

SOUTHWESTERN ENERGY

Location: Marshall County, WV Slot: Slot #08
 Field: Marshall Well: Shawn Harlan MSH 8H
 Facility: Shawn Harlan MSH Pad Wellbore: Shawn Harlan MSH 8H PWB

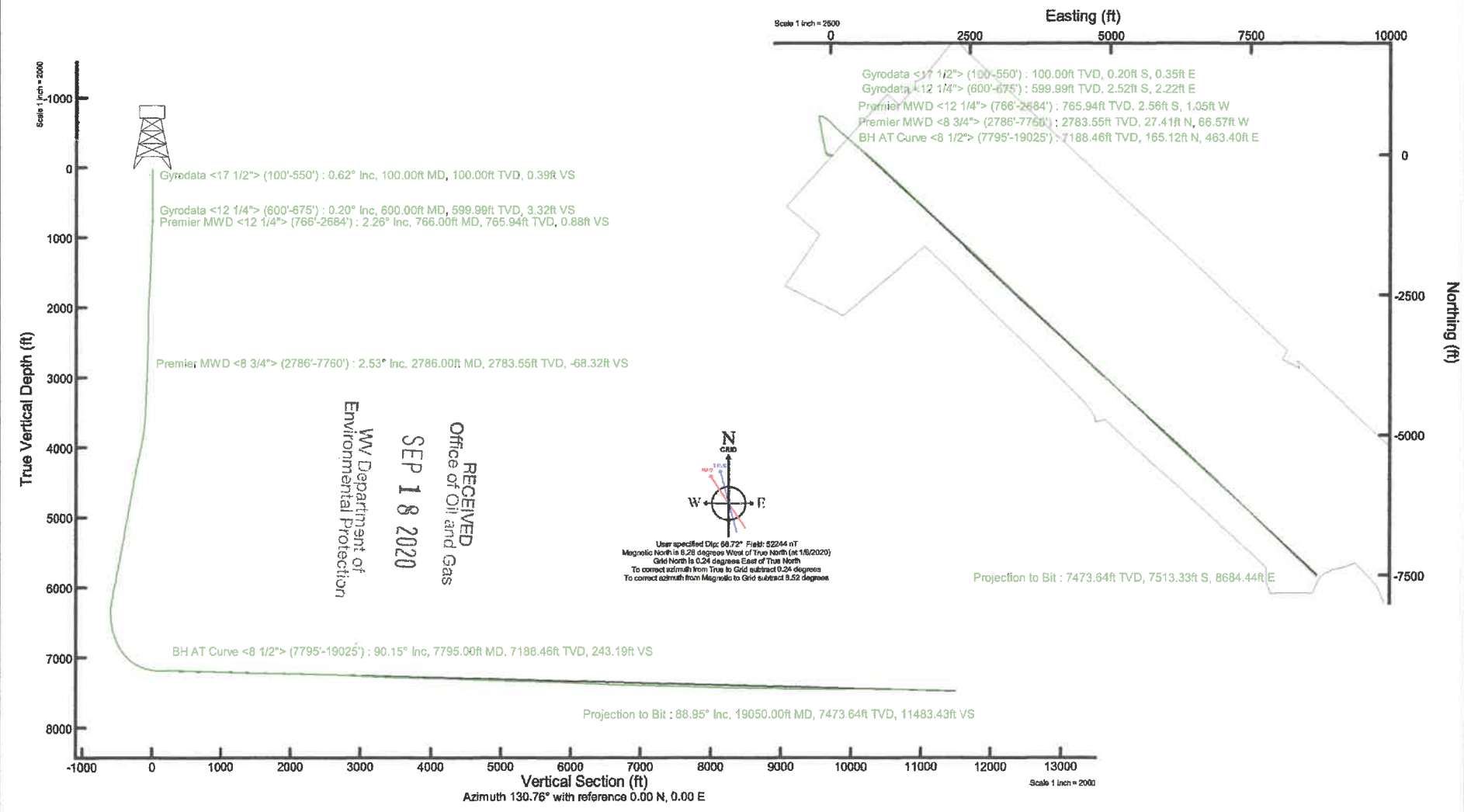


Location Information						
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Shawn Harlan MSH Pad		1746333.890	14430025.540	39°44'1.6940"N	80°37'23.7086"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #08	19.10	-14.97	1746318.930	14430044.630	39°44'1.8833"N	80°37'23.8991"W
SDC 46 (RKB) to Mud line (At Slot: Slot #08)				26ft		
Mean Sea Level to Mud line (At Slot: Slot #08)				-1391.3ft		
SDC 46 (RKB) to Mean Sea Level				1417.3ft		

Comments	
API: 47-051-02264-0000	
BH Job #: 110192719A	
Rig: SDC 46	
Duration: 01/09/2020 - 01/11/2020	

Plot reference wellpath is Shawn Harlan MSH 8H PWB Rev-A.0
 True vertical depths are referenced to SDC 46 (RKB)
 Reference wellpath measured depths are referenced to SDC 46 (RKB)
 SDC 46 (RKB) to Mean Sea Level: 1417.3 feet
 Mean Sea Level to Mud line (At Slot: Slot #08): -1391.3 feet
 Offset wellbore MDs are referenced to each path's default MD datum

Grid System: NAD83 / UTM Zone 17 North, US feet
 North Reference: Grid north
 Scale: True distance
 Coordinates are in feet referenced to Slot
 Depths are in feet
 Created by: atarjan on 2020-01-16; Database: WA_MPL_EASTERRMUS_Cref



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 8H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Atenjen
Scale	0.999613	Report Generated	1/16/2020 at 11:58:31 AM
Convergence at slot	0.24° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	19.10	-14.97	1746318.93	14430044.63	39°44'1.8833"N	80°37'23.8991"W
Facility Reference Pt			1746333.89	14430025.54	39°44'1.6940"N	80°37'23.7086"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.4780"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 46 (RKB) to Facility Vertical Datum	1417.30ft
Horizontal Reference Pt	Slot	SDC 46 (RKB) to Mean Sea Level	1417.30ft
Vertical Reference Pt	SDC 46 (RKB)	SDC 46 (RKB) to Mud Line at Slot (Slot #08)	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	130.76°

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Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

WELLPATH DATA (222 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	119.910	0.00	0.00	0.00	0.00	1746318.93	14430044.63	39°44'1.8833"N	80°37'23.8991"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	119.910	26.00	0.00	0.00	0.00	1746318.93	14430044.63	39°44'1.8833"N	80°37'23.8991"W	0.00	0.000	0.00	0.00	0.00
100.00	0.620	119.910	100.00	0.39	-0.20	0.35	1746319.28	14430044.43	39°44'1.8813"N	80°37'23.8947"W	0.40	119.910	0.84	0.84	0.00
150.00	0.530	129.680	150.00	0.89	-0.48	0.76	1746319.69	14430044.15	39°44'1.8785"N	80°37'23.8894"W	0.90	122.410	0.27	-0.18	19.54
200.00	0.420	132.200	199.99	1.30	-0.75	1.07	1746320.00	14430043.88	39°44'1.8758"N	80°37'23.8854"W	1.31	125.052	0.22	-0.22	5.04
250.00	0.310	137.580	249.99	1.62	-0.98	1.30	1746320.23	14430043.65	39°44'1.8736"N	80°37'23.8825"W	1.63	126.890	0.23	-0.22	10.76
300.00	0.300	130.570	299.99	1.89	-1.16	1.49	1746320.42	14430043.47	39°44'1.8718"N	80°37'23.8801"W	1.89	127.905	0.08	-0.02	-14.02
350.00	0.370	147.250	349.99	2.17	-1.38	1.68	1746320.61	14430043.25	39°44'1.8696"N	80°37'23.8777"W	2.17	129.476	0.24	0.14	33.36
400.00	0.320	146.800	399.99	2.46	-1.63	1.84	1746320.77	14430043.00	39°44'1.8671"N	80°37'23.8756"W	2.46	131.591	0.10	-0.10	-0.90
450.00	0.370	146.080	449.99	2.75	-1.89	2.01	1746320.94	14430042.75	39°44'1.8646"N	80°37'23.8735"W	2.75	133.193	0.10	0.10	-1.44
500.00	0.290	161.180	499.99	3.02	-2.14	2.14	1746321.07	14430042.49	39°44'1.8621"N	80°37'23.8718"W	3.02	135.000	0.24	-0.16	30.20
550.00	0.200	168.170	549.99	3.20	-2.34	2.20	1746321.13	14430042.29	39°44'1.8601"N	80°37'23.8711"W	3.21	136.847	0.19	-0.18	13.98
600.00	0.200	177.280	599.99	3.32	-2.52	2.22	1746321.15	14430042.11	39°44'1.8584"N	80°37'23.8708"W	3.36	138.588	0.06	0.00	18.22
650.00	0.700	255.850	649.99	3.21	-2.68	1.93	1746320.86	14430041.95	39°44'1.8568"N	80°37'23.8746"W	3.30	144.259	1.38	1.00	157.14
675.00	1.050	263.220	674.98	2.97	-2.74	1.55	1746320.48	14430041.89	39°44'1.8562"N	80°37'23.8794"W	3.15	150.496	1.47	1.40	29.48
766.00	2.260	279.060	765.94	0.88	-2.56	-1.05	1746317.88	14430042.07	39°44'1.8581"N	80°37'23.9127"W	2.77	202.269	1.41	1.33	17.41
876.00	3.410	281.020	875.81	-3.81	-1.59	-6.40	1746312.53	14430043.04	39°44'1.8679"N	80°37'23.9811"W	6.60	256.034	1.05	1.05	1.78
967.00	4.200	279.470	966.61	-9.01	-0.53	-12.34	1746306.59	14430044.10	39°44'1.8786"N	80°37'24.0571"W	12.36	267.559	0.88	0.87	-1.70
1057.00	4.570	264.320	1056.35	-14.29	-0.34	-19.16	1746299.77	14430044.29	39°44'1.8808"N	80°37'24.1444"W	19.17	268.987	1.35	0.41	-16.83
1147.00	4.280	250.560	1146.08	-18.43	-1.81	-25.90	1746293.04	14430042.82	39°44'1.8665"N	80°37'24.2307"W	25.96	265.999	1.22	-0.32	-15.29
1237.00	2.820	247.590	1235.91	-21.10	-3.77	-31.11	1746287.83	14430040.86	39°44'1.8473"N	80°37'24.2976"W	31.34	263.085	1.63	-1.62	-3.30
1328.00	2.090	250.810	1326.82	-22.94	-5.17	-34.75	1746284.19	14430039.46	39°44'1.8337"N	80°37'24.3442"W	35.13	261.534	0.82	-0.80	3.54
1418.00	2.530	253.500	1416.75	-24.84	-6.28	-38.20	1746280.74	14430038.36	39°44'1.8229"N	80°37'24.3885"W	38.72	260.671	0.50	0.49	2.99
1508.00	2.560	283.570	1506.66	-27.70	-6.37	-42.06	1746276.88	14430038.26	39°44'1.8221"N	80°37'24.4378"W	42.54	261.390	1.47	0.03	33.41
1599.00	3.030	305.020	1597.56	-31.90	-4.51	-46.01	1746272.94	14430040.12	39°44'1.8407"N	80°37'24.4882"W	46.23	264.400	1.25	0.52	23.57
1689.00	3.630	305.790	1687.40	-37.11	-1.48	-50.27	1746268.68	14430043.15	39°44'1.8708"N	80°37'24.5426"W	50.29	268.313	0.67	0.67	0.86
1779.00	4.120	298.690	1777.20	-43.11	1.74	-55.41	1746263.54	14430046.37	39°44'1.9028"N	80°37'24.6083"W	55.44	271.797	0.76	0.54	-7.89
1869.00	3.380	299.090	1867.01	-48.87	4.58	-60.57	1746258.39	14430049.21	39°44'1.9311"N	80°37'24.6741"W	60.74	274.325	0.82	-0.82	0.44
1960.00	1.540	305.910	1957.92	-52.71	6.60	-63.90	1746255.05	14430051.23	39°44'1.9512"N	80°37'24.7167"W	64.24	275.898	2.04	-2.02	7.49
2050.00	0.580	329.760	2047.90	-54.35	7.70	-65.11	1746253.84	14430052.33	39°44'1.9622"N	80°37'24.7321"W	65.57	276.748	1.15	-1.07	26.50

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Actual Wellpath Report

Shawn Harlan MSH 8H AWP Proj: 19050'
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Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

WELLPATH DATA (222 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]
2141.00	0.560	9.130	2138.90	-55.02	8.54	-65.27	1746253.68	14430053.17	39°44'1.9705"N	80°37'24.7342"W	65.83	277.455	0.42	-0.02	43.26
2231.00	1.210	7.870	2228.89	-55.77	9.92	-65.07	1746253.88	14430054.54	39°44'1.9840"N	80°37'24.7315"W	65.83	278.665	0.72	0.72	-1.40
2322.00	2.050	12.190	2319.85	-57.07	12.46	-64.60	1746254.36	14430057.09	39°44'2.0092"N	80°37'24.7253"W	65.79	280.917	0.93	0.92	4.75
2412.00	2.650	15.420	2409.77	-58.73	16.04	-63.71	1746255.25	14430060.66	39°44'2.0445"N	80°37'24.7137"W	65.69	284.132	0.68	0.67	3.59
2503.00	1.830	11.620	2500.70	-60.33	19.49	-62.85	1746256.10	14430064.11	39°44'2.0786"N	80°37'24.7026"W	65.81	287.228	0.92	-0.90	-4.18
2593.00	1.560	341.590	2590.67	-62.09	22.06	-62.95	1746256.00	14430066.68	39°44'2.1040"N	80°37'24.7037"W	66.70	289.312	1.02	-0.30	-33.37
2684.00	1.840	330.200	2681.63	-64.53	24.50	-64.07	1746254.89	14430069.12	39°44'2.1281"N	80°37'24.7179"W	68.59	290.930	0.48	0.31	-12.52
2786.00	2.530	311.430	2783.55	-68.32	27.41	-66.57	1746252.39	14430072.03	39°44'2.1570"N	80°37'24.7497"W	71.99	292.382	0.97	0.68	-18.40
2876.00	2.300	314.640	2873.47	-72.11	30.00	-69.34	1746249.61	14430074.62	39°44'2.1827"N	80°37'24.7851"W	75.55	293.393	0.30	-0.26	3.57
2967.00	2.540	312.630	2964.39	-75.95	32.65	-72.13	1746246.83	14430077.26	39°44'2.2090"N	80°37'24.8206"W	79.17	294.352	0.28	0.26	-2.21
3057.00	2.400	318.430	3054.31	-79.81	35.41	-74.84	1746244.11	14430080.02	39°44'2.2364"N	80°37'24.8552"W	82.80	295.317	0.32	-0.16	6.44
3148.00	2.300	314.260	3145.23	-83.52	38.11	-77.42	1746241.54	14430082.72	39°44'2.2631"N	80°37'24.8880"W	86.29	296.208	0.22	-0.11	-4.58
3238.00	2.220	308.970	3235.16	-87.06	40.46	-80.07	1746238.90	14430085.08	39°44'2.2865"N	80°37'24.9218"W	89.71	296.811	0.25	-0.09	-5.88
3329.00	2.320	310.510	3326.09	-90.67	42.77	-82.84	1746236.13	14430087.38	39°44'2.3094"N	80°37'24.9571"W	93.23	297.307	0.13	0.11	1.69
3420.00	2.610	343.170	3417.01	-94.26	45.95	-84.84	1746234.13	14430090.56	39°44'2.3409"N	80°37'24.9825"W	96.48	298.440	1.55	0.32	35.89
3510.00	2.650	350.960	3506.92	-97.58	49.96	-85.76	1746233.21	14430094.57	39°44'2.3807"N	80°37'24.9941"W	99.25	300.226	0.40	0.04	8.66
3601.00	4.660	345.030	3597.73	-102.24	55.61	-87.04	1746231.92	14430100.22	39°44'2.4366"N	80°37'25.0103"W	103.29	302.575	2.24	2.21	-6.52
3691.00	7.140	345.530	3687.24	-109.86	64.56	-89.38	1746229.58	14430109.17	39°44'2.5251"N	80°37'25.0398"W	110.26	305.841	2.76	2.76	0.56
3781.00	10.060	345.930	3776.22	-120.88	77.61	-92.69	1746226.27	14430122.21	39°44'2.6541"N	80°37'25.0814"W	120.89	309.937	3.25	3.24	0.44
3872.00	11.960	346.040	3865.54	-135.07	94.47	-96.90	1746222.07	14430139.06	39°44'2.8209"N	80°37'25.1344"W	135.33	314.271	2.09	2.09	0.12
3963.00	14.330	348.380	3954.15	-151.69	114.65	-101.44	1746217.52	14430159.24	39°44'3.0206"N	80°37'25.1914"W	153.09	318.497	2.67	2.60	2.57
4054.00	15.770	350.000	4042.03	-170.19	137.86	-105.86	1746213.11	14430182.44	39°44'3.2502"N	80°37'25.2467"W	173.82	322.480	1.65	1.58	1.78
4143.00	16.030	348.240	4127.62	-189.31	161.80	-110.47	1746208.51	14430206.37	39°44'3.4870"N	80°37'25.3044"W	195.91	325.678	0.62	0.29	-1.98
4234.00	14.820	346.200	4215.34	-208.76	185.41	-115.80	1746203.17	14430229.96	39°44'3.7204"N	80°37'25.3714"W	218.60	328.012	1.46	-1.33	-2.24
4324.00	14.350	347.030	4302.44	-227.13	207.45	-121.05	1746197.93	14430252.00	39°44'3.9385"N	80°37'25.4374"W	240.19	329.736	0.57	-0.52	0.92
4415.00	13.130	347.950	4390.84	-244.46	228.55	-125.74	1746193.24	14430273.09	39°44'4.1472"N	80°37'25.4963"W	260.86	331.182	1.36	-1.34	1.01
4504.00	13.580	348.150	4477.43	-260.82	248.66	-130.00	1746188.98	14430293.20	39°44'4.3462"N	80°37'25.5497"W	280.59	332.400	0.51	0.51	0.22
4595.00	13.630	350.590	4565.88	-277.54	269.70	-133.94	1746185.04	14430314.22	39°44'4.5542"N	80°37'25.5991"W	301.13	333.589	0.63	0.05	2.68
4685.00	13.790	352.480	4653.31	-293.69	290.79	-137.08	1746181.90	14430335.31	39°44'4.7628"N	80°37'25.6381"W	321.48	334.761	0.53	0.18	2.10
4776.00	13.350	350.050	4741.78	-309.91	311.89	-140.32	1746178.67	14430356.40	39°44'4.9715"N	80°37'25.6784"W	342.00	335.778	0.79	-0.48	-2.67

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Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

WELLPATH DATA (222 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]
4866.00	13.500	350.110	4829.32	-326.08	332.48	-143.91	1746175.07	14430376.98	39°44'5.1751"N	80°37'25.7234"W	362.29	336.594	0.17	0.17	0.07
4956.00	13.840	350.910	4916.77	-342.43	353.45	-147.42	1746171.57	14430397.95	39°44'5.3825"N	80°37'25.7671"W	382.97	337.360	0.43	0.38	0.89
5046.00	13.620	350.600	5004.19	-358.80	374.54	-150.85	1746168.14	14430419.02	39°44'5.5910"N	80°37'25.8099"W	403.78	338.062	0.26	-0.24	-0.34
5137.00	12.780	347.400	5092.79	-375.10	394.93	-154.80	1746164.19	14430439.41	39°44'5.7927"N	80°37'25.8593"W	424.19	338.597	1.22	-0.92	-3.52
5227.00	12.800	348.570	5180.56	-390.96	414.42	-158.94	1746160.05	14430458.89	39°44'5.9855"N	80°37'25.9113"W	443.85	339.016	0.29	0.02	1.30
5317.00	13.540	351.350	5268.19	-406.84	434.61	-162.50	1746156.49	14430479.07	39°44'6.1852"N	80°37'25.9558"W	463.99	339.499	1.08	0.82	3.09
5408.00	13.890	352.270	5356.60	-423.11	455.96	-165.58	1746153.42	14430500.41	39°44'6.3963"N	80°37'25.9940"W	485.09	340.042	0.45	0.38	1.01
5498.00	13.500	351.230	5444.04	-439.19	477.05	-168.63	1746150.37	14430521.49	39°44'6.6049"N	80°37'26.0320"W	505.98	340.532	0.51	-0.43	-1.16
5589.00	13.770	350.230	5532.47	-455.63	498.22	-172.09	1746146.91	14430542.66	39°44'6.8142"N	80°37'26.0751"W	527.10	340.945	0.39	0.30	-1.10
5680.00	13.380	346.600	5620.93	-472.53	519.14	-176.37	1746142.63	14430563.56	39°44'7.0211"N	80°37'26.1287"W	548.28	341.236	1.03	-0.43	-3.99
5770.00	14.010	347.330	5708.37	-489.72	539.89	-181.17	1746137.83	14430584.31	39°44'7.2265"N	80°37'26.1891"W	569.48	341.450	0.73	0.70	0.81
5860.00	15.210	349.740	5795.46	-507.65	562.14	-185.66	1746133.34	14430606.55	39°44'7.4465"N	80°37'26.2454"W	592.01	341.723	1.49	1.33	2.68
5950.00	14.890	349.230	5882.37	-525.88	585.12	-189.92	1746129.08	14430629.52	39°44'7.6738"N	80°37'26.2987"W	615.17	342.017	0.38	-0.36	-0.57
6041.00	14.340	346.150	5970.43	-544.22	607.55	-194.81	1746124.20	14430651.94	39°44'7.8956"N	80°37'26.3600"W	638.01	342.222	1.05	-0.60	-3.38
6131.00	12.740	350.430	6057.93	-560.95	628.16	-199.13	1746119.88	14430672.54	39°44'8.0995"N	80°37'26.4142"W	658.96	342.411	2.10	-1.78	4.76
6222.00	13.250	352.510	6146.60	-576.45	648.39	-202.15	1746116.86	14430692.77	39°44'8.2996"N	80°37'26.4519"W	679.17	342.684	0.76	0.56	2.29
6312.00	12.830	353.110	6234.28	-591.53	668.54	-204.70	1746114.31	14430712.91	39°44'8.4988"N	80°37'26.4833"W	699.17	342.976	0.49	-0.47	0.67
6403.00	7.130	13.440	6323.89	-601.60	684.08	-204.60	1746114.41	14430728.44	39°44'8.6523"N	80°37'26.4812"W	714.02	343.349	7.27	-6.26	22.34
6493.00	7.750	68.150	6413.24	-601.37	691.78	-197.66	1746121.35	14430736.14	39°44'8.7281"N	80°37'26.3920"W	719.46	344.054	7.60	0.69	60.79
6584.00	11.530	82.970	6502.95	-592.43	695.18	-182.93	1746136.07	14430739.53	39°44'8.7611"N	80°37'26.2033"W	718.84	345.257	4.94	4.15	16.29
6674.00	15.940	89.600	6590.37	-576.28	695.07	-161.69	1746157.31	14430739.43	39°44'8.7592"N	80°37'25.9314"W	713.63	346.905	5.90	4.90	14.03
6765.00	19.550	109.860	6677.07	-551.82	688.67	-134.91	1746184.07	14430733.04	39°44'8.6949"N	80°37'25.5889"W	701.76	348.916	6.18	3.97	15.67
6856.00	23.410	123.770	6761.79	-519.62	673.44	-105.53	1746213.44	14430717.80	39°44'8.5431"N	80°37'25.2137"W	681.66	351.094	7.00	4.24	15.29
6946.00	29.610	127.510	6842.29	-479.63	649.94	-73.00	1746245.96	14430694.31	39°44'8.3095"N	80°37'24.7985"W	654.02	353.592	7.13	6.89	4.16
7036.00	37.710	131.890	6917.15	-429.82	617.96	-34.80	1746284.14	14430662.35	39°44'7.9919"N	80°37'24.3113"W	618.94	356.777	9.39	9.00	4.87
7127.00	44.050	134.180	6985.92	-370.35	577.29	8.65	1746327.58	14430621.69	39°44'7.5881"N	80°37'23.7573"W	577.35	0.859	7.16	6.97	2.52
7218.00	51.670	136.390	7046.94	-303.15	529.32	56.03	1746374.94	14430573.75	39°44'7.1121"N	80°37'23.1534"W	532.28	6.042	8.56	8.37	2.43
7308.00	61.220	134.180	7096.63	-228.47	476.15	108.79	1746427.68	14430520.59	39°44'6.5844"N	80°37'22.4809"W	488.42	12.870	10.81	10.61	-2.46
7398.00	68.670	132.520	7134.72	-147.08	420.25	168.06	1746486.92	14430464.72	39°44'6.0295"N	80°37'21.7253"W	452.61	21.797	8.44	8.28	-1.84
7488.00	74.960	131.540	7162.80	-61.64	363.04	231.55	1746550.39	14430407.53	39°44'5.4615"N	80°37'20.9157"W	430.60	32.530	7.06	6.99	-1.09

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Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

WELLPATH DATA (222 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]
7534.00	79.210	131.560	7173.08	-16.82	333.31	265.09	1746583.92	14430377.81	39°44'5.1663"N	80°37'20.4879"W	425.88	38.497	9.24	9.24	0.04
7579.00	81.460	131.440	7180.63	27.54	303.92	298.32	1746617.13	14430348.43	39°44'4.8744"N	80°37'20.0643"W	425.86	44.467	5.01	5.00	-0.27
7624.00	86.560	130.860	7185.32	72.27	274.48	332.01	1746650.81	14430319.00	39°44'4.5821"N	80°37'19.6346"W	430.77	50.419	11.41	11.33	-1.29
7669.00	88.570	129.570	7187.24	117.23	245.45	366.34	1746685.12	14430289.99	39°44'4.2938"N	80°37'19.1968"W	440.96	56.177	5.31	4.47	-2.87
7760.00	89.880	129.660	7188.47	208.20	187.43	436.43	1746755.19	14430231.99	39°44'3.7175"N	80°37'18.3027"W	474.98	66.758	1.44	1.44	0.10
7795.00	90.150	129.550	7188.46	243.19	165.12	463.40	1746782.14	14430209.69	39°44'3.4959"N	80°37'17.9587"W	491.94	70.387	0.83	0.77	-0.31
7831.00	90.620	129.690	7188.22	279.18	142.17	491.12	1746809.86	14430186.74	39°44'3.2679"N	80°37'17.6050"W	511.29	73.856	1.36	1.31	0.39
7922.00	89.570	129.450	7188.06	370.16	84.20	561.27	1746879.98	14430128.79	39°44'2.6921"N	80°37'16.7103"W	567.55	81.469	1.18	-1.15	-0.26
8012.00	88.060	129.140	7189.93	460.11	27.21	630.90	1746949.59	14430071.83	39°44'2.1260"N	80°37'15.8221"W	631.49	87.530	1.71	-1.68	-0.34
8102.00	88.860	131.360	7192.34	550.07	-30.91	699.57	1747018.22	14430013.73	39°44'1.5487"N	80°37'14.9464"W	700.25	92.530	2.62	0.89	2.47
8192.00	88.310	131.870	7194.57	640.03	-90.67	766.83	1747085.46	14429954.00	39°44'0.9553"N	80°37'14.0886"W	772.17	96.743	0.83	-0.61	0.57
8282.00	87.660	131.210	7197.73	729.97	-150.31	834.15	1747152.76	14429894.38	39°44'0.3631"N	80°37'13.2301"W	847.59	100.215	1.03	-0.72	-0.73
8372.00	88.000	133.360	7201.14	819.86	-210.82	900.68	1747219.26	14429833.89	39°43'59.7623"N	80°37'12.3818"W	925.03	103.174	2.42	0.38	2.39
8463.00	88.210	133.210	7204.15	910.73	-273.18	966.89	1747285.44	14429771.56	39°43'59.1433"N	80°37'11.5378"W	1004.74	105.777	0.28	0.23	-0.16
8553.00	88.650	133.640	7206.62	1000.59	-335.02	1032.23	1747350.76	14429709.74	39°43'58.5294"N	80°37'10.7048"W	1085.24	107.981	0.68	0.49	0.48
8644.00	88.650	132.760	7208.76	1091.49	-397.29	1098.55	1747417.05	14429647.49	39°43'57.9111"N	80°37'9.8593"W	1168.18	109.883	0.97	0.00	-0.97
8735.00	88.370	132.070	7211.13	1182.42	-458.65	1165.71	1747484.18	14429586.16	39°43'57.3019"N	80°37'9.0030"W	1252.69	111.477	0.82	-0.31	-0.76
8825.00	88.120	132.960	7213.88	1272.33	-519.44	1232.02	1747550.47	14429525.39	39°43'56.6984"N	80°37'8.1576"W	1337.04	112.861	1.03	-0.28	0.99
8915.00	88.430	133.050	7216.59	1362.22	-580.80	1297.80	1747616.23	14429464.05	39°43'56.0892"N	80°37'7.3189"W	1421.84	114.110	0.36	0.34	0.10
9006.00	88.680	133.230	7218.89	1453.11	-643.01	1364.18	1747682.58	14429401.87	39°43'55.4717"N	80°37'6.4727"W	1508.13	115.237	0.34	0.27	0.20
9096.00	88.610	132.560	7221.01	1543.03	-704.25	1430.10	1747748.47	14429340.66	39°43'54.8637"N	80°37'5.6323"W	1594.10	116.218	0.75	-0.08	-0.74
9186.00	88.550	132.700	7223.24	1632.95	-765.18	1496.29	1747814.64	14429279.75	39°43'54.2587"N	80°37'4.7884"W	1680.59	117.085	0.17	-0.07	0.16
9277.00	88.620	132.770	7225.49	1723.87	-826.92	1563.11	1747881.43	14429218.04	39°43'53.6458"N	80°37'3.9365"W	1768.36	117.880	0.11	0.08	0.08
9367.00	88.650	133.110	7227.64	1813.78	-888.21	1628.98	1747947.28	14429156.77	39°43'53.0373"N	80°37'3.0967"W	1855.40	118.602	0.38	0.03	0.38
9458.00	88.710	133.210	7229.73	1904.67	-950.44	1695.34	1748013.61	14429094.56	39°43'52.4194"N	80°37'2.2507"W	1943.58	119.276	0.13	0.07	0.11
9548.00	88.340	133.080	7232.05	1994.57	-1011.97	1760.99	1748079.23	14429033.06	39°43'51.8086"N	80°37'1.4139"W	2031.05	119.884	0.44	-0.41	-0.14
9639.00	88.770	132.740	7234.34	2085.47	-1073.90	1827.62	1748145.83	14428971.14	39°43'51.1937"N	80°37'0.5645"W	2119.78	120.438	0.60	0.47	-0.37
9729.00	88.400	132.550	7236.57	2175.40	-1134.86	1893.80	1748211.99	14428910.22	39°43'50.5885"N	80°36'59.7207"W	2207.80	120.932	0.46	-0.41	-0.21
9819.00	88.370	132.840	7239.10	2265.31	-1195.86	1959.92	1748278.08	14428849.24	39°43'49.9829"N	80°36'58.8778"W	2295.94	121.390	0.32	-0.03	0.32
9909.00	88.770	133.190	7241.35	2355.21	-1257.24	2025.70	1748343.84	14428787.88	39°43'49.3735"N	80°36'58.0391"W	2384.14	121.826	0.59	0.44	0.39

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Actual Wellpath Report

Shawn Harlan MSH 8H AWP Proj: 19050'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 8H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

WELLPATH DATA (222 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]
9999.00	88.370	132.830	7243.59	2445.11	-1318.61	2091.49	1748409.61	14428726.53	39°43'48.7642"N	80°36'57.2004"W	2472.46	122.230	0.60	-0.44	-0.40
10090.00	89.050	132.000	7245.64	2536.05	-1379.97	2158.66	1748476.75	14428665.19	39°43'48.1549"N	80°36'56.3441"W	2562.06	122.590	1.18	0.75	-0.91
10180.00	87.780	131.650	7248.13	2626.00	-1439.97	2225.70	1748543.76	14428605.22	39°43'47.5592"N	80°36'55.4894"W	2650.89	122.902	1.46	-1.41	-0.39
10270.00	89.170	133.420	7250.53	2715.92	-1500.78	2291.99	1748610.03	14428544.43	39°43'46.9553"N	80°36'54.6442"W	2739.63	123.217	2.50	1.54	1.97
10361.00	87.040	130.410	7253.54	2806.83	-1561.53	2359.65	1748677.67	14428483.71	39°43'46.3521"N	80°36'53.7815"W	2829.55	123.495	4.05	-2.34	-3.31
10451.00	87.600	132.410	7257.75	2896.72	-1620.99	2427.08	1748745.06	14428424.27	39°43'45.7616"N	80°36'52.9218"W	2918.62	123.738	2.31	0.62	2.22
10542.00	87.350	133.430	7261.75	2987.57	-1682.90	2493.65	1748811.61	14428362.38	39°43'45.1470"N	80°36'52.0731"W	3008.40	124.014	1.15	-0.27	1.12
10632.00	87.510	133.000	7265.79	3077.40	-1744.47	2559.18	1748877.11	14428300.84	39°43'44.5358"N	80°36'51.2379"W	3097.18	124.280	0.51	0.18	-0.48
10723.00	88.120	133.680	7269.26	3168.24	-1806.88	2625.31	1748943.22	14428238.46	39°43'43.9162"N	80°36'50.3948"W	3187.01	124.538	1.00	0.67	0.75
10813.00	87.510	132.720	7272.69	3258.09	-1868.44	2690.87	1749008.75	14428176.92	39°43'43.3050"N	80°36'49.5592"W	3275.95	124.775	1.26	-0.68	-1.07
10903.00	87.540	133.420	7276.58	3347.93	-1929.84	2756.55	1749074.41	14428115.54	39°43'42.6953"N	80°36'48.7218"W	3364.95	124.996	0.78	0.03	0.78
10994.00	87.290	134.670	7280.68	3438.69	-1993.04	2821.90	1749139.73	14428052.36	39°43'42.0680"N	80°36'47.8890"W	3454.75	125.233	1.40	-0.27	1.37
11084.00	87.570	133.900	7284.72	3528.43	-2055.82	2886.26	1749204.07	14427989.61	39°43'41.4448"N	80°36'47.0687"W	3543.57	125.461	0.91	0.31	-0.86
11175.00	88.740	134.800	7287.65	3619.20	-2119.40	2951.30	1749269.08	14427926.06	39°43'40.8137"N	80°36'46.2398"W	3633.45	125.683	1.62	1.29	0.99
11265.00	87.970	133.470	7290.23	3709.00	-2182.04	3015.86	1749333.62	14427863.44	39°43'40.1919"N	80°36'45.4169"W	3722.46	125.887	1.71	-0.86	-1.48
11355.00	88.400	133.210	7293.08	3798.87	-2243.78	3081.28	1749399.01	14427801.73	39°43'39.5789"N	80°36'44.5830"W	3811.67	126.062	0.56	0.48	-0.29
11446.00	86.740	132.200	7296.94	3889.73	-2305.44	3148.09	1749465.80	14427740.09	39°43'38.9667"N	80°36'43.7314"W	3901.99	126.216	2.13	-1.82	-1.11
11536.00	90.340	133.970	7299.23	3979.61	-2366.88	3213.79	1749531.47	14427678.67	39°43'38.3567"N	80°36'42.8939"W	3991.31	126.371	4.46	4.00	1.97
11626.00	89.420	132.930	7299.42	4069.50	-2428.78	3279.12	1749596.78	14427616.80	39°43'37.7422"N	80°36'42.0612"W	4080.64	126.527	1.54	-1.02	-1.16
11717.00	88.310	131.560	7301.22	4160.45	-2489.94	3346.47	1749664.10	14427555.66	39°43'37.1348"N	80°36'41.2026"W	4171.17	126.651	1.94	-1.22	-1.51
11807.00	88.000	131.490	7304.12	4250.40	-2549.58	3413.82	1749731.42	14427496.05	39°43'36.5426"N	80°36'40.3439"W	4260.81	126.754	0.35	-0.34	-0.08
11898.00	87.630	133.010	7307.59	4341.30	-2610.72	3481.13	1749798.70	14427434.93	39°43'35.9355"N	80°36'39.4859"W	4351.33	126.869	1.72	-0.41	1.67
11988.00	88.710	133.680	7310.47	4431.16	-2672.46	3546.54	1749864.09	14427373.21	39°43'35.3225"N	80°36'38.6521"W	4440.72	126.999	1.41	1.20	0.74
12078.00	88.150	132.270	7312.93	4521.05	-2733.78	3612.36	1749929.89	14427311.91	39°43'34.7136"N	80°36'37.8131"W	4530.20	127.118	1.69	-0.62	-1.57
12168.00	87.450	133.300	7316.39	4610.93	-2794.87	3678.37	1749995.86	14427250.85	39°43'34.1071"N	80°36'36.9717"W	4619.71	127.228	1.38	-0.78	1.14
12258.00	88.800	134.380	7319.33	4700.75	-2857.17	3743.24	1750060.72	14427188.57	39°43'33.4886"N	80°36'36.1449"W	4709.07	127.354	1.92	1.50	1.20
12349.00	88.490	133.000	7321.48	4791.60	-2920.01	3809.02	1750126.47	14427125.75	39°43'32.8647"N	80°36'35.3065"W	4799.49	127.474	1.55	-0.34	-1.52
12439.00	88.120	132.870	7324.15	4881.50	-2981.29	3874.89	1750192.31	14427064.50	39°43'32.2563"N	80°36'34.4669"W	4889.05	127.574	0.44	-0.41	-0.14
12529.00	87.690	133.950	7327.44	4971.34	-3043.10	3940.22	1750257.62	14427002.72	39°43'31.6427"N	80°36'33.6342"W	4978.53	127.679	1.29	-0.48	1.20
12619.00	89.110	133.440	7329.95	5061.18	-3105.25	4005.27	1750322.64	14426940.59	39°43'31.0257"N	80°36'32.8052"W	5068.01	127.786	1.88	1.58	-0.57

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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]
12709.00	87.660	132.230	7332.49	5151.09	-3166.41	4071.24	1750388.58	14426879.45	39°43'30.4184"N	80°36'31.9643"W	5157.63	127.874	2.10	-1.61	-1.34
12799.00	88.060	133.660	7335.85	5240.95	-3227.68	4137.07	1750454.39	14426818.21	39°43'29.8100"N	80°36'31.1252"W	5247.22	127.961	1.65	0.44	1.59
12890.00	88.710	133.780	7338.41	5331.80	-3290.55	4202.81	1750520.11	14426755.36	39°43'29.1859"N	80°36'30.2873"W	5337.73	128.059	0.73	0.71	0.13
12980.00	88.150	132.860	7340.88	5421.67	-3352.27	4268.26	1750585.53	14426693.66	39°43'28.5731"N	80°36'29.4531"W	5427.32	128.146	1.20	-0.62	-1.02
13070.00	88.370	133.480	7343.61	5511.55	-3413.82	4333.87	1750651.12	14426632.14	39°43'27.9620"N	80°36'28.6169"W	5516.94	128.228	0.73	0.24	0.69
13161.00	87.750	133.000	7346.69	5602.41	-3476.12	4400.13	1750717.34	14426569.86	39°43'27.3434"N	80°36'27.7724"W	5607.54	128.309	0.86	-0.68	-0.53
13251.00	87.850	133.640	7350.14	5692.26	-3537.82	4465.56	1750782.75	14426508.18	39°43'26.7308"N	80°36'26.9385"W	5697.14	128.388	0.72	0.11	0.71
13342.00	88.000	134.000	7353.44	5783.07	-3600.79	4531.17	1750848.34	14426445.24	39°43'26.1057"N	80°36'26.1023"W	5787.68	128.473	0.43	0.16	0.40
13432.00	87.970	133.430	7356.60	5872.89	-3662.95	4596.18	1750913.32	14426383.11	39°43'25.4886"N	80°36'25.2738"W	5877.25	128.553	0.63	-0.03	-0.63
13522.00	87.540	133.630	7360.13	5962.72	-3724.88	4661.38	1750978.50	14426321.19	39°43'24.8736"N	80°36'24.4428"W	5966.85	128.628	0.53	-0.48	0.22
13612.00	88.550	134.200	7363.20	6052.53	-3787.27	4726.18	1751043.27	14426258.83	39°43'24.2543"N	80°36'23.6170"W	6056.42	128.707	1.29	1.12	0.63
13703.00	87.480	132.730	7366.35	6143.37	-3849.83	4792.18	1751109.25	14426196.30	39°43'23.6332"N	80°36'22.7758"W	6147.05	128.777	2.00	-1.18	-1.62
13793.00	87.170	134.420	7370.55	6233.16	-3911.80	4857.31	1751174.35	14426134.35	39°43'23.0179"N	80°36'21.9458"W	6236.64	128.846	1.91	-0.34	1.88
13884.00	88.190	134.900	7374.24	6323.87	-3975.71	4921.98	1751239.00	14426070.47	39°43'22.3835"N	80°36'21.1217"W	6327.10	128.929	1.24	1.12	0.53
13974.00	88.000	133.710	7377.23	6413.65	-4038.54	4986.35	1751303.34	14426007.67	39°43'21.7598"N	80°36'20.3014"W	6416.66	129.005	1.34	-0.21	-1.32
14064.00	87.630	133.120	7380.66	6503.48	-4100.34	5051.68	1751368.65	14425945.88	39°43'21.1461"N	80°36'19.4689"W	6506.33	129.066	0.77	-0.41	-0.66
14155.00	87.660	133.440	7384.40	6594.32	-4162.68	5117.87	1751434.81	14425883.57	39°43'20.5272"N	80°36'18.6253"W	6597.01	129.124	0.35	0.03	0.35
14246.00	87.230	133.190	7388.46	6685.14	-4225.04	5184.02	1751500.93	14425821.23	39°43'19.9080"N	80°36'17.7823"W	6687.68	129.180	0.55	-0.47	-0.27
14336.00	88.120	135.760	7392.11	6774.87	-4288.04	5248.18	1751565.07	14425758.26	39°43'19.2826"N	80°36'16.9647"W	6777.22	129.251	3.02	0.99	2.86
14426.00	88.950	133.670	7394.41	6864.62	-4351.34	5312.11	1751628.97	14425694.99	39°43'18.6543"N	80°36'16.1501"W	6866.78	129.322	2.50	0.92	-2.32
14517.00	88.250	132.570	7396.63	6955.51	-4413.52	5378.51	1751695.35	14425632.83	39°43'18.0369"N	80°36'15.3038"W	6957.55	129.372	1.43	-0.77	-1.21
14607.00	88.680	133.740	7399.04	7045.40	-4475.05	5444.14	1751760.95	14425571.32	39°43'17.4259"N	80°36'14.4674"W	7047.32	129.420	1.38	0.48	1.30
14698.00	88.550	133.530	7401.24	7136.26	-4537.83	5509.99	1751826.77	14425508.57	39°43'16.8026"N	80°36'13.6283"W	7138.06	129.474	0.27	-0.14	-0.23
14788.00	88.310	134.670	7403.71	7226.07	-4600.44	5574.59	1751891.35	14425445.98	39°43'16.1811"N	80°36'12.8051"W	7227.73	129.531	1.29	-0.27	1.27
14878.00	89.140	133.590	7405.71	7315.89	-4663.09	5639.17	1751955.91	14425383.36	39°43'15.5591"N	80°36'11.9821"W	7317.42	129.588	1.51	0.92	-1.20
14968.00	88.150	133.880	7407.84	7405.74	-4725.29	5704.18	1752020.89	14425321.18	39°43'14.9415"N	80°36'11.1537"W	7407.16	129.638	1.15	-1.10	0.32
15058.00	88.590	133.650	7410.40	7495.58	-4787.51	5769.15	1752085.84	14425258.98	39°43'14.3237"N	80°36'10.3257"W	7496.89	129.687	0.55	0.49	-0.26
15149.00	88.000	133.540	7413.11	7586.43	-4850.24	5835.03	1752151.69	14425196.28	39°43'13.7010"N	80°36'9.4863"W	7587.64	129.734	0.66	-0.65	-0.12
15239.00	88.770	133.130	7415.64	7676.30	-4911.97	5900.46	1752217.10	14425134.57	39°43'13.0880"N	80°36'8.6524"W	7677.43	129.776	0.97	0.86	-0.46
15329.00	87.940	133.210	7418.23	7766.18	-4973.52	5966.07	1752282.68	14425073.04	39°43'12.4768"N	80°36'7.8162"W	7767.24	129.816	0.93	-0.92	0.09

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REFERENCE WELLPATH IDENTIFICATION			
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Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWP
Slot	Slot #08		

WELLPATH DATA (222 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]
15419.00	88.680	132.910	7420.88	7856.07	-5034.95	6031.80	1752348.39	14425011.64	39°43'11.8669"N	80°36'6.9785"W	7857.06	129.853	0.89	0.82	-0.33
15510.00	88.550	133.630	7423.08	7946.96	-5097.30	6098.04	1752414.60	14424949.31	39°43'11.2478"N	80°36'6.1344"W	7947.87	129.892	0.80	-0.14	0.79
15600.00	88.210	132.720	7425.63	8036.84	-5158.86	6163.65	1752480.18	14424887.78	39°43'10.6366"N	80°36'5.2983"W	8037.69	129.929	1.08	-0.38	-1.01
15690.00	88.340	131.990	7428.33	8126.76	-5219.46	6230.13	1752546.63	14424827.20	39°43'10.0347"N	80°36'4.4510"W	8127.56	129.956	0.82	0.14	-0.81
15780.00	89.020	132.900	7430.41	8216.70	-5280.19	6296.52	1752613.00	14424766.50	39°43'9.4317"N	80°36'3.6048"W	8217.46	129.983	1.26	0.76	1.01
15871.00	88.740	131.360	7432.19	8307.65	-5341.22	6364.00	1752680.45	14424705.49	39°43'8.8256"N	80°36'2.7448"W	8308.37	130.006	1.72	-0.31	-1.69
15962.00	89.020	132.130	7433.97	8398.62	-5401.79	6431.88	1752748.31	14424644.94	39°43'8.2239"N	80°36'1.8795"W	8399.31	130.025	0.90	0.31	0.85
16052.00	88.650	131.960	7435.80	8488.58	-5462.06	6498.70	1752815.10	14424584.70	39°43'7.6254"N	80°36'1.0278"W	8489.24	130.047	0.45	-0.41	-0.19
16142.00	89.260	132.660	7437.44	8578.53	-5522.63	6565.24	1752881.62	14424524.15	39°43'7.0239"N	80°36'0.1797"W	8579.15	130.070	1.03	0.68	0.78
16233.00	89.170	132.680	7438.68	8669.47	-5584.30	6632.15	1752948.50	14424462.50	39°43'6.4114"N	80°35'59.3271"W	8670.05	130.098	0.10	-0.10	0.02
16323.00	89.450	133.010	7439.77	8759.41	-5645.50	6698.13	1753014.45	14424401.33	39°43'5.8037"N	80°35'58.4862"W	8759.94	130.126	0.48	0.31	0.37
16414.00	88.950	131.720	7441.04	8850.36	-5706.81	6765.36	1753081.66	14424340.04	39°43'5.1948"N	80°35'57.6294"W	8850.86	130.149	1.52	-0.55	-1.42
16504.00	89.140	132.640	7442.54	8940.32	-5767.23	6832.04	1753148.31	14424279.64	39°43'4.5947"N	80°35'56.7795"W	8940.79	130.169	1.04	0.21	1.02
16594.00	89.110	132.430	7443.91	9030.26	-5828.07	6898.35	1753214.60	14424218.83	39°43'3.9906"N	80°35'55.9344"W	9030.71	130.193	0.24	-0.03	-0.23
16684.00	89.230	132.210	7445.22	9120.22	-5888.66	6964.89	1753281.11	14424158.27	39°43'3.3889"N	80°35'55.0864"W	9120.64	130.214	0.28	0.13	-0.24
16774.00	89.510	132.920	7446.21	9210.17	-5949.53	7031.17	1753347.37	14424097.41	39°43'2.7843"N	80°35'54.2417"W	9210.55	130.237	0.85	0.31	0.79
16864.00	89.540	132.690	7446.95	9300.11	-6010.68	7097.20	1753413.37	14424036.28	39°43'2.1771"N	80°35'53.4002"W	9300.46	130.262	0.26	0.03	-0.26
16955.00	89.630	133.130	7447.61	9391.04	-6072.64	7163.85	1753479.99	14423974.35	39°43'1.5618"N	80°35'52.5509"W	9391.36	130.287	0.49	0.10	0.48
17045.00	89.320	131.980	7448.44	9480.99	-6133.50	7230.14	1753546.26	14423913.51	39°43'0.9574"N	80°35'51.7060"W	9481.29	130.309	1.32	-0.34	-1.28
17136.00	89.600	132.690	7449.29	9571.95	-6194.78	7297.41	1753613.50	14423852.26	39°43'0.3488"N	80°35'50.8488"W	9572.23	130.328	0.84	0.31	0.78
17225.00	89.230	132.410	7450.20	9660.91	-6254.97	7362.97	1753679.03	14423792.10	39°42'59.7511"N	80°35'50.0133"W	9661.16	130.348	0.52	-0.42	-0.31
17316.00	89.080	133.340	7451.54	9751.83	-6316.88	7429.65	1753745.69	14423730.21	39°42'59.1363"N	80°35'49.1635"W	9752.06	130.372	1.04	-0.16	1.02
17406.00	89.380	133.790	7452.75	9841.72	-6378.90	7494.86	1753810.87	14423668.22	39°42'58.5205"N	80°35'48.3327"W	9841.91	130.401	0.60	0.33	0.50
17497.00	89.350	133.210	7453.76	9932.61	-6441.53	7560.86	1753876.85	14423605.61	39°42'57.8985"N	80°35'47.4916"W	9932.77	130.430	0.64	-0.03	-0.64
17587.00	89.660	134.020	7454.54	10022.49	-6503.61	7626.02	1753941.98	14423543.55	39°42'57.2821"N	80°35'46.6614"W	10022.63	130.458	0.96	0.34	0.90
17678.00	89.540	133.410	7455.17	10113.37	-6566.50	7691.79	1754007.73	14423480.69	39°42'56.6577"N	80°35'45.8234"W	10113.48	130.487	0.68	-0.13	-0.67
17768.00	89.820	133.690	7455.68	10203.26	-6628.51	7757.02	1754072.93	14423418.70	39°42'56.0420"N	80°35'44.9923"W	10203.35	130.514	0.44	0.31	0.31
17858.00	89.540	133.760	7456.18	10293.14	-6690.71	7822.06	1754137.94	14423356.52	39°42'55.4243"N	80°35'44.1636"W	10293.21	130.543	0.32	-0.31	0.08
17949.00	89.690	133.290	7456.79	10384.03	-6753.38	7888.04	1754203.90	14423293.88	39°42'54.8021"N	80°35'43.3229"W	10384.09	130.569	0.54	0.16	-0.52
18039.00	89.420	134.120	7457.49	10473.91	-6815.56	7953.10	1754268.93	14423231.72	39°42'54.1846"N	80°35'42.4939"W	10473.95	130.596	0.97	-0.30	0.92

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Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

WELLPATH DATA (222 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]
18130.00	89.660	134.640	7458.22	10564.72	-6879.21	8018.13	1754333.94	14423168.10	39°42'53.5528"N	80°35'41.6654"W	10564.75	130.628	0.63	0.26	0.57
18219.00	89.570	133.830	7458.82	10653.56	-6941.29	8081.90	1754397.68	14423106.04	39°42'52.9364"N	80°35'40.8530"W	10653.57	130.658	0.92	-0.10	-0.91
18310.00	89.420	133.190	7459.62	10744.45	-7003.94	8147.89	1754463.65	14423043.42	39°42'52.3143"N	80°35'40.0121"W	10744.46	130.682	0.72	-0.16	-0.70
18400.00	89.050	132.690	7460.82	10834.37	-7065.25	8213.77	1754529.51	14422982.13	39°42'51.7055"N	80°35'39.1727"W	10834.38	130.701	0.69	-0.41	-0.56
18490.00	88.710	133.310	7462.58	10924.29	-7126.61	8279.58	1754595.29	14422920.79	39°42'51.0960"N	80°35'38.3341"W	10924.29	130.720	0.79	-0.38	0.69
18580.00	88.890	133.250	7464.47	11014.18	-7188.30	8345.09	1754660.77	14422859.13	39°42'50.4835"N	80°35'37.4994"W	11014.18	130.741	0.21	0.20	-0.07
18670.00	88.890	133.400	7466.21	11104.07	-7250.04	8410.55	1754726.21	14422797.41	39°42'49.8704"N	80°35'36.6654"W	11104.07	130.762	0.17	0.00	0.17
18761.00	88.800	133.640	7468.04	11194.95	-7312.69	8476.52	1754792.15	14422734.78	39°42'49.2483"N	80°35'35.8248"W	11194.95	130.784	0.28	-0.10	0.26
18851.00	88.890	134.750	7469.86	11284.77	-7375.42	8541.04	1754856.64	14422672.08	39°42'48.6255"N	80°35'35.0029"W	11284.77	130.812	1.24	0.10	1.23
18942.00	88.890	133.550	7471.62	11375.59	-7438.79	8606.32	1754921.90	14422608.74	39°42'47.9963"N	80°35'34.1713"W	11375.60	130.838	1.32	0.00	-1.32
19025.00	88.950	133.720	7473.19	11458.47	-7496.05	8666.38	1754981.93	14422551.49	39°42'47.4276"N	80°35'33.4060"W	11458.49	130.858	0.22	0.07	0.20
19050.00‡	88.950	133.720	7473.64	11483.43	-7513.33	8684.44	1754999.99	14422534.22	39°42'47.2561"N	80°35'33.1759"W	11483.45	130.865	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Shawn Harlan MSH 8H AWB Ref Wellpath: Shawn Harlan MSH 8H AWP Proj: 19050'									
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	-0.20	0.35
17.5in Open Hole	100.00	590.00	490.00	100.00	589.99	-0.20	0.35	-2.48	2.22
13.375in Casing Surface	26.00	590.00	564.00	26.00	589.99	0.00	0.00	-2.48	2.22
12.25in Open Hole	590.00	2732.00	2142.00	589.99	2729.60	-2.48	2.22	25.86	-65.03
9.625in Casing Intermediate	26.00	2732.00	2706.00	26.00	2729.60	0.00	0.00	25.86	-65.03
8.75in Open Hole	2732.00	7820.00	5088.00	2729.60	7188.32	25.86	-65.03	149.19	482.66
8.5in Open Hole	7820.00	19050.00	11230.00	7188.32	7473.64	149.19	482.66	-7513.33	8684.44
5.5in Casing Production	26.00	19050.00	19024.00	26.00	7473.64	0.00	0.00	-7513.33	8684.44

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Slot	Slot #08		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Shawn Harlan MSH 8H LP Rev-4	7189.00	267.13	330.27	1746649.08	14430311.66	39°44'4.5096"N	80°37'19.6572"W	point
Shawn Harlan MSH 8H BHL Rev-5	7480.36	-7496.82	8698.56	1755014.10	14422550.73	39°42'47.4186"N	80°35'32.9943"W	point

WELLPATH COMPOSITION - Ref Wellbore: Shawn Harlan MSH 8H AWB Ref Wellpath: Shawn Harlan MSH 8H AWP Proj: 19050'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	550.00	Gyrodatta 2015 - GC+WIR+DPIPE	01 Gyrodatta <17 1/2"> (100'-550')	Shawn Harlan MSH 8H AWB	1/9/2020
550.00	675.00	Gyrodatta 2015 - GC+WIR+DPIPE	02 Gyrodatta <12 1/4"> (600'-675')	Shawn Harlan MSH 8H AWB	1/9/2020
675.00	2684.00	OWSG MWD rev2 + HRGM	03 Premier MWD <12 1/4"> (766'-2684')	Shawn Harlan MSH 8H AWB	1/9/2020
2684.00	7760.00	OWSG MWD rev2 + HRGM	04 Premier MWD <8 3/4"> (2786'-7760')	Shawn Harlan MSH 8H AWB	1/9/2020
7760.00	19050.00	BH AutoTrak Curve (2019) (Short spacing)	05 BH AT Curve <8 1/2"> (7795'-19025')	Shawn Harlan MSH 8H AWB	1/9/2020

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Well	Shawn Harlan MSH 8H
Field	Marshall	API/Legal	
Facility	Shawn Harlan MSH Pad	Wellbore	Shawn Harlan MSH 8H AWB
Slot	Slot #08		

COMMENTS
<p>Wellpath general comments API: 47-051-02264-0000 BH Job #: 110192719A Rig: SDC 46 Duration: 01/09/2020 - 01/11/2020</p>

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