.00	0.00	0.00	0.00	1741818.74	14411385.44	39°40'57.590"N	80°38'22.484"W	0.00	0.000	0.00	0.00	0.00
50.00	0.150	160.860	50.00	-0.03	-0.03	0.01	1741818.75	14411385.41	39°40'57.590"N	80°38'22.484"W	0.03	160.860	0.62	0.63	670.25
100.00	0.190	31.120	100.00	-0.07	-0.02	0.07	1741818.82	14411385.42	39°40'57.590"N	80°38'22.483"W	0.08	105.392	0.62	0.08	-259.48
150.00	0.290	122.260	150.00	-0.16	-0.02	0.22	1741818.97	14411385.42	39°40'57.590"N	80°38'22.481"W	0.23	94.358	0.70	0.20	182.28
200.00	0.180	133.830	200.00	-0.36	-0.14	0.39	1741819.13	14411385.30	39°40'57.589"N	80°38'22.479"W	0.41	109.709	0.24	-0.22	23.14
250.00	0.360	223.720	250.00	-0.45	-0.31	0.34	1741819.08	14411385.13	39°40'57.587"N	80°38'22.480"W	0.46	132.395	0.80	0.36	179.78
300.00	0.170	262.960	300.00	-0.42	-0.43	0.15	1741818.90	14411385.01	39°40'57.586"N	80°38'22.482"W	0.46	160.273	0.50	-0.38	78.48
350.00	0.400	252.980	350.00	-0.30	-0.49	-0.09	1741818.66	14411384.95	39°40'57.586"N	80°38'22.485"W	0.50	190.013	0.47	0.46	-19.96
400.00	0.490	254.520	400.00	-0.13	-0.60	-0.46	1741818.28	14411384.84	39°40'57.585"N	80°38'22.490"W	0.75	217.537	0.18	0.18	3.08
450.00	0.310	234.540	449.99	-0.02	-0.73	-0.78	1741817.97	14411384.71	39°40'57.583"N	80°38'22.494"W	1.07	226.601	0.45	-0.36	-39.96
500.00	0.400	283.470	499.99	0.14	-0.77	-1.06	1741817.69	14411384.67	39°40'57.583"N	80°38'22.498"W	1.31	233.845	0.61	0.18	97.86
550.00	0.670	262.940	549.99	0.46	-0.77	-1.52	1741817.23	14411384.67	39°40'57.583"N	80°38'22.504"W	1.70	243.168	0.65	0.54	-41.06
600.00	0.150	318.120	599.99	0.69	-0.75	-1.85	1741816.90	14411384.69	39°40'57.583"N	80°38'22.508"W	2.00	247.824	1.19	-1.04	110.36
650.00	0.180	168.570	649.99	0.68	-0.78	-1.86	1741816.88	14411384.66	39°40'57.583"N	80°38'22.508"W	2.02	247.345	0.65	0.06	-319.10
674.00	0.440	96.800	673.99	0.58	-0.82	-1.76	1741816.99	14411384.61	39°40'57.582"N	80°38'22.507"W	1.94	244.895	1.62	1.08	-257.37
688.00	0.490	51.080	687.99	0.53	-0.79	-1.66	1741817.09	14411384.65	39°40'57.583"N	80°38'22.505"W	1.84	244.456	2.60	0.36	-326.57
778.00	1.040	37.120	777.98	0.66	0.10	-0.87	1741817.88	14411385.54	39°40'57.591"N	80°38'22.495"W	0.87	276.594	0.64	0.61	-15.51
911.00	3.760	49.760	910.85	0.71	3.88	3.19	1741821.93	14411389.32	39°40'57.629"N	80°38'22.443"W	5.02	39.435	2.07	2.05	9.50
1004.00	5.340	54.310	1003.56	0.09	8.38	9.03	1741827.77	14411393.81	39°40'57.673"N	80°38'22.368"W	12.32	47.168	1.74	1.70	4.89
1163.00	9.550	62.950	1161.19	-4.27	18.69	26.80	1741845.53	14411404.13	39°40'57.774"N	80°38'22.140"W	32.68	55.100	2.73	2.65	5.43
1254.00	12.330	69.450	1250.53	-9.88	25.54	42.62	1741861.35	14411410.97	39°40'57.841"N	80°38'21.938"W	49.69	59.070	3.34	3.05	7.14
1344.00	13.540	75.170	1338.24	-18.33	31.61	61.81	1741880.53	14411417.04	39°40'57.900"N	80°38'21.692"W	69.42	62.913	1.96	1.34	6.36
1434.00	14.150	68.580	1425.64	-27.15	38.32	82.23	1741900.95	14411423.75	39°40'57.966"N	80°38'21.430"W	90.73	65.012	1.88	0.68	-7.32
1525.00	14.310	67.980	1513.84	-35.05	46.60	103.02	1741921.72	14411432.02	39°40'58.047"N	80°38'21.164"W	113.07	65.658	0.24	0.18	-0.66
1615.00	13.820	69.360	1601.14	-42.91	54.56	123.39	1741942.08	14411439.98	39°40'58.125"N	80°38'20.903"W	134.91	66.144	0.66	-0.54	1.53
1706.00	13.770	71.190	1689.52	-51.27	61.89	143.81	1741962.50	14411447.30	39°40'58.196"N	80°38'20.642"W	156.56	66.716	0.48	-0.05	2.01
1796.00	13.730	75.780	1776.94	-60.60	67.96	164.30	1741982.98	14411453.38	39°40'58.256"N	80°38'20.379"W	177.80	67.528	1.21	-0.04	5.10
1887.00	13.030	76.150	1865.47	-70.60	73.07	184.73	1742003.40	14411458.48	39°40'58.305"N	80°38'20.118"W	198.66	68.418	0.77	-0.77	0.41
1976.00	11.540	76.200	1952.43	-79.66	77.60	203.12	1742021.78	14411463.01	39°40'58.349"N	80°38'19.892"W	217.44	69.092	1.67	-1.67	0.06

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2067.00	11.410	77.200	2041.61	-88.46	81.76	220.74	1742039.39	14411467.17	39°40'58.390"N	80°38'19.657"W	235.39	69.675	0.26	-0.14	1.10
2157.00	10.580	76.280	2129.96	-96.83	85.69	237.44	1742056.09	14411471.10	39°40'58.428"N	80°38'19.443"W	252.43	70.155	0.94	-0.92	-1.02
2248.00	10.340	72.950	2219.45	-104.33	90.07	253.37	1742072.01	14411475.47	39°40'58.470"N	80°38'19.239"W	268.90	70.430	0.71	-0.26	-3.66
2338.00	10.980	72.290	2307.90	-111.37	95.05	269.25	1742087.89	14411480.45	39°40'58.519"N	80°38'19.035"W	285.54	70.557	0.72	0.71	-0.73
2429.00	10.700	73.180	2397.27	-118.64	100.13	285.60	1742104.23	14411485.53	39°40'58.569"N	80°38'18.826"W	302.64	70.680	0.36	-0.31	0.98
2519.00	10.450	73.950	2485.74	-125.87	104.80	301.44	1742120.06	14411490.20	39°40'58.614"N	80°38'18.623"W	319.14	70.829	0.32	-0.28	0.86
2609.00	8.950	73.690	2574.45	-132.57	109.02	316.00	1742134.62	14411494.42	39°40'58.655"N	80°38'18.437"W	334.28	70.965	1.67	-1.67	-0.29
2700.00	8.330	71.070	2664.42	-138.31	113.15	329.03	1742147.65	14411498.55	39°40'58.696"N	80°38'18.270"W	347.94	71.022	0.81	-0.68	-2.88
2787.00	6.680	66.830	2750.67	-142.49	117.19	339.64	1742158.26	14411502.58	39°40'58.735"N	80°38'18.134"W	359.29	70.964	2.00	-1.90	-4.87
2884.00	7.250	58.000	2846.96	-145.45	122.65	350.02	1742168.63	14411508.04	39°40'58.789"N	80°38'18.001"W	370.89	70.689	1.25	0.59	-9.10
2974.00	10.350	56.610	2935.89	-147.74	130.11	361.59	1742180.19	14411515.50	39°40'58.862"N	80°38'17.852"W	384.29	70.210	3.45	3.44	-1.54
3064.00	12.590	61.260	3024.09	-151.32	139.28	376.94	1742195.54	14411524.66	39°40'58.952"N	80°38'17.656"W	401.85	69.721	2.69	2.49	5.17
3154.00	14.240	66.980	3111.63	-157.31	148.32	395.73	1742214.32	14411533.70	39°40'59.041"N	80°38'17.415"W	422.62	69.454	2.35	1.83	6.36
3245.00	16.280	69.000	3199.42	-165.68	157.27	417.95	1742236.53	14411542.65	39°40'59.128"N	80°38'17.130"W	446.56	69.379	2.32	2.24	2.22
3335.00	18.290	69.180	3285.35	-175.48	166.81	442.93	1742261.50	14411552.19	39°40'59.221"N	80°38'16.810"W	473.30	69.363	2.23	2.23	0.20
3425.00	20.400	68.530	3370.27	-186.28	177.58	470.73	1742289.29	14411562.95	39°40'59.327"N	80°38'16.454"W	503.11	69.332	2.36	2.34	-0.72
3515.00	21.920	68.360	3454.20	-197.84	189.51	500.94	1742319.49	14411574.88	39°40'59.443"N	80°38'16.067"W	535.59	69.278	1.69	1.69	-0.19
3606.00	23.520	68.110	3538.13	-210.22	202.55	533.58	1742352.11	14411587.91	39°40'59.571"N	80°38'15.649"W	570.73	69.213	1.76	1.76	-0.27
3696.00	25.180	67.400	3620.12	-223.00	216.60	567.92	1742386.44	14411601.96	39°40'59.708"N	80°38'15.209"W	607.82	69.124	1.87	1.84	-0.79
3786.00	24.830	65.910	3701.69	-235.42	231.67	602.85	1742421.36	14411617.02	39°40'59.856"N	80°38'14.761"W	645.83	68.978	0.80	-0.39	-1.66
3876.00	24.150	64.500	3783.59	-246.71	247.31	636.72	1742455.21	14411632.65	39°41'00.009"N	80°38'14.327"W	683.06	68.773	1.00	-0.76	-1.57
3967.00	23.040	62.810	3866.98	-256.80	263.46	669.36	1742487.84	14411648.80	39°41'00.167"N	80°38'13.909"W	719.34	68.515	1.43	-1.22	-1.86
4057.00	22.120	66.490	3950.09	-266.90	278.27	700.57	1742519.04	14411663.60	39°41'00.313"N	80°38'13.509"W	753.81	68.337	1.87	-1.02	4.09
4147.00	21.190	66.660	4033.74	-277.70	291.48	731.04	1742549.50	14411676.80	39°41'00.442"N	80°38'13.119"W	787.00	68.262	1.04	-1.03	0.19
4237.00	20.570	66.010	4117.82	-288.01	304.35	760.42	1742578.87	14411689.67	39°41'00.568"N	80°38'12.742"W	819.06	68.187	0.74	-0.69	-0.72
4327.00	21.790	64.750	4201.74	-297.92	317.90	789.97	1742608.41	14411703.22	39°41'00.701"N	80°38'12.363"W	851.54	68.079	1.45	1.36	-1.40
4418.00	22.920	67.100	4285.91	-308.82	332.00	821.57	1742640.00	14411717.31	39°41'00.839"N	80°38'11.959"W	886.12	67.996	1.58	1.24	2.58
4508.00	22.520	66.690	4368.92	-320.31	345.64	853.55	1742671.96	14411730.95	39°41'00.972"N	80°38'11.549"W	920.88	67.955	0.48	-0.44	-0.46
4599.00	21.330	64.480	4453.34	-330.81	359.67	884.49	1742702.89	14411744.97	39°41'01.110"N	80°38'11.152"W	954.82	67.871	1.59	-1.31	-2.43
4689.00	21.730	64.650	4537.06	-340.45	373.85	914.32	1742732.70	14411759.15	39°41'01.249"N	80°38'10.770"W	987.80	67.761	0.45	0.44	0.19

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4780.00	22.790	65.730	4621.28	-350.87	388.31	945.61	1742763.98	14411773.60	39°41'01.390"N	80°38'10.369"W	1022.23	67.675	1.25	1.16	1.19
4870.00	24.360	65.470	4703.76	-362.00	403.18	978.39	1742796.75	14411788.46	39°41'01.536"N	80°38'09.949"W	1058.20	67.604	1.75	1.74	-0.29
4960.00	24.490	62.900	4785.71	-372.61	419.39	1011.88	1742830.23	14411804.66	39°41'01.695"N	80°38'09.520"W	1095.35	67.488	1.19	0.14	-2.86
5050.00	23.630	66.580	4867.90	-383.40	435.06	1045.04	1742863.37	14411820.32	39°41'01.848"N	80°38'09.095"W	1131.98	67.398	1.92	-0.96	4.09
5141.00	22.650	67.640	4951.57	-395.34	448.97	1077.98	1742896.30	14411834.23	39°41'01.984"N	80°38'08.673"W	1167.74	67.389	1.17	-1.08	1.16
5231.00	20.710	65.180	5035.20	-406.09	462.25	1108.45	1742926.76	14411847.50	39°41'02.114"N	80°38'08.282"W	1200.97	67.363	2.38	-2.16	-2.73
5321.00	20.920	66.820	5119.33	-416.18	475.25	1137.67	1742955.97	14411860.50	39°41'02.242"N	80°38'07.908"W	1232.94	67.328	0.69	0.23	1.82
5412.00	23.010	67.670	5203.72	-427.63	488.40	1169.06	1742987.35	14411873.65	39°41'02.371"N	80°38'07.506"W	1266.98	67.326	2.32	2.30	0.93
5502.00	21.510	65.620	5287.01	-438.78	501.90	1200.36	1743018.64	14411887.14	39°41'02.503"N	80°38'07.105"W	1301.06	67.309	1.88	-1.67	-2.28
5593.00	21.630	65.800	5371.64	-449.18	515.66	1230.85	1743049.12	14411900.90	39°41'02.637"N	80°38'06.714"W	1334.51	67.269	0.15	0.13	0.20
5683.00	22.750	66.500	5454.97	-459.99	529.40	1261.94	1743080.19	14411914.63	39°41'02.772"N	80°38'06.316"W	1368.49	67.241	1.28	1.24	0.78
5773.00	23.280	65.830	5537.81	-471.19	543.62	1294.13	1743112.37	14411928.85	39°41'02.911"N	80°38'05.903"W	1403.67	67.214	0.66	0.59	-0.74
5821.00	23.770	65.290	5581.82	-477.10	551.55	1311.57	1743129.80	14411936.77	39°41'02.989"N	80°38'05.680"W	1422.82	67.192	1.12	1.02	-1.12
5913.00	22.570	64.020	5666.40	-487.73	567.03	1344.29	1743162.51	14411952.25	39°41'03.141"N	80°38'05.260"W	1458.98	67.129	1.41	-1.30	-1.38
6004.00	21.740	59.670	5750.68	-496.19	583.20	1374.53	1743192.74	14411968.41	39°41'03.299"N	80°38'04.873"W	1493.14	67.009	2.02	-0.91	-4.78
6094.00	21.380	54.920	5834.39	-501.76	601.04	1402.35	1743220.54	14411986.25	39°41'03.474"N	80°38'04.516"W	1525.72	66.800	1.98	-0.40	-5.28
6185.00	20.860	56.170	5919.28	-506.29	619.60	1429.38	1743247.57	14412004.79	39°41'03.657"N	80°38'04.169"W	1557.89	66.565	0.76	-0.57	1.37
6275.00	20.320	57.560	6003.53	-511.38	636.90	1455.88	1743274.06	14412022.09	39°41'03.827"N	80°38'03.829"W	1589.10	66.372	0.81	-0.60	1.54
6365.00	19.620	57.940	6088.12	-516.80	653.30	1481.87	1743300.04	14412038.49	39°41'03.988"N	80°38'03.496"W	1619.49	66.209	0.79	-0.78	0.42
6455.00	18.830	55.130	6173.10	-521.41	669.63	1506.60	1743324.75	14412054.80	39°41'04.148"N	80°38'03.179"W	1648.71	66.037	1.35	-0.88	-3.12
6546.00	18.490	54.820	6259.32	-525.15	686.34	1530.44	1743348.59	14412071.51	39°41'04.312"N	80°38'02.873"W	1677.29	65.846	0.39	-0.37	-0.34
6636.00	17.710	54.170	6344.86	-528.51	702.57	1553.20	1743371.34	14412087.74	39°41'04.472"N	80°38'02.581"W	1704.71	65.661	0.90	-0.87	-0.72
6727.00	17.490	54.970	6431.60	-531.85	718.52	1575.62	1743393.75	14412103.68	39°41'04.628"N	80°38'02.294"W	1731.72	65.486	0.36	-0.24	0.88
6817.00	17.660	56.090	6517.40	-535.60	733.90	1598.03	1743416.15	14412119.06	39°41'04.779"N	80°38'02.006"W	1758.50	65.333	0.42	0.19	1.24
6908.00	17.640	55.290	6604.12	-539.48	749.46	1620.82	1743438.93	14412134.60	39°41'04.932"N	80°38'01.714"W	1785.70	65.184	0.27	-0.02	-0.88
6998.00	17.710	35.090	6689.95	-538.34	768.44	1639.91	1743458.02	14412153.58	39°41'05.119"N	80°38'01.469"W	1811.03	64.893	6.78	0.08	-22.44
7089.00	17.650	10.530	6776.78	-527.01	793.36	1650.41	1743468.51	14412178.49	39°41'05.365"N	80°38'01.333"W	1831.19	64.326	8.14	-0.07	-26.99
7178.00	17.660	345.020	6861.71	-506.86	819.71	1649.38	1743467.58	14412204.83	39°41'05.625"N	80°38'01.345"W	1841.84	63.574	8.63	0.01	-28.66
7269.00	18.910	330.200	6948.16	-480.21	845.85	1638.48	1743456.58	14412230.96	39°41'05.884"N	80°38'01.483"W	1843.93	62.695	5.28	1.37	-16.29
7359.00	27.600	324.400	7030.78	-445.20	875.52	1619.06	1743437.17	14412260.62	39°41'06.178"N	80°38'01.730"W	1840.62	61.597	9.97	9.66	-6.44

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	N Orth [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Build Rate ["/100ft]	Turn Rate ["/100ft]
7450.00	35.250	320.170	7108.39	-397.96	912.89	1589.92	1743408.04	14412297.97	39°41'06.549"N	80°38'02.101"W	1833.36	60.137	8.74	8.41	-4.65
7540.00	45.760	317.260	7176.73	-339.61	956.64	1551.29	1743369.43	14412341.70	39°41'06.983"N	80°38'02.592"W	1822.54	58.339	11.86	11.68	-3.23
7630.00	53.190	316.040	7235.17	-271.25	1006.32	1504.34	1743322.49	14412391.37	39°41'07.475"N	80°38'03.190"W	1809.89	56.220	8.32	8.26	-1.36
7721.00	61.040	314.200	7284.54	-194.97	1060.38	1450.42	1743268.60	14412445.41	39°41'08.012"N	80°38'03.877"W	1796.70	53.830	8.79	8.63	-2.02
7811.00	69.310	311.110	7322.30	-113.69	1115.62	1390.36	1743208.56	14412500.62	39°41'08.560"N	80°38'04.643"W	1782.61	51.257	9.70	9.19	-3.43
7902.00	78.420	309.200	7347.57	-27.11	1171.90	1323.60	1743141.83	14412556.88	39°41'09.119"N	80°38'05.494"W	1767.84	48.479	10.21	10.01	-2.10
7992.00	88.220	309.020	7358.02	61.19	1228.22	1254.32	1743072.58	14412613.18	39°41'09.679"N	80°38'06.377"W	1755.52	45.602	10.89	10.89	-0.20
8082.00	90.010	309.320	7359.41	150.21	1285.06	1184.56	1743002.84	14412670.00	39°41'10.243"N	80°38'07.266"W	1747.73	42.670	2.02	1.99	0.33
8172.00	90.160	310.910	7359.28	239.44	1343.05	1115.73	1742934.04	14412727.96	39°41'10.819"N	80°38'08.144"W	1746.03	39.718	1.77	1.77	1.77
8263.00	90.070	311.140	7359.10	329.84	1402.78	1047.08	1742865.42	14412787.67	39°41'11.412"N	80°38'09.019"W	1750.47	36.739	0.27	-0.10	0.25
8354.00	90.310	311.210	7358.80	420.27	1462.69	978.59	1742796.95	14412847.55	39°41'12.007"N	80°38'09.892"W	1759.85	33.784	0.27	0.26	0.08
8445.00	91.570	312.290	7357.30	510.78	1523.27	910.71	1742729.09	14412908.12	39°41'12.608"N	80°38'10.757"W	1774.75	30.874	1.82	1.38	1.19
8535.00	91.480	312.610	7354.91	600.38	1584.00	844.32	1742662.74	14412968.82	39°41'13.211"N	80°38'11.603"W	1794.97	28.059	0.37	-0.10	0.36
8625.00	91.720	312.230	7352.39	689.98	1644.68	777.91	1742596.35	14413029.48	39°41'13.813"N	80°38'12.449"W	1819.37	25.313	0.50	0.27	-0.42
8715.00	90.710	312.860	7350.49	779.61	1705.52	711.62	1742530.08	14413090.30	39°41'14.417"N	80°38'13.294"W	1848.03	22.648	1.32	-1.12	0.70
8806.00	92.250	312.970	7348.14	870.27	1767.46	645.00	1742463.49	14413152.21	39°41'15.032"N	80°38'14.143"W	1881.47	20.048	1.70	1.69	0.12
8896.00	92.310	312.680	7344.56	959.89	1828.59	579.04	1742397.56	14413213.32	39°41'15.639"N	80°38'14.983"W	1918.08	17.571	0.33	0.07	-0.32
8986.00	92.250	312.400	7340.97	1049.47	1889.39	512.78	1742331.32	14413274.10	39°41'16.242"N	80°38'15.828"W	1957.74	15.184	0.32	-0.07	-0.31
9077.00	92.150	310.730	7337.48	1139.89	1949.72	444.75	1742263.32	14413334.40	39°41'16.841"N	80°38'16.695"W	1999.80	12.850	1.84	-0.11	-1.84
9167.00	91.750	309.790	7334.42	1229.10	2007.85	376.10	1742194.70	14413392.51	39°41'17.419"N	80°38'17.570"W	2042.77	10.610	1.13	-0.44	-1.04
9258.00	91.940	312.240	7331.49	1319.45	2067.54	307.48	1742126.11	14413452.17	39°41'18.011"N	80°38'18.445"W	2090.27	8.459	2.70	0.21	2.69
9348.00	91.720	313.280	7328.61	1409.08	2128.61	241.44	1742060.09	14413513.22	39°41'18.617"N	80°38'19.286"W	2142.26	6.471	1.18	-0.24	1.16
9438.00	91.850	314.110	7325.81	1498.83	2190.75	176.40	1741995.07	14413575.33	39°41'19.234"N	80°38'20.115"W	2197.84	4.604	0.93	0.14	0.92
9529.00	91.510	313.440	7323.14	1589.58	2253.68	110.72	1741929.42	14413638.24	39°41'19.859"N	80°38'20.952"W	2256.40	2.813	0.83	-0.37	-0.74
9619.00	91.200	311.910	7321.01	1679.22	2314.67	44.57	1741863.30	14413699.20	39°41'20.464"N	80°38'21.795"W	2315.09	1.103	1.73	-0.34	-1.70
9709.00	91.450	310.740	7318.93	1768.66	2374.08	-23.00	1741795.76	14413758.59	39°41'21.054"N	80°38'22.656"W	2374.19	359.445	1.33	0.28	-1.30
9800.00	91.420	310.640	7316.65	1858.97	2433.39	-91.98	1741726.80	14413817.88	39°41'21.643"N	80°38'23.536"W	2435.13	357.835	0.11	-0.03	-0.11
9890.00	91.480	309.910	7314.38	1948.20	2491.55	-160.62	1741658.19	14413876.02	39°41'22.220"N	80°38'24.411"W	2496.72	356.311	0.81	0.07	-0.81
9980.00	92.120	310.960	7311.55	2037.46	2549.89	-229.09	1741589.75	14413934.34	39°41'22.800"N	80°38'25.284"W	2560.16	354.866	1.37	0.71	1.17
10071.00	92.120	310.980	7308.18	2127.79	2609.52	-297.75	1741521.11	14413993.94	39°41'23.391"N	80°38'26.159"W	2626.45	353.491	0.02	0.00	0.02

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
10161.00	92.090	309.850	7304.88	2217.02	2667.83	-366.23	1741452.66	14414052.22	39°41'23.970"N	80°38'27.032"W	2692.85	352.184	1.26	-0.03	-1.26
10251.00	92.120	308.880	7301.57	2306.03	2724.87	-435.76	1741383.16	14414109.25	39°41'24.537"N	80°38'27.918"W	2759.49	350.914	1.08	0.03	-1.08
10342.00	92.120	309.200	7298.21	2395.95	2782.15	-506.39	1741312.65	14414166.50	39°41'25.106"N	80°38'28.819"W	2827.86	349.684	0.35	0.00	0.35
10433.00	92.150	308.520	7294.82	2485.83	2839.20	-577.20	1741241.77	14414223.53	39°41'25.672"N	80°38'29.722"W	2897.28	348.509	0.75	0.03	-0.75
10523.00	92.090	309.870	7291.49	2574.80	2896.04	-646.90	1741172.09	14414280.35	39°41'26.237"N	80°38'30.610"W	2967.41	347.408	1.50	-0.07	1.50
10613.00	92.150	310.450	7288.16	2663.98	2954.04	-715.64	1741103.39	14414338.33	39°41'26.813"N	80°38'31.487"W	3039.49	346.382	0.65	0.07	0.64
10703.00	92.090	310.030	7284.83	2753.18	3012.14	-784.29	1741034.76	14414396.41	39°41'27.390"N	80°38'32.362"W	3112.57	345.406	0.47	-0.07	-0.47
10794.00	92.120	312.980	7281.48	2843.60	3072.40	-852.39	1740966.69	14414456.64	39°41'27.988"N	80°38'33.230"W	3188.45	344.494	3.24	0.03	3.24
10885.00	92.220	312.120	7278.04	2934.18	3133.89	-919.38	1740899.73	14414518.11	39°41'28.598"N	80°38'34.084"W	3265.97	343.650	0.95	0.11	-0.95
10975.00	92.120	312.250	7274.63	3023.71	3194.29	-986.02	1740833.11	14414578.48	39°41'29.198"N	80°38'34.933"W	3343.01	342.846	0.18	-0.11	0.14
11065.00	92.120	312.580	7271.30	3113.28	3254.95	-1052.42	1740766.74	14414639.12	39°41'29.800"N	80°38'35.780"W	3420.86	342.083	0.37	0.00	0.37
11156.00	92.250	312.240	7267.83	3203.84	3316.28	-1119.56	1740699.62	14414700.42	39°41'30.409"N	80°38'36.635"W	3500.16	341.346	0.40	0.14	-0.37
11246.00	92.120	312.670	7264.40	3293.41	3376.98	-1185.91	1740633.30	14414761.11	39°41'31.011"N	80°38'37.481"W	3579.16	340.650	0.50	-0.14	0.48
11337.00	91.510	312.080	7261.52	3383.99	3438.28	-1253.10	1740566.13	14414822.38	39°41'31.620"N	80°38'38.337"W	3659.52	339.975	0.93	-0.67	-0.65
11424.00	91.540	312.240	7259.20	3470.57	3496.66	-1317.57	1740501.69	14414880.73	39°41'32.199"N	80°38'39.159"W	3736.66	339.353	0.19	0.03	0.18
11505.00	91.540	312.360	7257.03	3551.19	3551.15	-1377.46	1740441.82	14414935.21	39°41'32.740"N	80°38'39.923"W	3808.95	338.799	0.15	0.00	0.15
11586.00	91.540	312.930	7254.85	3631.86	3606.01	-1437.02	1740382.29	14414990.04	39°41'33.284"N	80°38'40.682"W	3881.79	338.272	0.70	0.00	0.70
11677.00	91.480	313.710	7252.45	3722.57	3668.42	-1503.20	1740316.13	14415052.42	39°41'33.904"N	80°38'41.525"W	3964.45	337.718	0.86	-0.07	0.86
11767.00	91.450	313.930	7250.15	3812.35	3730.71	-1568.11	1740251.24	14415114.70	39°41'34.522"N	80°38'42.352"W	4046.88	337.202	0.25	-0.03	0.24
11858.00	91.290	313.860	7247.97	3903.13	3793.79	-1633.67	1740185.71	14415177.75	39°41'35.148"N	80°38'43.188"W	4130.58	336.702	0.19	-0.18	-0.08
11948.00	90.890	313.460	7246.26	3992.90	3855.91	-1698.77	1740120.64	14415239.84	39°41'35.764"N	80°38'44.017"W	4213.53	336.224	0.63	-0.44	-0.44
12039.00	91.020	313.290	7244.75	4083.64	3918.40	-1764.91	1740054.53	14415302.31	39°41'36.385"N	80°38'44.860"W	4297.53	335.752	0.24	0.14	-0.19
12129.00	90.920	313.100	7243.22	4173.36	3979.99	-1830.51	1739988.95	14415363.88	39°41'36.996"N	80°38'45.696"W	4380.77	335.301	0.24	-0.11	-0.21
12220.00	90.950	312.760	7241.74	4264.05	4041.96	-1897.13	1739922.35	14415425.83	39°41'37.611"N	80°38'46.546"W	4465.04	334.857	0.38	0.03	-0.37
12310.00	90.920	311.880	7240.27	4353.65	4102.55	-1963.67	1739855.84	14415486.39	39°41'38.212"N	80°38'47.394"W	4548.29	334.422	0.98	-0.03	-0.98
12400.00	90.800	312.090	7238.92	4443.21	4162.75	-2030.56	1739788.98	14415546.56	39°41'38.810"N	80°38'48.246"W	4631.59	333.997	0.27	-0.13	0.23
12490.00	90.770	312.210	7237.68	4532.80	4223.14	-2097.28	1739722.29	14415606.93	39°41'39.409"N	80°38'49.097"W	4715.24	333.590	0.14	-0.03	0.13
12581.00	91.050	311.800	7236.24	4623.35	4284.03	-2164.89	1739654.70	14415667.79	39°41'40.014"N	80°38'49.959"W	4799.96	333.191	0.55	0.31	-0.45
12671.00	90.860	312.510	7234.74	4712.93	4344.42	-2231.60	1739588.02	14415728.16	39°41'40.613"N	80°38'50.809"W	4884.06	332.812	0.82	-0.21	0.79
12762.00	90.890	312.120	7233.35	4803.54	4405.68	-2298.88	1739520.76	14415789.40	39°41'41.221"N	80°38'51.667"W	4969.39	332.444	0.43	0.03	-0.43

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Build Rate ["/100ft]	Turn Rate [°/100ft]
12852.00	90.860	312.400	7231.97	4893.13	4466.19	-2365.48	1739454.19	14415849.89	39°41'41.822"N	80°38'52.516"W	5053.95	332.092	0.31	-0.03	0.31
12942.00	90.770	313.230	7230.69	4982.81	4527.35	-2431.49	1739388.20	14415911.03	39°41'42.429"N	80°38'53.357"W	5138.98	331.761	0.93	-0.10	0.92
13032.00	90.770	313.880	7229.49	5072.58	4589.36	-2496.71	1739323.01	14415973.01	39°41'43.044"N	80°38'54.188"W	5224.54	331.453	0.72	0.00	0.72
13123.00	90.800	314.590	7228.24	5163.41	4652.84	-2561.91	1739257.84	14416036.46	39°41'43.674"N	80°38'55.019"W	5311.52	331.162	0.78	0.03	0.78
13213.00	90.770	315.020	7227.01	5253.30	4716.25	-2625.76	1739194.01	14416099.85	39°41'44.303"N	80°38'55.833"W	5397.93	330.893	0.48	-0.03	0.48
13303.00	90.550	314.150	7225.97	5343.17	4779.43	-2689.85	1739129.94	14416163.00	39°41'44.930"N	80°38'56.650"W	5484.36	330.629	1.00	-0.24	-0.97
13394.00	90.430	311.420	7225.15	5433.83	4841.23	-2756.63	1739063.19	14416224.78	39°41'45.543"N	80°38'57.501"W	5571.04	330.343	3.00	-0.13	-3.00
13484.00	90.490	311.630	7224.47	5523.32	4900.89	-2824.00	1738995.84	14416284.42	39°41'46.135"N	80°38'58.360"W	5656.30	330.048	0.24	0.07	0.23
13575.00	90.400	310.950	7223.76	5613.77	4960.94	-2892.38	1738927.50	14416344.44	39°41'46.731"N	80°38'59.231"W	5742.54	329.757	0.75	-0.10	-0.75
13665.00	90.550	310.160	7223.01	5703.09	5019.45	-2960.75	1738859.14	14416402.93	39°41'47.312"N	80°39'00.103"W	5827.60	329.466	0.89	0.17	-0.88
13756.00	90.490	309.900	7222.19	5793.29	5077.98	-3030.43	1738789.50	14416461.44	39°41'47.893"N	80°39'00.992"W	5913.49	329.172	0.29	-0.07	-0.29
13846.00	90.460	310.270	7221.44	5882.51	5135.93	-3099.29	1738720.67	14416519.37	39°41'48.469"N	80°39'01.870"W	5998.61	328.891	0.41	-0.03	0.41
13937.00	90.490	310.020	7220.69	5972.74	5194.60	-3168.85	1738651.13	14416578.01	39°41'49.051"N	80°39'02.757"W	6084.85	328.616	0.28	0.03	-0.27
14027.00	90.580	310.620	7219.85	6062.01	5252.83	-3237.46	1738582.54	14416636.22	39°41'49.629"N	80°39'03.632"W	6170.37	328.353	0.67	0.10	0.67
14117.00	90.520	310.510	7218.98	6151.33	5311.36	-3305.83	1738514.20	14416694.72	39°41'50.210"N	80°39'04.503"W	6256.12	328.102	0.14	-0.07	-0.12
14208.00	90.550	312.260	7218.13	6241.79	5371.51	-3374.10	1738445.96	14416754.86	39°41'50.808"N	80°39'05.374"W	6343.32	327.865	1.92	0.03	1.92
14299.00	90.520	313.740	7217.28	6332.49	5433.57	-3440.65	1738379.44	14416816.89	39°41'51.423"N	80°39'06.222"W	6431.31	327.657	1.63	-0.03	1.63
14389.00	90.610	314.640	7216.40	6422.32	5496.30	-3505.18	1738314.93	14416879.59	39°41'52.046"N	80°39'07.044"W	6518.86	327.473	1.00	0.10	1.00
14479.00	90.490	314.350	7215.53	6512.19	5559.37	-3569.37	1738250.76	14416942.64	39°41'52.672"N	80°39'07.863"W	6606.59	327.298	0.35	-0.13	-0.32
14569.00	90.460	313.500	7214.79	6602.00	5621.81	-3634.19	1738186.97	14417005.05	39°41'53.291"N	80°39'08.689"W	6694.18	327.120	0.95	-0.03	-0.94
14660.00	90.550	312.210	7213.99	6692.68	5683.70	-3700.90	1738119.29	14417066.92	39°41'53.905"N	80°39'09.539"W	6782.41	326.930	1.42	0.10	-1.42
14751.00	90.520	310.080	7213.14	6783.09	5743.56	-3769.42	1738050.80	14417126.76	39°41'54.500"N	80°39'10.413"W	6870.01	326.724	2.34	-0.03	-2.34
14841.00	90.490	309.250	7212.34	6872.23	5801.01	-3838.70	1737981.55	14417184.18	39°41'55.070"N	80°39'11.296"W	6956.10	326.506	0.92	-0.03	-0.92
14928.00	90.520	307.930	7211.58	6958.15	5855.27	-3906.69	1737913.57	14417238.42	39°41'55.609"N	80°39'12.163"W	7038.92	326.288	1.52	0.03	-1.52
15019.00	90.680	306.620	7210.62	7047.67	5910.38	-3979.10	1737841.20	14417293.51	39°41'56.156"N	80°39'13.087"W	7125.01	326.050	1.45	0.18	-1.44
15109.00	91.510	308.090	7209.90	7136.21	5964.98	-4050.62	1737769.70	14417348.09	39°41'56.699"N	80°39'13.999"W	7210.30	325.821	1.88	0.92	1.63
15199.00	91.050	309.180	7209.89	7225.09	6021.15	-4120.91	1737699.44	14417404.24	39°41'57.256"N	80°39'14.896"W	7296.31	325.612	1.31	-0.51	1.21
15290.00	91.050	309.270	7209.22	7315.11	6078.69	-4191.39	1737628.99	14417461.75	39°41'57.828"N	80°39'15.795"W	7383.65	325.413	0.10	0.00	0.10
15380.00	90.920	310.420	7208.68	7404.27	6136.34	-4260.48	1737559.93	14417519.39	39°41'58.400"N	80°39'16.676"W	7470.37	325.228	1.29	-0.14	1.28
15471.00	91.080	312.430	7208.09	7494.72	6196.54	-4328.70	1737491.73	14417579.56	39°41'58.998"N	80°39'17.546"W	7558.75	325.063	2.22	0.18	2.21

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
15561.00	91.010	314.810	7200.45	7584.48	6258.61	-4393.84	1737426.62	14417641.61	39°41'59.614"N	80°39'18.376"W	7646.96	324.929	2.65	-0.08	2.64
15561.00	91.020	315.070	7198.85	7674.37	6322.18	-4457.53	1737362.95	14417705.15	39°42'00.244"N	80°39'19.188"W	7735.60	324.814	0.29	0.01	0.29
15742.00	91.020	313.830	7197.23	7765.22	6385.89	-4522.48	1737298.02	14417768.84	39°42'00.876"N	80°39'20.016"W	7825.12	324.694	1.36	0.00	-1.36
15832.00	91.010	313.660	7195.64	7855.00	6448.11	-4587.49	1737233.04	14417831.03	39°42'01.494"N	80°39'20.844"W	7913.48	324.570	0.19	-0.01	-0.19
15922.00	91.010	314.420	7194.05	7944.81	6510.67	-4652.18	1737168.38	14417893.56	39°42'02.114"N	80°39'21.669"W	8001.97	324.452	0.84	0.00	0.84
16012.00	91.050	313.930	7192.43	8034.64	6573.37	-4716.72	1737103.87	14417956.25	39°42'02.737"N	80°39'22.491"W	8090.53	324.339	0.55	0.04	-0.54
16102.00	90.980	312.780	7190.84	8124.37	6635.15	-4782.15	1737038.46	14418018.00	39°42'03.350"N	80°39'23.325"W	8178.88	324.219	1.28	-0.08	-1.28
16193.00	90.980	311.900	7189.28	8214.98	6696.43	-4849.40	1736971.24	14418079.26	39°42'03.958"N	80°39'24.183"W	8267.94	324.089	0.97	0.00	-0.97
16284.00	90.980	311.600	7187.73	8305.49	6757.02	-4917.28	1736903.38	14418139.82	39°42'04.559"N	80°39'25.048"W	8356.85	323.956	0.33	0.00	-0.33
16374.00	90.830	311.190	7186.31	8394.95	6816.52	-4984.79	1736835.90	14418199.30	39°42'05.150"N	80°39'25.909"W	8444.71	323.823	0.49	-0.17	-0.46
16464.00	90.860	310.840	7184.98	8484.35	6875.58	-5052.69	1736768.03	14418258.33	39°42'05.736"N	80°39'26.775"W	8532.48	323.689	0.39	0.03	-0.39
16554.00	90.890	310.930	7183.60	8573.72	6934.48	-5120.72	1736700.02	14418317.21	39°42'06.321"N	80°39'27.642"W	8620.26	323.556	0.11	0.03	0.10
16644.00	90.950	310.780	7182.16	8663.08	6993.35	-5188.79	1736631.98	14418376.05	39°42'06.905"N	80°39'28.510"W	8708.06	323.426	0.18	0.07	-0.17
16735.00	90.890	311.730	7180.70	8753.51	7053.34	-5257.19	1736563.61	14418436.03	39°42'07.500"N	80°39'29.383"W	8797.03	323.301	1.05	-0.07	1.04
16825.00	90.770	312.680	7179.39	8843.11	7113.80	-5323.85	1736496.97	14418496.46	39°42'08.100"N	80°39'30.233"W	8885.35	323.189	1.06	-0.13	1.06
16915.00	90.830	313.890	7178.14	8932.84	7175.50	-5389.36	1736431.49	14418558.13	39°42'08.713"N	80°39'31.068"W	8974.01	323.091	1.35	0.07	1.34
17006.00	90.710	315.140	7176.91	9023.70	7239.29	-5454.24	1736366.63	14418621.90	39°42'09.345"N	80°39'31.895"W	9064.00	323.005	1.38	-0.13	1.37
17096.00	90.950	314.970	7175.61	9113.60	7302.98	-5517.81	1736303.09	14418685.57	39°42'09.977"N	80°39'32.705"W	9153.13	322.927	0.33	0.27	-0.19
17186.00	91.050	314.360	7174.04	9203.47	7366.24	-5581.81	1736239.11	14418748.80	39°42'10.605"N	80°39'33.521"W	9242.19	322.847	0.69	0.11	-0.68
17277.00	91.420	314.580	7172.08	9294.31	7429.97	-5646.74	1736174.21	14418812.51	39°42'11.237"N	80°39'34.348"W	9332.21	322.765	0.47	0.41	0.24
17367.00	91.480	314.630	7169.80	9384.16	7493.15	-5710.79	1736110.18	14418875.67	39°42'11.864"N	80°39'35.165"W	9421.28	322.688	0.09	0.07	0.06
17457.00	91.660	312.830	7167.33	9473.92	7555.34	-5775.80	1736045.20	14418937.83	39°42'12.481"N	80°39'35.993"W	9510.15	322.603	2.01	0.20	-2.00
17548.00	91.420	311.910	7164.89	9564.50	7616.64	-5843.01	1735978.02	14418999.11	39°42'13.089"N	80°39'36.850"W	9599.69	322.507	1.04	-0.26	-1.01
17638.00	91.450	312.080	7162.64	9654.04	7676.84	-5909.87	1735911.18	14419059.28	39°42'13.687"N	80°39'37.703"W	9688.16	322.410	0.19	0.03	0.19
17729.00	90.800	310.750	7160.85	9744.50	7737.02	-5978.10	1735842.97	14419119.44	39°42'14.284"N	80°39'38.573"W	9777.49	322.308	1.63	-0.71	-1.46
17819.00	90.180	310.810	7160.08	9833.85	7795.81	-6046.25	1735774.85	14419178.20	39°42'14.868"N	80°39'39.442"W	9865.68	322.204	0.69	-0.69	0.07
17909.00	90.090	311.610	7159.87	9923.29	7855.10	-6113.96	1735707.17	14419237.47	39°42'15.456"N	80°39'40.305"W	9954.05	322.105	0.89	-0.10	0.89
18000.00	89.750	311.580	7159.99	10013.79	7915.51	-6182.01	1735639.15	14419297.86	39°42'16.056"N	80°39'41.173"W	10043.53	322.010	0.38	-0.37	-0.03
18090.00	89.600	312.330	7160.50	10103.36	7975.68	-6248.94	1735572.24	14419358.00	39°42'16.653"N	80°39'42.027"W	10132.16	321.921	0.85	-0.17	0.83
18181.00	89.720	312.360	7161.04	10193.97	8036.99	-6316.19	1735505.02	14419419.29	39°42'17.261"N	80°39'42.884"W	10221.90	321.837	0.14	0.13	0.05

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MID (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
18280.00	89.750	312.330	7161.50	10292.57	8103.81	-6389.23	1735432.01	14419486.09	39°42'17.924"N	80°39'43.815"W	10319.59	321.747	0.15	0.03	0.15
18375.00	89.750	312.950	7161.92	10387.23	8168.28	-6459.00	1735362.27	14419550.54	39°42'18.564"N	80°39'44.705"W	10413.43	321.665	0.44	0.00	0.44
18470.00	89.780	313.320	7162.31	10481.94	8233.24	-6528.32	1735292.97	14419615.46	39°42'19.209"N	80°39'45.589"W	10507.39	321.588	0.39	0.03	0.39
18564.00	90.310	312.760	7162.23	10575.64	8297.39	-6597.03	1735224.29	14419679.59	39°42'19.845"N	80°39'46.465"W	10600.35	321.513	0.82	0.56	-0.60
18659.00	90.490	311.100	7161.57	10670.17	8360.87	-6667.70	1735153.65	14419743.05	39°42'20.475"N	80°39'47.366"W	10694.03	321.428	1.76	0.19	-1.75
18754.00	90.710	309.800	7160.57	10764.43	8422.50	-6739.98	1735081.39	14419804.65	39°42'21.087"N	80°39'48.288"W	10787.30	321.332	1.39	0.23	-1.37
18849.00	90.740	310.770	7159.37	10858.65	8483.92	-6812.45	1735008.95	14419866.05	39°42'21.697"N	80°39'49.212"W	10880.55	321.236	1.02	0.03	1.02
18943.00	90.770	311.200	7158.13	10952.01	8545.56	-6883.40	1734938.03	14419927.67	39°42'22.308"N	80°39'50.117"W	10973.05	321.149	0.46	0.03	0.46
19038.00	90.770	311.320	7156.86	11046.42	8608.21	-6954.81	1734866.65	14419990.29	39°42'22.930"N	80°39'51.028"W	11066.64	321.064	0.13	0.00	0.13
19133.00	90.800	313.240	7155.56	11141.00	8672.11	-7025.08	1734796.40	14420054.17	39°42'23.564"N	80°39'51.924"W	11160.53	320.990	2.02	0.03	2.02
19228.00	90.770	314.060	7154.25	11235.76	8737.68	-7093.82	1734727.70	14420119.71	39°42'24.215"N	80°39'52.800"W	11254.74	320.928	0.86	-0.03	0.86
19323.00	90.740	314.560	7153.00	11330.60	8804.03	-7161.79	1734659.75	14420186.04	39°42'24.873"N	80°39'53.667"W	11349.11	320.873	0.53	-0.03	0.53
19417.00	90.770	314.420	7151.76	11424.45	8869.90	-7228.84	1734592.72	14420251.88	39°42'25.527"N	80°39'54.521"W	11442.52	320.820	0.15	0.03	-0.15
19512.00	90.800	313.900	7150.46	11519.27	8936.08	-7296.99	1734524.60	14420318.03	39°42'26.183"N	80°39'55.390"W	11536.88	320.766	0.55	0.03	-0.55
19607.00	90.770	313.730	7149.16	11614.06	9001.84	-7365.53	1734456.09	14420383.77	39°42'26.836"N	80°39'56.264"W	11631.18	320.709	0.18	-0.03	-0.18
19701.00	90.770	313.620	7147.90	11707.83	9066.75	-7433.51	1734388.13	14420448.65	39°42'27.479"N	80°39'57.131"W	11724.47	320.653	0.12	0.00	-0.12
19796.00	90.520	313.100	7146.83	11802.56	9131.97	-7502.58	1734319.09	14420513.85	39°42'28.127"N	80°39'58.011"W	11818.70	320.594	0.61	-0.26	-0.55
19890.00	90.580	311.500	7145.93	11896.15	9195.23	-7572.10	1734249.60	14420577.08	39°42'28.754"N	80°39'58.898"W	11911.71	320.529	1.70	0.06	-1.70
19985.00	90.490	310.410	7145.04	11990.51	9257.50	-7643.84	1734177.89	14420639.32	39°42'29.372"N	80°39'59.813"W	12005.40	320.454	1.15	-0.09	-1.15
20080.00	90.430	311.370	7144.28	12084.85	9319.68	-7715.65	1734106.10	14420701.48	39°42'29.990"N	80°40'00.729"W	12099.08	320.379	1.01	-0.06	1.01
20175.00	90.650	312.570	7143.38	12179.39	9383.21	-7786.28	1734035.50	14420764.99	39°42'30.620"N	80°40'01.630"W	12193.06	320.314	1.28	0.23	1.26
20269.00	90.490	313.710	7142.45	12273.10	9447.48	-7854.87	1733966.94	14420829.23	39°42'31.258"N	80°40'02.504"W	12286.33	320.259	1.22	-0.17	1.21
20364.00	90.610	314.210	7141.53	12367.90	9513.42	-7923.25	1733898.59	14420895.15	39°42'31.912"N	80°40'03.376"W	12380.75	320.211	0.54	0.13	0.53
20459.00	90.490	314.260	7140.62	12462.73	9579.69	-7991.31	1733830.55	14420961.39	39°42'32.569"N	80°40'04.244"W	12475.24	320.165	0.14	-0.13	0.05
20553.00	90.490	315.100	7139.82	12556.61	9645.78	-8058.14	1733763.74	14421027.46	39°42'33.225"N	80°40'05.096"W	12568.80	320.124	0.89	0.00	0.89
20648.00	90.550	314.410	7138.96	12651.48	9712.67	-8125.60	1733696.31	14421094.32	39°42'33.888"N	80°40'05.956"W	12663.39	320.084	0.73	0.06	-0.73
20743.00	90.680	311.810	7137.94	12746.18	9777.58	-8194.95	1733626.99	14421159.20	39°42'34.532"N	80°40'06.840"W	12757.67	320.032	2.74	0.14	-2.74
20837.00	90.770	309.800	7136.75	12839.51	9839.00	-8266.09	1733555.88	14421220.60	39°42'35.142"N	80°40'07.747"W	12850.45	319.965	2.14	0.10	-2.14
20932.00	90.460	310.740	7135.73	12933.72	9900.40	-8338.57	1733483.43	14421281.98	39°42'35.751"N	80°40'08.672"W	12944.10	319.894	1.04	-0.33	0.99
21027.00	90.280	310.190	7135.11	13027.99	9962.06	-8410.84	1733411.18	14421343.61	39°42'36.363"N	80°40'09.594"W	13037.82	319.826	0.61	-0.19	-0.58

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
21121.00	90.400	310.270	7134.55	13121.21	10022.76	-8482.61	1733339.45	14421404.29	39°42'36.966"N	80°40'10.509"W	13130.52	319.758	0.15	0.13	0.09
21216.00	90.620	309.990	7133.71	13215.40	10083.99	-8555.24	1733266.84	14421465.50	39°42'37.574"N	80°40'11.436"W	13224.18	319.689	0.37	0.23	-0.29
21311.00	90.620	311.240	7132.68	13309.69	10145.83	-8627.35	1733194.76	14421527.31	39°42'38.187"N	80°40'12.355"W	13318.00	319.624	1.32	0.00	1.32
21405.00	90.550	312.620	7131.72	13403.22	10208.64	-8697.28	1733124.86	14421590.09	39°42'38.811"N	80°40'13.247"W	13411.15	319.571	1.47	-0.07	1.47
21500.00	90.610	312.870	7130.76	13497.87	10273.11	-8767.04	1733055.13	14421654.54	39°42'39.450"N	80°40'14.137"W	13505.48	319.523	0.27	0.06	0.26
21595.00	90.610	313.970	7129.75	13592.61	10338.41	-8836.04	1732986.16	14421719.81	39°42'40.098"N	80°40'15.017"W	13599.93	319.480	1.16	0.00	1.16
21690.00	90.610	316.130	7128.74	13687.51	10405.63	-8903.15	1732919.07	14421787.01	39°42'40.765"N	80°40'15.872"W	13694.64	319.449	2.27	0.00	2.27
21784.00	90.680	315.420	7127.68	13781.45	10472.99	-8968.70	1732853.54	14421854.34	39°42'41.433"N	80°40'16.708"W	13788.44	319.424	0.76	0.07	-0.76
21880.00	90.580	313.790	7126.62	13877.31	10540.40	-9037.05	1732785.22	14421921.72	39°42'42.102"N	80°40'17.579"W	13884.10	319.391	1.70	-0.10	-1.70
21974.00	90.650	312.220	7125.61	13971.00	10604.50	-9105.78	1732716.52	14421985.80	39°42'42.738"N	80°40'18.456"W	13977.51	319.348	1.67	0.07	-1.67
22069.00	90.610	311.490	7124.57	14065.52	10667.89	-9176.54	1732645.79	14422049.16	39°42'43.367"N	80°40'19.358"W	14071.70	319.298	0.77	-0.04	-0.77
22163.00	90.650	310.800	7123.54	14158.92	10729.73	-9247.32	1732575.03	14422110.98	39°42'43.980"N	80°40'20.261"W	14164.75	319.244	0.74	0.04	-0.73
22258.00	90.610	311.510	7122.49	14253.31	10792.25	-9318.84	1732503.54	14422173.48	39°42'44.601"N	80°40'21.173"W	14258.80	319.190	0.75	-0.04	0.75
22353.00	90.580	311.650	7121.50	14347.78	10855.29	-9389.90	1732432.51	14422236.50	39°42'45.227"N	80°40'22.080"W	14352.97	319.140	0.15	-0.03	0.15
22448.00	90.710	311.540	7120.44	14442.25	10918.36	-9460.94	1732361.49	14422299.53	39°42'45.852"N	80°40'22.986"W	14447.14	319.091	0.18	0.14	-0.12
22543.00	90.460	311.450	7119.47	14536.71	10981.30	-9532.09	1732290.37	14422362.45	39°42'46.477"N	80°40'23.893"W	14541.31	319.041	0.28	-0.26	-0.09
22638.00	90.490	310.790	7118.68	14631.10	11043.77	-9603.66	1732218.83	14422424.90	39°42'47.097"N	80°40'24.806"W	14635.40	318.990	0.70	0.03	-0.69
22732.00	90.340	310.730	7118.00	14724.43	11105.14	-9674.86	1732147.66	14422486.24	39°42'47.706"N	80°40'25.714"W	14728.44	318.937	0.17	-0.16	-0.06
22827.00	90.430	310.560	7117.36	14818.73	11167.02	-9746.94	1732075.61	14422548.10	39°42'48.320"N	80°40'26.634"W	14822.45	318.884	0.20	0.09	-0.18
22921.00	90.310	310.760	7116.75	14912.04	11228.26	-9818.24	1732004.33	14422609.32	39°42'48.928"N	80°40'27.543"W	14915.49	318.833	0.25	-0.13	0.21
23016.00	90.370	310.660	7116.19	15006.35	11290.22	-9890.25	1731932.35	14422671.26	39°42'49.543"N	80°40'28.462"W	15009.54	318.782	0.12	0.06	-0.11
23110.00	90.370	310.040	7115.58	15099.59	11351.08	-9961.89	1731860.74	14422732.09	39°42'50.147"N	80°40'29.376"W	15102.53	318.729	0.66	0.00	-0.66
23205.00	90.460	309.520	7114.89	15193.71	11411.87	-10034.90	1731787.76	14422792.85	39°42'50.750"N	80°40'30.307"W	15196.38	318.674	0.56	0.09	-0.55
23300.00	90.370	309.690	7114.20	15287.78	11472.43	-10108.09	1731714.60	14422853.39	39°42'51.351"N	80°40'31.241"W	15290.19	318.617	0.20	-0.09	0.18
23395.00	90.090	309.700	7113.82	15381.88	11533.10	-10181.19	1731641.53	14422914.04	39°42'51.954"N	80°40'32.174"W	15384.05	318.563	0.29	-0.29	0.01
23489.00	90.120	310.410	7113.65	15475.06	11593.59	-10253.13	1731569.61	14422974.51	39°42'52.554"N	80°40'33.092"W	15477.02	318.511	0.76	0.03	0.76
23584.00	90.150	311.550	7113.43	15569.43	11655.89	-10324.85	1731497.92	14423036.78	39°42'53.172"N	80°40'34.006"W	15571.20	318.465	1.20	0.03	1.20
23679.00	89.970	311.940	7113.33	15663.93	11719.14	-10395.73	1731427.07	14423100.01	39°42'53.800"N	80°40'34.910"W	15665.56	318.425	0.45	-0.19	0.41
23773.00	90.000	313.460	7113.35	15757.59	11782.89	-10464.81	1731358.01	14423163.73	39°42'54.432"N	80°40'35.792"W	15759.09	318.391	1.62	0.03	1.62
23868.00	90.210	314.920	7113.18	15852.42	11849.11	-10532.93	1731289.92	14423229.92	39°42'55.089"N	80°40'36.660"W	15853.83	318.365	1.55	0.22	1.54

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

WELLPATH DATA (293 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
23963.00	90.090	314.740	7112.93	15947.30	11916.08	-10600.30	1731222.58	14423296.87	39°42'55.753"N	80°40'37.519"W	15948.65	318.344	0.23	-0.13	-0.19
24057.00	90.120	314.700	7112.76	16041.19	11982.22	-10667.10	1731155.81	14423362.99	39°42'56.409"N	80°40'38.371"W	16042.46	318.323	0.05	0.03	-0.04
24152.00	90.090	313.930	7112.58	16136.03	12048.59	-10735.07	1731087.86	14423429.33	39°42'57.068"N	80°40'39.238"W	16137.23	318.300	0.81	-0.03	-0.81
24246.00	90.120	312.350	7112.41	16229.74	12112.86	-10803.66	1731019.30	14423493.58	39°42'57.705"N	80°40'40.112"W	16230.85	318.270	1.68	0.03	-1.68
24341.00	90.180	310.870	7112.16	16324.22	12175.95	-10874.68	1730948.30	14423556.64	39°42'58.331"N	80°40'41.018"W	16325.21	318.231	1.56	0.06	-1.56
24436.00	90.210	310.560	7111.84	16418.53	12237.92	-10946.69	1730876.33	14423618.58	39°42'58.946"N	80°40'41.937"W	16419.40	318.188	0.33	0.03	-0.33
24530.00	90.210	309.790	7111.49	16511.74	12298.56	-11018.51	1730804.53	14423679.20	39°42'59.548"N	80°40'42.853"W	16512.48	318.142	0.82	0.00	-0.82
24625.00	90.060	309.880	7111.27	16605.87	12359.41	-11091.46	1730731.61	14423740.03	39°43'00.152"N	80°40'43.784"W	16606.49	318.095	0.18	-0.16	0.09
24720.00	90.090	310.710	7111.15	16700.10	12420.85	-11163.92	1730659.18	14423801.44	39°43'00.762"N	80°40'44.708"W	16700.62	318.051	0.87	0.03	0.87
24814.00	90.090	311.780	7111.00	16793.52	12482.82	-11234.60	1730588.53	14423863.39	39°43'01.377"N	80°40'45.610"W	16793.96	318.013	1.14	0.00	1.14
24909.00	90.090	312.630	7110.85	16888.09	12546.58	-11305.02	1730518.13	14423927.12	39°43'02.009"N	80°40'46.508"W	16888.46	317.980	0.79	0.00	0.79
25003.00	90.150	313.310	7110.65	16981.78	12610.59	-11373.86	1730449.32	14423991.11	39°43'02.644"N	80°40'47.386"W	16982.10	317.952	0.83	0.06	0.83
25098.00	90.180	313.910	7110.38	17076.55	12676.12	-11442.64	1730380.57	14424056.61	39°43'03.294"N	80°40'48.264"W	17076.83	317.928	0.63	0.03	0.63
25193.00	90.150	314.750	7110.11	17171.39	12742.50	-11510.60	1730312.64	14424122.97	39°43'03.953"N	80°40'49.130"W	17171.64	317.908	0.88	-0.03	0.88
25288.00	90.180	315.030	7109.83	17266.28	12809.54	-11577.90	1730245.36	14424189.98	39°43'04.618"N	80°40'49.988"W	17266.51	317.891	0.30	0.03	0.29
25383.00	90.150	315.640	7109.56	17361.21	12877.11	-11644.68	1730178.61	14424257.52	39°43'05.288"N	80°40'50.840"W	17361.41	317.877	0.64	-0.03	0.64
25478.00	90.210	314.780	7109.26	17456.12	12944.53	-11711.61	1730111.70	14424324.92	39°43'05.957"N	80°40'51.693"W	17456.31	317.863	0.91	0.06	-0.91
25572.00	90.280	314.590	7108.86	17550.00	13010.63	-11778.44	1730044.90	14424390.99	39°43'06.612"N	80°40'52.546"W	17550.16	317.846	0.22	0.07	-0.20
25667.00	90.210	313.520	7108.45	17644.82	13076.69	-11846.71	1729976.65	14424457.02	39°43'07.267"N	80°40'53.416"W	17644.95	317.825	1.13	-0.07	-1.13
25762.00	90.120	312.000	7108.18	17739.48	13141.18	-11916.46	1729906.93	14424521.50	39°43'07.907"N	80°40'54.306"W	17739.58	317.798	1.60	-0.09	-1.60
25856.00	90.210	310.070	7107.91	17832.86	13202.89	-11987.36	1729836.06	14424583.18	39°43'08.520"N	80°40'55.210"W	17832.93	317.763	2.06	0.10	-2.05
25929.00	90.090	309.110	7107.72	17905.14	13249.42	-12043.62	1729779.83	14424629.68	39°43'08.981"N	80°40'55.928"W	17905.19	317.729	1.33	-0.16	-1.32
25954.00	90.090	309.110	7107.68	17929.87	13265.19	-12063.02	1729760.44	14424645.45	39°43'09.138"N	80°40'56.176"W	17929.91	317.717	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 405
Area	Wetzel County, WV	Well	SWN A WTZ 405H
Field	Wetzel	Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad		

HOLE & CASING SECTIONS - Ref Wellbore: SWN A WTZ 405H AWB Ref Wellpath: SWN A WTZ 405H AWP Proj: 25954'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	26.00	100.00	74.00	26.00	100.00	0.00	0.00	-0.02	0.07
17.5in Open Hole	100.00	406.00	306.00	100.00	406.00	-0.02	0.07	-0.61	-0.51
13.375in Casing Surface	26.00	406.00	380.00	26.00	406.00	0.00	0.00	-0.61	-0.51
12.25in Open Hole	406.00	2832.00	2426.00	406.00	2795.36	-0.61	-0.51	119.47	344.46
9.625in Casing Intermediate	26.00	2832.00	2806.00	26.00	2795.36	0.00	0.00	119.47	344.46
8.75in Open Hole	2832.00	5839.00	3007.00	2795.36	5598.31	119.47	344.46	554.58	1318.12
8.5in Open Hole	5839.00	25954.00	20115.00	5598.31	7107.68	554.58	1318.12	13265.19	-12063.02
5.5in Casing Production	26.00	25954.00	25928.00	26.00	7107.68	0.00	0.00	13265.19	-12063.02

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SWN A WTZ 405H BHL Rev-5	7106.00	13239.79	-12091.69	1729731.77	14424620.06	39°43'08.888"N	80°40'56.544"W	point
SWN A WTZ 405H LP Rev-5	7365.04	1214.28	1262.93	1743081.19	14412599.24	39°41'09.540"N	80°38'06.267"W	point

WELLPATH COMPOSITION - Ref Wellbore: SWN A WTZ 405H AWB Ref Wellpath: SWN A WTZ 405H AWP Proj: 25954'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	1004.00	VESSI GyroFlex v4	01 VESSI Gyroflex <17 1/2"> (50'-1004')	SWN A WTZ 405H AWB
1004.00	2787.00	OWSG MWD rev2 + HRGM	02 Premier MWD <12 1/4"> (1163'-2787')	SWN A WTZ 405H AWB
2787.00	5773.00	OWSG MWD rev2 +HRGM + Multi-Station Correction	03 Superior QC MSA MWD <8 3/4"> (2884'-5773')	SWN A WTZ 405H AWB
5773.00	8263.00	OWSG MWD rev2 +HRGM + Multi-Station Correction	04 Superior QC MSA BH ATCurve <8 1/2"> (5821'-8263')	SWN A WTZ 405H AWB
8263.00	25929.00	OWSG MWD rev2 +HRGM + Multi-Station Correction	05 Superior QC MSA BH ATCurve <8 1/2"> (8354'-25929')	SWN A WTZ 405H AWB
25929.00	25954.00	Blind Drilling (std)	Projection to bit	SWN A WTZ 405H AWB

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY		Slot	Slot 405
Area	Wetzel County, WV		Well	SWN A WTZ 405H
Field	Wetzel		Wellbore	SWN A WTZ 405H AWB
Facility	SWN A WTZ Pad			

COMMENTS

Wellpath general comments
API: 47-103-03253-0000
BH Job #: 109824756
Rig: SDC 46
Duration: 06/23/2019 - 07/01/2019