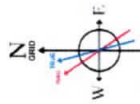


SOUTHWESTERN ENERGY

Location: Marshall County, WV
 Field: Marshall
 Facility: Yocum MSH Pad
 Well: Yocum MSH 1H
 Slot: Slot 1H
 Wellbore: Yocum MSH 1H PWB

Plot reference wellpath is Yocum MSH 1H PWP Rev-B 0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 46 (KB)	North Reference: Grid north
Measured depths are referenced to SDC 46 (KB)	Scale: True distance
SDC 46 (KB) to Mean Sea Level: 1079.4 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: Slot 1H): -1053.4 feet	Created by: atjenjen on 2019-03-04
Coordinates are in feet referenced to Slot	Database: WA_MPL_EASTERNUS_Defm



User specified Dip: 66.80° Field: 52332 nT
 Magnetic North is 8.45 degrees West of True North (at 05/Feb/2019)
 To correct azimuth from True to Grid subtract 0.27 degrees
 To correct azimuth from Magnetic to Grid subtract 8.72 degrees

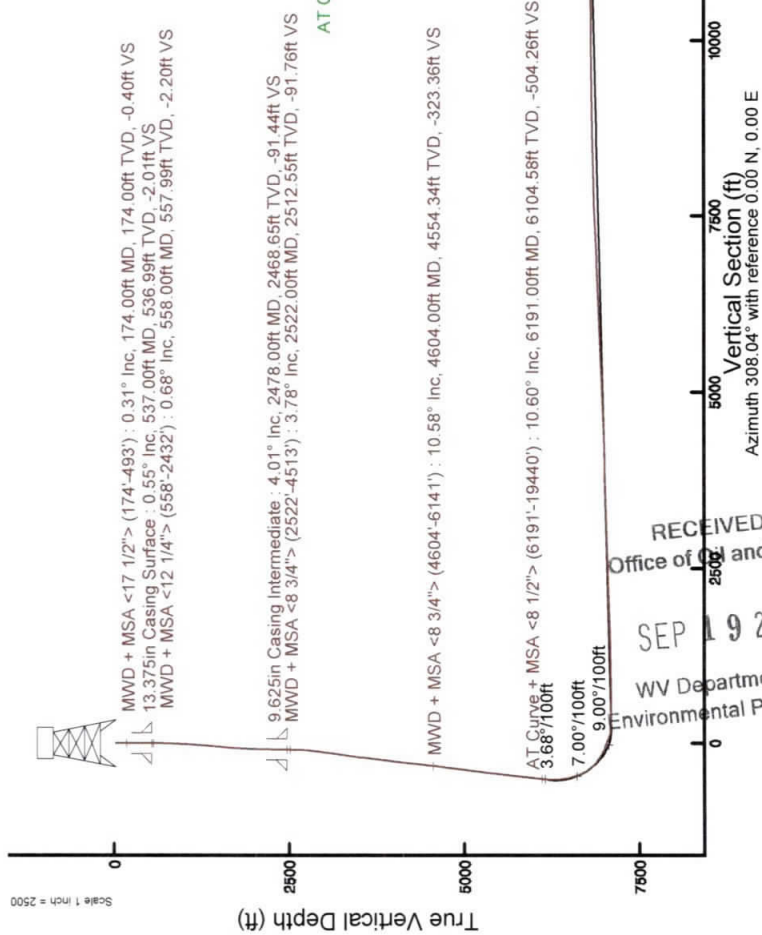
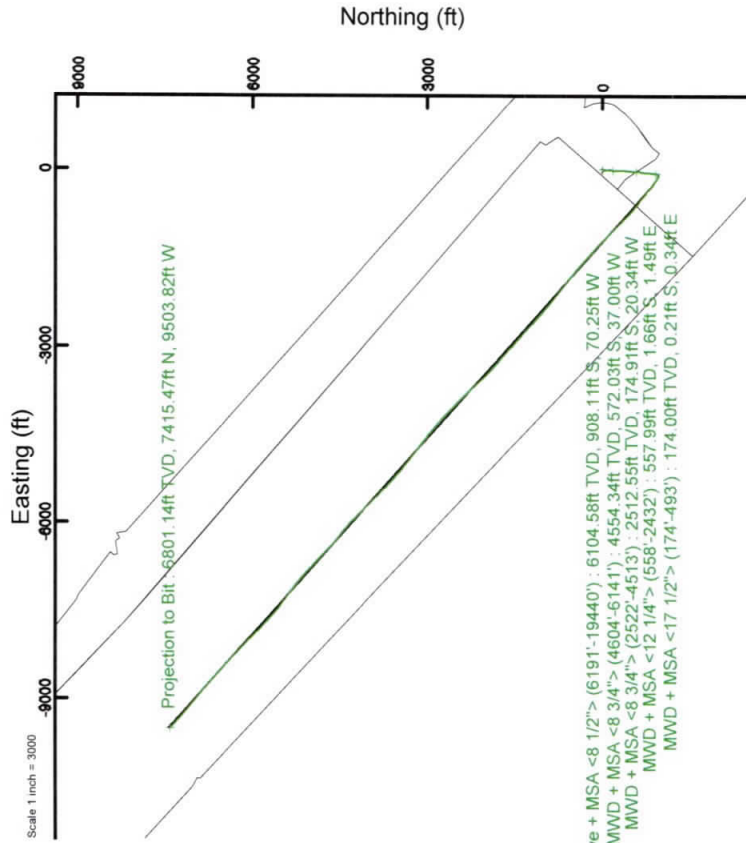


Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Yocum MSH Pad	1757446.734	14429785.622	39°43'58.836"N	80°35'01.424"W
Slot	Local E (ft)	Grid East (US ft)	Latitude	Longitude
Slot 1H	-35.92	1757490.869	39°43'58.479"N	80°35'00.861"W
SDC 46 (KB) to Mud line (At Slot: Slot 1H)	44.15	1757490.869	26ft	
Mean Sea Level to Mud line (At Slot: Slot 1H)			-1053.4ft	
SDC 46 (KB) to Mean Sea Level			1079.4ft	

Comments

API: 47-051-02133-0000
 BH Job #: 109617003
 Rig: SDC 46
 Duration: 02/11/2019 - 02/15/2019



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 WV Department of
 Environmental Protection

Vertical Section (ft)
 Azimuth 308.04° with reference 0.00 N, 0.00 E

Scale 1 inch = 2500

Scale 1 inch = 3000

Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
Page 1 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H 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	Atenjen
Scale	0.999616	Report Generated	04/Mar/2019 at 17:30
Convergence at slot	0.27° East	Database/Source file	WA_MPL_EASTERNU Defn/Yocum_MSH_1H_AWP_Proj_19465_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-35.92	44.15	1757490.87	14429749.72	39°43'58.479"N	80°35'00.861"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 1H)	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	308.04°



Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H AWP
Facility	Yocum MSH Pad		

WELLPATH DATA (223 stations) + = interpolated/extrapolated station

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(°/100ft)	(°/100ft)	(°/100ft)
0.00	0.000	121.670	0.00	0.00	0.00	0.00	1757490.87	14429749.72	39°43'58.479"N	80°35'00.861"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	121.670	26.00	0.00	0.00	0.00	1757490.87	14429749.72	39°43'58.479"N	80°35'00.861"W	0.00	0.000	0.00	0.00	0.00
174.00	0.310	121.670	174.00	-0.40	-0.21	0.34	1757491.21	14429749.51	39°43'58.477"N	80°35'00.857"W	0.40	121.670	0.21	0.21	82.21
235.00	0.180	166.760	235.00	-0.64	-0.39	0.50	1757491.37	14429749.33	39°43'58.475"N	80°35'00.855"W	0.64	127.789	0.37	-0.21	73.92
325.00	0.220	103.390	325.00	-0.90	-0.57	0.70	1757491.57	14429749.15	39°43'58.473"N	80°35'00.852"W	0.90	128.900	0.24	0.04	-70.41
416.00	0.360	136.590	416.00	-1.35	-0.82	1.07	1757491.94	14429748.90	39°43'58.471"N	80°35'00.847"W	1.35	127.325	0.23	0.15	36.48
493.00	0.270	154.920	493.00	-1.75	-1.16	1.31	1757492.18	14429748.56	39°43'58.468"N	80°35'00.844"W	1.75	131.356	0.17	-0.12	23.81
558.00	0.680	163.080	557.99	-2.20	-1.66	1.49	1757492.36	14429748.05	39°43'58.462"N	80°35'00.842"W	2.23	138.145	0.64	0.63	12.55
618.00	0.870	155.030	617.99	-2.90	-2.42	1.79	1757492.65	14429747.30	39°43'58.455"N	80°35'00.838"W	3.01	143.537	0.36	0.32	-13.42
709.00	1.850	165.640	708.96	-4.68	-4.47	2.44	1757493.31	14429745.25	39°43'58.435"N	80°35'00.830"W	5.09	151.331	1.11	1.08	11.66
800.00	3.720	186.310	799.85	-7.39	-8.82	2.48	1757493.35	14429740.90	39°43'58.392"N	80°35'00.830"W	9.17	164.290	2.30	2.05	22.71
892.00	5.490	190.670	891.55	-10.99	-16.12	1.34	1757492.21	14429733.61	39°43'58.320"N	80°35'00.845"W	16.17	175.250	1.96	1.92	4.74
983.00	6.600	193.030	982.04	-15.20	-25.49	-0.65	1757490.22	14429724.24	39°43'58.227"N	80°35'00.871"W	25.50	181.452	1.25	1.22	2.59
1074.00	7.590	193.560	1072.35	-19.90	-36.43	-3.23	1757487.64	14429713.30	39°43'58.119"N	80°35'00.905"W	36.57	185.074	1.09	1.09	0.58
1165.00	8.390	191.260	1162.46	-25.38	-48.78	-5.94	1757484.93	14429700.96	39°43'57.997"N	80°35'00.940"W	49.14	186.942	0.95	0.88	-2.53
1256.00	9.050	189.110	1252.41	-31.83	-62.36	-8.37	1757482.50	14429687.38	39°43'57.863"N	80°35'00.972"W	62.92	187.644	0.81	0.73	-2.36
1347.00	8.320	185.350	1342.37	-38.85	-75.98	-10.12	1757480.76	14429673.77	39°43'57.729"N	80°35'00.995"W	76.65	187.584	1.02	-0.80	-4.13
1437.00	7.030	175.800	1431.56	-46.07	-87.96	-10.32	1757480.55	14429661.79	39°43'57.610"N	80°35'00.998"W	88.56	186.692	2.01	-1.43	-10.61
1528.00	7.090	170.940	1521.87	-53.93	-99.06	-9.03	1757481.84	14429650.70	39°43'57.500"N	80°35'00.982"W	99.47	185.207	0.66	0.07	-5.34
1618.00	6.530	167.310	1611.24	-61.96	-109.53	-7.03	1757483.84	14429640.22	39°43'57.397"N	80°35'00.957"W	109.76	183.672	0.78	-0.62	-4.03
1709.00	4.960	169.540	1701.78	-68.91	-118.45	-5.18	1757485.65	14429631.31	39°43'57.309"N	80°35'00.934"W	118.57	182.503	1.74	-1.73	2.45
1799.00	3.810	175.120	1791.51	-73.86	-125.26	-4.22	1757486.65	14429624.51	39°43'57.241"N	80°35'00.922"W	125.33	181.928	1.36	-1.28	6.20
1890.00	3.630	179.230	1882.32	-77.73	-131.15	-3.92	1757486.95	14429618.62	39°43'57.183"N	80°35'00.919"W	131.21	181.713	0.35	-0.20	4.52
1980.00	4.040	188.560	1972.12	-81.07	-137.13	-4.35	1757486.52	14429612.64	39°43'57.124"N	80°35'00.925"W	137.20	181.819	0.83	0.46	10.37
2070.00	4.220	196.700	2061.89	-83.84	-143.44	-5.78	1757485.09	14429606.33	39°43'57.062"N	80°35'00.943"W	143.56	182.307	0.68	0.20	9.04
2160.00	4.590	203.760	2151.62	-85.93	-149.91	-8.18	1757482.69	14429599.87	39°43'56.998"N	80°35'00.975"W	150.13	183.124	0.73	0.41	7.84
2251.00	4.640	206.320	2242.33	-87.58	-156.54	-11.28	1757479.59	14429593.24	39°43'56.932"N	80°35'01.015"W	156.95	184.121	0.23	0.05	2.81
2342.00	4.550	202.210	2333.04	-89.31	-163.18	-14.28	1757476.60	14429586.60	39°43'56.867"N	80°35'01.053"W	163.80	185.000	0.38	-0.10	-4.52
2432.00	4.270	207.280	2422.77	-90.91	-169.46	-17.16	1757473.71	14429580.32	39°43'56.805"N	80°35'01.091"W	170.33	185.783	0.53	-0.31	5.63
2522.00	3.780	213.740	2512.55	-91.76	-174.91	-20.34	1757470.53	14429574.88	39°43'56.751"N	80°35'01.132"W	176.09	186.635	0.74	-0.54	7.18



Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H AWB
Facility	Yocum MSH Pad		

WELLPATH DATA (223 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(°/100ft)	(°/100ft)	(°/100ft)
2612.00	4.540	190.490	2602.32	-93.63	-180.88	-22.64	1757468.24	14429668.91	39°43'56.692"N	80°35'01.162"W	182.29	187.135	2.04	0.84	-25.83
2703.00	7.360	176.850	2692.82	-99.13	-190.24	-22.98	1757467.90	14429659.55	39°43'56.600"N	80°35'01.166"W	191.63	186.887	3.45	3.10	-14.99
2793.00	9.040	175.170	2781.90	-107.74	-203.05	-22.06	1757468.81	14429646.75	39°43'56.473"N	80°35'01.155"W	204.24	186.202	1.89	1.87	-1.87
2884.00	9.340	175.100	2871.73	-117.64	-217.53	-20.83	1757470.04	14429632.27	39°43'56.330"N	80°35'01.141"W	218.52	185.470	0.33	0.33	-0.08
2974.00	10.640	179.280	2960.37	-127.81	-233.11	-20.10	1757470.77	14429616.70	39°43'56.176"N	80°35'01.132"W	233.98	184.929	1.65	1.44	4.64
3065.00	11.290	179.220	3049.70	-138.66	-250.42	-19.88	1757471.00	14429499.39	39°43'56.005"N	80°35'01.130"W	251.21	184.538	0.71	0.71	-0.07
3155.00	11.370	177.340	3137.95	-149.96	-268.09	-19.35	1757471.53	14429481.73	39°43'55.830"N	80°35'01.125"W	268.79	184.127	0.42	0.09	-2.09
3246.00	12.000	175.610	3227.06	-162.20	-286.48	-18.20	1757472.67	14429463.34	39°43'55.649"N	80°35'01.111"W	287.06	183.636	0.79	0.69	-1.90
3337.00	12.440	178.530	3316.00	-174.82	-305.71	-17.23	1757473.65	14429444.12	39°43'55.459"N	80°35'01.100"W	306.20	183.226	0.83	0.48	3.21
3427.00	12.630	178.550	3403.86	-187.24	-325.24	-16.73	1757474.14	14429424.60	39°43'55.266"N	80°35'01.094"W	325.67	182.945	0.21	0.21	0.02
3518.00	12.660	180.630	3492.65	-199.62	-345.16	-16.59	1757474.29	14429404.69	39°43'55.069"N	80°35'01.094"W	345.56	182.752	0.50	0.03	2.29
3608.00	12.960	188.150	3580.42	-210.65	-365.01	-18.13	1757472.75	14429384.85	39°43'54.873"N	80°35'01.115"W	365.46	182.843	1.88	0.33	8.36
3699.00	12.480	188.030	3669.18	-220.65	-384.85	-20.95	1757469.93	14429365.02	39°43'54.677"N	80°35'01.152"W	385.42	183.116	0.53	-0.53	-0.13
3790.00	12.310	184.690	3758.06	-230.90	-404.25	-23.12	1757467.76	14429345.62	39°43'54.485"N	80°35'01.181"W	404.91	183.273	0.81	-0.19	-3.67
3880.00	12.980	185.690	3845.88	-241.58	-423.87	-24.90	1757465.98	14429326.01	39°43'54.291"N	80°35'01.205"W	424.60	183.362	0.78	0.74	1.11
3970.00	12.690	182.840	3933.63	-252.69	-443.80	-26.39	1757464.48	14429306.08	39°43'54.094"N	80°35'01.225"W	444.59	183.404	0.77	-0.32	-3.17
4061.00	12.850	187.340	4022.38	-263.62	-463.82	-28.18	1757462.70	14429286.07	39°43'53.896"N	80°35'01.249"W	464.68	183.477	1.11	0.18	4.95
4151.00	12.370	186.000	4110.21	-273.84	-483.34	-30.47	1757460.41	14429266.57	39°43'53.704"N	80°35'01.280"W	484.30	183.607	0.62	-0.53	-1.49
4242.00	10.990	187.930	4199.33	-283.36	-501.62	-32.68	1757458.20	14429248.29	39°43'53.523"N	80°35'01.309"W	502.69	183.728	1.58	-1.52	2.12
4332.00	10.660	187.380	4287.72	-291.91	-518.38	-34.94	1757455.95	14429231.54	39°43'53.358"N	80°35'01.339"W	519.55	183.856	0.38	-0.37	-0.61
4423.00	11.590	185.050	4377.01	-301.18	-535.83	-36.82	1757454.06	14429214.10	39°43'53.185"N	80°35'01.364"W	537.09	183.931	1.13	1.02	-2.56
4513.00	12.030	179.790	4465.11	-311.91	-554.21	-37.08	1757453.30	14429195.72	39°43'53.004"N	80°35'01.375"W	555.49	183.880	1.29	0.49	-5.84
4604.00	10.580	176.210	4554.34	-323.36	-572.03	-37.50	1757453.89	14429177.90	39°43'52.827"N	80°35'01.369"W	573.23	183.701	1.77	-1.59	-3.93
4690.98	11.510	178.720	4639.71	-334.18	-588.68	-36.28	1757454.61	14429161.27	39°43'52.663"N	80°35'01.360"W	589.79	183.526	1.20	1.07	2.89
4785.00	12.990	182.010	4731.59	-346.34	-608.62	-36.44	1757454.45	14429141.33	39°43'52.466"N	80°35'01.364"W	609.71	183.426	1.74	1.57	3.50
4875.00	13.460	187.890	4819.21	-357.55	-629.10	-38.23	1757452.65	14429120.86	39°43'52.264"N	80°35'01.388"W	630.26	183.477	1.58	0.52	6.53
4965.54	13.960	191.430	4907.17	-367.74	-650.25	-41.84	1757449.04	14429099.72	39°43'52.055"N	80°35'01.435"W	651.59	183.682	1.08	0.55	3.91
5055.26	13.320	188.210	4994.36	-377.73	-671.08	-45.46	1757445.43	14429078.89	39°43'51.849"N	80°35'01.483"W	672.62	183.875	1.11	-0.71	-3.59
5146.00	13.910	189.010	5082.55	-388.22	-692.20	-48.66	1757442.23	14429057.78	39°43'51.640"N	80°35'01.525"W	693.91	184.021	0.68	0.65	0.88
5236.40	13.760	187.700	5170.33	-398.92	-713.59	-51.80	1757439.09	14429036.41	39°43'51.429"N	80°35'01.566"W	715.47	184.152	0.38	-0.17	-1.45



Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot 1H
Operator	SOUTHWESTERN ENERGY	Well	Yocum MSH 1H
Area	Marshall County, WV	Wellbore	Yocum MSH 1H AWB
Field	Marshall		
Facility	Yocum MSH Pad		

WELLPATH DATA (223 stations)															
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
5327.00	12.880	184.380	5258.49	-409.96	-734.33	-54.02	1757436.87	14429015.67	39°43'51.224"N	80°35'01.596"W	736.32	184.207	1.29	-0.97	-3.66
5418.00	12.300	181.690	5347.30	-421.33	-754.14	-55.08	1757435.81	14428995.87	39°43'51.029"N	80°35'01.611"W	756.14	184.177	0.91	-0.64	-2.96
5509.00	12.160	178.570	5436.24	-433.17	-773.41	-55.13	1757435.76	14428976.61	39°43'50.838"N	80°35'01.613"W	775.37	184.077	0.74	-0.15	-3.43
5599.00	11.530	182.610	5524.32	-444.41	-791.87	-55.30	1757435.59	14428958.16	39°43'50.656"N	80°35'01.616"W	793.80	183.995	1.16	-0.70	-4.49
5689.00	12.170	190.300	5612.41	-454.04	-810.19	-57.40	1757433.49	14428939.84	39°43'50.475"N	80°35'01.644"W	812.22	184.053	1.89	0.71	8.54
5780.00	11.900	188.870	5701.41	-463.07	-828.90	-60.57	1757430.33	14428921.14	39°43'50.290"N	80°35'01.686"W	831.11	184.179	0.44	-0.30	-1.57
5870.00	11.450	186.830	5789.55	-472.23	-846.93	-63.06	1757427.83	14428903.11	39°43'50.112"N	80°35'01.718"W	849.28	184.258	0.68	-0.50	-2.27
5961.00	10.830	184.880	5878.83	-481.58	-864.42	-64.86	1757426.03	14428885.63	39°43'49.939"N	80°35'01.743"W	866.85	184.291	0.80	-0.68	-2.14
6051.00	11.090	187.120	5967.19	-490.66	-881.43	-66.65	1757424.24	14428868.62	39°43'49.771"N	80°35'01.767"W	883.95	184.324	0.55	0.29	2.49
6141.00	11.260	188.230	6055.49	-499.47	-898.72	-68.98	1757421.91	14428851.34	39°43'49.600"N	80°35'01.797"W	901.36	184.389	0.30	0.19	1.23
6191.00	10.600	187.140	6104.58	-504.26	-908.11	-70.25	1757420.64	14428841.95	39°43'49.508"N	80°35'01.814"W	910.83	184.424	1.38	-1.32	-2.18
6282.00	10.780	189.340	6194.00	-512.64	-924.82	-72.68	1757418.22	14428825.26	39°43'49.343"N	80°35'01.846"W	927.67	184.493	0.49	0.20	2.42
6373.00	10.910	219.570	6283.45	-516.50	-939.86	-79.55	1757411.35	14428810.22	39°43'49.194"N	80°35'01.935"W	943.22	184.838	6.18	0.14	33.22
6463.00	10.860	256.260	6371.93	-511.03	-948.45	-93.23	1757397.68	14428801.63	39°43'49.110"N	80°35'02.111"W	953.02	185.614	7.57	-0.06	40.77
6554.00	12.380	272.930	6461.09	-497.74	-949.99	-111.30	1757379.61	14428800.09	39°43'49.096"N	80°35'02.342"W	956.49	186.682	4.03	1.67	18.32
6644.00	16.510	283.070	6548.24	-478.24	-946.60	-133.41	1757357.51	14428803.48	39°43'49.130"N	80°35'02.625"W	955.96	188.022	5.36	4.59	11.27
6735.00	22.270	296.200	6634.08	-449.60	-936.05	-161.51	1757329.42	14428814.02	39°43'49.236"N	80°35'02.984"W	949.89	189.790	7.90	6.33	14.43
6825.00	28.480	300.920	6715.37	-411.58	-917.48	-195.26	1757295.69	14428832.59	39°43'49.421"N	80°35'03.415"W	938.03	192.014	7.25	6.90	5.24
6915.00	37.310	305.750	6790.87	-362.93	-890.46	-235.89	1757255.07	14428859.60	39°43'49.690"N	80°35'03.933"W	921.17	194.837	10.23	9.81	5.37
7005.00	46.510	310.060	6857.79	-302.91	-853.42	-283.12	1757207.85	14428896.62	39°43'50.058"N	80°35'04.536"W	899.16	198.353	10.71	10.22	4.79
7096.00	54.430	311.140	6915.67	-232.85	-807.76	-336.35	1757154.65	14428942.27	39°43'50.512"N	80°35'05.214"W	874.99	202.607	8.75	8.70	1.19
7186.00	61.990	309.900	6963.05	-156.48	-758.12	-394.48	1757096.54	14428991.77	39°43'51.005"N	80°35'05.955"W	854.61	207.490	8.48	8.40	-1.38
7231.00	65.420	309.940	6992.98	-116.16	-732.23	-425.42	1757065.62	14429011.77	39°43'51.262"N	80°35'06.350"W	846.84	210.156	7.62	7.62	0.09
7276.00	67.790	309.810	7000.85	-74.88	-705.76	-457.11	1757033.94	14429044.23	39°43'51.525"N	80°35'06.754"W	840.86	212.931	5.27	5.27	-0.29
7367.00	67.060	308.690	7035.78	9.12	-652.59	-522.18	1756968.89	14429097.38	39°43'52.054"N	80°35'07.583"W	835.79	218.665	1.39	-0.80	-1.23
7412.00	69.480	308.460	7052.44	50.92	-626.53	-554.85	1756936.23	14429123.43	39°43'52.313"N	80°35'08.000"W	836.90	221.528	5.40	5.38	-0.51
7457.00	74.050	308.880	7066.52	93.65	-599.83	-588.21	1756902.88	14429150.12	39°43'52.578"N	80°35'08.425"W	840.11	224.440	10.19	10.16	0.93
7502.00	79.370	309.730	7076.86	137.41	-572.09	-622.09	1756869.02	14429177.84	39°43'52.854"N	80°35'08.857"W	845.15	227.397	11.96	11.82	1.89
7547.00	83.850	310.140	7083.42	181.90	-543.52	-656.21	1756834.91	14429206.40	39°43'53.138"N	80°35'09.293"W	852.08	230.366	10.00	9.96	0.91
7638.00	87.370	310.920	7090.39	272.53	-484.57	-725.16	1756765.99	14429266.33	39°43'53.723"N	80°35'10.172"W	872.16	236.248	3.96	3.87	0.86



Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot 1H
Operator	SOUTHWESTERN ENERGY	Well	Yocum MSH 1H
Area	Marshall County, WV	Wellbore	Yocum MSH 1H AWB
Field	Marshall		
Facility	Yocum MSH Pad		

WELLPATH DATA (223 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
7683.00	89.950	312.010	7091.44	317.43	-454.78	-758.87	1756732.29	14429295.11	39°43'54.019"N	80°35'10.601"W	884.71	239.066	6.22	5.73	2.42
7728.00	91.180	314.200	7091.00	362.25	-424.04	-791.72	1756699.45	14429325.84	39°43'54.325"N	80°35'11.020"W	898.13	241.827	5.58	2.73	4.87
7818.00	90.080	316.160	7090.01	451.54	-360.21	-855.15	1756636.04	14429389.65	39°43'54.958"N	80°35'11.828"W	927.92	247.158	2.50	-1.22	2.18
7908.00	89.950	315.030	7089.98	540.76	-295.91	-918.13	1756573.10	14429453.92	39°43'55.597"N	80°35'12.630"W	964.64	252.136	1.26	-0.14	-1.26
7999.00	89.950	314.660	7090.06	631.12	-231.74	-982.65	1756508.60	14429518.07	39°43'56.234"N	80°35'13.452"W	1009.60	256.730	0.41	0.00	-0.41
8089.00	89.890	314.190	7090.19	720.56	-168.74	-1046.92	1756444.35	14429581.39	39°43'56.859"N	80°35'14.271"W	1060.44	260.844	0.53	-0.07	-0.52
8180.00	89.880	314.080	7090.36	811.04	-105.37	-1112.23	1756379.06	14429644.39	39°43'57.488"N	80°35'15.104"W	1117.21	264.588	0.12	0.00	-0.12
8270.00	90.910	314.780	7089.74	900.48	-42.37	-1176.50	1756314.82	14429707.36	39°43'58.114"N	80°35'15.922"W	1177.26	267.937	1.37	1.13	0.78
8360.00	90.970	313.880	7088.26	989.93	20.51	-1240.87	1756250.48	14429770.22	39°43'58.738"N	80°35'16.743"W	1241.04	270.947	1.00	0.07	-1.00
8450.00	90.970	312.680	7086.74	1079.53	82.20	-1306.38	1756184.99	14429831.89	39°43'59.351"N	80°35'17.578"W	1308.97	273.600	1.33	0.00	-1.33
8541.00	90.970	311.850	7085.20	1170.27	143.40	-1373.72	1756117.68	14429893.06	39°43'59.959"N	80°35'18.436"W	1381.18	275.959	0.91	0.00	-0.91
8631.00	90.940	312.330	7083.69	1260.04	203.71	-1440.49	1756050.93	14429953.35	39°44'00.558"N	80°35'19.287"W	1454.83	278.049	0.53	-0.03	0.53
8721.00	91.120	311.730	7082.08	1349.80	263.96	-1507.33	1755984.12	14430013.58	39°44'01.156"N	80°35'20.139"W	1530.27	279.933	0.70	0.20	-0.67
8812.00	90.970	311.770	7080.42	1440.60	324.55	-1575.21	1755916.26	14430074.14	39°44'01.758"N	80°35'21.004"W	1608.30	281.642	0.17	-0.16	0.04
8902.00	91.060	311.750	7078.82	1530.39	384.48	-1642.34	1755849.16	14430134.05	39°44'02.354"N	80°35'21.860"W	1686.74	283.176	0.10	0.10	-0.02
8993.00	92.140	310.200	7076.28	1621.23	444.12	-1711.01	1755780.52	14430193.67	39°44'02.946"N	80°35'22.736"W	1767.71	284.551	2.08	1.19	-1.70
9083.00	91.980	308.050	7073.05	1771.15	500.87	-1780.78	1755710.77	14430250.40	39°44'03.510"N	80°35'23.625"W	1849.88	285.709	2.39	-0.18	-2.39
9174.00	92.050	309.910	7069.85	1802.08	558.08	-1851.48	1755640.11	14430307.58	39°44'04.079"N	80°35'24.527"W	1933.76	286.774	2.04	0.08	2.04
9264.00	92.110	309.760	7066.58	1891.98	615.69	-1920.54	1755571.07	14430365.17	39°44'04.651"N	80°35'25.407"W	2016.82	287.775	0.18	0.07	-0.17
9354.00	92.080	308.840	7063.29	1981.90	672.66	-1990.14	1755501.50	14430422.12	39°44'05.217"N	80°35'26.295"W	2100.74	288.675	1.02	-0.03	-1.02
9445.00	92.140	307.610	7059.94	2072.83	728.93	-2061.51	1755430.09	14430478.36	39°44'05.777"N	80°35'27.206"W	2186.65	289.472	1.35	0.07	-1.35
9535.00	92.110	308.170	7056.60	2162.77	784.16	-2132.56	1755359.14	14430533.58	39°44'06.326"N	80°35'28.111"W	2272.16	290.189	0.62	-0.03	0.62
9625.00	91.830	308.920	7053.51	2252.71	840.21	-2202.91	1755288.81	14430589.60	39°44'06.883"N	80°35'29.009"W	2357.70	290.877	0.89	-0.31	0.83
9715.00	91.550	309.240	7050.85	2342.66	896.92	-2272.74	1755219.01	14430646.29	39°44'07.446"N	80°35'29.899"W	2443.32	291.536	0.47	-0.31	0.36
9806.00	91.580	310.310	7048.37	2433.58	955.12	-2342.65	1755149.12	14430704.47	39°44'08.025"N	80°35'30.791"W	2529.87	292.181	1.18	0.03	1.18
9896.00	91.550	310.450	7045.91	2523.47	1013.40	-2411.18	1755080.62	14430762.73	39°44'08.604"N	80°35'31.665"W	2615.49	292.797	0.16	-0.03	0.16
9986.00	91.460	311.830	7043.55	2613.31	1072.59	-2478.94	1755012.89	14430821.89	39°44'09.192"N	80°35'32.528"W	2701.03	293.397	1.54	-0.10	1.53
10077.00	91.620	312.380	7041.10	2704.05	1133.58	-2546.48	1754945.42	14430882.86	39°44'09.797"N	80°35'33.389"W	2787.35	293.997	0.63	0.18	0.60
10167.00	91.610	313.540	7038.56	2793.68	1194.89	-2612.27	1754879.61	14430944.15	39°44'10.406"N	80°35'34.228"W	2872.58	294.580	1.29	-0.01	4.29
10257.00	91.550	313.210	7036.08	2883.25	1256.68	-2677.66	1754814.24	14431005.91	39°44'11.020"N	80°35'35.061"W	2957.89	295.142	0.37	-0.07	-0.37



Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot 1H
Operator	SOUTHWESTERN ENERGY	Well	Yocum MSH 1H
Area	Marshall County, WV	Wellbore	Yocum MSH 1H AWB
Field	Marshall		
Facility	Yocum MSH Pad		

WELLPATH DATA (223 stations)															
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
10348.00	91.650	312.530	7033.54	2973.89	1318.57	-2744.33	1754747.60	14431067.77	39°44'11.634"N	80°35'35.911"W	3044.66	295.663	0.76	0.11	-0.75
10438.00	91.650	310.790	7030.95	3063.67	1378.36	-2811.54	1754680.42	14431127.55	39°44'12.228"N	80°35'36.768"W	3131.23	296.117	1.93	0.00	-1.93
10528.00	91.550	311.240	7028.44	3153.52	1437.40	-2879.42	1754612.56	14431186.56	39°44'12.815"N	80°35'37.634"W	3218.26	296.528	0.51	-0.11	0.50
10619.00	91.520	311.830	7026.00	3244.31	1497.72	-2947.51	1754544.50	14431246.86	39°44'13.414"N	80°35'38.502"W	3306.20	296.937	0.65	-0.03	0.65
10709.00	91.540	312.630	7023.60	3334.04	1558.19	-3014.13	1754477.91	14431307.30	39°44'14.015"N	80°35'39.351"W	3393.07	297.337	0.89	0.02	0.89
10800.00	91.550	312.250	7021.14	3424.74	1619.57	-3081.26	1754410.80	14431366.66	39°44'14.624"N	80°35'40.207"W	3480.97	297.727	0.42	0.01	-0.42
10890.00	91.520	312.820	7018.73	3514.43	1680.40	-3147.55	1754344.53	14431429.46	39°44'15.228"N	80°35'41.052"W	3568.03	298.097	0.63	-0.03	0.63
10980.00	91.610	310.770	7016.27	3604.20	1740.35	-3214.62	1754277.49	14431489.40	39°44'15.824"N	80°35'41.907"W	3655.49	298.430	2.28	0.10	-2.28
11071.00	91.620	310.620	7013.71	3695.07	1799.66	-3283.59	1754208.55	14431548.68	39°44'16.413"N	80°35'42.786"W	3744.43	298.726	0.17	0.01	-0.16
11161.00	91.580	312.040	7011.20	3784.88	1859.07	-3351.14	1754141.02	14431608.07	39°44'17.003"N	80°35'43.648"W	3832.27	299.020	1.58	-0.04	1.58
11252.00	91.520	312.720	7008.73	3875.58	1920.39	-3418.34	1754073.85	14431669.36	39°44'17.612"N	80°35'44.504"W	3920.83	299.327	0.75	-0.07	0.75
11342.00	91.580	314.760	7006.30	3965.10	1982.59	-3483.34	1754008.88	14431731.54	39°44'18.230"N	80°35'45.333"W	4008.03	299.647	2.27	0.07	2.27
11432.00	91.550	316.690	7003.84	4054.26	2047.00	-3546.14	1753946.10	14431795.93	39°44'18.869"N	80°35'46.133"W	4094.55	299.956	2.14	-0.03	2.14
11523.00	91.800	317.450	7001.18	4144.09	2113.60	-3608.09	1753884.17	14431862.50	39°44'19.530"N	80°35'46.922"W	4181.58	300.362	0.88	0.27	0.84
11613.00	91.890	315.980	6998.28	4233.01	2179.08	-3669.77	1753822.52	14431927.96	39°44'20.180"N	80°35'47.708"W	4267.97	300.702	1.64	0.10	-1.63
11703.00	91.770	317.140	6995.41	4321.97	2244.39	-3731.62	1753760.69	14431993.24	39°44'20.828"N	80°35'48.496"W	4354.57	301.025	1.30	-0.13	1.29
11794.00	92.480	317.280	6992.04	4411.75	2311.13	-3793.39	1753698.94	14432059.95	39°44'21.490"N	80°35'49.283"W	4441.97	301.352	0.80	0.78	0.15
11884.00	92.380	316.100	6988.22	4500.64	2376.56	-3855.07	1753637.29	14432125.36	39°44'22.140"N	80°35'50.068"W	4528.75	301.653	1.31	-0.11	-1.31
11974.00	92.350	314.250	6984.51	4589.86	2440.33	-3918.46	1753573.92	14432189.11	39°44'22.773"N	80°35'50.876"W	4616.23	301.914	2.05	-0.03	-2.06
12065.00	92.350	313.790	6980.77	4680.29	2503.52	-3983.84	1753508.57	14432252.27	39°44'23.400"N	80°35'51.709"W	4705.17	302.146	0.51	0.00	-0.51
12156.00	92.320	314.110	6977.07	4770.73	2566.62	-4049.89	1753443.13	14432315.35	39°44'24.027"N	80°35'52.544"W	4794.20	302.388	0.35	-0.03	0.35
12246.00	92.290	313.940	6973.45	4860.17	2629.12	-4113.96	1753378.50	14432377.82	39°44'24.647"N	80°35'53.368"W	4882.31	302.582	0.19	-0.03	-0.19
12336.00	92.290	313.270	6969.85	4949.67	2691.14	-4179.08	1753313.40	14432439.82	39°44'25.263"N	80°35'54.198"W	4970.61	302.780	0.74	0.00	-0.74
12427.00	92.350	312.020	6966.17	5040.30	2752.74	-4245.96	1753246.55	14432501.39	39°44'25.875"N	80°35'55.051"W	5060.21	302.956	1.37	0.07	-1.37
12517.00	92.260	311.900	6962.55	5130.02	2812.86	-4312.83	1753179.70	14432561.49	39°44'26.472"N	80°35'55.903"W	5149.05	303.113	0.17	-0.10	-0.13
12608.00	92.350	310.740	6958.89	5220.80	2872.90	-4381.12	1753111.44	14432621.50	39°44'27.068"N	80°35'56.774"W	5239.06	303.255	1.28	0.10	-1.27
12698.00	92.320	309.790	6955.22	5310.65	2931.02	-4449.74	1753042.85	14432679.60	39°44'27.610"N	80°35'57.649"W	5328.32	303.373	1.06	-0.03	-1.06
12788.00	92.420	308.530	6951.50	5400.56	2987.80	-4519.46	1752973.15	14432736.36	39°44'28.210"N	80°35'58.538"W	5417.79	303.469	1.40	0.11	-1.40
12879.00	92.450	307.450	6947.63	5491.47	3043.76	-4591.11	1752901.53	14432792.30	39°44'28.766"N	80°35'59.452"W	5508.43	303.543	1.19	0.03	-1.19
12969.00	92.320	307.770	6943.89	5581.39	3098.64	-4662.35	1752830.32	14432847.16	39°44'29.312"N	80°36'00.361"W	5598.13	303.608	0.38	-0.14	0.36



Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H AWB
Facility	Yocum MSH Pad		

WELLPATH DATA (223 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
13059.00	92.260	308.150	6940.291	5671.321	3153.966	-4733.256	1752759.45	144329052.45	39°44'29.861"N	80°36'01.266"W	5687.80	303.677	0.43	-0.07	0.42
13150.00	92.350	307.660	6936.63	5762.25	3209.82	-4804.99	1752687.73	144329562.29	39°44'30.417"N	80°36'02.181"W	5778.49	303.744	0.55	0.10	-0.54
13241.00	92.350	306.640	6932.90	5853.16	3264.73	-4877.46	1752615.29	14433013.18	39°44'30.963"N	80°36'03.105"W	5869.25	303.796	1.12	0.00	-1.12
13331.00	92.200	307.480	6929.33	5943.07	3318.92	-4949.23	1752543.55	14433067.36	39°44'31.501"N	80°36'04.021"W	5959.03	303.846	0.95	-0.17	0.93
13421.00	92.260	307.240	6925.82	6033.00	3373.49	-5020.71	1752472.10	14433121.91	39°44'32.044"N	80°36'04.933"W	6048.80	303.898	0.27	0.07	-0.27
13512.00	92.290	309.870	6922.21	6123.91	3430.16	-5091.81	1752401.03	14433178.55	39°44'32.607"N	80°36'05.840"W	6139.42	303.967	2.89	0.03	2.89
13602.00	92.320	311.190	6918.59	6213.76	3488.60	-5160.16	1752332.70	14433236.97	39°44'33.187"N	80°36'06.712"W	6228.77	304.061	1.47	0.03	1.47
13692.00	92.350	311.740	6914.92	6303.52	3548.14	-5227.54	1752265.34	14433296.49	39°44'33.779"N	80°36'07.571"W	6317.95	304.166	0.61	0.03	0.61
13782.00	92.380	313.120	6911.21	6393.18	3608.81	-5293.92	1752199.00	14433357.13	39°44'34.381"N	80°36'08.417"W	6406.95	304.282	1.53	0.03	1.53
13872.00	92.320	314.610	6907.52	6482.63	3671.12	-5356.75	1752134.19	14433419.42	39°44'35.000"N	80°36'09.243"W	6495.64	304.414	1.66	-0.07	1.66
13963.00	92.350	314.880	6903.81	6572.94	3735.13	-5423.33	1752069.64	14433483.40	39°44'35.635"N	80°36'10.067"W	6585.11	304.556	0.30	0.03	0.30
14053.00	92.380	314.620	6900.10	6662.24	3798.44	-5487.19	1752005.80	14433546.69	39°44'36.264"N	80°36'10.880"W	6673.63	304.692	0.29	0.03	-0.29
14144.00	92.480	314.850	6896.24	6752.54	3862.43	-5551.77	1751941.24	14433610.65	39°44'36.899"N	80°36'11.704"W	6763.18	304.827	0.28	0.11	0.25
14234.00	92.630	315.390	6892.23	6841.77	3926.14	-5615.22	1751877.82	14433674.34	39°44'37.531"N	80°36'12.512"W	6851.66	304.961	0.62	0.17	0.60
14325.00	92.570	315.730	6888.10	6931.89	3991.04	-5678.86	1751814.20	14433739.22	39°44'38.176"N	80°36'13.323"W	6941.03	305.099	0.38	-0.07	0.37
14415.00	92.600	314.690	6884.04	7021.10	4054.85	-5742.21	1751750.88	14433803.00	39°44'38.809"N	80°36'14.131"W	7029.56	305.228	1.15	0.03	-1.16
14506.00	92.480	315.750	6880.01	7111.29	4119.38	-5806.24	1751686.87	14433867.50	39°44'39.450"N	80°36'14.947"W	7119.11	305.355	1.17	-0.13	1.16
14596.00	92.570	314.750	6876.04	7200.49	4183.23	-5869.54	1751623.60	14433931.33	39°44'40.083"N	80°36'15.754"W	7207.70	305.478	1.11	0.10	-1.11
14686.00	92.540	315.130	6872.03	7289.75	4246.74	-5933.18	1751559.98	14433994.82	39°44'40.714"N	80°36'16.565"W	7296.40	305.594	0.42	-0.03	0.42
14776.00	92.540	315.030	6868.04	7378.99	4310.41	-5996.67	1751496.51	14434058.46	39°44'41.346"N	80°36'17.374"W	7385.10	305.709	0.11	0.00	-0.11
14867.00	92.660	310.830	6863.91	7469.54	4372.31	-6063.22	1751430.00	14434120.34	39°44'41.960"N	80°36'18.222"W	7475.27	305.796	4.61	0.13	-4.62
14957.00	93.060	309.610	6859.42	7559.36	4430.35	-6131.85	1751361.39	14434183.36	39°44'42.537"N	80°36'19.098"W	7564.89	305.849	1.42	0.44	-1.36
15047.00	91.060	307.370	6856.19	7649.29	4486.32	-6202.24	1751291.02	14434234.31	39°44'43.093"N	80°36'19.996"W	7654.73	305.880	3.34	-2.22	-2.49
15138.00	91.560	308.830	6854.11	7740.26	4542.46	-6273.83	1751219.46	14434290.42	39°44'43.651"N	80°36'20.909"W	7745.64	305.906	1.69	0.54	1.60
15228.00	91.000	311.750	6852.11	7830.16	4600.64	-6342.46	1751150.86	14434348.57	39°44'44.229"N	80°36'21.784"W	7835.34	305.956	3.30	-0.61	3.24
15319.00	90.940	313.740	6850.57	7920.84	4662.39	-6409.27	1751084.07	14434410.30	39°44'44.842"N	80°36'22.636"W	7925.70	306.034	2.19	-0.07	2.19
15409.00	91.280	314.190	6848.83	8010.34	4724.86	-6474.04	1751019.33	14434472.75	39°44'45.462"N	80°36'23.462"W	8014.83	306.123	0.63	0.38	0.50
15499.00	91.370	312.990	6846.75	8099.89	4786.89	-6539.91	1750954.76	14434534.76	39°44'46.078"N	80°36'24.293"W	8104.05	306.205	1.34	0.10	-1.33
15590.00	91.370	313.040	6844.57	8190.52	4848.95	-6605.23	1750887.70	14434596.80	39°44'46.694"N	80°36'25.141"W	8194.39	306.281	0.05	0.00	0.05
15680.00	91.370	313.730	6842.42	8280.11	4910.76	-6671.11	1750822.33	14434658.58	39°44'47.308"N	80°36'25.974"W	8283.68	306.358	0.77	0.00	0.77



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H AWB
Facility	Yocum MSH Pad		

WELLPATH DATA (223 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
15770.00	91.310	313.280	6840.31	8369.67	4972.70	-6736.37	1750757.10	14434720.49	39°44'47.923"N	80°36'26.806"W	8372.96	306.434	0.50	-0.07	-0.50
15860.00	91.400	313.360	6838.19	8459.26	5034.43	-6801.83	1750691.66	14434782.20	39°44'48.536"N	80°36'27.641"W	8462.29	306.507	0.13	0.10	0.09
15950.00	91.310	311.670	6836.06	8548.96	5095.23	-6868.15	1750625.37	14434842.98	39°44'49.140"N	80°36'28.487"W	8551.78	306.570	1.88	-0.10	-1.88
16041.00	91.180	311.500	6834.08	8639.77	5155.61	-6936.20	1750557.35	14434903.34	39°44'49.739"N	80°36'29.354"W	8642.41	306.623	0.24	-0.14	-0.19
16131.00	90.880	310.450	6832.46	8729.63	5214.62	-7004.14	1750489.44	14434966.32	39°44'50.325"N	80°36'30.221"W	8732.14	306.668	1.21	-0.33	-1.17
16222.00	90.750	308.100	6831.17	8820.60	5272.22	-7074.57	1750419.03	14435019.90	39°44'50.898"N	80°36'31.119"W	8823.03	306.695	2.59	-0.14	-2.58
16312.00	90.840	307.530	6829.92	8910.59	5327.39	-7145.66	1750347.97	14435075.05	39°44'51.446"N	80°36'32.026"W	8913.00	306.706	0.64	0.10	-0.63
16402.00	90.910	306.320	6828.54	9000.56	5381.45	-7217.60	1750276.05	14435129.09	39°44'51.983"N	80°36'32.944"W	9002.99	306.708	1.35	0.08	-1.34
16493.00	90.880	305.950	6827.12	9091.50	5435.11	-7291.09	1750202.60	14435182.72	39°44'52.517"N	80°36'33.882"W	9093.97	306.703	0.41	-0.03	-0.41
16584.00	90.880	306.830	6825.72	9182.45	5489.09	-7364.33	1750129.38	14435236.68	39°44'53.053"N	80°36'34.817"W	9184.96	306.699	0.97	0.00	0.97
16674.00	90.840	306.890	6824.37	9272.42	5543.07	-7436.33	1750057.41	14435290.65	39°44'53.590"N	80°36'35.736"W	9274.95	306.701	0.08	-0.04	0.07
16764.00	90.810	309.970	6823.08	9362.39	5599.00	-7506.82	1749986.95	14435346.55	39°44'54.146"N	80°36'36.635"W	9364.89	306.718	3.42	-0.03	3.42
16855.00	90.850	311.040	6821.76	9453.30	5658.10	-7576.00	1749917.79	14435405.63	39°44'54.733"N	80°36'37.518"W	9455.68	306.754	1.18	0.04	1.18
16945.00	90.850	313.190	6820.42	9543.06	5718.44	-7642.76	1749851.07	14435465.95	39°44'55.332"N	80°36'38.369"W	9545.28	306.804	2.39	0.00	2.39
17036.00	90.840	313.050	6819.08	9633.69	5780.64	-7709.17	1749784.68	14435528.12	39°44'55.950"N	80°36'39.216"W	9635.72	306.864	0.15	-0.01	-0.15
17126.00	90.510	312.840	6818.02	9723.35	5841.95	-7775.05	1749718.82	14435589.41	39°44'56.558"N	80°36'40.056"W	9725.21	306.920	0.43	-0.37	-0.23
17216.00	90.480	314.360	6817.24	9812.92	5904.01	-7840.22	1749653.68	14435651.45	39°44'57.174"N	80°36'40.887"W	9814.60	306.981	1.69	-0.03	1.69
17306.00	90.380	315.770	6816.57	9902.24	5967.72	-7903.78	1749590.14	14435715.13	39°44'57.807"N	80°36'41.697"W	9903.71	307.054	1.57	-0.11	1.57
17396.00	90.440	315.160	6815.92	9991.49	6031.87	-7966.90	1749527.04	14435779.26	39°44'58.443"N	80°36'42.501"W	9992.75	307.130	0.68	0.07	-0.68
17487.00	90.380	314.340	6815.27	10081.86	6095.93	-8031.53	1749462.45	14435843.30	39°44'59.079"N	80°36'43.325"W	10082.95	307.199	0.90	-0.07	-0.90
17577.00	90.230	313.210	6814.79	10171.41	6158.20	-8096.51	1749397.49	14435905.53	39°44'59.697"N	80°36'44.154"W	10172.36	307.257	1.27	-0.17	-1.26
17667.00	90.230	312.630	6814.43	10261.08	6219.48	-8162.42	1749331.61	14435966.80	39°45'00.306"N	80°36'44.994"W	10261.92	307.306	0.64	0.00	-0.64
17755.00	90.170	313.110	6814.13	10346.77	6277.99	-8225.45	1749268.60	14436025.28	39°45'00.887"N	80°36'45.798"W	10347.52	307.352	0.56	-0.07	0.56
17836.00	90.660	314.020	6813.53	10429.38	6335.19	-8285.58	1749208.49	14436082.46	39°45'01.455"N	80°36'46.565"W	10430.03	307.402	1.25	0.59	1.10
17926.00	90.660	313.680	6812.50	10518.92	6397.54	-8350.48	1749143.61	14436144.78	39°45'02.074"N	80°36'47.392"W	10519.46	307.457	0.38	0.00	-0.38
18013.00	90.660	313.360	6811.49	10605.51	6457.44	-8413.57	1749080.55	14436204.66	39°45'02.668"N	80°36'48.196"W	10605.97	307.506	0.37	0.00	-0.37
18099.00	90.660	312.380	6810.50	10691.20	6515.95	-8476.59	1749017.55	14436263.15	39°45'03.249"N	80°36'49.000"W	10691.59	307.549	1.14	0.00	-1.14
18181.00	90.600	312.730	6809.60	10772.94	6571.40	-8536.99	1748957.18	14436318.58	39°45'03.800"N	80°36'49.770"W	10773.28	307.587	0.43	-0.07	0.43
18271.00	90.720	311.800	6808.56	10862.97	6631.92	-8603.59	1748890.60	14436379.08	39°45'04.401"N	80°36'50.620"W	10862.97	307.626	1.04	0.13	-1.03
18362.00	90.630	311.760	6807.49	10953.49	6692.55	-8671.44	1748822.77	14436439.68	39°45'05.003"N	80°36'51.485"W	10953.73	307.661	0.11	-0.10	-0.04



Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H AWB
Facility	Yocum MSH Pad		

WELLPATH DATA (223 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]
18452.00	90.570	312.130	6806.55	11043.28	6752.71	-8738.38	1748755.86	14436499.81	39°45'05.600"N	80°36'52.339"W	11043.47	307.696	0.42	-0.07	0.41
18543.00	90.660	312.060	6805.57	11134.04	6813.70	-8805.90	1748688.37	14436560.79	39°45'06.206"N	80°36'53.200"W	11134.20	307.731	0.13	0.10	-0.08
18633.00	90.540	308.620	6804.63	11223.95	6871.95	-8874.49	1748619.81	14436619.01	39°45'06.784"N	80°36'54.075"W	11224.09	307.752	3.82	-0.13	-3.82
18723.00	90.510	308.420	6803.81	11313.94	6928.00	-8944.90	1748549.42	14436675.04	39°45'07.341"N	80°36'54.973"W	11314.08	307.758	0.22	-0.03	-0.22
18814.00	90.630	308.780	6802.90	11404.94	6984.77	-9016.01	1748478.34	14436731.79	39°45'07.905"N	80°36'55.881"W	11405.07	307.765	0.42	0.13	0.40
18904.00	90.510	309.970	6802.00	11494.90	7041.86	-9085.58	1748408.80	14436788.86	39°45'08.473"N	80°36'56.768"W	11495.02	307.778	1.33	-0.13	1.32
18994.00	90.540	310.760	6801.18	11584.83	7100.15	-9154.15	1748340.25	14436847.12	39°45'09.051"N	80°36'57.643"W	11584.93	307.798	0.88	0.03	0.88
19085.00	89.890	310.490	6800.84	11675.73	7159.40	-9223.22	1748271.21	14436906.35	39°45'09.640"N	80°36'58.524"W	11675.82	307.820	0.77	-0.71	-0.30
19175.00	89.860	310.830	6801.03	11765.64	7218.04	-9291.49	1748202.97	14436964.97	39°45'10.222"N	80°36'59.395"W	11765.71	307.842	0.38	-0.03	0.38
19265.00	89.980	312.210	6801.16	11855.47	7277.70	-9358.87	1748135.61	14437024.60	39°45'10.815"N	80°37'00.254"W	11855.52	307.870	1.54	0.13	1.53
19355.00	90.040	313.210	6801.14	11945.17	7338.74	-9425.01	1748069.50	14437085.62	39°45'11.421"N	80°37'01.098"W	11945.20	307.906	1.11	0.07	1.11
19440.00	89.980	314.870	6801.13	12029.70	7397.83	-9486.11	1748008.43	14437144.69	39°45'12.007"N	80°37'01.877"W	12029.72	307.949	1.95	-0.07	1.95
19465.00	89.980	314.870	6801.14	12054.52	7415.47	-9503.82	1747990.72	14437162.32	39°45'12.182"N	80°37'02.103"W	12054.53	307.964	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Yocum MSH 1H AWB Ref Wellpath: Yocum MSH 1H AWP Proj: 19465'

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]
17.5in Open Hole	26.00	537.00	511.00	26.00	536.99	0.00	0.00	-1.45	1.42
13.375in Casing Surface	26.00	537.00	511.00	26.00	536.99	0.00	0.00	-1.45	1.42
12.25in Open Hole	537.00	2478.00	1941.00	536.99	2468.65	-1.45	1.42	-172.38	-18.76
9.625in Casing Intermediate	26.00	2478.00	2452.00	26.00	2468.65	0.00	0.00	-172.38	-18.76
8.75in Open Hole	2478.00	6205.00	3727.00	2468.65	6118.34	-172.38	-18.76	-910.67	-70.58
8.5in Open Hole	6205.00	19465.00	13260.00	6118.34	6801.14	-910.67	-70.58	7415.47	-9503.82
5.5in Casing Production	26.00	19465.00	19439.00	26.00	6801.14	0.00	0.00	7415.47	-9503.82

Actual Wellpath Report

Yocum MSH 1H AWP Proj: 19465'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H AWB
Facility	Yocum MSH Pad		

TARGETS	TVD	North	East	Grid East	Grid North	Latitude	Longitude	Shape
Name	[ft]	[ft]	[ft]	[US ft]	[US ft]			
Yocum MSH 1H BHL Rev-2	6810.00	7431.91	-9497.45	1747997.09	14437178.76	39°45'12.345"N	80°37'02.020"W	point
Yocum MSH 1H LP Rev-2	7095.00	-513.80	-657.01	1756834.12	14429236.12	39°43'53.431"N	80°35'09.301"W	point

WELLPATH COMPOSITION - Ref Wellbore: Yocum MSH 1H AWB Ref Wellpath: Yocum MSH 1H AWP Proj: 19465'										
Start MD	End MD	Positional Uncertainty Model			Log Name/Comment					Wellbore
[ft]	[ft]									
26.00	493.00	OWSG MWD rev2 +HRGM + Multi-Station Correction			01_MWD + MSA <17 1/2"> (174-493)				Yocum MSH 1H AWB	
493.00	2432.00	OWSG MWD rev2 +HRGM + Multi-Station Correction			02_MWD + MSA <12 1/4"> (558-2432)				Yocum MSH 1H AWB	
2432.00	4513.00	OWSG MWD rev2 +HRGM + Multi-Station Correction			03_MWD + MSA <8 3/4"> (2522-4513)				Yocum MSH 1H AWB	
4513.00	6141.00	OWSG MWD rev2 +HRGM + Multi-Station Correction			04_MWD + MSA <8 3/4"> (4604-6141)				Yocum MSH 1H AWB	
6141.00	19440.00	OWSG MWD rev2 +HRGM + Multi-Station Correction			05_AT Curve + MSA <8 1/2"> (6191'-19440')				Yocum MSH 1H AWB	
19440.00	19465.00	Blind Drilling (std)			Projection to bit				Yocum MSH 1H AWB	



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Yocum MSH 1H
Field	Marshall	Wellbore	Yocum MSH 1H AWP
Facility	Yocum MSH Pad		

COMMENTS

Wellpath general comments
 API: 47-051-02133-0000
 BH Job #: 109617003
 Rig: SDC 46
 Duration: 02/11/2019 - 02/15/2019