

SOUTHWESTERN ENERGY

Location: Marshall County, WV
 Field: Marshall
 Facility: Yocum MSH Pad
 Slot: Slot 5H
 Well: Yocum MSH 5H
 Wellbore: Yocum MSH 5H PWB

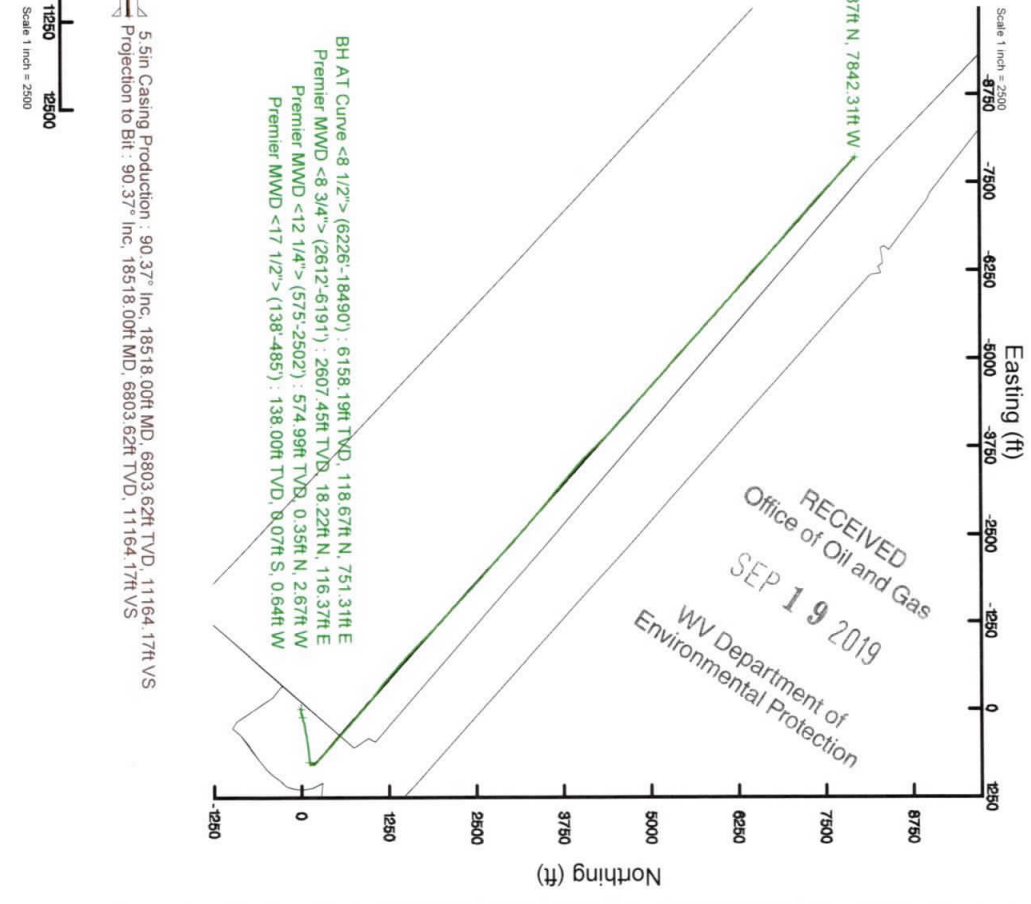
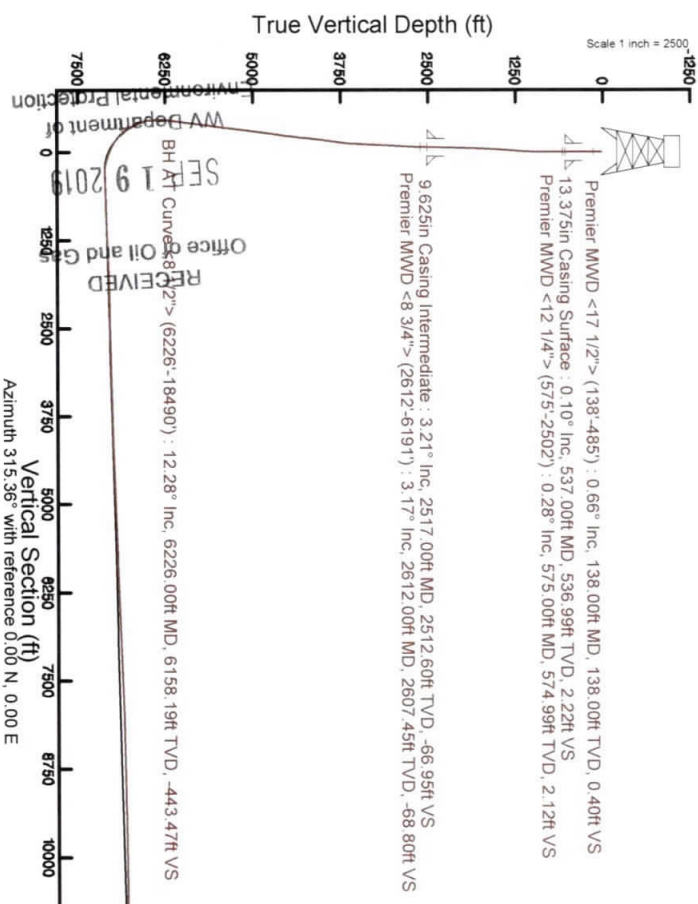
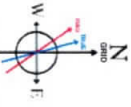
Plot reference wellbore is Yocum MSH 5H PWB Rev-B 0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 46 (RKB)	North Reference: Grid north
Measured depths are referenced to SDC 46 (RKB)	Scale: True distance
SDC 46 (RKB) to Mean Sea Level: 1079.4 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: Slot 5H): -1053.4 feet	Created by: ateng on 2019-04-04
Coordinates are in feet referenced to Slot	Database: WA_MPL_EASTERNUS_Dein



Location Information			
Facility Name	Yocum MSH Pad		
Grid East (US ft)	1757446.734		
Grid North (US ft)	14429785.622		
Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot 5H	-22.92	59.34	1757506.053
SDC 46 (RKB) to Mud line (At Slot: Slot 5H)	26ft		
Mean Sea Level to Mud line (At Slot: Slot 5H)	-1053.4ft		
SDC 46 (RKB) to Mean Sea Level	1079.4ft		

Comments	
API: 47-051-02024-0000	
BH Job #: 109668471	
Rig: SDC 46	
Duration: 03/15/2019 - 03/19/2019	

Use geotagged Dip Meter Field 53222-01
 Magnetic North is 44.5 degrees West of True North at 13Mw/2019.
 Grid North is 0.27 degrees East of True North.
 To correct azimuth from true to grid subtract 0.27 degrees.
 To correct azimuth from magnetic to grid subtract 8.72 degrees.



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Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 1 of 11

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Yocum MSH 5H
Field	Marshall	Wellbore	Yocum MSH 5H 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	Atenien
Scale	0.999616	Report Generated	03/Apr/2019 at 18:19
Convergence at slot	0.27° East	Database/Source file	WA_MPL_EASTERNUUS_Defn/Yocum_MSH_5H_AWP_Proj_18518_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-22.92	59.34	1757506.05	14429762.71	39°43'58.607"N	80°35'00.666"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 (RKB) to Facility Vertical Datum	1079.40ft
Horizontal Reference Pt	Slot	SDC 46 (RKB) to Mean Sea Level	1079.40ft
Vertical Reference Pt	SDC 46 (RKB)	SDC 46 (RKB) to Mud Line at Slot (Slot 5H)	26.00ft
MD Reference Pt	SDC 46 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	315.36°



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 2 of 11

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY		Slot	Slot 5H
Area	Marshall County, WV		Well	Yocum MSH 5H
Field	Marshall		Wellbore	Yocum MSH 5H AWB
Facility	Yocum MSH Pad			

WELLPATH DATA (215 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	264.040	0.00	0.00	0.00	0.00	1757506.05	14429762.71	39°43'58.607"N	80°35'00.566"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	264.040	26.00	0.00	0.00	0.00	1757506.05	14429762.71	39°43'58.607"N	80°35'00.566"W	0.00	0.000	0.00	0.00	0.00
138.00	0.660	264.040	138.00	0.40	-0.07	-0.64	1757505.41	14429762.65	39°43'58.606"N	80°35'00.674"W	0.65	264.040	0.59	0.59	-85.68
229.00	0.420	286.550	228.99	1.02	-0.03	-1.48	1757504.57	14429762.69	39°43'58.607"N	80°35'00.685"W	1.48	268.980	0.35	-0.26	24.74
319.00	0.350	287.210	318.99	1.55	0.15	-2.06	1757503.99	14429762.86	39°43'58.608"N	80°35'00.692"W	2.07	274.132	0.08	-0.08	0.73
410.00	0.260	284.920	409.99	1.98	0.28	-2.53	1757503.53	14429763.00	39°43'58.610"N	80°35'00.698"W	2.54	276.421	0.10	-0.10	-2.52
485.00	0.140	283.610	484.99	2.20	0.35	-2.78	1757503.27	14429763.06	39°43'58.610"N	80°35'00.701"W	2.80	277.169	0.16	-0.16	-1.75
575.00	0.280	96.570	574.99	2.12	0.35	-2.67	1757503.39	14429763.06	39°43'58.610"N	80°35'00.700"W	2.69	277.481	0.47	0.16	192.18
620.00	0.390	100.590	619.99	1.91	0.31	-2.41	1757503.65	14429763.02	39°43'58.610"N	80°35'00.697"W	2.43	277.326	0.25	0.24	8.93
710.00	0.620	111.760	709.99	1.21	0.07	-1.66	1757504.40	14429762.79	39°43'58.608"N	80°35'00.687"W	1.66	272.520	0.28	0.26	12.41
801.00	0.690	95.950	800.98	0.34	-0.17	-0.65	1757505.40	14429762.55	39°43'58.605"N	80°35'00.674"W	0.67	255.696	0.21	0.08	-17.37
891.00	1.110	107.800	890.97	-0.85	-0.49	0.72	1757506.77	14429762.23	39°43'58.602"N	80°35'00.657"W	0.87	124.335	0.51	0.47	13.17
981.00	1.970	102.640	980.93	-2.93	-1.09	3.06	1757509.11	14429761.62	39°43'58.586"N	80°35'00.627"W	3.25	109.701	0.97	0.96	-5.73
1072.00	3.050	100.950	1071.85	-6.24	-1.90	6.96	1757513.01	14429760.82	39°43'58.588"N	80°35'00.577"W	7.21	105.243	1.19	1.19	-1.86
1162.00	4.220	97.790	1161.66	-10.84	-2.80	12.59	1757518.64	14429759.92	39°43'58.579"N	80°35'00.505"W	12.90	102.538	1.32	1.30	-3.51
1252.00	5.820	97.570	1251.32	-17.07	-3.85	20.40	1757526.44	14429758.87	39°43'58.568"N	80°35'00.405"W	20.76	100.690	1.78	1.78	-0.24
1342.00	5.810	96.950	1340.85	-24.25	-5.00	29.44	1757535.48	14429757.71	39°43'58.556"N	80°35'00.289"W	29.86	99.643	0.07	-0.01	-0.69
1433.00	4.930	88.350	1431.45	-30.52	-5.45	37.92	1757543.96	14429757.27	39°43'58.551"N	80°35'00.181"W	38.31	98.174	1.31	-0.97	-9.45
1524.00	5.700	80.510	1522.06	-35.79	-4.59	46.29	1757552.32	14429758.13	39°43'58.559"N	80°35'00.074"W	46.51	95.662	1.16	0.85	-8.62
1614.00	5.380	82.520	1611.64	-40.91	-3.30	54.88	1757560.91	14429759.41	39°43'58.572"N	80°34'59.964"W	54.98	93.445	0.42	-0.36	2.23
1704.00	4.760	79.370	1701.29	-45.50	-2.07	62.73	1757568.76	14429760.65	39°43'58.584"N	80°34'59.863"W	62.77	91.885	0.75	-0.69	-3.50
1794.00	3.890	71.950	1791.03	-49.00	-0.43	69.31	1757575.33	14429762.28	39°43'58.599"N	80°34'59.779"W	69.31	90.356	1.15	-0.97	-8.24
1885.00	3.930	70.960	1881.82	-51.73	1.54	75.19	1757581.21	14429764.26	39°43'58.619"N	80°34'59.703"W	75.20	88.824	0.09	0.04	-1.09
1975.00	4.050	69.210	1971.60	-54.35	3.68	81.08	1757587.10	14429766.39	39°43'58.639"N	80°34'59.628"W	81.16	87.403	0.19	0.13	-1.94
2065.00	3.790	71.240	2061.39	-56.93	5.76	86.86	1757592.88	14429768.47	39°43'58.660"N	80°34'59.554"W	87.05	86.205	0.33	-0.29	2.26
2155.00	3.500	69.310	2151.21	-59.35	7.69	92.25	1757598.27	14429770.40	39°43'58.679"N	80°34'59.465"W	92.57	85.235	0.35	-0.32	-1.14
2246.00	3.380	67.890	2242.05	-61.50	9.68	97.33	1757603.15	14429772.39	39°43'58.698"N	80°34'59.419"W	97.81	84.320	0.16	-0.13	-1.56
2336.00	3.260	66.030	2331.90	-63.42	11.72	102.13	1757608.34	14429774.43	39°43'58.718"N	80°34'59.358"W	102.80	83.454	0.18	-0.13	-2.07
2427.00	3.340	63.810	2422.74	-65.18	13.94	106.87	1757612.88	14429776.65	39°43'58.740"N	80°34'59.287"W	107.78	82.569	0.17	0.09	-2.44
2502.00	3.220	67.040	2497.62	-66.64	15.73	110.77	1757616.78	14429778.43	39°43'58.757"N	80°34'59.247"W	111.88	81.920	0.29	-0.16	4.31



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 3 of 11

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot 5H
Operator	SOUTHWESTERN ENERGY	Well	Yocum MSH 5H
Area	Marshall County, WV	Wellbore	Yocum MSH 5H AWB
Field	Marshall		
Facility	Yocum MSH Pad		

WELLPATH DATA (215 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)	(°/100ft)	(°/100ft)	(ft)	(°)	(°/100ft)	(°/100ft)	(°/100ft)
2612.00	3.170	64.860	2607.45	-68.80	18.22	116.37	1757622.38	14429780.93	39°43'58.782"N	80°34'59.175"W	117.79	81.100	0.12	-0.05	-1.98
2702.00	3.870	75.140	2697.28	-71.14	20.06	121.56	1757627.56	14429782.77	39°43'58.799"N	80°34'59.109"W	123.20	80.630	1.04	0.78	11.42
2792.00	4.230	96.380	2787.06	-75.23	20.47	127.79	1757633.80	14429783.18	39°43'58.803"N	80°34'59.029"W	129.42	80.900	1.70	0.40	23.60
2883.00	3.930	96.850	2877.83	-80.28	19.72	134.23	1757640.23	14429782.43	39°43'58.796"N	80°34'58.947"W	135.67	81.640	0.33	-0.33	0.52
2973.00	4.160	85.220	2967.61	-84.78	19.63	140.54	1757646.54	14429782.34	39°43'58.794"N	80°34'58.866"W	141.90	82.049	0.94	0.26	-12.92
3064.00	5.210	75.580	3058.30	-88.98	20.93	147.83	1757653.83	14429783.64	39°43'58.807"N	80°34'58.772"W	149.31	81.941	1.44	1.15	-10.59
3154.00	5.940	68.020	3147.88	-92.83	23.69	156.11	1757662.10	14429786.40	39°43'58.834"N	80°34'58.666"W	157.90	81.370	1.15	0.81	-8.40
3245.00	6.270	67.350	3238.36	-96.51	27.37	165.06	1757671.05	14429790.07	39°43'58.870"N	80°34'58.551"W	167.31	80.585	0.37	0.36	-0.74
3335.00	7.230	64.630	3327.74	-100.21	31.69	174.71	1757680.70	14429794.39	39°43'58.912"N	80°34'58.428"W	177.56	79.720	1.12	1.07	-3.02
3425.00	8.220	69.280	3416.92	-104.69	36.39	185.85	1757691.83	14429799.09	39°43'58.956"N	80°34'58.285"W	189.38	78.921	1.30	1.10	5.17
3516.00	9.120	72.600	3506.88	-110.63	40.85	198.82	1757704.79	14429803.55	39°43'59.001"N	80°34'58.119"W	202.97	78.389	1.13	0.99	3.65
3606.00	10.430	74.280	3595.57	-117.84	45.19	213.46	1757719.43	14429807.89	39°43'59.044"N	80°34'57.931"W	218.19	78.047	1.49	1.46	1.87
3696.00	11.210	79.770	3683.97	-126.72	48.95	229.92	1757735.88	14429814.65	39°43'59.080"N	80°34'57.720"W	235.07	77.981	1.44	0.87	6.10
3786.00	11.870	84.940	3772.16	-137.56	51.32	247.75	1757753.70	14429814.02	39°43'59.103"N	80°34'57.492"W	253.01	78.296	1.36	0.73	5.74
3877.00	11.690	83.880	3861.24	-149.27	53.13	266.23	1757772.18	14429815.82	39°43'59.120"N	80°34'57.255"W	271.48	78.714	0.31	-0.20	-1.16
3967.00	11.840	84.470	3949.35	-160.77	54.99	284.49	1757790.43	14429817.68	39°43'59.137"N	80°34'57.021"W	289.76	79.060	0.21	0.17	0.66
4057.00	12.030	85.280	4037.40	-172.61	56.65	303.03	1757808.96	14429819.35	39°43'59.153"N	80°34'56.784"W	308.28	79.410	0.28	0.21	0.90
4148.00	10.370	81.450	4126.67	-183.52	58.65	320.58	1757826.51	14429821.34	39°43'59.172"N	80°34'56.559"W	325.90	79.632	2.00	-1.82	-4.21
4238.00	10.200	73.470	4215.23	-192.05	62.12	336.23	1757842.15	14429824.81	39°43'59.205"N	80°34'56.143"W	341.92	79.532	1.59	-0.19	-8.87
4328.00	12.490	70.890	4303.46	-200.00	67.58	353.07	1757858.98	14429830.27	39°43'59.258"N	80°34'56.143"W	359.48	79.165	2.61	2.54	-2.87
4419.00	13.210	77.540	4392.19	-209.78	73.04	372.52	1757878.43	14429835.73	39°43'59.312"N	80°34'55.893"W	379.61	78.906	1.81	0.79	7.31
4509.00	13.130	82.710	4479.83	-221.46	76.56	392.70	1757898.60	14429839.24	39°43'59.345"N	80°34'55.635"W	400.09	78.968	1.31	-0.09	5.74
4599.00	13.980	84.880	4567.32	-234.58	78.83	413.67	1757919.56	14429841.51	39°43'59.367"N	80°34'55.366"W	421.11	79.211	1.10	0.94	2.41
4690.00	13.710	87.110	4655.67	-248.75	80.35	435.39	1757941.27	14429843.03	39°43'59.381"N	80°34'55.088"W	442.74	79.544	0.66	-0.30	2.45
4780.00	12.410	79.210	4743.35	-261.24	82.70	455.54	1757961.42	14429845.38	39°43'59.403"N	80°34'54.830"W	462.99	79.711	2.45	-1.44	-8.78
4871.00	11.310	79.240	4832.41	-271.66	86.20	473.91	1757979.78	14429848.88	39°43'59.437"N	80°34'54.555"W	481.69	79.692	1.21	-1.21	0.03
4961.00	11.370	85.450	4920.65	-282.30	88.55	491.43	1757997.29	14429851.23	39°43'59.459"N	80°34'54.370"W	499.34	79.786	1.36	0.07	6.90
5051.00	11.330	82.810	5008.89	-293.33	90.36	509.04	1758014.90	14429853.04	39°43'59.476"N	80°34'54.145"W	517.00	79.935	0.58	-0.04	-2.93
5142.00	11.100	81.900	5098.16	-304.04	92.71	526.58	1758032.43	14429855.39	39°43'59.499"N	80°34'53.920"W	534.68	80.015	0.32	-0.25	-1.00
5232.00	10.910	83.070	5186.50	-314.41	94.96	543.62	1758049.46	14429857.64	39°43'59.520"N	80°34'53.702"W	551.85	80.092	0.33	-0.21	1.30



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 4 of 11

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Area	Marshall County, WV								
Field	Marshall								
Facility	Yocum MSH Pad								
Slot	Slot 5H								
Well	Yocum MSH 5H								
Wellbore	Yocum MSH 5H AWB								

WELLPATH DATA (215 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]
5323.00	12.120	84.540	5275.67	-325.71	96.91	561.68	1758067.51	14429859.58	39°43'59.539"N	80°34'53.471"W	569.97	80.211	1.37	1.33	1.62
5413.00	12.970	80.900	5363.52	-337.55	99.40	581.05	1758086.88	14429862.08	39°43'59.562"N	80°34'53.222"W	569.50	80.292	1.29	0.94	-4.04
5503.00	12.200	83.470	5451.36	-349.29	102.08	600.48	1758106.30	14429864.76	39°43'59.588"N	80°34'52.974"W	609.09	80.352	1.06	-0.86	2.86
5594.00	12.950	86.910	5540.18	-361.99	103.73	620.21	1758126.02	14429866.40	39°43'59.603"N	80°34'52.721"W	628.82	80.506	1.16	0.82	3.78
5684.00	12.470	82.590	5627.97	-374.55	105.52	639.92	1758145.72	14429868.20	39°43'59.620"N	80°34'52.469"W	648.56	80.636	1.18	-0.53	-4.80
5774.00	11.370	88.000	5716.03	-386.44	107.09	658.42	1758164.22	14429870.76	39°43'59.635"N	80°34'52.232"W	667.07	80.762	1.74	-1.22	6.01
5865.00	11.060	83.910	5805.30	-397.96	108.32	676.06	1758181.86	14429871.00	39°43'59.646"N	80°34'52.006"W	684.69	80.897	0.94	-0.34	-4.49
5955.00	11.430	81.510	5893.57	-408.60	110.56	693.47	1758199.25	14429873.23	39°43'59.667"N	80°34'51.783"W	702.23	80.942	0.66	0.41	-2.67
6046.00	12.710	81.690	5982.56	-419.85	113.33	712.29	1758218.07	14429876.01	39°43'59.694"N	80°34'51.542"W	721.25	80.959	1.41	1.41	0.20
6136.00	12.430	81.340	6070.40	-431.41	116.22	731.66	1758237.43	14429878.89	39°43'59.722"N	80°34'51.294"W	740.84	80.974	0.32	-0.31	-0.39
6191.00	13.050	83.240	6124.04	-438.70	117.85	743.68	1758249.45	14429880.52	39°43'59.737"N	80°34'51.140"W	752.96	80.996	1.36	1.13	3.45
6226.00	12.280	84.540	6158.19	-443.47	118.67	751.31	1758257.07	14429881.33	39°43'59.745"N	80°34'51.042"W	760.63	81.025	2.35	-2.20	3.71
6275.00	11.650	84.370	6206.13	-449.88	119.65	761.42	1758267.18	14429882.31	39°43'59.754"N	80°34'50.913"W	770.77	81.070	1.29	-1.29	-0.35
6365.00	9.090	54.970	6294.71	-456.79	124.62	776.30	1758282.05	14429887.29	39°43'59.803"N	80°34'50.722"W	786.24	80.880	6.44	-2.84	-32.67
6456.00	8.340	24.510	6384.71	-455.64	134.76	784.93	1758290.68	14429897.42	39°43'59.902"N	80°34'50.611"W	796.41	80.258	5.08	-0.82	-33.47
6546.00	10.940	1.640	6473.46	-447.41	149.24	787.88	1758293.63	14429911.90	39°44'00.045"N	80°34'50.572"W	801.89	79.274	5.09	2.89	-25.41
6637.00	15.510	342.170	6562.07	-430.57	169.48	784.40	1758290.15	14429932.13	39°44'00.246"N	80°34'50.615"W	802.50	77.808	6.95	5.02	-21.40
6727.00	21.080	319.350	6647.59	-403.63	193.26	770.14	1758275.90	14429955.90	39°44'00.481"N	80°34'50.797"W	794.02	75.913	9.97	6.19	-25.36
6817.00	27.690	311.280	6729.54	-366.57	219.37	743.85	1758249.61	14429982.00	39°44'00.741"N	80°34'51.132"W	775.52	73.568	8.21	7.34	-8.97
6907.00	34.970	311.970	6806.37	-319.91	250.46	708.91	1758214.69	14430013.08	39°44'01.049"N	80°34'51.577"W	751.85	70.542	8.10	8.09	0.77
6997.00	43.140	312.000	6876.20	-263.35	288.36	666.80	1758172.59	14430050.96	39°44'01.426"N	80°34'52.114"W	726.48	66.614	9.08	9.08	0.03
7088.00	50.780	312.220	6938.32	-193.99	332.93	617.50	1758123.31	14430095.52	39°44'01.869"N	80°34'52.742"W	701.53	61.668	8.40	8.40	0.24
7178.00	58.470	312.830	6990.36	-123.75	382.51	563.47	1758069.30	14430145.08	39°44'02.361"N	80°34'53.431"W	681.04	55.830	8.56	8.54	0.68
7223.00	62.640	312.540	7012.44	-84.62	409.07	534.67	1758040.51	14430171.63	39°44'02.625"N	80°34'53.798"W	673.21	52.581	9.28	9.27	-0.64
7268.00	66.890	312.290	7031.62	-43.97	436.52	504.62	1758010.48	14430199.06	39°44'02.898"N	80°34'54.181"W	667.23	49.139	9.46	9.44	-0.56
7313.00	68.980	311.530	7048.52	-2.35	464.37	473.59	1757979.46	14430226.91	39°44'03.174"N	80°34'54.576"W	663.27	45.563	4.90	4.64	-1.69
7358.00	68.830	310.820	7064.72	39.52	492.01	441.99	1757947.87	14430254.54	39°44'03.449"N	80°34'54.979"W	661.38	41.934	1.51	-0.33	-1.58
7404.00	73.560	310.780	7079.54	82.92	520.46	409.03	1757914.93	14430282.97	39°44'04.731"N	80°34'55.399"W	661.95	38.164	10.28	10.28	-0.09
7449.00	75.160	311.270	7091.68	126.13	548.90	376.34	1757882.25	14430311.40	39°44'04.014"N	80°34'55.816"W	665.53	34.436	3.71	3.56	1.09
7494.00	77.950	311.570	7102.14	169.78	577.85	343.53	1757849.45	14430340.34	39°44'04.302"N	80°34'56.234"W	672.25	30.731	6.23	6.20	0.67



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 5 of 11

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot 5H
Operator	SOUTHWESTERN ENERGY	Well	Yocum MSH 5H
Area	Marshall County, WV	Wellbore	Yocum MSH 5H AWB
Field	Marshall		
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WELLPATH DATA (215 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)
7539.00	82.040	311.390	7109.95	213.99	607.20	310.33	1757816.26	14430366.68	39°44'04.593"N	80°34'56.657"W	681.91	27.071	9.10	9.09	-0.40
7585.00	87.780	311.910	7114.03	259.69	637.64	276.11	1757782.06	14430400.10	39°44'04.896"N	80°34'57.094"W	694.85	23.414	12.53	12.48	1.13
7630.00	92.120	313.000	7114.07	304.62	668.00	242.92	1757748.88	14430430.46	39°44'05.197"N	80°34'57.517"W	710.80	19.984	9.94	9.64	2.42
7720.00	91.290	310.840	7111.39	394.42	728.10	175.98	1757681.97	14430490.53	39°44'05.794"N	80°34'58.370"W	749.07	13.588	2.57	-0.92	-2.40
7811.00	91.320	311.580	7109.32	485.15	788.04	107.54	1757613.55	14430550.45	39°44'06.390"N	80°34'59.242"W	795.34	7.771	0.81	0.03	0.81
7901.00	91.320	311.870	7107.25	574.95	847.92	40.39	1757546.43	14430610.31	39°44'06.985"N	80°35'00.098"W	848.88	2.727	0.32	0.00	0.32
7991.00	91.260	311.650	7105.22	664.75	907.85	-26.73	1757479.33	14430670.21	39°44'07.580"N	80°35'00.954"W	908.24	358.314	0.25	-0.07	-0.24
8081.00	90.340	310.780	7103.97	754.50	967.14	-94.42	1757411.67	14430729.48	39°44'08.169"N	80°35'01.817"W	971.74	354.424	1.41	-1.02	-0.97
8172.00	92.740	306.330	7101.52	844.80	1023.82	-165.54	1757340.58	14430786.14	39°44'08.732"N	80°35'02.724"W	1037.12	350.816	5.55	2.64	-4.89
8262.00	92.460	306.290	7097.44	933.59	1077.06	-237.98	1757268.16	14430839.36	39°44'09.262"N	80°35'03.648"W	1103.04	347.540	0.31	-0.31	-0.04
8353.00	92.490	307.960	7093.51	1023.56	1131.93	-310.47	1757195.70	14430894.21	39°44'09.808"N	80°35'04.573"W	1173.74	344.662	1.83	0.03	1.84
8443.00	92.310	310.660	7089.74	1112.97	1188.89	-380.04	1757126.16	14430951.15	39°44'10.374"N	80°35'05.460"W	1248.16	342.273	3.00	-0.20	3.00
8533.00	92.340	311.790	7086.09	1202.66	1248.15	-447.67	1757058.55	14431010.39	39°44'10.962"N	80°35'06.322"W	1326.01	340.269	1.25	0.03	1.26
8623.00	92.430	312.170	7082.34	1292.43	1308.30	-514.52	1756991.73	14431070.51	39°44'11.560"N	80°35'07.174"W	1405.84	338.532	0.43	0.10	0.42
8714.00	92.460	311.520	7078.46	1383.17	1368.95	-582.25	1756924.03	14431131.14	39°44'12.162"N	80°35'08.037"W	1487.63	336.959	0.71	0.03	-0.71
8804.00	92.400	312.070	7074.64	1472.92	1428.88	-649.29	1756857.02	14431191.04	39°44'12.758"N	80°35'08.892"W	1569.48	335.563	0.61	-0.07	0.61
8895.00	92.060	313.200	7071.10	1563.75	1490.47	-716.18	1756790.15	14431252.61	39°44'13.369"N	80°35'09.745"W	1653.61	334.335	1.30	-0.37	1.24
8985.00	92.000	312.610	7067.91	1653.61	1551.70	-782.06	1756724.29	14431313.82	39°44'13.978"N	80°35'10.584"W	1737.64	333.252	0.66	-0.07	-0.66
9076.00	92.060	313.610	7064.69	1744.48	1613.85	-848.45	1756657.93	14431375.94	39°44'14.595"N	80°35'11.431"W	1823.29	332.268	1.10	0.07	1.10
9166.00	91.480	314.340	7061.91	1834.41	1676.31	-913.19	1756593.22	14431438.38	39°44'15.215"N	80°35'12.285"W	1908.91	331.420	1.04	-0.64	0.81
9256.00	91.540	314.380	7059.54	1924.36	1739.21	-977.51	1756528.92	14431501.26	39°44'15.840"N	80°35'13.075"W	1995.09	330.662	0.08	0.07	0.04
9347.00	91.380	314.510	7057.22	2015.32	1802.91	-1042.46	1756464.00	14431564.93	39°44'16.472"N	80°35'13.903"W	2082.60	329.963	0.23	-0.18	0.14
9437.00	91.480	314.580	7054.97	2105.28	1866.03	-1106.58	1756399.90	14431628.02	39°44'17.099"N	80°35'14.720"W	2169.47	329.331	0.14	0.11	0.08
9527.00	91.480	314.350	7052.65	2195.24	1929.05	-1170.79	1756335.71	14431691.02	39°44'17.724"N	80°35'15.538"W	2256.54	328.745	0.26	0.00	-0.26
9618.00	91.380	312.350	7050.38	2286.15	1991.49	-1236.94	1756269.59	14431753.44	39°44'18.345"N	80°35'16.381"W	2344.37	328.155	2.20	-0.11	-2.20
9709.00	91.420	312.250	7048.15	2377.00	2052.72	-1304.23	1756202.33	14431814.64	39°44'18.952"N	80°35'17.239"W	2432.01	327.569	0.12	0.04	-0.11
9799.00	91.450	311.970	7045.90	2466.82	2113.05	-1370.97	1756135.61	14431874.95	39°44'19.552"N	80°35'18.090"W	2518.84	327.024	0.31	0.03	-0.31
9889.00	91.420	312.130	7043.65	2556.65	2173.31	-1437.78	1756068.81	14431935.18	39°44'20.151"N	80°35'18.941"W	2605.86	326.513	0.18	-0.03	0.18
9979.00	91.380	312.850	7041.45	2646.51	2234.08	-1504.13	1756002.52	14431995.93	39°44'20.754"N	80°35'19.787"W	2693.24	326.049	0.80	-0.04	0.80
10069.00	91.450	313.990	7039.23	2736.43	2295.92	-1569.48	1755937.18	14432057.75	39°44'21.368"N	80°35'20.620"W	2781.10	325.644	1.27	0.08	1.27



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 6 of 11

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot 5H
Operator	SOUTHWESTERN ENERGY	Well	Yocum MSH 5H
Area	Marshall County, WV	Wellbore	Yocum MSH 5H AWB
Field	Marshall		
Facility	Yocum MSH Pad		

WELLPATH DATA (215 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)
10160.00	91.510	313.350	7036.87	2827.36	2358.74	-1635.28	1755871.41	14432120.54	39°44'21.992"N	80°35'21.459"W	2870.15	325.267	0.71	0.07	-0.70
10250.00	91.450	312.970	7034.55	2917.26	2420.28	-1700.91	1755805.80	14432182.06	39°44'22.603"N	80°35'22.295"W	2958.18	324.902	0.43	-0.07	-0.42
10340.00	91.480	312.380	7032.25	3007.13	2481.27	-1767.05	1755739.68	14432243.02	39°44'23.209"N	80°35'23.138"W	3046.17	324.543	0.66	0.03	-0.66
10431.00	91.420	311.880	7029.95	3097.96	2542.29	-1834.52	1755672.24	14432304.02	39°44'23.815"N	80°35'23.998"W	3135.08	324.186	0.55	-0.07	-0.55
10521.00	91.420	309.990	7027.72	3187.66	2601.24	-1902.49	1755604.30	14432362.95	39°44'24.401"N	80°35'24.865"W	3222.72	323.819	2.10	0.00	-2.10
10611.00	91.510	309.820	7025.42	3277.22	2658.96	-1971.50	1755535.31	14432420.64	39°44'24.974"N	80°35'25.745"W	3310.12	323.445	0.21	0.00	-0.19
10702.00	91.540	310.920	7022.99	3367.84	2717.88	-2040.81	1755466.03	14432479.54	39°44'25.560"N	80°35'26.629"W	3398.79	323.098	1.21	0.03	1.21
10793.00	91.450	311.210	7020.62	3458.55	2777.64	-2109.40	1755397.47	14432539.28	39°44'26.153"N	80°35'27.503"W	3487.81	322.786	0.33	-0.10	0.32
10882.00	91.380	310.060	7018.42	3547.22	2835.58	-2176.91	1755329.98	14432597.20	39°44'26.729"N	80°35'28.364"W	3574.84	322.486	1.29	-0.08	-1.29
10972.00	91.450	311.110	7016.20	3636.88	2894.11	-2245.24	1755261.68	14432655.71	39°44'27.310"N	80°35'29.236"W	3662.92	322.196	1.17	0.08	1.17
11063.00	91.380	312.060	7013.95	3727.66	2954.49	-2313.29	1755193.66	14432716.06	39°44'27.910"N	80°35'30.103"W	3752.37	321.940	1.05	-0.08	1.04
11153.00	91.480	312.660	7011.71	3817.50	3015.11	-2379.77	1755127.20	14432776.66	39°44'28.512"N	80°35'30.951"W	3841.12	321.717	0.68	-0.11	0.67
11244.00	91.380	313.260	7009.43	3908.40	3077.11	-2446.34	1755060.65	14432838.63	39°44'29.128"N	80°35'31.799"W	3931.05	321.515	0.67	-0.11	0.66
11334.00	91.450	312.940	7007.21	3998.30	3138.58	-2512.04	1754994.98	14432890.09	39°44'29.739"N	80°35'32.637"W	4020.08	321.327	0.36	0.08	-0.36
11424.00	91.480	313.280	7004.91	4088.20	3200.07	-2577.72	1754929.33	14432961.55	39°44'30.349"N	80°35'33.474"W	4109.15	321.148	0.38	0.03	0.38
11515.00	92.120	312.610	7002.05	4179.07	3262.04	-2644.30	1754862.77	14433023.49	39°44'30.965"N	80°35'34.323"W	4199.19	320.971	1.02	0.70	-0.74
11605.00	92.090	310.960	6998.75	4268.83	3321.96	-2711.36	1754795.74	14433083.40	39°44'31.560"N	80°35'35.178"W	4288.00	320.779	1.83	-0.03	-1.83
11695.00	92.220	310.710	6995.36	4358.49	3380.77	-2779.41	1754727.72	14433142.18	39°44'32.144"N	80°35'36.045"W	4376.61	320.576	0.31	0.14	-0.28
11786.00	92.190	310.810	6991.86	4449.13	3440.14	-2848.28	1754658.87	14433201.53	39°44'32.734"N	80°35'36.924"W	4466.24	320.377	0.11	-0.03	0.11
11876.00	92.150	309.740	6988.45	4538.71	3498.28	-2916.90	1754590.55	14433259.64	39°44'33.311"N	80°35'37.799"W	4554.81	320.178	1.19	-0.04	-1.19
11966.00	92.000	308.540	6985.19	4628.12	3555.05	-2986.66	1754520.28	14433316.39	39°44'33.876"N	80°35'38.688"W	4643.11	319.966	1.34	-0.17	-1.33
12056.00	92.160	308.810	6981.93	4717.48	3611.25	-3056.87	1754450.36	14433372.57	39°44'34.434"N	80°35'39.584"W	4731.35	319.753	0.35	0.18	0.30
12147.00	92.400	309.900	6978.31	4807.88	3668.91	-3127.18	1754380.08	14433430.21	39°44'35.007"N	80°35'40.481"W	4820.81	319.558	1.23	0.26	1.20
12237.00	92.150	309.860	6974.74	4897.39	3726.57	-3196.19	1754311.10	14433487.85	39°44'35.580"N	80°35'41.361"W	4909.48	319.381	0.28	-0.28	-0.04
12327.00	92.220	310.400	6971.30	4986.95	3784.54	-3264.95	1754242.36	14433545.79	39°44'36.166"N	80°35'42.238"W	4998.27	319.215	0.60	0.08	0.60
12418.00	92.310	311.010	6967.71	5077.58	3843.84	-3333.88	1754173.46	14433605.07	39°44'36.759"N	80°35'43.117"W	5088.21	319.064	0.68	0.10	0.67
12508.00	92.190	310.670	6964.17	5167.23	3902.65	-3401.92	1754105.45	14433663.86	39°44'37.329"N	80°35'43.984"W	5177.23	318.922	0.40	-0.13	-0.38
12598.00	92.250	311.220	6960.69	5256.90	3961.68	-3469.85	1754037.66	14433722.77	39°44'37.915"N	80°35'44.850"W	5266.31	318.786	0.61	0.07	0.61
12688.00	92.160	312.640	6957.22	5346.67	4021.68	-3536.75	1753970.54	14433782.84	39°44'38.512"N	80°35'45.703"W	5355.61	318.671	1.58	-0.10	1.58
12779.00	92.250	314.520	6953.72	5437.57	4084.36	-3602.62	1753904.82	14433845.50	39°44'39.134"N	80°35'46.543"W	5446.18	318.586	2.07	0.10	2.07



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 7 of 11

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Area	Marshall County, WV	Well	Yocum MSH 5H
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Facility	Yocum MSH Pad		

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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]
12869.00	92.250	316.260	6950.19	5527.48	4148.38	-3665.78	1753841.69	14433909.49	39°44'39.770"N	80°35'47.348"W	5535.97	318.534	1.93	0.00	1.93
12958.00	92.280	314.840	6946.67	5616.41	4211.86	-3728.05	1753779.44	14433972.95	39°44'40.400"N	80°35'48.142"W	5624.78	318.487	1.59	0.03	-1.60
13048.00	92.340	315.540	6943.04	5706.33	4275.66	-3791.43	1753716.09	14434036.72	39°44'41.033"N	80°35'48.949"W	5714.56	318.435	0.78	0.07	0.78
13138.00	92.120	315.200	6939.54	5796.27	4339.66	-3854.61	1753652.93	14434100.70	39°44'41.668"N	80°35'49.754"W	5804.37	318.388	0.45	-0.24	-0.38
13229.00	92.340	315.460	6936.00	5887.20	4404.33	-3918.54	1753589.03	14434165.34	39°44'42.310"N	80°35'50.569"W	5895.17	318.340	0.37	0.24	0.29
13319.00	92.150	313.790	6932.48	5977.12	4467.50	-3982.54	1753525.05	14434228.49	39°44'42.937"N	80°35'51.385"W	5984.91	318.285	1.87	-0.21	-1.86
13410.00	92.180	311.720	6929.04	6067.95	4529.23	-4049.31	1753458.31	14434290.19	39°44'43.560"N	80°35'52.236"W	6075.43	318.202	2.27	0.03	-2.27
13498.00	92.250	312.930	6925.64	6155.76	4588.44	-4114.32	1753393.33	14434349.38	39°44'44.138"N	80°35'53.065"W	6162.90	318.118	1.38	0.08	1.37
13588.00	92.150	311.840	6922.18	6245.57	4649.06	-4180.74	1753326.92	14434409.98	39°44'44.741"N	80°35'53.912"W	6252.39	318.036	1.22	-0.11	-1.21
13678.00	92.340	311.050	6918.66	6335.29	4708.59	-4248.15	1753259.54	14434469.48	39°44'45.332"N	80°35'54.771"W	6341.74	317.943	0.90	0.21	-0.88
13769.00	92.280	310.890	6914.99	6425.95	4768.20	-4316.81	1753190.91	14434529.08	39°44'45.924"N	80°35'55.647"W	6432.00	317.844	0.19	-0.07	-0.18
13859.00	92.180	310.430	6911.49	6515.58	4826.80	-4385.03	1753122.72	14434587.65	39°44'46.506"N	80°35'56.517"W	6521.23	317.746	0.52	-0.11	-0.51
13950.00	92.120	311.160	6908.07	6606.23	4886.21	-4453.87	1753053.90	14434647.04	39°44'47.096"N	80°35'57.385"W	6611.51	317.650	0.80	-0.07	0.80
14041.00	92.280	312.540	6904.58	6696.99	4946.88	-4521.61	1752986.19	14434707.68	39°44'47.699"N	80°35'58.258"W	6701.98	317.572	1.53	0.18	1.52
14132.00	92.190	312.210	6901.03	6787.80	5008.17	-4588.78	1752919.04	14434768.95	39°44'48.307"N	80°35'59.115"W	6792.54	317.502	0.38	-0.10	-0.36
14222.00	92.150	312.510	6897.62	6877.61	5068.76	-4655.24	1752852.61	14434829.52	39°44'48.909"N	80°35'59.962"W	6882.12	317.435	0.34	-0.04	0.33
14313.00	92.190	311.700	6894.18	6968.40	5129.73	-4722.70	1752785.17	14434890.47	39°44'49.515"N	80°36'00.823"W	6972.67	317.366	0.89	0.04	-0.89
14403.00	92.220	310.780	6890.71	7058.10	5189.02	-4790.33	1752717.58	14434949.73	39°44'50.104"N	80°36'01.685"W	7062.09	317.288	1.02	0.03	-1.02
14493.00	92.220	311.210	6887.23	7147.77	5248.01	-4858.21	1752649.72	14435008.70	39°44'50.690"N	80°36'02.551"W	7151.49	317.209	0.48	0.00	0.48
14584.00	92.250	311.590	6883.70	7238.48	5308.15	-4926.41	1752581.54	14435068.81	39°44'51.287"N	80°36'03.420"W	7241.96	317.136	0.42	0.00	0.42
14675.00	92.120	312.870	6880.15	7329.21	5368.46	-4994.46	1752513.52	14435129.10	39°44'51.886"N	80°36'04.288"W	7332.46	317.067	0.09	0.03	-0.09
14765.00	92.120	312.870	6876.72	7419.01	5428.86	-5061.10	1752446.91	14435189.47	39°44'52.486"N	80°36'05.138"W	7422.08	317.008	1.52	-0.14	1.51
14856.00	92.310	313.050	6873.20	7509.86	5490.83	-5127.64	1752380.39	14435251.42	39°44'53.101"N	80°36'05.986"W	7512.78	316.959	0.29	0.21	0.20
14946.00	92.220	312.830	6869.65	7599.71	5552.09	-5193.48	1752314.58	14435312.66	39°44'53.710"N	80°36'06.826"W	7602.49	316.911	0.26	-0.10	-0.24
15037.00	92.150	313.320	6866.18	7690.57	5614.19	-5259.90	1752248.18	14435374.74	39°44'54.326"N	80°36'07.672"W	7693.23	316.866	0.54	-0.08	0.54
15128.00	92.190	312.710	6862.73	7781.43	5676.23	-5326.39	1752181.72	14435436.75	39°44'54.942"N	80°36'08.520"W	7783.96	316.821	0.67	0.04	-0.67
15218.00	92.250	312.130	6859.25	7871.24	5736.89	-5392.78	1752115.36	14435497.39	39°44'55.543"N	80°36'09.367"W	7873.63	316.771	0.65	0.07	-0.64
15309.00	91.140	310.850	6856.55	7961.99	5797.15	-5460.91	1752047.25	14435557.62	39°44'56.143"N	80°36'10.236"W	7964.20	316.711	1.86	-1.22	-1.41
15399.00	91.200	311.410	6854.72	8051.73	5856.34	-5528.69	1751979.50	14435616.79	39°44'56.731"N	80°36'11.100"W	8053.76	316.648	0.63	0.07	0.62
15490.00	91.260	311.920	6852.76	8142.52	5916.82	-5596.65	1751911.56	14435677.25	39°44'57.332"N	80°36'11.967"W	8144.40	316.593	0.56	0.07	0.56



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518
Page 8 of 11

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot 5H
Operator	SOUTHWESTERN ENERGY	Well	Yocum MSH 5H
Area	Marshall County, WV	Wellbore	Yocum MSH 5H AWB
Field	Marshall		
Facility	Yocum MSH Pad		

WELLPATH DATA (215 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DL S	Build Rate	Turn Rate	
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(°/100ft)	(°/100ft)	(°/100ft)	
15580.00	91.230	312.790	6850.81	8232.37	5977.44	-5663.15	1751845.09	14435737.84	39°44'57.934"N	80°36'12.814"W	8234.14	316.547	0.97	-0.03	0.97	
15671.00	91.290	312.810	6848.81	8323.26	6039.25	-5729.90	1751778.37	14435799.63	39°44'58.547"N	80°36'13.666"W	8324.92	316.506	0.07	0.07	0.02	
15761.00	91.230	311.770	6846.83	8413.10	6099.80	-5796.46	1751771.83	14435860.15	39°44'59.149"N	80°36'14.514"W	8414.66	316.461	1.16	-0.07	-1.16	
15852.00	91.260	311.430	6844.85	8503.89	6160.20	-5864.49	1751643.82	14435920.53	39°44'59.749"N	80°36'15.382"W	8505.31	316.409	0.37	0.03	-0.37	
15942.00	91.260	310.310	6842.87	8593.59	6219.07	-5932.53	1751575.81	14435979.39	39°45'00.333"N	80°36'16.250"W	8594.87	316.351	1.24	0.00	-1.24	
16033.00	91.140	310.000	6840.96	8684.19	6277.74	-6002.07	1751506.30	14436038.03	39°45'00.916"N	80°36'17.137"W	8685.33	316.286	0.37	-0.13	-0.34	
16124.00	91.200	311.350	6839.11	8774.87	6337.04	-6071.07	1751437.33	14436097.31	39°45'01.505"N	80°36'18.017"W	8775.87	316.228	1.48	0.07	1.48	
16214.00	91.140	310.170	6837.27	8864.56	6395.79	-6139.23	1751369.20	14436156.03	39°45'02.089"N	80°36'18.886"W	8865.45	316.173	1.31	-0.07	-1.31	
16304.00	91.200	310.400	6835.43	8954.19	6453.97	-6207.87	1751300.58	14436214.19	39°45'02.667"N	80°36'19.762"W	8954.96	316.113	0.26	0.07	0.26	
16395.00	91.380	315.470	6833.38	9045.05	6515.92	-6274.45	1751234.03	14436276.12	39°45'03.282"N	80°36'20.611"W	9045.77	316.082	5.57	0.20	5.57	
16485.00	91.850	315.520	6830.84	9135.02	6580.08	-6337.51	1751170.99	14436340.25	39°45'03.919"N	80°36'21.414"W	9135.73	316.076	0.53	0.52	0.06	
16576.00	92.060	313.000	6827.74	9225.94	6643.55	-6402.64	1751105.88	14436403.70	39°45'04.549"N	80°36'22.245"W	9226.62	316.058	2.78	0.23	-2.77	
16667.00	91.940	311.720	6824.56	9316.76	6704.82	-6469.84	1751038.71	14436464.95	39°45'05.157"N	80°36'23.102"W	9317.38	316.022	1.41	-0.13	-1.41	
16757.00	91.970	311.930	6821.49	9406.53	6764.81	-6536.87	1750971.71	14436524.91	39°45'05.753"N	80°36'23.956"W	9407.09	315.982	0.24	0.03	0.23	
16848.00	90.680	311.040	6819.39	9497.30	6825.07	-6605.02	1750903.58	14436585.15	39°45'06.352"N	80°36'24.826"W	9497.78	315.939	1.72	-1.42	-0.98	
16938.00	90.680	311.080	6818.32	9587.04	6884.18	-6672.88	1750835.75	14436644.24	39°45'06.939"N	80°36'25.691"W	9587.45	315.893	0.04	0.00	0.04	
17029.00	90.770	309.250	6817.17	9677.65	6942.87	-6742.41	1750766.25	14436702.90	39°45'07.522"N	80°36'26.578"W	9677.99	315.839	2.01	0.10	-2.01	
17119.00	90.860	309.990	6815.89	9767.19	7000.25	-6811.73	1750696.95	14436760.26	39°45'08.092"N	80°36'27.462"W	9767.46	315.782	0.83	0.10	0.82	
17209.00	90.860	311.410	6814.54	9856.88	7058.93	-6879.95	1750628.76	14436818.92	39°45'08.675"N	80°36'28.332"W	9857.09	315.736	1.58	0.00	1.58	
17300.00	90.830	312.970	6813.20	9947.73	7120.04	-6947.37	1750561.37	14436880.00	39°45'09.281"N	80°36'29.192"W	9947.91	315.703	1.71	-0.03	1.71	
17391.00	90.770	313.240	6811.93	10038.65	7182.02	-7013.80	1750494.96	14436942.16	39°45'09.899"N	80°36'30.039"W	10038.81	315.680	0.30	-0.07	0.30	
17481.00	90.830	311.860	6810.67	10128.53	7243.07	-7080.09	1750428.69	14437002.99	39°45'10.503"N	80°36'30.885"W	10128.66	315.652	1.53	0.07	-1.53	
17571.00	90.770	310.110	6809.41	10218.26	7302.09	-7148.02	1750360.79	14437061.98	39°45'11.089"N	80°36'31.751"W	10218.35	315.611	1.95	-0.07	-1.94	
17662.00	90.740	311.800	6808.21	10308.98	7361.73	-7216.74	1750292.10	14437121.60	39°45'11.682"N	80°36'32.628"W	10309.05	315.570	1.86	-0.03	1.86	
17752.00	90.120	312.790	6807.54	10398.84	7422.29	-7283.31	1750225.56	14437182.14	39°45'12.283"N	80°36'33.477"W	10398.90	315.541	1.30	-0.69	1.10	
17842.00	90.220	313.100	6807.27	10488.76	7483.61	-7349.19	1750159.70	14437243.43	39°45'12.892"N	80°36'34.317"W	10488.80	315.519	0.36	0.11	0.34	
17933.00	90.180	314.770	6806.95	10579.73	7546.75	-7414.72	1750090.20	14437306.55	39°45'13.519"N	80°36'35.152"W	10579.77	315.506	1.84	-0.04	1.84	
18023.00	90.280	314.220	6806.59	10669.72	7609.82	-7478.92	1750030.03	14437369.60	39°45'14.145"N	80°36'35.971"W	10669.75	315.497	0.62	0.11	-0.61	
18113.00	90.310	312.950	6806.13	10759.67	7671.87	-7544.11	1749964.86	14437431.62	39°45'14.761"N	80°36'36.802"W	10759.70	315.481	1.41	0.03	-1.41	
18203.00	90.400	312.860	6805.57	10849.59	7733.14	-7610.03	1749898.97	14437492.87	39°45'15.369"N	80°36'37.642"W	10849.61	315.460	0.14	0.10	-0.10	



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 9 of 11

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Yocum MSH 5H
Field	Marshall	Wellbore	Yocum MSH 5H AWB
Facility	Yocum MSH Pad		

WELLPATH DATA (215 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]	[ft]	[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
18294.00	90.340	313.190	6804.98	10940.51	7795.23	-7676.55	1749832.47	14437554.93	39°45'15.986"N	80°36'38.491"W	10940.52	315.439	0.37	-0.07	0.36
18384.00	90.370	312.520	6804.43	11030.42	7856.44	-7742.53	1749766.52	14437616.12	39°45'16.593"N	80°36'39.332"W	11030.43	315.418	0.75	0.03	-0.74
18475.00	90.310	311.650	6803.89	11121.27	7917.43	-7810.06	1749699.01	14437677.09	39°45'17.189"N	80°36'40.193"W	11121.27	315.391	0.96	-0.07	-0.96
18490.00	90.370	311.360	6803.80	11136.24	7927.37	-7821.29	1749687.78	14437687.02	39°45'17.298"N	80°36'40.337"W	11136.24	315.386	1.97	0.40	-1.93
18518.00	90.370	311.360	6803.62	11164.17	7945.87	-7842.31	1749666.77	14437705.52	39°45'17.481"N	80°36'40.605"W	11164.17	315.376	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Yocum MSH 5H AWB Ref Wellpath: Yocum MSH 5H AWP Proj: 18518'

String/Diameter	Start MD	End MD	Interval	Start TVD	End TVD	Start N/S	Start E/W	End N/S	End E/W
	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]
17.5in Open Hole	26.00	537.00	511.00	26.00	536.99	0.00	0.00	0.36	-2.79
13.375in Casing Surface	26.00	537.00	511.00	26.00	536.99	0.00	0.00	0.36	-2.79
12.25in Open Hole	537.00	2517.00	1980.00	536.99	2512.60	0.36	-2.79	16.06	111.55
9.625in Casing Intermediate	26.00	2517.00	2491.00	26.00	2512.60	0.00	0.00	16.06	111.55
8.75in Open Hole	2517.00	6256.00	3739.00	2512.60	6187.53	16.06	111.55	119.27	757.57
8.5in Open Hole	6256.00	18518.00	12262.00	6187.53	6803.62	119.27	757.57	7945.87	-7842.31
5.5in Casing Production	26.00	18518.00	18492.00	26.00	6803.62	0.00	0.00	7945.87	-7842.31

TARGETS

Name	TVD	North	East	Grid East	Grid North	Latitude	Longitude	Shape
	[ft]	[ft]	[ft]	[US ft]	[US ft]			
Yocum MSH 5H BHL Rev-5	6826.93	7943.66	-7844.91	1749664.18	14437703.30	39°45'17.460"N	80°36'40.638"W	point
Yocum MSH 5H LP Rev-6	7113.00	632.57	268.08	175774.03	14430395.04	39°44'04.846"N	80°34'57.197"W	point



Actual Wellpath Report

Yocum MSH 5H AWP Proj: 18518'
Page 10 of 11

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Yocum MSH 5H
Field	Marshall	Wellbore	Yocum MSH 5H AWB
Facility	Yocum MSH Pad		

WELLPATH COMPOSITION - Ref Wellbore: Yocum MSH 5H AWB Ref Wellpath: Yocum MSH 5H AWP Proj: 18518'			
Start MD	End MD	Positional Uncertainty Model	Log Name/Comment
[ft]	[ft]		
26.00	485.00	OWSG MWD rev2 + HRGM	01 Premier MWD <17 1/2"> (138'-485')
485.00	2502.00	OWSG MWD rev2 + HRGM	02 Premier MWD <12 1/4"> (575'-2502')
2502.00	6191.00	OWSG MWD rev2 + HRGM	03 Premier MWD <8 3/4"> (2612'-6191')
6191.00	18490.00	BH AutoTrak Curve (Short)	04 BH AT Curve <8 1/2"> (6191')(6226'-18490')
18490.00	18518.00	Blind Drilling (std)	Projection to bit

Wellbore

Actual Wellpath Report
Yocum MSH 5H AWP Proj: 18518
Page 11 of 11

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Yocum MSH 5H
Field	Marshall	Wellbore	Yocum MSH 5H AWB
Facility	Yocum MSH Pad		

COMMENTS

Wellpath general comments
 API: 47-051-02024-0000
 BH Job #: 109668471
 Rig: SDC 46
 Duration: 03/15/2019 - 03/19/2019