

# SOUTHWESTERN ENERGY

Location: Marshall County, WV  
 Field: Marshall  
 Facility: Shawn Harlan MSH Pad

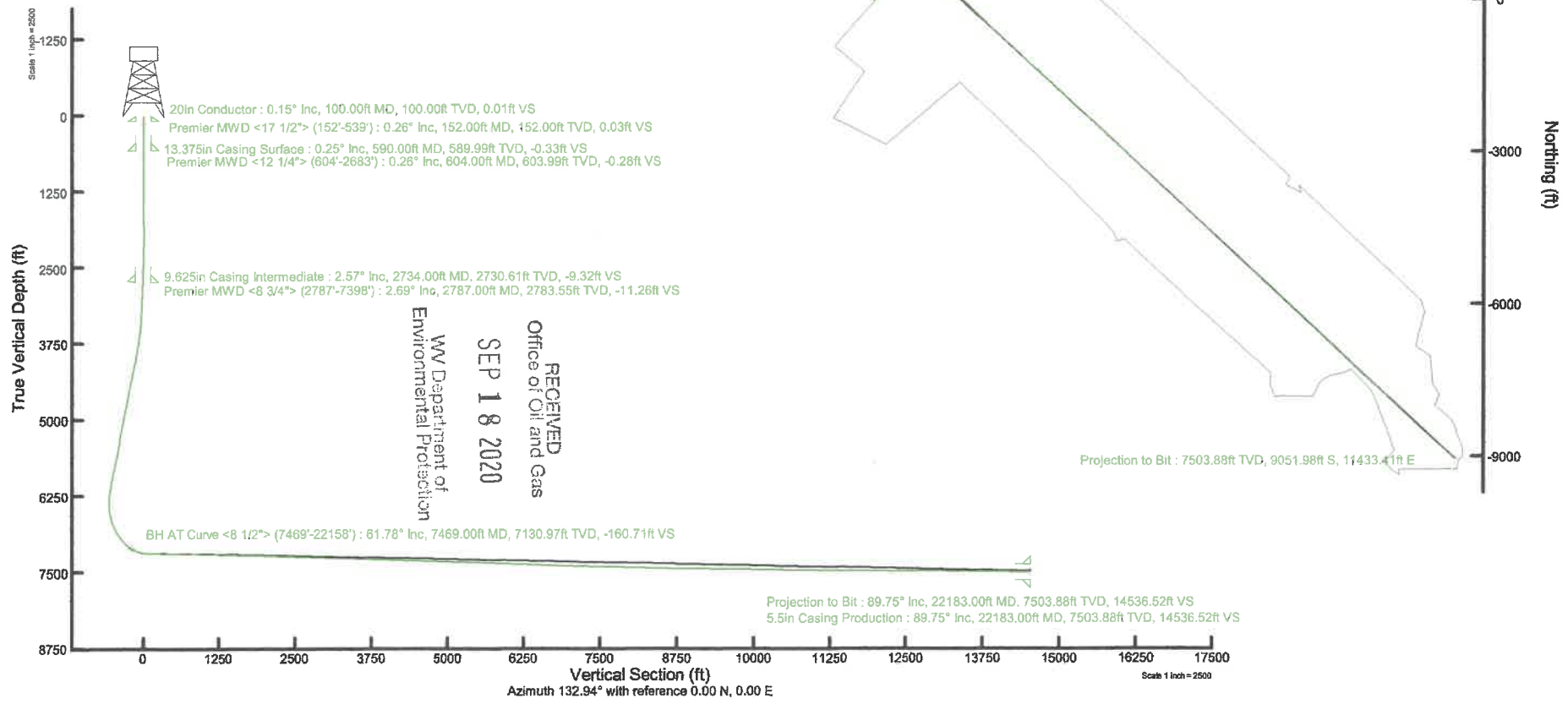
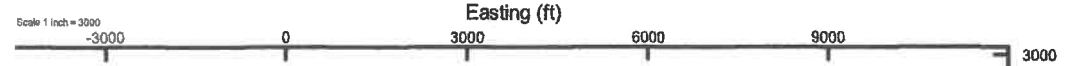
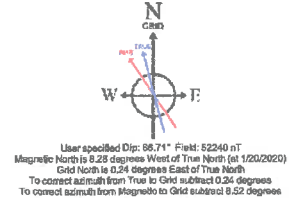
Slot: Slot #10  
 Well: Shawn Harlan MSH 10H  
 Wellbore: Shawn Harlan MSH 10H PWB



Location Information					
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Shawn Harlan MSH Pad		1746333.690	14430025.540	39°44'1.6940"N	80°37'23.7086"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude
Slot #10	27.88	-21.85	1746312.050	14430053.410	39°44'1.9704"N
SDC 46 (RKB) to Mud line (At Slot: Slot #10)				26ft	
Mean Sea Level to Mud line (At Slot: Slot #10)				-1391.2ft	
SDC 46 (RKB) to Mean Sea Level				1417.2ft	

Comments	
API: 47-051-02284-0000	
BH Job #: 110231337A	
Rig: SDC 46	
Duration: 01/23/2020 - 01/27/2020	

Plot reference wellpath is Shawn Harlan MSH 10H PWB Rev-A.0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 46 (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to SDC 46 (RKB)	Scale: True distance
SDC 46 (RKB) to Mean Sea Level: 1417.2 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Mud line (At Slot: Slot #10): -1391.2 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's double MD distan	Created by: eharmon on 2020-01-26; Database: WA_MPS_EASTERNUS_Dash



REFERENCE WELLPATH IDENTIFICATION			
Operator	<b>SOUTHWESTERN ENERGY</b>	Well	<b>Shawn Harlan MSH 10H</b>
Field	<b>Marshall</b>	API/Legal	
Facility	<b>Shawn Harlan MSH Pad</b>	Wellbore	<b>Shawn Harlan MSH 10H AWB</b>
Slot	<b>Slot #10</b>		

REPORT SETUP INFORMATION			
Projection System	<b>NAD83 / UTM Zone 17 North, US feet</b>	Software System	<b>WellArchitect® 6.0</b>
North Reference	<b>Grid</b>	User	<b>Atenjen</b>
Scale	<b>0.999613</b>	Report Generated	<b>1/28/2020 at 11:47:33 AM</b>
Convergence at slot	<b>0.24° East</b>	Database	<b>WA_MPL_EASTERNUS_Defn</b>

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	27.88	-21.85	<b>1746312.05</b>	<b>14430053.41</b>	39°44'1.9704"N	80°37'23.9867"W
Facility Reference Pt			<b>1746333.89</b>	<b>14430025.54</b>	39°44'1.6940"N	80°37'23.7086"W
Field Reference Pt			<b>0.00</b>	<b>0.00</b>	0°00'0.0000"	85°29'19.4780"W

WELLPATH DATUM			
Calculation method	<b>Minimum curvature</b>	SDC 46 (RKB) to Facility Vertical Datum	<b>1417.20ft</b>
Horizontal Reference Pt	<b>Slot</b>	SDC 46 (RKB) to Mean Sea Level	<b>1417.20ft</b>
Vertical Reference Pt	<b>SDC 46 (RKB)</b>	SDC 46 (RKB) to Mud Line at Slot (Slot #10)	<b>26.00ft</b>
MD Reference Pt	<b>SDC 46 (RKB)</b>	Section Origin	<b>N 0.00, E 0.00 ft</b>
Field Vertical Reference	<b>Mean Sea Level</b>	Section Azimuth	<b>132.94°</b>

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# Actual Wellpath Report

Shawn Harlan MSH 10H AWP Proj: 22183'  
Page 2 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWB
Slot	Slot #10		

WELLPATH DATA (250 stations) † = interpolated, ‡ = extrapolated station															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Build Rate ["/100ft]	Turn Rate ["/100ft]
0.00†	0.000	216.370	0.00	0.00	0.00	0.00	1746312.05	14430053.41	39°44'1.9704"N	80°37'23.9867"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	216.370	26.00	0.00	0.00	0.00	1746312.05	14430053.41	39°44'1.9704"N	80°37'23.9867"W	0.00	0.000	0.00	0.00	0.00
152.00	0.260	216.370	152.00	0.03	-0.23	-0.17	1746311.88	14430053.18	39°44'1.9682"N	80°37'23.9889"W	0.29	216.370	0.21	0.21	0.00
213.00	0.380	244.890	213.00	-0.03	-0.43	-0.43	1746311.62	14430052.98	39°44'1.9662"N	80°37'23.9923"W	0.61	225.484	0.32	0.20	46.75
304.00	0.330	265.570	304.00	-0.32	-0.58	-0.97	1746311.08	14430052.83	39°44'1.9648"N	80°37'23.9992"W	1.13	239.289	0.15	-0.05	22.73
395.00	0.300	257.450	395.00	-0.63	-0.65	-1.46	1746310.59	14430052.76	39°44'1.9641"N	80°37'24.0055"W	1.60	246.119	0.06	-0.03	-8.92
485.00	0.250	186.720	484.99	-0.65	-0.89	-1.72	1746310.33	14430052.52	39°44'1.9617"N	80°37'24.0088"W	1.93	242.483	0.36	-0.06	-78.59
539.00	0.210	160.590	538.99	-0.49	-1.10	-1.70	1746310.35	14430052.31	39°44'1.9596"N	80°37'24.0085"W	2.02	236.946	0.21	-0.07	-48.39
604.00	0.260	178.230	603.99	-0.28	-1.36	-1.65	1746310.40	14430052.05	39°44'1.9570"N	80°37'24.0080"W	2.14	230.467	0.13	0.08	27.14
694.00	0.810	48.170	693.99	-0.08	-1.14	-1.17	1746310.88	14430052.27	39°44'1.9592"N	80°37'24.0018"W	1.64	225.707	1.11	0.61	-144.51
830.00	2.850	45.160	829.91	0.14	1.88	1.94	1746313.99	14430055.29	39°44'1.9889"N	80°37'23.9618"W	2.70	45.898	1.50	1.50	-2.21
875.00	4.080	43.600	874.83	0.20	3.83	3.84	1746315.89	14430057.24	39°44'2.0081"N	80°37'23.9374"W	5.42	45.068	2.74	2.73	-3.47
965.00	5.150	41.260	964.54	0.12	9.19	8.71	1746320.76	14430062.59	39°44'2.0608"N	80°37'23.8747"W	12.66	43.482	1.21	1.19	-2.60
1056.00	5.650	35.720	1055.13	-0.56	15.89	14.02	1746326.06	14430069.30	39°44'2.1269"N	80°37'23.8064"W	21.19	41.418	0.79	0.55	-6.09
1146.00	5.280	45.400	1144.73	-0.94	22.40	19.55	1746331.60	14430075.80	39°44'2.1909"N	80°37'23.7352"W	29.73	41.124	1.10	-0.41	10.76
1236.00	4.440	59.710	1234.41	0.24	27.06	25.51	1746337.55	14430080.46	39°44'2.2368"N	80°37'23.6587"W	37.19	43.311	1.63	-0.93	15.90
1327.00	2.830	75.170	1325.22	2.46	29.41	30.73	1746342.76	14430082.81	39°44'2.2598"N	80°37'23.5919"W	42.53	46.249	2.06	-1.77	16.99
1417.00	2.250	56.880	1415.14	4.07	30.95	34.35	1746346.39	14430084.35	39°44'2.2748"N	80°37'23.5454"W	46.24	47.985	1.10	-0.64	-20.32
1507.00	2.560	46.500	1505.06	4.62	33.30	37.29	1746349.33	14430086.69	39°44'2.2979"N	80°37'23.5076"W	49.99	48.238	0.59	0.34	-11.53
1597.00	3.280	37.750	1594.94	4.51	36.72	40.32	1746352.36	14430090.11	39°44'2.3316"N	80°37'23.4686"W	54.54	47.682	0.94	0.80	-9.72
1688.00	3.020	46.220	1685.80	4.41	40.43	43.65	1746355.68	14430093.83	39°44'2.3682"N	80°37'23.4259"W	59.50	47.191	0.59	-0.29	9.31
1778.00	2.890	50.240	1775.68	4.83	43.52	47.11	1746359.14	14430096.92	39°44'2.3986"N	80°37'23.3814"W	64.13	47.263	0.27	-0.14	4.47
1868.00	2.810	46.800	1865.57	5.27	46.49	50.46	1746362.49	14430099.88	39°44'2.4277"N	80°37'23.3384"W	68.61	47.346	0.21	-0.09	-3.82
1959.00	2.450	48.480	1956.48	5.61	49.30	53.54	1746365.57	14430102.69	39°44'2.4554"N	80°37'23.2988"W	72.78	47.360	0.40	-0.40	1.85
2050.00	2.750	44.360	2047.38	5.85	52.15	56.52	1746368.55	14430105.54	39°44'2.4835"N	80°37'23.2604"W	76.91	47.303	0.39	0.33	-4.53
2140.00	2.680	28.210	2137.28	5.37	55.55	59.03	1746371.05	14430108.94	39°44'2.5169"N	80°37'23.2282"W	81.06	46.738	0.85	-0.08	-17.94
2230.00	3.130	15.780	2227.17	3.71	59.77	60.69	1746372.72	14430113.16	39°44'2.5586"N	80°37'23.2067"W	85.18	45.438	0.86	0.50	-13.81
2321.00	3.010	16.870	2318.04	1.53	64.45	62.06	1746374.08	14430117.83	39°44'2.6047"N	80°37'23.1889"W	89.47	43.919	0.15	-0.13	1.20
2411.00	2.770	8.110	2407.92	-0.75	68.86	63.05	1746375.08	14430122.24	39°44'2.6483"N	80°37'23.1760"W	93.37	42.478	0.56	-0.27	-9.73
2502.00	2.540	13.780	2498.82	-2.99	73.00	63.84	1746375.87	14430126.38	39°44'2.6892"N	80°37'23.1656"W	96.97	41.173	0.38	-0.25	6.23

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# Actual Wellpath Report

Shawn Harlan MSH 10H AWP Proj: 22183'  
Page 3 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWP
Slot	Slot #10		

WELLPATH DATA (250 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]
2592.00	2.400	5.750	2588.74	-5.10	76.81	64.51	1746376.53	14430130.19	39°44'2.7268"N	80°37'23.1569"W	100.30	40.025	0.41	-0.16	-8.92
2683.00	2.480	357.530	2679.66	-7.66	80.67	64.61	1746376.64	14430134.05	39°44'2.7650"N	80°37'23.1554"W	103.35	38.692	0.39	0.09	-9.03
2787.00	2.690	347.670	2783.55	-11.26	85.30	63.99	1746376.02	14430138.68	39°44'2.8108"N	80°37'23.1630"W	106.64	36.877	0.47	0.20	-9.48
2877.00	3.460	355.150	2873.42	-15.01	90.07	63.31	1746375.34	14430143.45	39°44'2.8579"N	80°37'23.1715"W	110.10	35.104	0.96	0.86	8.31
2967.00	3.950	9.000	2963.24	-18.75	95.84	63.57	1746375.59	14430149.21	39°44'2.9149"N	80°37'23.1679"W	115.00	33.555	1.13	0.54	15.39
3058.00	4.310	18.720	3054.00	-21.91	102.17	65.16	1746377.18	14430155.54	39°44'2.9775"N	80°37'23.1472"W	121.18	32.525	0.86	0.40	10.68
3149.00	4.300	15.430	3144.75	-24.88	108.70	67.16	1746379.18	14430162.07	39°44'3.0419"N	80°37'23.1212"W	127.78	31.710	0.27	-0.01	-3.62
3239.00	5.240	8.500	3234.43	-28.77	116.02	68.67	1746380.69	14430169.38	39°44'3.1141"N	80°37'23.1016"W	134.82	30.619	1.22	1.04	-7.70
3329.00	6.810	9.150	3323.93	-34.06	125.35	70.12	1746382.14	14430178.71	39°44'3.2063"N	80°37'23.0824"W	143.63	29.223	1.75	1.74	0.72
3420.00	8.430	11.480	3414.13	-40.54	137.22	72.31	1746384.33	14430190.57	39°44'3.3235"N	80°37'23.0538"W	155.10	27.788	1.81	1.78	2.56
3511.00	10.660	9.500	3503.86	-48.66	152.06	75.02	1746387.05	14430205.41	39°44'3.4700"N	80°37'23.0182"W	169.56	26.262	2.48	2.45	-2.18
3601.00	11.980	6.350	3592.11	-58.82	169.55	77.43	1746389.45	14430222.89	39°44'3.6428"N	80°37'22.9865"W	186.39	24.546	1.62	1.47	-3.50
3691.00	13.420	8.880	3679.91	-70.24	189.15	80.08	1746392.10	14430242.49	39°44'3.8364"N	80°37'22.9516"W	205.41	22.945	1.71	1.60	2.81
3782.00	14.950	10.030	3768.13	-82.53	211.15	83.75	1746395.77	14430264.47	39°44'4.0536"N	80°37'22.9033"W	227.15	21.636	1.71	1.68	1.26
3872.00	16.840	11.980	3854.68	-95.54	235.33	88.48	1746400.50	14430288.65	39°44'4.2925"N	80°37'22.8415"W	251.42	20.605	2.18	2.10	2.17
3963.00	18.560	12.320	3941.37	-109.70	262.38	94.31	1746406.32	14430315.69	39°44'4.5595"N	80°37'22.7655"W	278.81	19.770	1.89	1.89	0.37
4053.00	20.610	11.540	4026.16	-125.25	291.90	100.53	1746412.54	14430345.19	39°44'4.8510"N	80°37'22.6842"W	308.72	19.004	2.30	2.28	-0.87
4144.00	21.820	8.960	4111.00	-143.05	324.30	106.37	1746418.38	14430377.58	39°44'5.1709"N	80°37'22.6077"W	341.29	18.160	1.68	1.33	-2.84
4234.00	21.530	6.710	4194.63	-162.16	357.22	110.91	1746422.91	14430410.49	39°44'5.4961"N	80°37'22.5479"W	374.04	17.248	0.98	-0.32	-2.50
4324.00	20.900	8.310	4278.53	-181.04	389.51	115.16	1746427.16	14430442.76	39°44'5.8150"N	80°37'22.4918"W	406.17	16.470	0.95	-0.70	1.78
4414.00	20.280	9.370	4362.79	-198.79	420.78	120.02	1746432.02	14430474.03	39°44'6.1239"N	80°37'22.4279"W	437.56	15.919	0.80	-0.69	1.18
4505.00	20.050	10.810	4448.21	-215.81	451.66	125.51	1746437.51	14430504.90	39°44'6.4288"N	80°37'22.3559"W	468.78	15.530	0.80	-0.25	1.58
4595.00	20.510	11.990	4532.63	-232.12	482.24	131.68	1746443.69	14430535.46	39°44'6.7308"N	80°37'22.2753"W	499.89	15.273	0.68	0.51	1.31
4685.00	21.260	12.620	4616.71	-248.47	513.59	138.52	1746450.51	14430566.80	39°44'7.0403"N	80°37'22.1860"W	531.94	15.094	0.87	0.83	0.70
4776.00	21.410	13.820	4701.48	-264.88	545.81	146.09	1746458.08	14430599.01	39°44'7.3585"N	80°37'22.0874"W	565.03	14.984	0.51	0.16	1.32
4866.00	22.470	14.500	4784.96	-281.06	578.42	154.32	1746466.31	14430631.60	39°44'7.6803"N	80°37'21.9803"W	598.65	14.938	1.21	1.18	0.76
4956.00	21.490	10.850	4868.42	-298.01	611.26	161.73	1746473.72	14430664.43	39°44'8.0046"N	80°37'21.8837"W	632.30	14.820	1.87	-1.09	-4.06
5046.00	21.080	9.620	4952.28	-315.66	643.41	167.54	1746479.52	14430696.57	39°44'8.3221"N	80°37'21.8076"W	664.87	14.595	0.67	-0.46	-1.37
5137.00	21.830	12.980	5036.98	-333.10	676.03	174.07	1746486.06	14430729.18	39°44'8.6442"N	80°37'21.7222"W	698.09	14.440	1.58	0.82	3.69
5227.00	22.020	16.610	5120.47	-348.94	708.51	182.66	1746494.63	14430761.64	39°44'8.9648"N	80°37'21.6106"W	731.68	14.456	1.52	0.21	4.03

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Page 4 of 12



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Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWB
Slot	Slot #10		

WELLPATH DATA (250 stations)															
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5318.00	21.750	15.990	5204.92	-364.15	741.06	192.18	1746504.15	14430794.19	39°44'9.2861"N	80°37'21.4869"W	765.58	14.538	0.39	-0.30	-0.68
5409.00	21.040	16.620	5289.64	-379.04	772.93	201.49	1746513.47	14430826.04	39°44'9.6006"N	80°37'21.3660"W	798.76	14.611	0.82	-0.78	0.69
5499.00	19.460	13.930	5374.08	-393.47	802.96	209.72	1746521.69	14430856.06	39°44'9.8971"N	80°37'21.2590"W	829.90	14.638	2.04	-1.76	-2.99
5589.00	19.250	14.340	5458.99	-407.84	831.89	217.01	1746528.97	14430884.97	39°44'10.1827"N	80°37'21.1642"W	859.72	14.621	0.28	-0.23	0.46
5679.00	20.320	14.960	5543.68	-422.28	861.36	224.72	1746536.68	14430914.43	39°44'10.4736"N	80°37'21.0639"W	890.19	14.622	1.21	1.19	0.69
5770.00	21.440	11.560	5628.71	-438.35	892.92	232.13	1746544.09	14430945.98	39°44'10.7852"N	80°37'20.9674"W	922.60	14.572	1.81	1.23	-3.74
5860.00	22.550	8.850	5712.16	-456.59	926.09	238.08	1746550.04	14430979.14	39°44'11.1127"N	80°37'20.8894"W	956.20	14.418	1.67	1.23	-3.01
5951.00	22.640	9.910	5796.17	-475.92	960.58	243.78	1746555.73	14431013.62	39°44'11.4534"N	80°37'20.8146"W	991.03	14.240	0.46	0.10	1.16
6041.00	21.470	10.430	5879.58	-494.21	993.85	249.74	1746561.70	14431046.87	39°44'11.7819"N	80°37'20.7365"W	1024.74	14.106	1.32	-1.30	0.58
6132.00	20.120	9.660	5964.65	-511.75	1025.65	255.38	1746567.33	14431078.67	39°44'12.0960"N	80°37'20.6625"W	1056.97	13.982	1.51	-1.48	-0.85
6222.00	19.080	11.610	6049.44	-527.89	1055.32	260.94	1746572.89	14431108.32	39°44'12.3890"N	80°37'20.5898"W	1087.11	13.889	1.36	-1.16	2.17
6313.00	18.520	13.740	6135.59	-542.68	1083.93	267.37	1746579.31	14431136.92	39°44'12.6715"N	80°37'20.5060"W	1116.42	13.856	0.97	-0.62	2.34
6403.00	18.010	13.720	6221.05	-556.44	1111.33	274.06	1746586.01	14431164.31	39°44'12.9420"N	80°37'20.4188"W	1144.63	13.853	0.57	-0.57	-0.02
6494.00	13.980	28.190	6308.54	-566.12	1134.71	282.60	1746594.54	14431187.68	39°44'13.1726"N	80°37'20.3083"W	1169.37	13.985	6.20	-4.43	15.90
6584.00	13.400	48.100	6396.04	-567.95	1151.26	295.50	1746607.44	14431204.23	39°44'13.3357"N	80°37'20.1422"W	1188.58	14.396	5.25	-0.64	22.12
6675.00	14.390	68.710	6484.43	-562.08	1162.42	313.90	1746625.83	14431215.38	39°44'13.4452"N	80°37'19.9061"W	1204.06	15.112	5.52	1.09	22.65
6765.00	17.590	86.230	6570.98	-547.88	1167.38	337.91	1746649.83	14431220.33	39°44'13.4932"N	80°37'19.5985"W	1215.30	16.144	6.40	3.56	19.47
6856.00	21.810	100.850	6656.69	-524.11	1165.10	368.27	1746680.17	14431218.05	39°44'13.4694"N	80°37'19.2101"W	1221.91	17.541	7.10	4.64	16.07
6946.00	26.520	111.040	6738.82	-491.27	1154.73	403.47	1746715.37	14431207.69	39°44'13.3654"N	80°37'18.7599"W	1223.19	19.260	6.97	5.23	11.32
7037.00	29.450	121.200	6819.21	-450.48	1135.83	441.60	1746753.48	14431188.80	39°44'13.1771"N	80°37'18.2729"W	1218.65	21.246	6.14	3.22	11.16
7127.00	33.320	127.430	6896.05	-404.18	1109.33	480.18	1746792.04	14431162.30	39°44'12.9135"N	80°37'17.7805"W	1208.79	23.406	5.61	4.30	6.92
7217.00	38.710	131.170	6968.83	-351.40	1075.75	521.03	1746832.88	14431128.74	39°44'12.5800"N	80°37'17.2594"W	1195.28	25.843	6.47	5.99	4.16
7308.00	46.150	133.380	7035.95	-290.06	1034.42	566.36	1746878.19	14431087.43	39°44'12.1697"N	80°37'16.6814"W	1179.32	28.702	8.34	8.18	2.43
7353.00	50.240	133.800	7065.94	-256.53	1011.29	590.65	1746902.47	14431064.31	39°44'11.9401"N	80°37'16.3717"W	1171.14	30.287	9.12	9.09	0.93
7398.00	54.370	132.440	7093.45	-220.93	986.97	616.64	1746928.45	14431039.99	39°44'11.6986"N	80°37'16.0403"W	1163.77	31.997	9.48	9.18	-3.02
7489.00	61.780	133.110	7130.97	-160.71	946.06	660.84	1746972.63	14430999.10	39°44'11.2925"N	80°37'15.4769"W	1154.01	34.935	10.47	10.44	0.94
7559.00	73.390	134.790	7165.24	-77.67	888.38	720.59	1747032.36	14430941.45	39°44'10.7200"N	80°37'14.7150"W	1143.89	39.047	13.01	12.90	1.87
7650.00	81.630	136.860	7184.90	10.98	824.70	782.43	1747094.18	14430877.79	39°44'10.0881"N	80°37'13.9269"W	1136.81	43.493	9.32	9.05	2.27
7740.00	89.780	135.030	7191.64	100.52	760.27	844.79	1747156.51	14430813.38	39°44'9.4487"N	80°37'13.1323"W	1136.52	48.014	9.28	9.06	-2.03
7830.00	88.830	131.190	7192.73	190.50	698.78	910.47	1747222.17	14430751.91	39°44'8.8382"N	80°37'12.2948"W	1147.71	52.494	4.39	-1.06	-4.27

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# Actual Wellpath Report

Shawn Harlan MSH 10H AWP Proj: 22183'  
Page 5 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWP
Slot	Slot #10		

WELLPATH DATA (250 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]	
7920.00	89.850	134.410	7193.77	280.48	637.64	976.49	1747288.16	14430690.80	39°44'8.2313"N	80°37'11.4530"W	1166.24	56.856	3.75	1.13	3.58	
8011.00	88.950	130.600	7194.72	371.45	576.17	1043.56	1747355.21	14430629.36	39°44'7.6210"N	80°37'10.5978"W	1192.06	61.096	4.30	-0.99	-4.19	
8101.00	88.090	129.850	7197.04	461.32	518.07	1112.26	1747423.87	14430571.28	39°44'7.0439"N	80°37'9.7217"W	1226.99	65.025	1.27	-0.96	-0.83	
8191.00	87.570	131.650	7200.45	551.19	459.37	1180.39	1747491.98	14430512.60	39°44'6.4609"N	80°37'8.8528"W	1266.62	68.736	2.08	-0.58	2.00	
8281.00	88.150	132.220	7203.81	641.11	399.26	1247.29	1747558.85	14430452.52	39°44'5.8641"N	80°37'7.9997"W	1309.63	72.250	0.90	0.64	0.63	
8371.00	88.920	132.370	7206.11	731.07	338.72	1313.84	1747625.38	14430392.00	39°44'5.2629"N	80°37'7.1512"W	1356.80	75.544	0.87	0.86	0.17	
8462.00	88.920	129.940	7207.83	822.01	278.85	1382.34	1747693.85	14430332.15	39°44'4.6684"N	80°37'6.2776"W	1410.18	78.595	2.67	0.00	-2.67	
8553.00	87.660	129.040	7210.54	912.80	221.00	1452.53	1747764.02	14430274.33	39°44'4.0938"N	80°37'5.3823"W	1469.25	81.349	1.70	-1.38	-0.99	
8643.00	88.800	129.710	7213.32	1002.58	163.93	1522.07	1747833.53	14430217.28	39°44'3.5269"N	80°37'4.4954"W	1530.87	83.853	1.47	1.27	0.74	
8734.00	88.980	128.560	7215.09	1093.36	106.51	1592.64	1747904.07	14430159.88	39°44'2.9564"N	80°37'3.5952"W	1596.20	86.174	1.28	0.20	-1.26	
8824.00	88.580	129.030	7217.00	1183.10	50.14	1662.77	1747974.17	14430103.53	39°44'2.3963"N	80°37'2.7006"W	1663.53	88.273	0.69	-0.44	0.52	
8914.00	88.030	131.330	7219.67	1272.95	-7.90	1731.50	1748042.87	14430045.51	39°44'1.8198"N	80°37'1.8241"W	1731.51	90.261	2.63	-0.61	2.56	
9005.00	88.490	131.390	7222.43	1363.88	-68.00	1799.77	1748111.12	14429985.43	39°44'1.2230"N	80°37'0.9535"W	1801.05	92.164	0.51	0.51	0.07	
9095.00	88.490	132.980	7224.80	1453.84	-128.42	1866.43	1748177.75	14429925.04	39°44'0.6231"N	80°37'0.1035"W	1870.84	93.936	1.77	0.00	1.77	
9186.00	88.310	135.400	7227.34	1544.77	-191.82	1931.65	1748242.95	14429861.66	39°43'59.9938"N	80°36'59.2722"W	1941.15	95.671	2.67	-0.20	2.66	
9276.00	90.220	134.300	7228.50	1634.71	-255.28	1995.45	1748306.72	14429798.23	39°43'59.3639"N	80°36'58.4591"W	2011.71	97.290	2.45	2.12	-1.22	
9367.00	88.250	134.660	7229.71	1725.66	-319.03	2060.37	1748371.61	14429734.50	39°43'58.7311"N	80°36'57.6316"W	2084.92	98.802	2.20	-2.16	0.40	
9457.00	89.380	134.420	7231.57	1815.61	-382.15	2124.50	1748435.72	14429671.41	39°43'58.1047"N	80°36'56.8142"W	2158.60	100.197	1.28	1.26	-0.27	
9547.00	88.340	134.870	7233.36	1905.55	-445.38	2188.52	1748499.72	14429608.21	39°43'57.4771"N	80°36'55.9982"W	2233.38	101.503	1.26	-1.16	0.50	
9637.00	87.480	135.190	7236.65	1995.43	-509.01	2252.08	1748563.26	14429544.60	39°43'56.8455"N	80°36'55.1881"W	2308.89	102.736	1.02	-0.96	0.36	
9728.00	88.650	133.470	7239.72	2086.34	-572.56	2317.14	1748628.28	14429481.08	39°43'56.2147"N	80°36'54.3590"W	2386.83	103.880	2.29	1.29	-1.89	
9818.00	87.690	131.790	7242.59	2176.29	-633.48	2383.32	1748694.44	14429420.18	39°43'55.6099"N	80°36'53.5152"W	2466.07	104.885	2.15	-1.07	-1.87	
9908.00	88.710	133.400	7245.42	2266.24	-694.36	2449.53	1748760.63	14429359.32	39°43'55.0054"N	80°36'52.6710"W	2546.05	105.826	2.12	1.13	1.79	
9998.00	88.490	131.390	7247.62	2356.21	-755.02	2515.98	1748827.05	14429298.69	39°43'54.4031"N	80°36'51.8239"W	2626.82	106.704	2.25	-0.24	-2.23	
10089.00	87.940	132.870	7250.45	2447.15	-816.03	2583.43	1748894.47	14429237.70	39°43'53.7973"N	80°36'50.9639"W	2709.25	107.530	1.73	-0.60	1.63	
10179.00	88.210	132.990	7253.48	2537.10	-877.29	2649.29	1748960.31	14429176.46	39°43'53.1890"N	80°36'50.1243"W	2790.77	108.322	0.33	0.30	0.13	
10270.00	88.060	132.340	7256.44	2628.05	-938.93	2716.17	1749027.16	14429114.84	39°43'52.5770"N	80°36'49.2717"W	2873.88	109.069	0.73	-0.16	-0.71	
10360.00	88.090	133.530	7259.46	2718.00	-1000.20	2782.02	1749092.99	14429053.60	39°43'51.9687"N	80°36'48.4322"W	2956.36	109.775	1.32	0.03	1.32	
10451.00	87.910	133.810	7262.64	2808.93	-1063.00	2847.80	1749158.75	14428990.82	39°43'51.3453"N	80°36'47.5937"W	3039.73	110.469	0.37	-0.20	0.31	
10541.00	88.000	134.090	7265.85	2898.86	-1125.42	2912.56	1749223.47	14428928.42	39°43'50.7256"N	80°36'46.7683"W	3122.43	111.127	0.33	0.10	0.31	

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# Actual Wellpath Report

Shawn Harlan MSH 10H AWP Proj: 22183'  
Page 6 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWP
Slot	Slot #10		

WELLPATH DATA (250 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]
10631.00	87.910	133.610	7269.06	2988.79	-1187.73	2977.42	1749288.31	14428866.14	39°43'50.1070"N	80°36'45.9415"W	3205.58	111.748	0.54	-0.10	-0.53
10722.00	88.000	133.700	7272.31	3079.73	-1250.51	3043.22	1749354.08	14428803.39	39°43'49.4838"N	80°36'45.1029"W	3290.13	112.339	0.14	0.10	0.10
10812.00	87.570	132.500	7275.79	3169.66	-1311.96	3108.88	1749419.72	14428741.96	39°43'48.8737"N	80°36'44.2658"W	3374.37	112.880	1.42	-0.48	-1.33
10903.00	88.490	134.990	7278.91	3260.59	-1374.84	3174.58	1749485.39	14428679.11	39°43'48.2495"N	80°36'43.4284"W	3459.50	113.416	2.92	1.01	2.74
10993.00	88.830	132.350	7281.02	3350.55	-1436.96	3239.65	1749550.44	14428617.01	39°43'47.6328"N	80°36'42.5990"W	3544.04	113.920	2.96	0.38	-2.93
11083.00	88.120	132.430	7283.42	3440.51	-1497.61	3306.10	1749616.86	14428556.38	39°43'47.0305"N	80°36'41.7518"W	3629.48	114.370	0.79	-0.79	0.09
11174.00	88.060	134.240	7286.45	3531.46	-1560.03	3372.25	1749682.99	14428493.99	39°43'46.4109"N	80°36'40.9086"W	3715.61	114.826	1.99	-0.07	1.99
11264.00	88.370	132.750	7289.25	3621.41	-1621.94	3437.51	1749748.22	14428432.10	39°43'45.7962"N	80°36'40.0769"W	3800.94	115.260	1.69	0.34	-1.66
11354.00	87.720	132.760	7292.32	3711.35	-1683.00	3503.55	1749814.24	14428371.06	39°43'45.1899"N	80°36'39.2349"W	3886.82	115.658	0.72	-0.72	0.01
11445.00	88.550	133.400	7295.28	3802.30	-1745.12	3569.98	1749880.64	14428308.96	39°43'44.5731"N	80°36'38.3881"W	3973.69	116.051	1.15	0.91	0.70
11535.00	88.180	132.060	7297.85	3892.26	-1806.17	3636.06	1749946.70	14428247.95	39°43'43.9670"N	80°36'37.5458"W	4059.95	116.415	1.54	-0.41	-1.49
11626.00	87.850	132.810	7301.00	3983.20	-1867.53	3703.18	1750013.79	14428186.60	39°43'43.3577"N	80°36'36.6901"W	4147.44	116.762	0.90	-0.36	0.82
11716.00	88.370	133.340	7303.97	4073.15	-1928.96	3768.89	1750079.47	14428125.20	39°43'42.7478"N	80°36'35.8525"W	4233.84	117.104	0.82	0.58	0.59
11806.00	88.430	133.440	7306.49	4163.12	-1990.77	3834.27	1750144.82	14428063.42	39°43'42.1342"N	80°36'35.0192"W	4320.27	117.439	0.13	0.07	0.11
11896.00	87.850	133.410	7309.41	4253.07	-2052.60	3899.60	1750210.13	14428001.61	39°43'41.5203"N	80°36'34.1865"W	4406.82	117.761	0.65	-0.64	-0.03
11987.00	88.180	133.230	7312.56	4344.01	-2115.00	3965.76	1750276.27	14427939.24	39°43'40.9008"N	80°36'33.3432"W	4494.49	118.072	0.41	0.36	-0.20
12077.00	88.120	133.090	7315.46	4433.96	-2176.53	4031.38	1750341.86	14427877.73	39°43'40.2899"N	80°36'32.5068"W	4581.41	118.364	0.17	-0.07	-0.16
12167.00	88.860	131.640	7317.84	4523.92	-2237.15	4097.85	1750408.31	14427817.13	39°43'39.6879"N	80°36'31.6594"W	4668.75	118.632	1.81	0.82	-1.61
12257.00	88.340	131.070	7320.03	4613.86	-2296.60	4165.39	1750475.82	14427757.71	39°43'39.0975"N	80°36'30.7983"W	4756.55	118.870	0.86	-0.58	-0.63
12347.00	87.910	131.780	7322.98	4703.78	-2356.11	4232.83	1750543.24	14427698.21	39°43'38.5064"N	80°36'29.9384"W	4844.39	119.102	0.92	-0.48	0.79
12438.00	87.970	133.470	7326.25	4794.72	-2417.70	4299.75	1750610.12	14427636.66	39°43'37.8949"N	80°36'29.0855"W	4932.86	119.349	1.86	0.07	1.86
12527.00	88.000	133.270	7329.38	4883.66	-2478.77	4364.40	1750674.76	14427575.60	39°43'37.2885"N	80°36'28.2614"W	5019.20	119.595	0.23	0.03	-0.22
12618.00	88.090	132.200	7332.48	4974.60	-2540.49	4431.20	1750741.53	14427513.91	39°43'36.6757"N	80°36'27.4099"W	5107.80	119.826	1.18	0.10	-1.18
12708.00	87.750	134.320	7335.75	5064.54	-2602.12	4496.70	1750807.00	14427452.30	39°43'36.0638"N	80°36'26.5751"W	5195.32	120.057	2.38	-0.38	2.36
12798.00	88.680	131.870	7338.56	5154.49	-2663.58	4562.38	1750872.66	14427390.87	39°43'35.4536"N	80°36'25.7379"W	5282.99	120.277	2.91	1.03	-2.72
12889.00	87.690	131.670	7341.44	5245.42	-2724.17	4630.22	1750940.46	14427330.30	39°43'34.8519"N	80°36'24.8731"W	5372.15	120.470	1.11	-1.09	-0.22
12979.00	88.000	134.110	7344.82	5335.35	-2785.37	4696.10	1751006.33	14427269.12	39°43'34.2441"N	80°36'24.0333"W	5460.01	120.673	2.73	0.34	2.71
13070.00	87.910	132.470	7348.07	5426.29	-2847.73	4762.30	1751072.49	14427206.79	39°43'33.6250"N	80°36'23.1896"W	5548.79	120.878	1.80	-0.10	-1.80
13160.00	88.150	134.600	7351.16	5516.22	-2909.68	4827.50	1751137.67	14427144.86	39°43'33.0100"N	80°36'22.3585"W	5636.58	121.079	2.38	0.27	2.37
13250.00	88.120	132.500	7354.09	5606.17	-2971.65	4892.69	1751202.84	14427082.92	39°43'32.3947"N	80°36'21.5277"W	5724.43	121.273	2.33	-0.03	-2.33

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# Actual Wellpath Report

Shawn Harlan MSH 10H AWP Proj: 22183'  
Page 7 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWB
Slot	Slot #10		

WELLPATH DATA (250 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]	
13341.00	87.820	133.020	7357.32	5697.11	-3033.39	4959.46	1751269.58	14427021.20	39°43'31.7816"N	80°36'20.6766"W	5813.58	121.452	0.66	-0.33	0.57	
13431.00	88.490	132.190	7360.21	5787.06	-3094.29	5025.67	1751335.77	14426960.33	39°43'31.1769"N	80°36'19.8327"W	5901.86	121.620	1.18	0.74	-0.92	
13521.00	87.970	132.570	7362.99	5877.01	-3154.92	5092.12	1751402.19	14426899.72	39°43'30.5748"N	80°36'18.9856"W	5990.26	121.781	0.72	-0.58	0.42	
13612.00	87.850	133.260	7366.31	5967.95	-3216.84	5158.72	1751468.76	14426837.82	39°43'29.9599"N	80°36'18.1368"W	6079.51	121.947	0.77	-0.13	0.76	
13702.00	88.090	133.070	7369.50	6057.89	-3278.37	5224.33	1751534.34	14426776.31	39°43'29.3490"N	80°36'17.3006"W	6167.76	122.109	0.34	-0.27	-0.21	
13792.00	87.910	134.340	7372.64	6147.83	-3340.52	5289.35	1751599.34	14426714.19	39°43'28.7320"N	80°36'16.4720"W	6255.90	122.275	1.42	-0.20	1.41	
13883.00	89.080	132.650	7375.03	6238.79	-3403.13	5355.33	1751665.30	14426651.61	39°43'28.1104"N	80°36'15.6310"W	6345.15	122.435	2.26	1.29	-1.86	
13973.00	87.910	130.760	7377.40	6328.73	-3462.98	5422.50	1751732.44	14426591.78	39°43'27.5159"N	80°36'14.7748"W	6433.95	122.564	2.47	-1.30	-2.10	
14064.00	87.660	131.390	7380.91	6419.61	-3522.73	5491.05	1751800.96	14426532.05	39°43'26.9225"N	80°36'13.9008"W	6523.90	122.682	0.74	-0.27	0.69	
14154.00	87.850	133.550	7384.44	6509.53	-3583.44	5557.38	1751867.27	14426471.36	39°43'26.3195"N	80°36'13.0554"W	6612.53	122.814	2.41	0.21	2.40	
14245.00	88.250	132.850	7387.54	6600.48	-3645.70	5623.68	1751933.54	14426409.13	39°43'25.7014"N	80°36'12.2104"W	6702.01	122.954	0.89	0.44	-0.77	
14335.00	88.180	132.370	7390.34	6690.44	-3706.60	5689.88	1751999.72	14426348.25	39°43'25.0966"N	80°36'11.3666"W	6790.70	123.082	0.54	-0.08	-0.53	
14426.00	88.030	132.210	7393.35	6781.38	-3767.80	5757.16	1752066.97	14426287.07	39°43'24.4889"N	80°36'10.5090"W	6880.50	123.203	0.24	-0.16	-0.18	
14516.00	88.430	133.860	7396.13	6871.33	-3829.19	5822.91	1752132.70	14426225.71	39°43'23.8793"N	80°36'9.6710"W	6969.15	123.329	1.89	0.44	1.83	
14606.00	88.090	132.650	7398.86	6961.29	-3890.83	5888.43	1752198.19	14426164.09	39°43'23.2672"N	80°36'8.8360"W	7057.77	123.455	1.40	-0.38	-1.34	
14696.00	87.880	132.930	7402.03	7051.23	-3951.93	5954.44	1752264.17	14426103.01	39°43'22.6605"N	80°36'7.9947"W	7146.54	123.572	0.39	-0.23	0.31	
14786.00	88.620	134.570	7404.77	7141.18	-4014.14	6019.41	1752329.12	14426040.83	39°43'22.0429"N	80°36'7.1667"W	7235.10	123.698	2.00	0.82	1.82	
14877.00	88.060	133.810	7407.41	7232.12	-4077.54	6084.64	1752394.32	14425977.46	39°43'21.4135"N	80°36'6.3356"W	7324.56	123.828	1.04	-0.62	-0.84	
14967.00	87.910	133.960	7410.58	7322.05	-4139.89	6149.46	1752459.12	14425915.13	39°43'20.7944"N	80°36'5.5095"W	7413.14	123.949	0.24	-0.17	0.17	
15057.00	88.220	132.950	7413.61	7411.99	-4201.76	6214.76	1752524.39	14425853.29	39°43'20.1802"N	80°36'4.6774"W	7501.86	124.062	1.17	0.34	-1.12	
15147.00	88.250	133.360	7416.39	7501.95	-4263.28	6280.38	1752589.99	14425791.78	39°43'19.5692"N	80°36'3.8410"W	7590.70	124.170	0.46	0.03	0.46	
15238.00	87.970	133.880	7419.39	7592.89	-4326.03	6346.22	1752655.80	14425729.07	39°43'18.9462"N	80°36'3.0020"W	7680.43	124.281	0.65	-0.31	0.57	
15328.00	88.770	133.780	7421.95	7682.84	-4388.33	6411.12	1752720.68	14425666.79	39°43'18.3277"N	80°36'2.1750"W	7769.16	124.391	0.90	0.89	-0.11	
15418.00	88.490	132.710	7424.10	7772.82	-4449.97	6476.66	1752786.19	14425605.17	39°43'17.7156"N	80°36'1.3397"W	7858.08	124.492	1.23	-0.31	-1.19	
15508.00	88.490	133.360	7426.47	7862.78	-4511.37	6542.42	1752851.93	14425543.80	39°43'17.1059"N	80°36'0.5017"W	7947.06	124.588	0.72	0.00	0.72	
15599.00	88.620	133.310	7428.77	7953.75	-4573.80	6608.59	1752918.07	14425481.39	39°43'16.4860"N	80°35'59.6584"W	8036.98	124.687	0.15	0.14	-0.05	
15689.00	88.460	133.370	7431.06	8043.72	-4635.55	6674.02	1752983.48	14425419.66	39°43'15.8729"N	80°35'58.8245"W	8125.94	124.783	0.19	-0.18	0.07	
15780.00	88.860	133.910	7433.19	8134.69	-4698.33	6739.86	1753049.29	14425356.91	39°43'15.2495"N	80°35'57.9856"W	8215.84	124.880	0.74	0.44	0.59	
15870.00	88.610	133.330	7435.17	8224.66	-4760.41	6805.00	1753114.40	14425294.86	39°43'14.6332"N	80°35'57.1555"W	8304.79	124.975	0.70	-0.28	-0.64	
15961.00	88.400	133.440	7437.55	8315.63	-4822.89	6871.11	1753180.49	14425232.39	39°43'14.0127"N	80°35'56.3130"W	8394.79	125.065	0.26	-0.23	0.12	

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Shawn Harlan MSH 10H AWP Proj: 22183'  
Page 8 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWB
Slot	Slot #10		

WELLPATH DATA (250 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]
16051.00	88.430	133.230	7440.04	8405.59	-4884.63	6936.55	1753245.90	14425170.68	39°43'13.3997"N	80°35'55.4791"W	8483.83	125.153	0.24	0.03	-0.23
16142.00	89.380	133.590	7441.78	8496.57	-4947.16	7002.64	1753311.97	14425108.18	39°43'12.7788"N	80°35'54.6369"W	8573.88	125.240	1.12	1.04	0.40
16232.00	89.050	133.600	7443.01	8586.56	-5009.21	7067.82	1753377.12	14425046.15	39°43'12.1627"N	80°35'53.8064"W	8662.92	125.327	0.37	-0.37	0.01
16322.00	88.250	131.530	7445.13	8676.52	-5070.07	7134.08	1753443.35	14424985.31	39°43'11.5583"N	80°35'52.9619"W	8752.18	125.401	2.47	-0.89	-2.30
16412.00	89.750	132.870	7446.70	8766.50	-5130.51	7200.74	1753509.99	14424924.89	39°43'10.9580"N	80°35'52.1123"W	8841.54	125.470	2.23	1.67	1.49
16502.00	89.450	131.820	7447.33	8856.49	-5191.13	7267.26	1753576.48	14424864.30	39°43'10.3560"N	80°35'51.2645"W	8930.89	125.539	1.21	-0.33	-1.17
16592.00	89.320	131.980	7448.30	8946.47	-5251.23	7334.24	1753643.44	14424804.22	39°43'9.7591"N	80°35'50.4108"W	9020.34	125.602	0.23	-0.14	0.18
16683.00	89.720	131.040	7449.06	9037.44	-5311.54	7402.38	1753711.55	14424743.94	39°43'9.1600"N	80°35'49.5422"W	9110.86	125.661	1.12	0.44	-1.03
16773.00	89.350	130.390	7449.79	9127.36	-5370.25	7470.60	1753779.74	14424685.25	39°43'8.5768"N	80°35'48.6727"W	9200.51	125.711	0.83	-0.41	-0.72
16863.00	89.110	130.480	7451.00	9217.27	-5428.61	7539.09	1753848.21	14424626.91	39°43'7.9970"N	80°35'47.7995"W	9290.20	125.756	0.28	-0.27	0.10
16954.00	89.080	131.500	7452.43	9308.20	-5488.29	7607.77	1753916.86	14424567.25	39°43'7.4041"N	80°35'46.9240"W	9380.81	125.807	1.12	-0.03	1.12
17044.00	89.510	132.710	7453.54	9398.19	-5548.63	7674.54	1753983.60	14424506.94	39°43'6.8048"N	80°35'46.0731"W	9470.26	125.867	1.43	0.48	1.34
17134.00	89.540	132.660	7454.29	9488.18	-5609.65	7740.69	1754049.73	14424445.95	39°43'6.1989"N	80°35'45.2300"W	9559.63	125.931	0.06	0.03	-0.06
17225.00	89.230	133.000	7455.27	9579.18	-5671.51	7807.43	1754116.44	14424384.11	39°43'5.5846"N	80°35'44.3795"W	9649.97	125.996	0.51	-0.34	0.37
17315.00	89.110	133.260	7456.57	9669.17	-5733.03	7873.10	1754182.09	14424322.61	39°43'4.9736"N	80°35'43.5426"W	9739.27	126.061	0.32	-0.13	0.29
17406.00	89.320	133.510	7457.82	9760.16	-5795.53	7939.23	1754248.19	14424260.13	39°43'4.3530"N	80°35'42.7000"W	9829.53	126.129	0.36	0.23	0.27
17496.00	89.110	132.670	7459.05	9850.15	-5857.01	8004.95	1754313.88	14424198.68	39°43'3.7425"N	80°35'41.8626"W	9918.86	126.192	0.96	-0.23	-0.93
17587.00	89.290	133.430	7460.32	9941.14	-5919.12	8071.44	1754380.35	14424136.59	39°43'3.1257"N	80°35'41.0153"W	10009.20	126.254	0.86	0.20	0.84
17677.00	89.080	132.680	7461.60	10031.13	-5980.56	8137.20	1754446.08	14424075.18	39°43'2.5156"N	80°35'40.1774"W	10098.57	126.315	0.87	-0.23	-0.83
17767.00	88.740	132.710	7463.31	10121.11	-6041.58	8203.33	1754512.19	14424014.18	39°43'1.9096"N	80°35'39.3346"W	10188.00	126.371	0.38	-0.38	0.03
17858.00	89.450	133.420	7464.75	10212.10	-6103.71	8269.81	1754578.64	14423952.08	39°43'1.2927"N	80°35'38.4875"W	10278.37	126.430	1.10	0.78	0.78
17948.00	89.230	133.040	7465.79	10302.09	-6165.34	8335.38	1754644.18	14423890.46	39°43'0.6806"N	80°35'37.6520"W	10367.74	126.489	0.49	-0.24	-0.42
18038.00	88.980	132.530	7467.19	10392.08	-6226.47	8401.42	1754710.20	14423829.36	39°43'0.0735"N	80°35'36.8104"W	10457.19	126.543	0.63	-0.28	-0.57
18128.00	89.110	132.760	7468.69	10482.06	-6287.43	8467.61	1754776.37	14423768.43	39°42'59.4681"N	80°35'35.9669"W	10546.67	126.595	0.29	0.14	0.26
18218.00	89.230	133.560	7469.99	10572.05	-6348.99	8533.25	1754841.98	14423706.89	39°42'58.8568"N	80°35'35.1305"W	10636.07	126.650	0.90	0.13	0.89
18308.00	89.540	133.550	7470.96	10662.04	-6411.00	8598.47	1754907.18	14423644.91	39°42'58.2410"N	80°35'34.2995"W	10725.42	126.708	0.34	0.34	-0.01
18399.00	88.490	132.720	7472.53	10753.03	-6473.21	8664.87	1754973.55	14423582.72	39°42'57.6233"N	80°35'33.4534"W	10815.84	126.762	1.47	-1.15	-0.91
18489.00	89.480	134.060	7474.12	10843.01	-6535.02	8730.26	1755038.91	14423520.93	39°42'57.0095"N	80°35'32.6203"W	10905.23	126.817	1.85	1.10	1.49
18579.00	88.710	131.600	7475.54	10932.99	-6596.19	8796.25	1755104.88	14423459.78	39°42'56.4019"N	80°35'31.7794"W	10994.72	126.866	2.86	-0.86	-2.73
18670.00	89.510	133.640	7476.95	11023.97	-6657.80	8863.20	1755171.80	14423398.20	39°42'55.7901"N	80°35'30.9262"W	11085.24	126.913	2.41	0.88	2.24

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Slot	Slot #10		

### WELLPATH DATA (250 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]
18760.00	89.110	133.180	7478.04	11113.96	-6719.65	8928.58	1755237.15	14423336.38	39°42'55.1760"N	80°35'30.0932"W	11174.66	126.965	0.68	-0.44	-0.51
18850.00	89.290	132.190	7479.30	11203.95	-6780.66	8994.73	1755303.28	14423275.39	39°42'54.5700"N	80°35'29.2503"W	11264.21	127.011	1.12	0.20	-1.10
18941.00	88.770	132.480	7480.84	11294.93	-6841.93	9061.99	1755370.51	14423214.14	39°42'53.9614"N	80°35'28.3932"W	11354.81	127.053	0.65	-0.57	0.32
19031.00	89.380	133.650	7482.29	11384.92	-6903.38	9127.73	1755436.23	14423152.72	39°42'53.3512"N	80°35'27.5555"W	11444.30	127.101	1.47	0.68	1.30
19122.00	89.320	134.180	7483.32	11475.90	-6966.49	9193.28	1755501.75	14423089.63	39°42'52.7245"N	80°35'26.7204"W	11534.66	127.154	0.59	-0.07	0.58
19212.00	89.750	132.790	7484.05	11565.89	-7028.42	9258.57	1755567.02	14423027.72	39°42'52.1096"N	80°35'25.8885"W	11624.11	127.203	1.62	0.48	-1.54
19303.00	89.510	132.910	7484.64	11656.88	-7090.31	9325.29	1755633.71	14422965.86	39°42'51.4949"N	80°35'25.0384"W	11714.67	127.247	0.29	-0.26	0.13
19394.00	90.030	132.860	7485.00	11747.88	-7152.23	9391.96	1755700.36	14422903.96	39°42'50.8799"N	80°35'24.1888"W	11805.23	127.290	0.57	0.57	-0.05
19484.00	89.820	131.570	7485.12	11837.87	-7212.71	9458.62	1755766.99	14422843.51	39°42'50.2793"N	80°35'23.3394"W	11894.90	127.327	1.45	-0.23	-1.43
19575.00	90.680	134.100	7484.73	11928.87	-7274.57	9525.34	1755833.69	14422781.67	39°42'49.6649"N	80°35'22.4892"W	11985.47	127.369	2.94	0.95	2.78
19666.00	89.970	133.420	7484.21	12019.85	-7337.51	9591.07	1755899.38	14422718.76	39°42'49.0399"N	80°35'21.6519"W	12075.91	127.417	1.08	-0.78	-0.75
19756.00	89.480	132.930	7484.64	12109.85	-7399.09	9656.70	1755964.99	14422657.20	39°42'48.4284"N	80°35'20.8157"W	12165.46	127.460	0.77	-0.54	-0.54
19847.00	89.720	133.390	7485.28	12200.85	-7461.33	9723.08	1756031.34	14422594.98	39°42'47.8102"N	80°35'19.9699"W	12256.01	127.502	0.57	0.26	0.51
19938.00	89.170	133.740	7486.16	12291.84	-7524.04	9789.01	1756097.25	14422532.29	39°42'47.1875"N	80°35'19.1299"W	12346.50	127.547	0.72	-0.60	0.38
20028.00	88.520	133.690	7487.97	12381.81	-7586.23	9854.05	1756162.26	14422470.14	39°42'46.5700"N	80°35'18.3013"W	12435.96	127.591	0.72	-0.72	-0.06
20119.00	90.250	133.670	7488.95	12472.79	-7649.07	9919.85	1756228.04	14422407.32	39°42'45.9460"N	80°35'17.4630"W	12526.44	127.635	1.90	1.90	-0.02
20210.00	89.380	131.970	7489.24	12563.79	-7710.92	9986.60	1756294.76	14422345.49	39°42'45.3317"N	80°35'16.6126"W	12617.07	127.673	2.10	-0.96	-1.87
20300.00	89.660	132.290	7490.00	12653.78	-7771.29	10053.34	1756361.48	14422285.15	39°42'44.7320"N	80°35'15.7621"W	12706.79	127.704	0.47	0.31	0.36
20391.00	89.970	132.660	7490.29	12744.77	-7832.74	10120.46	1756428.57	14422223.72	39°42'44.1217"N	80°35'14.9068"W	12797.48	127.738	0.53	0.34	0.41
20482.00	89.630	130.930	7490.61	12835.75	-7893.38	10188.30	1756496.39	14422163.10	39°42'43.5193"N	80°35'14.0423"W	12888.25	127.767	1.94	-0.37	-1.90
20572.00	89.230	131.610	7491.50	12925.71	-7952.74	10255.94	1756564.00	14422103.76	39°42'42.9295"N	80°35'13.1803"W	12978.08	127.791	0.88	-0.44	0.76
20663.00	89.570	131.860	7492.46	13016.68	-8013.32	10323.85	1756631.88	14422043.21	39°42'42.3278"N	80°35'12.3150"W	13068.86	127.818	0.46	0.37	0.27
20754.00	89.480	132.080	7493.21	13107.67	-8074.17	10391.50	1756699.51	14421982.38	39°42'41.7233"N	80°35'11.4529"W	13159.62	127.847	0.26	-0.10	0.24
20844.00	89.170	132.180	7494.27	13197.65	-8134.54	10458.24	1756766.22	14421922.03	39°42'41.1237"N	80°35'10.6024"W	13249.36	127.876	0.36	-0.34	0.11
20935.00	88.980	133.420	7495.74	13288.64	-8196.36	10525.00	1756832.96	14421860.24	39°42'40.5097"N	80°35'9.7518"W	13340.02	127.910	1.38	-0.21	1.36
21026.00	89.320	132.250	7497.09	13379.62	-8258.22	10591.73	1756899.65	14421798.40	39°42'39.8953"N	80°35'8.9017"W	13430.67	127.943	1.34	0.37	-1.29
21116.00	89.420	132.510	7498.08	13469.62	-8318.88	10658.20	1756966.11	14421737.76	39°42'39.2928"N	80°35'8.0547"W	13520.40	127.973	0.31	0.11	0.29
21207.00	89.600	133.530	7498.86	13560.61	-8380.97	10724.73	1757032.61	14421675.71	39°42'38.6762"N	80°35'7.2071"W	13611.04	128.006	1.14	0.20	1.12
21298.00	89.420	133.050	7499.64	13651.61	-8443.36	10790.97	1757098.82	14421613.34	39°42'38.0565"N	80°35'6.3632"W	13701.65	128.041	0.56	-0.20	-0.53
21388.00	90.150	133.850	7499.97	13741.60	-8505.25	10856.30	1757164.13	14421551.47	39°42'37.4419"N	80°35'5.5309"W	13791.25	128.077	1.20	0.81	0.89

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWB
Slot	Slot #10		

WELLPATH DATA (250 stations) † = interpolated, ‡ = extrapolated station															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
21479.00	89.880	133.640	7499.95	13832.59	-8568.18	10922.04	1757229.84	14421488.57	39°42'36.8170"N	80°35'4.6934"W	13881.81	128.114	0.38	-0.30	-0.23
21570.00	89.110	133.290	7500.75	13923.58	-8630.77	10988.09	1757295.86	14421426.00	39°42'36.1954"N	80°35'3.8521"W	13972.41	128.148	0.93	-0.85	-0.38
21660.00	89.750	133.640	7501.65	14013.57	-8692.68	11053.41	1757361.15	14421364.11	39°42'35.5806"N	80°35'3.0200"W	14062.02	128.182	0.81	0.71	0.39
21751.00	89.940	134.800	7501.89	14104.55	-8756.15	11118.62	1757426.34	14421300.67	39°42'34.9504"N	80°35'2.1893"W	14152.52	128.221	1.29	0.21	1.27
21842.00	89.690	132.930	7502.19	14195.53	-8819.20	11184.23	1757491.92	14421237.64	39°42'34.3242"N	80°35'1.3536"W	14243.08	128.257	2.07	-0.27	-2.05
21932.00	89.880	132.640	7502.53	14285.53	-8880.33	11250.28	1757557.95	14421176.53	39°42'33.7170"N	80°35'0.5120"W	14332.80	128.286	0.39	0.21	-0.32
22023.00	89.720	133.720	7502.84	14376.53	-8942.60	11316.63	1757624.28	14421114.29	39°42'33.0986"N	80°34'59.6667"W	14423.47	128.316	1.20	-0.18	1.19
22114.00	89.480	132.710	7503.48	14467.52	-9004.91	11382.95	1757690.57	14421052.00	39°42'32.4798"N	80°34'58.8219"W	14514.13	128.347	1.14	-0.26	-1.11
22158.00	89.750	133.150	7503.77	14511.52	-9034.88	11415.17	1757722.77	14421022.05	39°42'32.1821"N	80°34'58.4114"W	14557.99	128.361	1.17	0.61	1.00
22183.00‡	89.750	133.150	7503.88	14536.52	-9051.98	11433.41	1757741.01	14421004.96	39°42'32.0123"N	80°34'58.1791"W	14582.90	128.369	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Shawn Harlan MSH 10H AWB Ref Wellpath: Shawn Harlan MSH 10H AWP Proj: 22183'									
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	-0.08	-0.06
17.5in Open Hole	100.00	590.00	490.00	100.00	589.99	-0.08	-0.06	-1.30	-1.66
13.375in Casing Surface	26.00	590.00	564.00	26.00	589.99	0.00	0.00	-1.30	-1.66
12.25in Open Hole	590.00	2734.00	2144.00	589.99	2730.61	-1.30	-1.66	82.91	64.41
9.625in Casing Intermediate	26.00	2734.00	2708.00	26.00	2730.61	0.00	0.00	82.91	64.41
8.75in Open Hole	2734.00	7457.00	4723.00	2730.61	7125.18	82.91	64.41	953.24	653.16
8.5in Open Hole	7457.00	22183.00	14726.00	7125.18	7503.88	953.24	653.16	-9051.98	11433.41
5.5in Casing Production	26.00	22183.00	22157.00	26.00	7503.88	0.00	0.00	-9051.98	11433.41

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# Actual Wellpath Report

Shawn Harlan MSH 10H AWP Proj: 22183'  
Page 11 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 10H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWB
Slot	Slot #10		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Shawn Harlan MSH 10H LP Rev-4	7189.97	711.78	933.20	1747244.89	14430764.91	39°44'8.9658"N	80°37'12.0032"W	point
Shawn Harlan MSH 10H LP Rev-5	7190.00	712.77	933.37	1747245.06	14430765.90	39°44'8.9755"N	80°37'12.0010"W	point
Shawn Harlan MSH 10H BHL Rev-7	7489.97	-9054.83	11430.29	1757737.89	14421002.11	39°42'31.9843"N	80°34'58.2191"W	point
Shawn Harlan MSH 10H BHL Rev-8	7490.00	-9054.82	11430.29	1757737.89	14421002.11	39°42'31.9843"N	80°34'58.2191"W	point

WELLPATH COMPOSITION - Ref Wellbore: Shawn Harlan MSH 10H AWB Ref Wellpath: Shawn Harlan MSH 10H AWP Proj: 22183'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	539.00	OWSG MWD rev2 + HRGM	01_Premier MWD <17 1/2"> (152'-539')	Shawn Harlan MSH 10H AWB	1/22/2020
539.00	2683.00	OWSG MWD rev2 + HRGM	02_Premier MWD <12 1/4"> (604'-2683')	Shawn Harlan MSH 10H AWB	1/22/2020
2683.00	7398.00	OWSG MWD rev2 + HRGM	03_Premier MWD <8 3/4"> (2787'-7398')	Shawn Harlan MSH 10H AWB	1/22/2020
7398.00	22183.00	BH AutoTrak Curve (2019) (Short spacing)	04_BH AT Curve <8 1/2"> (7469'-22158')	Shawn Harlan MSH 10H AWB	1/23/2020

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Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 10H AWB
Slot	Slot #10		

COMMENTS
<p><b>Wellpath general comments</b>                      API: 47-051-02284-0000                      BH Job #: 110231337A                      Rig: SDC 46                      Duration: 01/23/2020 - 01/27/2020</p>

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