

## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 205H
Area	Marshall County, WV	Well	Yocum MSH 205H
Field	Marshall	Wellbore	Yocum MSH 205H AWB
Facility	Yocum MSH Pad		

## REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Hilpthop
Scale	0.999616	Report Generated	23/Apr/2019 at 16:30
Convergence at slot	0.27° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Yocum_MSH_205H_AWP_Proj_21037_.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-16.43	66.92	1757513.63	14429769.20	39°43'58.671"N	80°35'00.568"W
Facility Reference Pt			1757446.73	14429785.62	39°43'58.836"N	80°35'01.424"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	1079.40ft
Horizontal Reference Pt	Slot	SDC 46 (KB) to Mean Sea Level	1079.40ft
Vertical Reference Pt	SDC 46 (KB)	SDC 46 (KB) to Mud Line at Slot (Slot 205H)	26.00ft
MD Reference Pt	SDC 46 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	317.92°

# Actual Wellpath Report

Yocum MSH 205H AWP Proj: 21037

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## WELLPATH DATA (239 stations) † = interpolated/extrapolated station

MD	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	347.310	0.00	0.00	0.00	0.00	1757513.63	14429769.20	39°43'58.671"N	80°35'00.568"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	347.310	26.00	0.00	0.00	0.00	1757513.63	14429769.20	39°43'58.671"N	80°35'00.568"W	0.00	0.000	0.00	0.00	0.00
169.00	0.230	347.310	169.00	0.25	0.28	-0.06	1757513.57	14429769.48	39°43'58.673"N	80°35'00.569"W	0.29	347.310	0.16	0.16	-8.87
230.00	0.110	41.500	230.00	0.36	0.44	-0.05	1757513.58	14429769.65	39°43'58.675"N	80°35'00.569"W	0.45	353.419	0.31	-0.20	88.84
320.00	0.210	17.980	320.00	0.46	0.66	0.06	1757513.69	14429769.87	39°43'58.677"N	80°35'00.568"W	0.67	4.901	0.13	0.11	-26.13
411.00	0.080	213.490	411.00	0.52	0.77	0.07	1757513.70	14429769.97	39°43'58.678"N	80°35'00.567"W	0.77	5.444	0.32	-0.14	-180.76
487.00	0.120	161.780	487.00	0.44	0.65	0.07	1757513.70	14429769.85	39°43'58.677"N	80°35'00.567"W	0.65	6.057	0.12	0.05	-68.04
573.00	0.300	130.040	573.00	0.13	0.42	0.27	1757513.90	14429769.62	39°43'58.675"N	80°35'00.565"W	0.50	32.675	0.24	0.21	-36.91
619.00	0.620	81.490	619.00	-0.13	0.38	0.61	1757514.24	14429769.58	39°43'58.674"N	80°35'00.561"W	0.72	58.014	1.04	0.70	-105.54
709.00	2.100	80.310	708.97	-1.28	0.73	2.72	1757516.34	14429769.93	39°43'58.678"N	80°35'00.534"W	2.81	74.965	1.64	1.64	-1.31
799.00	3.110	74.380	798.87	-3.25	1.66	6.69	1757520.32	14429770.87	39°43'58.687"N	80°35'00.483"W	6.90	76.034	1.16	1.12	-6.59
890.00	3.960	74.770	889.70	-5.77	3.15	12.10	1757525.73	14429772.36	39°43'58.701"N	80°35'00.413"W	12.51	75.390	0.93	0.93	0.43
980.00	4.830	73.350	979.44	-8.80	5.06	18.73	1757532.35	14429774.26	39°43'58.720"N	80°35'00.328"W	19.40	74.892	0.97	0.97	-1.58
1073.00	6.340	69.030	1071.99	-12.33	8.02	27.28	1757540.90	14429777.22	39°43'58.749"N	80°35'00.219"W	28.43	73.623	1.68	1.62	-4.65
1161.00	7.860	63.780	1159.32	-15.72	12.41	37.21	1757550.83	14429781.61	39°43'58.792"N	80°35'00.091"W	39.23	71.552	1.88	1.73	-5.97
1251.00	7.220	62.910	1248.54	-18.87	17.71	47.77	1757561.38	14429786.90	39°43'58.843"N	80°34'59.956"W	50.94	69.660	0.72	-0.71	-0.97
1342.00	5.770	63.900	1338.95	-21.61	22.33	56.97	1757570.57	14429791.52	39°43'58.889"N	80°34'59.838"W	61.19	68.600	1.60	-1.59	1.09
1432.00	6.110	60.810	1428.47	-23.92	26.65	65.21	1757578.82	14429795.84	39°43'58.931"N	80°34'59.732"W	70.45	67.771	0.52	0.38	-3.43
1522.00	5.070	64.180	1518.04	-26.10	30.72	72.97	1757586.57	14429799.91	39°43'58.971"N	80°34'59.633"W	79.18	67.170	1.21	-1.16	3.74
1613.00	5.020	65.980	1608.69	-28.46	34.09	80.23	1757593.83	14429803.28	39°43'59.004"N	80°34'59.539"W	87.17	66.978	0.18	-0.05	1.98
1703.00	5.820	62.780	1698.28	-30.86	37.78	87.88	1757601.48	14429806.97	39°43'59.040"N	80°34'59.441"W	95.66	66.737	0.95	0.89	-3.56
1793.00	5.030	59.720	1787.88	-32.83	41.86	95.35	1757608.94	14429811.04	39°43'59.080"N	80°34'59.345"W	104.13	66.299	0.93	-0.88	-3.40
1884.00	4.570	55.570	1878.56	-34.13	45.92	101.78	1757615.37	14429815.10	39°43'59.120"N	80°34'59.263"W	111.66	65.718	0.63	-0.51	-4.56
1974.00	5.340	65.610	1968.22	-35.88	49.68	108.56	1757622.14	14429818.86	39°43'59.157"N	80°34'59.176"W	119.38	65.411	1.29	0.86	11.16
2065.00	6.460	69.740	2058.74	-39.07	53.20	117.22	1757630.80	14429822.38	39°43'59.191"N	80°34'59.065"W	128.72	65.589	1.32	1.23	4.54
2155.00	6.120	71.890	2148.20	-42.90	56.44	126.53	1757640.11	14429825.62	39°43'59.223"N	80°34'58.946"W	138.54	65.959	0.46	-0.38	2.39
2246.00	5.260	75.820	2238.75	-46.82	58.97	135.18	1757648.76	14429828.15	39°43'59.247"N	80°34'58.835"W	147.48	66.431	1.04	-0.95	4.32
2336.00	5.010	76.590	2328.39	-50.64	60.89	143.00	1757656.58	14429830.07	39°43'59.266"N	80°34'58.734"W	155.43	66.935	0.29	-0.28	0.86
2427.00	4.910	68.830	2419.05	-53.94	63.22	150.50	1757664.07	14429832.40	39°43'59.288"N	80°34'58.638"W	163.24	67.214	0.74	-0.11	-8.53
2501.00	4.890	66.590	2492.78	-56.08	65.62	156.35	1757669.92	14429834.80	39°43'59.312"N	80°34'58.563"W	169.56	67.232	0.26	-0.03	-3.03



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## WELLPATH DATA (239 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]
2610.00	4.220	56.590	2601.44	-58.17	69.67	163.96	1757677.52	14429838.85	39°43'59.352"N	80°34'58.466"W	178.15	66.977	0.95	-0.61	-9.17
2701.00	5.290	51.510	2692.12	-58.93	74.13	170.04	1757683.60	14429843.30	39°43'59.395"N	80°34'58.388"W	185.49	66.445	1.26	1.18	-5.58
2791.00	7.020	54.350	2781.60	-59.81	79.92	177.75	1757691.31	14429849.09	39°43'59.452"N	80°34'58.288"W	194.89	65.792	1.95	1.92	3.16
2882.00	8.610	62.070	2871.75	-62.10	86.35	188.29	1757701.85	14429855.52	39°43'59.515"N	80°34'58.153"W	207.15	65.365	2.09	1.75	8.48
2972.00	9.260	62.380	2960.66	-65.55	92.86	200.66	1757714.21	14429862.03	39°43'59.579"N	80°34'57.994"W	221.10	65.167	0.72	0.72	0.34
3063.00	9.020	59.440	3050.51	-68.81	99.88	213.29	1757726.84	14429869.05	39°43'59.648"N	80°34'57.832"W	235.52	64.907	0.58	-0.26	-3.23
3153.00	8.930	56.140	3139.41	-71.21	107.36	225.17	1757738.71	14429876.52	39°43'59.721"N	80°34'57.680"W	249.45	64.508	0.58	-0.10	-3.67
3244.00	9.460	54.920	3229.24	-73.14	115.59	237.15	1757750.69	14429884.75	39°43'59.802"N	80°34'57.526"W	263.82	64.014	0.62	0.58	-1.34
3334.00	10.360	54.390	3317.89	-74.95	124.56	249.78	1757763.32	14429893.71	39°43'59.890"N	80°34'57.364"W	279.12	63.496	1.01	1.00	-0.59
3425.00	12.150	55.610	3407.14	-77.15	134.73	264.34	1757777.87	14429903.88	39°43'59.990"N	80°34'57.177"W	296.69	62.993	1.98	1.97	1.34
3515.00	14.480	56.100	3494.71	-80.02	146.36	281.50	1757795.02	14429915.50	39°44'00.104"N	80°34'56.957"W	317.27	62.529	2.59	2.59	0.54
3605.00	16.780	58.220	3581.38	-83.95	159.48	301.88	1757815.39	14429928.62	39°44'00.233"N	80°34'56.695"W	341.42	62.154	2.63	2.56	2.36
3696.00	19.380	59.560	3667.88	-89.34	174.05	326.07	1757839.57	14429943.18	39°44'00.376"N	80°34'56.384"W	369.61	61.908	2.89	2.86	1.47
3786.00	21.590	62.780	3752.19	-96.60	189.19	353.67	1757867.17	14429958.32	39°44'00.524"N	80°34'56.030"W	401.09	61.856	2.76	2.46	3.58
3876.00	21.990	63.690	3835.76	-105.43	204.23	383.50	1757896.98	14429973.36	39°44'00.671"N	80°34'55.647"W	434.49	61.963	0.58	0.44	1.01
3967.00	22.090	62.870	3920.11	-114.47	219.59	414.00	1757927.47	14429988.70	39°44'00.822"N	80°34'55.256"W	468.63	62.059	0.36	0.11	-0.90
4057.00	22.020	61.910	4003.52	-122.92	235.25	443.95	1757957.41	14430004.36	39°44'00.975"N	80°34'54.872"W	502.43	62.081	0.41	-0.08	-1.07
4148.00	21.620	59.830	4088.00	-130.50	251.70	473.49	1757986.94	14430020.81	39°44'01.136"N	80°34'54.493"W	536.24	62.005	0.96	-0.44	-2.29
4238.00	20.460	56.320	4172.00	-136.22	268.76	500.92	1758014.35	14430037.86	39°44'01.304"N	80°34'54.141"W	568.46	61.785	1.90	-1.29	-3.90
4328.00	19.060	56.840	4256.70	-140.80	285.52	526.31	1758039.74	14430054.62	39°44'01.468"N	80°34'53.815"W	598.77	61.520	1.57	-1.56	0.58
4419.00	18.150	58.710	4342.95	-145.76	301.01	550.86	1758064.28	14430070.10	39°44'01.620"N	80°34'53.500"W	627.74	61.346	1.20	-1.00	2.05
4509.00	18.060	59.060	4428.49	-151.07	315.47	574.81	1758088.21	14430084.55	39°44'01.762"N	80°34'53.192"W	655.68	61.241	0.16	-0.10	0.39
4599.00	18.070	60.510	4514.05	-156.81	329.51	598.92	1758112.32	14430098.58	39°44'01.899"N	80°34'52.883"W	683.58	61.182	0.50	0.01	1.61
4689.00	19.830	66.660	4599.18	-164.76	342.43	625.09	1758138.48	14430111.50	39°44'02.026"N	80°34'52.547"W	712.74	61.286	2.96	1.96	6.83
4779.00	21.240	62.880	4683.46	-173.87	355.91	653.62	1758167.00	14430124.98	39°44'02.158"N	80°34'52.181"W	744.24	61.431	2.15	1.57	-4.20
4870.00	20.990	56.870	4768.36	-180.67	372.34	681.94	1758195.31	14430141.39	39°44'02.319"N	80°34'51.817"W	776.97	61.366	2.39	-0.27	-6.60
4960.00	23.050	60.600	4851.80	-187.04	389.80	710.80	1758224.15	14430158.85	39°44'02.490"N	80°34'51.447"W	810.66	61.260	2.77	2.29	4.14
5051.00	24.140	65.330	4935.20	-196.52	406.31	743.23	1758256.57	14430175.36	39°44'02.652"N	80°34'51.031"W	847.04	61.335	2.40	1.20	5.20
5141.00	21.890	64.490	5018.03	-206.81	421.22	775.10	1758288.43	14430190.26	39°44'02.798"N	80°34'50.622"W	882.16	61.479	2.53	-2.50	-0.93
5232.00	20.620	58.600	5102.85	-214.62	436.88	804.09	1758317.41	14430205.91	39°44'02.951"N	80°34'50.250"W	915.11	61.484	2.73	-1.40	-6.47

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5322.00	20.820	61.290	5187.03	-221.26	452.82	831.65	1758344.96	14430221.85	39°44'03.107"N	80°34'49.896"W	946.93	61.433	1.08	0.22	2.99
5413.00	21.300	66.280	5271.96	-230.20	467.24	860.97	1758374.26	14430236.26	39°44'03.248"N	80°34'49.520"W	979.58	61.512	2.04	0.53	5.48
5503.00	21.740	63.070	5355.68	-239.71	481.36	890.79	1758404.08	14430250.38	39°44'03.387"N	80°34'49.138"W	1012.53	61.614	1.40	0.49	-3.57
5593.00	20.730	64.850	5439.57	-248.70	495.68	920.07	1758433.35	14430264.69	39°44'03.527"N	80°34'48.762"W	1045.10	61.687	1.33	-1.12	1.98
5683.00	19.860	60.820	5523.99	-256.76	509.90	947.84	1758461.10	14430278.91	39°44'03.666"N	80°34'48.406"W	1076.29	61.721	1.83	-0.97	-4.48
5774.00	20.580	62.390	5609.38	-264.20	524.85	975.51	1758488.76	14430293.85	39°44'03.813"N	80°34'48.051"W	1107.74	61.718	0.99	0.79	1.73
5864.00	21.000	66.120	5693.53	-273.19	538.71	1004.27	1758517.52	14430307.71	39°44'03.948"N	80°34'47.682"W	1139.64	61.790	1.54	0.47	4.14
5954.00	20.390	62.670	5777.72	-282.22	552.44	1032.95	1758546.18	14430321.43	39°44'04.083"N	80°34'47.314"W	1171.40	61.861	1.51	-0.68	-3.83
6044.00	19.640	64.110	5862.28	-290.43	566.24	1060.49	1758573.71	14430335.23	39°44'04.218"N	80°34'46.960"W	1202.19	61.900	1.00	-0.83	1.60
6135.00	20.870	62.860	5947.66	-298.88	580.31	1088.67	1758601.88	14430349.29	39°44'04.355"N	80°34'46.599"W	1233.68	61.940	1.43	1.35	-1.37
6225.00	21.030	64.440	6031.71	-307.60	594.60	1117.50	1758630.70	14430363.57	39°44'04.495"N	80°34'46.229"W	1265.84	61.984	0.65	0.18	1.76
6316.00	21.240	59.660	6116.59	-315.60	609.97	1146.46	1758659.65	14430378.93	39°44'04.646"N	80°34'45.857"W	1298.63	61.985	1.91	0.23	-5.25
6406.00	20.910	61.450	6200.57	-322.67	625.88	1174.64	1758687.82	14430394.84	39°44'04.802"N	80°34'45.496"W	1330.98	61.950	0.80	-0.37	1.99
6493.00	21.770	62.660	6281.61	-330.41	640.71	1202.61	1758715.77	14430409.66	39°44'04.947"N	80°34'45.137"W	1362.64	61.953	1.11	0.99	1.39
6549.00	23.050	59.480	6333.38	-335.25	651.05	1221.28	1758734.44	14430420.00	39°44'05.048"N	80°34'44.897"W	1383.97	61.939	3.15	2.29	-5.68
6639.00	18.680	37.330	6417.59	-336.13	671.50	1245.25	1758758.39	14430440.44	39°44'05.249"N	80°34'44.589"W	1414.76	61.664	9.94	-4.86	-24.61
6730.00	18.640	14.350	6503.92	-325.40	697.21	1257.70	1758770.85	14430466.14	39°44'05.503"N	80°34'44.428"W	1438.03	60.998	8.03	-0.04	-25.25
6820.00	18.500	0.980	6589.27	-307.00	725.43	1261.51	1758774.66	14430494.35	39°44'05.782"N	80°34'44.378"W	1455.22	60.099	4.72	-0.16	-14.86
6910.00	20.060	346.910	6674.27	-283.06	754.76	1258.26	1758771.40	14430523.67	39°44'06.072"N	80°34'44.418"W	1467.27	59.043	5.43	1.73	-15.63
7000.00	23.500	333.690	6757.88	-252.26	785.91	1246.80	1758759.95	14430554.81	39°44'06.380"N	80°34'44.562"W	1473.83	57.775	6.64	3.82	-14.69
7091.00	30.670	323.430	6838.90	-211.62	820.87	1224.89	1758738.05	14430589.76	39°44'06.726"N	80°34'44.841"W	1474.52	56.172	9.38	7.88	-11.27
7181.00	39.890	321.660	6912.29	-159.86	862.04	1193.24	1758706.41	14430630.91	39°44'07.135"N	80°34'45.243"W	1472.05	54.155	10.31	10.24	-1.97
7271.00	49.770	313.840	7028.69	-96.59	908.62	1150.42	1758663.61	14430677.47	39°44'07.597"N	80°34'45.789"W	1465.97	51.698	12.56	10.98	-8.69
7362.00	59.630	307.810	7076.04	-23.07	956.89	1094.18	1758607.39	14430725.73	39°44'08.077"N	80°34'46.506"W	1453.57	48.829	12.10	10.84	-6.63
7452.00	69.090	306.500	7067.54	56.54	1005.81	1029.57	1758542.80	14430774.63	39°44'08.563"N	80°34'47.330"W	1439.33	45.669	10.59	10.51	-1.46
7543.00	76.660	305.910	7094.32	141.63	1057.14	959.44	1758472.70	14430825.93	39°44'09.074"N	80°34'48.224"W	1427.61	42.226	8.34	8.32	-0.65
7583.00	80.580	305.860	7102.21	179.98	1080.12	927.67	1758440.95	14430848.90	39°44'09.302"N	80°34'48.630"W	1423.81	40.658	9.80	9.80	-0.13
7633.00	82.940	305.790	7109.37	228.36	1109.08	887.56	1758400.84	14430877.85	39°44'09.590"N	80°34'49.141"W	1420.50	38.669	4.72	4.72	-0.14
7723.00	89.860	307.930	7115.02	316.45	1162.93	815.74	1758329.05	14430931.68	39°44'10.126"N	80°34'50.057"W	1420.50	35.048	8.05	7.69	2.38
7813.00	90.010	308.730	7115.12	405.20	1218.74	745.14	1758258.48	14430987.48	39°44'10.681"N	80°34'50.958"W	1428.49	31.442	0.90	0.17	0.89

# Actual Wellpath Report

Yocum MSH 205H AWP Proj: 21037'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 205H
Area	Marshall County, WV	Well	Yocum MSH 205H
Field	Marshall	Wellbore	Yocum MSH 205H AWB
Facility	Yocum MSH Pad		

## WELLPATH DATA (239 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]
7903.00	90.100	308.780	7115.04	494.05	1275.08	674.96	1758188.32	14431043.79	39°44'11.241"N	80°34'51.853"W	1442.71	27.894	0.11	0.10	0.06
7994.00	90.900	309.280	7114.24	583.95	1332.39	604.27	1758117.66	14431101.07	39°44'11.810"N	80°34'52.754"W	1463.01	24.395	1.04	0.88	0.55
8033.00	91.670	310.290	7113.37	622.55	1357.34	574.31	1758087.71	14431126.01	39°44'12.058"N	80°34'53.136"W	1473.83	22.934	3.26	1.97	2.59
8084.00	92.590	311.370	7111.47	673.12	1390.66	535.75	1758049.17	14431159.32	39°44'12.389"N	80°34'53.628"W	1490.28	21.069	2.78	1.80	2.12
8175.00	92.900	311.940	7107.12	763.47	1451.07	467.83	1757981.28	14431219.71	39°44'12.990"N	80°34'54.494"W	1524.62	17.870	0.71	0.34	0.63
8265.00	92.740	311.610	7102.69	852.85	1510.96	400.79	1757914.27	14431279.57	39°44'13.584"N	80°34'55.348"W	1563.21	14.856	0.41	-0.18	-0.37
8356.00	92.830	311.840	7098.27	943.21	1571.45	332.96	1757846.46	14431340.04	39°44'14.185"N	80°34'56.213"W	1606.34	11.963	0.27	0.10	0.25
8446.00	92.280	310.410	7094.25	1032.48	1630.58	265.23	1757778.76	14431399.15	39°44'14.773"N	80°34'57.076"W	1652.01	9.239	1.70	-0.61	-1.59
8536.00	91.910	310.720	7090.96	1121.68	1689.07	196.91	1757710.46	14431457.62	39°44'15.354"N	80°34'57.947"W	1700.51	6.649	0.54	-0.41	-1.34
8626.00	91.850	309.600	7088.01	1210.81	1747.08	128.16	1757641.74	14431515.61	39°44'15.931"N	80°34'58.824"W	1751.78	4.196	1.25	-0.07	-1.24
8716.00	91.910	309.510	7085.06	1299.80	1804.36	58.81	1757572.42	14431572.87	39°44'16.500"N	80°34'59.708"W	1805.32	1.867	0.12	0.07	-0.10
8807.00	91.910	309.930	7082.03	1389.82	1862.48	-11.15	1757502.49	14431630.97	39°44'17.077"N	80°35'00.600"W	1862.52	359.657	0.46	0.00	0.46
8897.00	91.880	310.550	7079.05	1478.97	1920.59	-79.81	1757433.85	14431689.05	39°44'17.655"N	80°35'01.476"W	1922.25	357.620	0.69	-0.03	0.69
8988.00	91.820	311.270	7076.11	1569.24	1980.15	-148.55	1757365.14	14431748.59	39°44'18.247"N	80°35'02.352"W	1985.72	355.710	0.79	-0.07	0.79
9078.00	91.940	311.770	7073.16	1658.63	2039.78	-215.89	1757297.82	14431808.19	39°44'18.839"N	80°35'03.211"W	2051.17	353.958	0.57	0.13	0.56
9168.00	91.880	312.420	7070.16	1748.12	2100.08	-282.64	1757231.10	14431868.47	39°44'19.438"N	80°35'04.062"W	2119.01	352.335	0.72	-0.07	0.72
9258.00	91.880	312.890	7067.21	1837.69	2161.03	-348.79	1757164.97	14431929.40	39°44'20.043"N	80°35'04.905"W	2189.00	350.831	0.52	0.00	0.52
9348.00	91.820	313.320	7064.30	1927.32	2222.50	-414.47	1757099.32	14431990.84	39°44'20.654"N	80°35'05.742"W	2260.81	349.436	0.48	-0.07	0.48
9439.00	91.880	314.370	7061.36	2018.04	2285.50	-480.06	1757033.75	14432053.82	39°44'21.279"N	80°35'06.578"W	2335.37	348.138	1.16	0.07	1.15
9529.00	91.940	314.610	7058.36	2107.83	2348.53	-544.23	1756969.61	14432116.83	39°44'21.905"N	80°35'07.395"W	2410.77	346.953	0.27	0.07	0.27
9620.00	91.880	314.820	7055.33	2198.64	2412.53	-608.86	1756905.50	14432180.80	39°44'22.541"N	80°35'08.219"W	2488.17	345.836	0.24	-0.07	0.23
9708.00	91.660	314.620	7052.61	2286.46	2474.42	-671.36	1756842.53	14432242.66	39°44'23.155"N	80°35'09.015"W	2563.88	344.820	0.34	-0.25	-0.23
9798.00	91.730	314.300	7049.95	2376.26	2537.47	-735.57	1756778.34	14432305.65	39°44'23.781"N	80°35'09.834"W	2641.89	343.834	0.36	0.08	-0.36
9889.00	91.510	313.450	7047.38	2466.99	2600.47	-801.14	1756712.80	14432368.67	39°44'24.407"N	80°35'10.669"W	2721.08	342.877	0.96	-0.24	-0.93
9979.00	91.600	313.520	7044.94	2556.69	2662.38	-866.42	1756647.55	14432430.56	39°44'25.022"N	80°35'11.501"W	2799.81	341.974	0.13	0.10	0.08
10070.00	91.850	314.590	7042.20	2647.44	2725.63	-931.79	1756582.20	14432493.78	39°44'25.650"N	80°35'12.334"W	2880.50	341.126	1.21	0.27	1.18
10160.00	91.360	314.980	7039.67	2737.27	2789.00	-995.64	1756518.38	14432557.13	39°44'26.279"N	80°35'13.148"W	2961.39	340.354	0.70	-0.54	0.43
10248.00	90.860	313.860	7037.97	2825.09	2850.58	-1058.48	1756455.56	14432618.69	39°44'26.890"N	80°35'13.949"W	3040.76	339.629	1.39	-0.57	-1.27
10339.00	91.050	312.580	7036.45	2915.77	2912.89	-1124.78	1756389.28	14432680.97	39°44'27.509"N	80°35'14.794"W	3122.51	338.886	1.42	0.21	-1.41
10429.00	91.050	312.050	7034.80	3005.32	2973.47	-1191.32	1756322.77	14432741.52	39°44'28.111"N	80°35'15.642"W	3203.24	338.166	0.59	0.00	-0.59

## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 205H
Area	Marshall County, WV	Well	Yocum MSH 205H
Field	Marshall	Wellbore	Yocum MSH 205H AWB
Facility	Yocum MSH Pad		

## WELLPATH DATA (239 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]
10519.00	91.050	310.080	7033.15	3094.66	3032.58	-1259.16	1756254.95	14432800.61	39°44'28.698"N	80°35'16.507"W	3283.60	337.451	2.19	0.00	-2.19
10610.00	91.020	309.330	7031.51	3184.71	3090.70	-1329.16	1756184.98	14432858.71	39°44'29.276"N	80°35'17.400"W	3364.39	336.730	0.82	-0.03	-0.82
10700.00	91.020	309.130	7029.91	3273.66	3147.61	-1398.86	1756115.30	14432915.60	39°44'29.841"N	80°35'18.289"W	3444.46	336.039	0.22	0.00	-0.22
10791.00	91.080	308.740	7028.24	3363.53	3204.79	-1469.64	1756044.56	14432972.76	39°44'30.410"N	80°35'19.191"W	3525.69	335.365	0.43	0.07	-0.43
10882.00	90.990	308.320	7026.60	3453.30	3261.47	-1540.81	1755973.41	14433029.41	39°44'30.973"N	80°35'20.099"W	3607.12	334.713	0.47	-0.10	-0.46
10972.00	90.930	307.970	7025.09	3541.98	3317.05	-1611.58	1755902.67	14433084.97	39°44'31.525"N	80°35'21.002"W	3687.82	334.087	0.39	-0.07	-0.39
11063.00	91.820	309.100	7022.91	3631.73	3373.72	-1682.74	1755831.53	14433141.62	39°44'32.089"N	80°35'21.909"W	3770.10	333.491	1.58	0.98	1.24
11153.00	91.790	309.250	7020.07	3720.64	3430.55	-1752.48	1755761.83	14433198.42	39°44'32.653"N	80°35'22.799"W	3852.25	332.940	1.02	-0.03	1.02
11244.00	91.790	310.180	7017.23	3810.66	3488.66	-1822.45	1755691.89	14433256.52	39°44'33.231"N	80°35'23.691"W	3936.00	332.418	1.02	0.00	1.02
11334.00	91.790	310.540	7014.42	3899.84	3546.92	-1890.99	1755623.37	14433314.75	39°44'33.810"N	80°35'24.565"W	4019.51	331.936	1.40	0.00	0.40
11425.00	91.790	310.800	7011.57	3990.07	3606.19	-1959.98	1755554.41	14433374.00	39°44'34.399"N	80°35'25.445"W	4104.41	331.476	0.29	0.00	0.29
11515.00	91.790	310.090	7008.76	4079.26	3664.55	-2028.44	1755485.98	14433432.34	39°44'34.978"N	80°35'26.318"W	4188.49	331.034	0.79	0.00	-0.79
11606.00	91.820	310.100	7005.90	4169.37	3723.13	-2098.02	1755416.42	14433490.90	39°44'35.561"N	80°35'27.205"W	4273.57	330.598	0.03	0.03	0.01
11696.00	91.790	311.200	7003.06	4258.60	3781.73	-2166.26	1755348.20	14433549.47	39°44'36.143"N	80°35'28.075"W	4358.23	330.195	1.22	-0.03	1.22
11787.00	91.730	312.420	7000.27	4349.04	3842.37	-2234.06	1755280.43	14433610.08	39°44'36.745"N	80°35'28.940"W	4444.64	329.825	1.34	-0.07	1.34
11878.00	91.660	314.020	6997.58	4439.69	3904.65	-2300.34	1755214.18	14433672.35	39°44'37.364"N	80°35'29.785"W	4531.88	329.496	1.76	-0.08	1.76
11968.00	91.970	314.880	6994.72	4529.48	3967.65	-2364.56	1755149.99	14433735.32	39°44'37.989"N	80°35'30.603"W	4618.80	329.207	1.02	0.34	0.96
12059.00	92.250	314.720	6991.37	4620.28	4031.73	-2429.08	1755085.48	14433799.37	39°44'38.625"N	80°35'31.425"W	4706.94	328.931	0.35	0.31	-0.18
12149.00	92.310	314.280	6987.79	4710.05	4094.76	-2493.22	1755021.37	14433862.38	39°44'39.251"N	80°35'32.243"W	4794.08	328.664	0.49	0.07	-0.49
12240.00	92.310	313.490	6984.13	4800.75	4157.79	-2558.76	1754955.86	14433925.38	39°44'39.877"N	80°35'33.078"W	4882.05	328.391	0.87	0.00	-0.87
12330.00	92.280	313.090	6980.52	4890.38	4219.45	-2624.22	1754890.43	14433987.02	39°44'40.489"N	80°35'33.912"W	4968.93	328.121	0.45	-0.03	-0.44
12421.00	92.370	312.810	6976.88	4980.97	4281.04	-2690.77	1754823.90	14434048.95	39°44'41.104"N	80°35'34.761"W	5056.74	327.852	0.31	0.03	-0.31
12512.00	92.280	311.370	6969.51	5160.95	4403.17	-2824.48	1754757.08	14434110.57	39°44'41.717"N	80°35'35.613"W	5144.55	327.587	0.29	0.07	-0.29
12602.00	92.340	311.090	6965.88	5250.26	4462.44	-2892.11	1754690.24	14434170.67	39°44'42.314"N	80°35'36.466"W	5231.21	327.321	1.31	-0.10	-1.31
12692.00	92.310	311.250	6962.19	5340.56	4522.29	-2960.56	1754622.63	14434229.91	39°44'42.903"N	80°35'37.328"W	5317.67	327.053	0.32	0.07	-0.31
12783.00	92.310	311.550	6958.60	5430.90	4582.43	-3028.76	1754554.22	14434289.75	39°44'43.497"N	80°35'38.201"W	5405.18	326.789	0.18	-0.03	0.18
12874.00	92.220	311.560	6955.26	5520.31	4642.28	-3095.89	1754486.04	14434349.86	39°44'44.095"N	80°35'39.070"W	5492.91	326.537	0.35	-0.10	0.34
12964.00	92.030	311.870	6952.07	5609.76	4702.37	-3162.82	1754418.93	14434409.69	39°44'44.689"N	80°35'39.926"W	5579.90	326.301	0.40	-0.21	0.34
13054.00	92.030	311.970	6948.92	5700.15	4762.74	-3230.84	1754352.03	14434469.75	39°44'45.286"N	80°35'40.780"W	5667.07	326.075	0.11	0.00	0.11
13145.00	91.940	311.210	6948.92	5700.15	4762.74	-3230.84	1754284.04	14434530.10	39°44'45.885"N	80°35'41.647"W	5755.17	325.849	0.84	-0.10	-0.84



## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 205H
Area	Marshall County, WV	Well	Yocum MSH 205H
Field	Marshall	Wellbore	Yocum MSH 205H AWB
Facility	Yocum MSH Pad		

## WELLPATH DATA (239 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]
13236.00	91.970	312.490	6945.81	5790.59	4823.41	-3298.58	1754216.32	14434590.75	39°44'46.488"N	80°35'42.511"W	5843.45	325.633	1.41	0.03	1.41
13327.00	91.970	313.450	6942.69	5881.19	4885.40	-3365.13	1754149.80	14434652.72	39°44'47.104"N	80°35'43.359"W	5932.22	325.440	1.05	0.00	1.05
13417.00	92.030	315.090	6939.54	5970.95	4948.19	-3429.53	1754085.42	14434715.48	39°44'47.727"N	80°35'44.180"W	6020.48	325.275	1.82	0.07	1.82
13507.00	91.880	314.490	6936.47	6060.77	5011.55	-3493.37	1754021.61	14434778.82	39°44'48.356"N	80°35'44.993"W	6108.95	325.121	0.69	-0.17	-0.67
13598.00	92.560	314.600	6932.95	6151.54	5075.34	-3558.17	1753956.83	14434842.58	39°44'48.989"N	80°35'45.819"W	6198.36	324.967	0.76	0.75	0.12
13688.00	93.170	314.740	6928.45	6241.28	5138.53	-3622.10	1753892.93	14434905.75	39°44'49.617"N	80°35'46.634"W	6286.82	324.820	0.70	0.68	0.16
13779.00	93.050	313.940	6923.51	6331.97	5202.04	-3687.09	1753827.97	14434969.23	39°44'50.247"N	80°35'47.463"W	6376.19	324.672	0.89	-0.13	-0.88
13869.00	93.020	312.830	6918.75	6421.56	5263.77	-3752.40	1753762.68	14435030.94	39°44'50.860"N	80°35'48.295"W	6464.35	324.516	1.23	-0.03	-1.23
13960.00	93.240	312.490	6913.78	6512.04	5325.35	-3819.22	1753695.88	14435092.49	39°44'51.472"N	80°35'49.147"W	6553.30	324.353	0.44	0.24	-0.37
14050.00	93.170	311.320	6908.75	6601.41	5385.36	-3886.10	1753629.03	14435152.48	39°44'52.068"N	80°35'50.000"W	6641.08	324.186	1.30	-0.08	-1.30
14141.00	92.680	310.560	6904.10	6691.61	5444.91	-3954.75	1753560.41	14435212.01	39°44'52.659"N	80°35'50.875"W	6729.57	324.008	0.99	-0.54	-0.84
14231.00	91.910	309.430	6900.50	6780.68	5502.71	-4023.64	1753491.54	14435269.79	39°44'53.234"N	80°35'51.754"W	6816.85	323.825	1.52	-0.86	-1.26
14322.00	92.030	310.100	6897.57	6870.70	5560.88	-4093.55	1753421.66	14435327.94	39°44'53.812"N	80°35'52.646"W	6905.11	323.642	0.75	0.13	0.74
14412.00	92.000	311.620	6894.21	6959.96	5619.72	-4161.57	1753353.67	14435386.76	39°44'54.396"N	80°35'53.513"W	6992.85	323.479	1.69	-0.03	1.69
14502.00	92.060	312.310	6891.02	7049.42	5679.87	-4228.45	1753286.81	14435446.87	39°44'54.994"N	80°35'54.366"W	7081.01	323.334	0.77	0.07	0.77
14593.00	92.000	312.670	6887.79	7139.96	5741.29	-4295.51	1753219.78	14435508.28	39°44'55.604"N	80°35'55.221"W	7170.35	323.197	0.40	-0.07	0.40
14683.00	92.060	313.580	6884.61	7229.58	5802.78	-4361.16	1753154.16	14435569.74	39°44'56.214"N	80°35'56.058"W	7258.92	323.073	1.01	0.07	1.01
14773.00	92.340	313.670	6881.15	7319.27	5884.83	-4426.26	1753089.08	14435631.76	39°44'56.830"N	80°35'56.888"W	7347.65	322.958	0.33	0.31	0.10
14864.00	92.160	312.280	6877.58	7409.85	5926.81	-4492.78	1753022.58	14435693.72	39°44'57.446"N	80°35'57.736"W	7437.22	322.836	1.54	-0.20	-1.53
14954.00	92.030	312.150	6874.29	7499.35	5987.24	-4559.40	1752956.00	14435754.13	39°44'58.046"N	80°35'58.585"W	7525.63	322.710	0.20	-0.14	-0.14
15044.00	92.000	311.240	6871.12	7588.76	6047.07	-4626.56	1752888.86	14435813.94	39°44'58.640"N	80°35'59.442"W	7613.94	322.581	1.01	-0.03	-1.01
15135.00	92.060	310.420	6867.90	7679.01	6106.53	-4695.37	1752820.08	14435873.37	39°44'59.231"N	80°36'00.319"W	7703.00	322.443	0.90	0.07	-0.90
15225.00	91.690	311.490	6864.96	7768.30	6165.49	-4763.30	1752752.17	14435932.31	39°44'59.816"N	80°36'01.186"W	7791.17	322.311	1.26	-0.41	1.19
15316.00	91.760	311.740	6862.22	7858.70	6225.90	-4831.30	1752684.19	14435992.69	39°45'00.416"N	80°36'02.053"W	7880.56	322.188	0.29	0.08	0.27
15406.00	91.790	311.690	6859.43	7948.13	6285.76	-4898.45	1752617.07	14436052.53	39°45'01.011"N	80°36'02.909"W	7969.04	322.071	0.06	0.03	-0.06
15497.00	91.730	311.020	6856.63	8038.49	6345.85	-4966.73	1752548.82	14436112.60	39°45'01.608"N	80°36'03.780"W	8058.43	321.951	0.74	-0.07	-0.74
15587.00	91.790	310.650	6853.87	8127.76	6404.67	-5034.79	1752480.79	14436171.40	39°45'02.192"N	80°36'04.648"W	8146.71	321.829	0.42	0.07	-0.41
15678.00	91.790	312.670	6851.03	8218.17	6465.13	-5102.74	1752412.86	14436231.84	39°45'02.793"N	80°36'05.514"W	8236.25	321.717	2.22	0.00	2.22
15768.00	91.730	313.940	6848.26	8307.84	6526.83	-5168.20	1752347.43	14436293.51	39°45'03.405"N	80°36'06.349"W	8325.25	321.626	1.41	-0.07	1.41
15858.00	91.850	313.470	6845.45	8397.55	6588.98	-5233.23	1752282.42	14436355.64	39°45'04.022"N	80°36'07.178"W	8414.36	321.542	0.54	0.13	-0.52

REFERENCE WELLPATH IDENTIFICATION	
Operator	SOUTHWESTERN ENERGY
Area	Marshall County, WV
Field	Marshall
Facility	Yocum MSH Pad
Slot	Slot 205H
Well	Yocum MSH 205H
Wellbore	Yocum MSH 205H AWB

WELLPATH DATA (239 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]
15948.00	91.730	313.650	6842.64	8487.25	6650.97	-5298.42	1752217.26	144366417.61	39°45'04.638"N	80°36'08.009"W	8503.45	321.458	0.24	-0.13	0.20
16039.00	91.850	314.270	6839.80	8577.98	6714.11	-5363.89	1752151.81	144366480.72	39°45'05.265"N	80°36'08.844"W	8593.64	321.379	0.69	0.13	0.68
16129.00	91.820	314.240	6836.92	8667.75	6776.89	-5428.32	1752087.41	144366543.47	39°45'05.888"N	80°36'09.665"W	8682.90	321.305	0.05	-0.03	-0.03
16218.00	91.760	312.890	6834.14	8756.45	6838.19	-5492.77	1752022.98	144366604.75	39°45'06.497"N	80°36'10.487"W	8771.06	321.227	1.52	-0.07	-1.52
16308.00	91.730	311.930	6831.40	8845.99	6898.86	-5559.19	1751956.58	144366665.40	39°45'07.099"N	80°36'11.334"W	8859.96	321.138	1.07	-0.03	-1.07
16398.00	91.790	310.930	6828.63	8935.37	6958.39	-5626.64	1751889.16	144366724.90	39°45'07.690"N	80°36'12.194"W	8948.64	321.041	1.11	0.07	-1.11
16489.00	91.690	311.490	6825.87	9025.71	7018.31	-5695.07	1751820.76	144366784.80	39°45'08.285"N	80°36'13.067"W	9038.28	320.942	0.62	-0.11	0.62
16579.00	91.110	311.840	6823.67	9115.14	7078.12	-5762.28	1751753.58	144366844.59	39°45'08.880"N	80°36'13.924"W	9127.08	320.851	0.75	-0.64	0.39
16669.00	90.860	311.460	6822.12	9204.59	7137.92	-5829.52	1751686.36	144366904.37	39°45'09.473"N	80°36'14.781"W	9215.92	320.762	0.51	-0.28	-0.42
16760.00	90.800	312.170	6820.80	9295.07	7198.59	-5897.33	1751618.57	144366965.01	39°45'10.076"N	80°36'15.646"W	9305.82	320.674	0.78	-0.07	0.78
16850.00	90.830	312.630	6819.52	9384.64	7259.27	-5963.79	1751552.15	14437025.67	39°45'10.679"N	80°36'16.494"W	9394.88	320.595	0.51	0.03	0.51
16940.00	90.560	312.810	6818.43	9474.26	7320.32	-6029.90	1751486.06	14437086.70	39°45'11.285"N	80°36'17.337"W	9484.03	320.521	0.36	-0.30	0.20
17031.00	90.400	312.030	6817.67	9564.84	7381.71	-6097.08	1751418.91	14437148.06	39°45'11.894"N	80°36'18.193"W	9574.13	320.444	0.87	-0.18	-0.86
17121.00	90.400	311.970	6817.04	9654.36	7441.93	-6163.96	1751352.05	14437208.25	39°45'12.492"N	80°36'19.046"W	9663.16	320.366	0.07	0.00	-0.07
17211.00	90.430	311.270	6816.39	9743.81	7501.70	-6231.24	1751284.80	14437268.01	39°45'13.086"N	80°36'19.904"W	9752.12	320.286	0.78	0.03	-0.78
17302.00	90.400	311.100	6815.73	9834.18	7561.62	-6299.72	1751216.34	14437327.90	39°45'13.681"N	80°36'20.778"W	9841.98	320.202	0.19	-0.03	-0.19
17392.00	90.430	310.640	6815.08	9923.50	7620.51	-6367.78	1751148.31	14437386.77	39°45'14.266"N	80°36'21.646"W	9930.80	320.118	0.51	0.03	-0.51
17483.00	90.680	310.210	6814.20	10013.72	7679.52	-6437.05	1751079.07	14437445.75	39°45'14.852"N	80°36'22.529"W	10020.51	320.030	0.55	0.27	-0.47
17573.00	90.620	310.310	6813.18	10102.91	7737.68	-6505.73	1751010.42	14437503.89	39°45'15.430"N	80°36'23.406"W	10109.21	319.943	0.13	-0.07	0.11
17663.00	90.960	313.120	6811.93	10192.36	7797.55	-6572.89	1750943.27	14437563.74	39°45'16.025"N	80°36'24.262"W	10198.27	319.871	3.14	0.38	3.12
17753.00	91.110	314.300	6810.31	10282.10	7859.73	-6637.92	1750873.50	14437623.06	39°45'16.642"N	80°36'25.091"W	10287.74	319.817	1.32	0.17	1.31
17843.00	91.110	313.610	6808.57	10371.87	7922.19	-6702.72	1750813.26	14437688.33	39°45'17.262"N	80°36'25.917"W	10377.26	319.766	0.77	0.00	-0.77
17933.00	91.110	313.870	6806.82	10461.61	7984.37	-6767.76	1750748.48	14437750.49	39°45'17.879"N	80°36'26.747"W	10466.74	319.715	0.22	0.00	0.22
18024.00	91.170	312.870	6805.01	10552.30	8046.81	-6833.93	1750682.34	14437812.91	39°45'18.499"N	80°36'27.590"W	10557.17	319.660	1.03	0.07	-1.03
18114.00	90.060	311.090	6804.05	10641.81	8107.00	-6900.83	1750615.47	14437873.07	39°45'19.097"N	80°36'28.444"W	10646.36	319.595	2.33	-1.23	-1.98
18205.00	90.190	312.260	6803.85	10732.26	8167.51	-6968.79	1750547.53	14437933.56	39°45'19.698"N	80°36'29.310"W	10736.49	319.528	1.29	0.14	1.29
18295.00	90.120	312.700	6803.60	10821.86	8228.29	-7035.17	1750481.18	14437994.31	39°45'20.302"N	80°36'30.157"W	10825.82	319.470	0.50	-0.08	0.49
18385.00	90.160	313.050	6803.38	10911.51	8289.52	-7101.13	1750415.25	14438055.52	39°45'20.910"N	80°36'30.998"W	10915.23	319.415	0.39	0.04	0.39
18476.00	90.160	313.620	6803.13	11002.22	8351.97	-7167.31	1750349.08	14438117.95	39°45'21.530"N	80°36'31.842"W	11005.72	319.365	0.63	0.00	0.63
18566.00	90.710	313.720	6802.45	11091.97	8414.12	-7232.41	1750284.01	14438180.07	39°45'22.147"N	80°36'32.672"W	11095.28	319.319	0.62	0.61	0.11



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 205H
SOUTHWESTERN ENERGY	Well	Yocum MSH 205H
Area	Wellbore	Yocum MSH 205H AWB
Field		
Facility		

## WELLPATH DATA (239 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]
18656.00	90.680	312.780	6801.35	11181.66	8475.78	-7297.96	1750218.49	14438241.71	39°45'22.759"N	80°36'33.508"W	11184.77	319.270	1.04	-0.03	-1.04
18746.00	90.710	312.520	6800.26	11271.27	8536.75	-7364.15	1750152.32	14438302.65	39°45'23.364"N	80°36'34.352"W	11274.17	319.218	0.29	0.03	-0.29
18830.00	90.770	311.990	6799.18	11354.86	8593.23	-7426.32	1750090.18	14438359.11	39°45'23.925"N	80°36'35.145"W	11357.54	319.166	0.63	0.07	-0.63
18920.00	90.710	311.030	6798.02	11444.29	8652.87	-7493.71	1750022.82	14438418.73	39°45'24.517"N	80°36'36.004"W	11446.74	319.106	1.07	-0.07	-1.07
19011.00	90.590	310.100	6796.98	11534.53	8712.04	-7562.83	1749953.72	14438477.88	39°45'25.105"N	80°36'36.886"W	11536.73	319.039	1.03	-0.13	-1.02
19101.00	90.620	309.870	6796.03	11623.66	8769.87	-7631.79	1749884.79	14438535.69	39°45'25.680"N	80°36'37.766"W	11625.61	318.969	0.26	0.03	-0.26
19192.00	90.650	309.690	6795.02	11713.74	8828.10	-7701.72	1749814.89	14438593.89	39°45'26.258"N	80°36'38.658"W	11715.45	318.898	0.20	0.03	-0.20
19276.00	90.650	309.630	6794.07	11796.86	8881.70	-7766.38	1749750.25	14438647.48	39°45'26.791"N	80°36'39.483"W	11798.36	318.833	0.07	0.00	-0.07
19366.00	90.650	309.900	6793.05	11885.95	8939.27	-7835.56	1749681.10	14438705.02	39°45'27.362"N	80°36'40.366"W	11887.24	318.764	0.30	0.00	0.30
19457.00	90.650	310.260	6792.02	11976.09	8997.85	-7905.18	1749611.50	14438763.58	39°45'27.944"N	80°36'41.254"W	11977.20	318.699	0.40	0.00	0.40
19547.00	90.710	310.970	6790.95	12065.35	9056.44	-7973.49	1749543.22	14438822.14	39°45'28.526"N	80°36'42.125"W	12066.30	318.639	0.79	0.07	0.79
19637.00	90.490	308.910	6790.01	12154.47	9114.21	-8042.49	1749474.25	14438879.89	39°45'29.100"N	80°36'43.006"W	12155.27	318.574	2.30	-0.24	-2.29
19718.00	90.650	309.230	6789.20	12234.50	9165.26	-8105.37	1749411.39	14438930.92	39°45'29.607"N	80°36'43.808"W	12235.16	318.512	0.44	0.20	0.40
19804.00	90.620	310.160	6788.25	12319.61	9220.18	-8171.54	1749345.24	14438985.82	39°45'30.153"N	80°36'44.652"W	12320.14	318.450	1.08	-0.03	1.08
19892.00	90.590	310.470	6787.32	12406.83	9277.12	-8238.64	1749278.17	14439042.73	39°45'30.718"N	80°36'45.508"W	12407.26	318.393	0.35	-0.03	0.35
19979.00	90.620	311.810	6786.40	12493.22	9334.35	-8304.15	1749212.68	14439099.95	39°45'31.287"N	80°36'46.344"W	12493.56	318.343	1.54	0.03	1.54
20070.00	90.650	311.760	6785.39	12583.69	9394.98	-8372.00	1749144.86	14439160.55	39°45'31.889"N	80°36'47.209"W	12583.96	318.295	0.06	0.03	-0.05
20160.00	90.650	311.780	6784.37	12673.17	9454.93	-8439.12	1749077.77	14439220.48	39°45'32.484"N	80°36'48.065"W	12673.38	318.249	0.02	0.00	0.02
20250.00	90.740	312.220	6783.28	12762.68	9515.15	-8506.00	1749010.91	14439280.67	39°45'33.082"N	80°36'48.918"W	12762.84	318.205	0.50	0.10	0.49
20341.00	90.680	312.320	6782.15	12853.23	9576.35	-8573.33	1748943.61	14439341.85	39°45'33.690"N	80°36'49.777"W	12853.35	318.163	0.13	-0.07	0.11
20434.00	90.710	313.080	6781.02	12945.84	9639.42	-8641.68	1748875.29	14439404.89	39°45'34.316"N	80°36'50.649"W	12945.92	318.124	0.82	0.03	0.82
20527.00	90.310	313.440	6780.20	13038.53	9703.15	-8709.40	1748807.59	14439468.60	39°45'34.949"N	80°36'51.513"W	13038.59	318.089	0.58	-0.43	0.39
20620.00	90.280	313.670	6779.72	13131.26	9767.23	-8776.80	1748740.22	14439532.66	39°45'35.585"N	80°36'52.372"W	13131.30	318.057	0.25	-0.03	0.25
20712.00	90.340	312.850	6779.22	13222.95	9830.27	-8843.80	1748673.25	14439595.68	39°45'36.211"N	80°36'53.226"W	13222.97	318.024	0.89	0.07	-0.89
20804.00	90.220	313.540	6778.77	13314.64	9893.25	-8910.87	1748606.21	14439658.63	39°45'36.836"N	80°36'54.082"W	13314.65	317.991	0.76	-0.13	0.75
20896.00	90.120	313.890	6778.50	13406.39	9956.82	-8977.36	1748539.74	14439722.18	39°45'37.467"N	80°36'54.930"W	13406.39	317.961	0.40	-0.11	0.38
20989.00	90.310	313.310	6778.15	13499.12	10020.96	-9044.71	1748472.42	14439786.29	39°45'38.104"N	80°36'55.789"W	13499.12	317.931	0.66	0.20	-0.62
21012.00	90.220	313.060	6778.04	13522.04	10036.70	-9061.48	1748455.65	14439802.02	39°45'38.260"N	80°36'56.002"W	13522.04	317.923	1.16	-0.39	-1.09
21037.00	90.220	313.060	6777.94	13546.95	10053.77	-9079.74	1748437.39	14439819.09	39°45'38.430"N	80°36'56.235"W	13546.95	317.914	0.00	0.00	0.00

<b>HOLE &amp; CASING SECTIONS - Ref Wellbore: Yocum MSH 205H AWB Ref Wellpath: Yocum MSH 205H AWP Proj: 21037'</b>										
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	0.07	-0.02	
17.5in Open Hole	100.00	537.00	437.00	100.00	537.00	0.07	-0.02	0.53	0.15	
13.375in Casing Surface	26.00	537.00	511.00	26.00	537.00	0.00	0.00	0.53	0.15	
12.25in Open Hole	537.00	2547.00	2010.00	537.00	2538.62	0.53	0.15	67.24	159.78	
9.625in Casing Intermediate	26.00	2547.00	2521.00	26.00	2538.62	0.00	0.00	67.24	159.78	
8.75in Open Hole	2547.00	6560.00	4013.00	2538.62	6343.53	67.24	159.78	653.27	1224.90	
8.5in Open Hole	6560.00	21037.00	14477.00	6343.53	6777.94	653.27	1224.90	10053.77	-9079.74	
5.5in Casing Production	26.00	21037.00	21011.00	26.00	6777.94	0.00	0.00	10053.77	-9079.74	

<b>TARGETS</b>										
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape		
Yocum MSH 205H BHL Rev-3	6696.50	10054.86	-9080.56	1748436.58	14439820.18	39°45'38.440"N	80°36'56.246"W	point		
Yocum MSH 205H LP Rev-3	7115.00	1142.83	811.21	1758324.53	14430911.59	39°44'09.927"N	80°34'50.117"W	point		

<b>WELLPATH COMPOSITION - Ref Wellbore: Yocum MSH 205H AWB Ref Wellpath: Yocum MSH 205H AWP Proj: 21037'</b>										
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore						
26.00	487.00	OWSG MWD rev2 + HRGM	01_Premier MWD <17 1/2"> (169'-487')	Yocum MSH 205H AWB						
487.00	2246.00	OWSG MWD rev2 + HRGM + Multi-Station Correction	02_Premier MWD + Superior MSA <12-1/4"> (573'-2246')	Yocum MSH 205H AWB						
2246.00	2501.00	OWSG MWD rev2 + HRGM	03_Premier MWD <12 1/4"> (2336'-2501')	Yocum MSH 205H AWB						
2501.00	6493.00	OWSG MWD rev2 + HRGM + Multi-Station Correction	04_Premier MWD + Superior MSA <8-3/4"> (2610'-6493')	Yocum MSH 205H AWB						
6493.00	21012.00	OWSG MWD rev2 + HRGM + Multi-Station Correction	05_BH AT Curve + Superior MSA <8 1/2"> (6549'-21012')	Yocum MSH 205H AWB						
21012.00	21037.00	Blind Drilling (std)	Projection to bit	Yocum MSH 205H AWB						

**REFERENCE WELLPATH IDENTIFICATION**

Operator	SOUTHWESTERN ENERGY	Slot	Slot 205H
Area	Marshall County, WV	Well	Yocum MSH 205H
Field	Marshall	Wellbore	Yocum MSH 205H AWB
Facility	Yocum MSH Pad		

**COMMENTS**

**Wellpath general comments**

API: 47-051-02125-0000  
 BH Job # 109703985  
 Rig: SDC 46  
 Duration: 3/30/2019 - 4/04/2019  
 Premier MWD <17 1/2"> (169'-487')  
 Premier MWD + Superior MSA <12-1/4"> (573'-2246')  
 Premier MWD <12 1/4"> (2336'-2501')  
 Premier MWD + Superior MSA <8-3/4"> (2610'-6493')  
 BH AT Curve + Superior MSA <8 1/2"> (6549'-21012')  
 Projected MD at TD: 21,037'