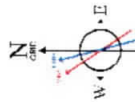


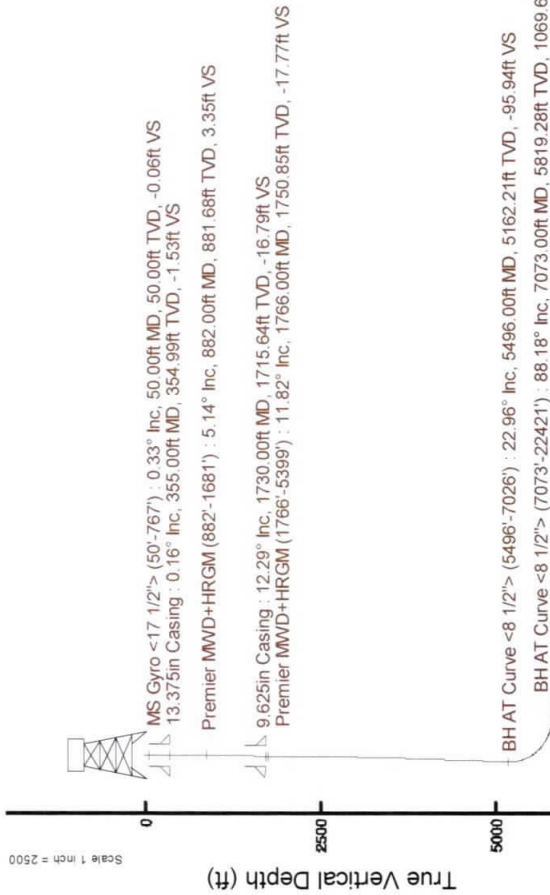
SOUTHWESTERN ENERGY

Location: Ohio County, WV
 Slot: Slot 206H
 Well: Rayle Coal OHI 206H PWB
 Facility: Rayle Coal OHI Pad Wellbore: Rayle Coal OHI 206H PWB

Plot reference wellpath is: Rayle Coal OHI 206H PWP Rev-B.0
 Grid System: NAD83 / UTM Zone 17 North, US feet
 North Reference: Grid north
 True vertical depths are referenced to SDC 41 (KB)
 Measured depths are referenced to SDC 41 (KB)
 SDC 41 (KB) to Mean Sea Level: 1089.8 feet
 Mean Sea Level to Ground level (At Slot Slot 206H): -1063.8 feet
 Coordinates are in feet referenced to Slot



User specified Dip: 67.54° Field: 52593 nT
 Magnetic North is 8.09 degrees West of True North (at 03/Sep/2018)
 To correct azimuth from True North to Grid subtract 8.33 degrees
 To correct azimuth from Magnetic to Grid subtract 8.33 degrees



Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Rayle Coal OHI Pad	1744951.331	14586677.739	40°09'40.581"N	80°37'40.786"W
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)	Grid North (US ft)
Slot 206H	92.50	316.82	1744668.030	14586770.200
SDC 41 (KB) to Ground level (At Slot Slot 206H)			26ft	
Mean Sea Level to Ground level (At Slot Slot 206H)			-1063.8ft	
SDC 41 (KB) to Mean Sea Level			1089.8ft	

Comments

API: 47-069-00270-0000
 BH Job #: 109326130
 Rig: SDC 41
 Duration: 09/02/2018 - 09/11/2018

Scale 1 inch = 4000

Easting (ft)

Northing (ft)

MS Gyro <math><17 1/2^\circ ><(50^\circ-767^\circ)><: 50.00\text{ft TVD, } 0.06\text{ft N, } 0.03\text{ft E}</math>
 Premier MWD+HRGM (882°-1681°) : 881.68ft TVD, 4.14ft S, 7.00ft W
 Premier MWD+HRGM (1766°-5399°) : 1750.85ft TVD, 0.26ft S, 165.30ft W
 BH AT Curve <math><8 1/2^\circ ><(5496^\circ-7026^\circ)><: 5162.21\text{ft TVD, } 84.38\text{ft S, } 1649.12\text{ft W}</math>
 BH AT Curve <math><8 1/2^\circ ><(7073^\circ-22421^\circ)><: 5819.28\text{ft TVD, } 1266.79\text{ft S, } 1738.86\text{ft W}</math>

Projection to Bit : 5939.53ft TVD, 16222.68ft S, 1778.78ft E

Projection to Bit : 88.98° Inc, 22446.00ft MD, 5939.53ft TVD, 16319.90ft VS

Vertical Section (ft)

Azimuth 173.74° with reference 0.00 N, 0.00 E

Scale 1 inch = 2500

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 206H
Area	Ohio County, WW	Well	Rayle Coal OHI 206H
Field	Ohio	Wellbore	Rayle Coal OHI 206H AWB
Facility	Rayle Coal OHI Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Atenjen
Scale	0.999612	Report Generated	01/May/2019 at 16:03
Convergence at slot	0.24° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Rayle_Coal_OHI_206H_AWP_Proj_22446_MD.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	92.50	316.82	1744668.03	14585770.20	40°09'41.482"N	80°37'36.700"W
Facility Reference Pt			1744351.33	14585677.74	40°09'40.581"N	80°37'40.786"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM

Calculation method	Minimum curvature	SDC 41 (KB) to Facility Vertical Datum	1089.80ft
Horizontal Reference Pt	Slot	SDC 41 (KB) to Mean Sea Level	1089.80ft
Vertical Reference Pt	SDC 41 (KB)	SDC 41 (KB) to Ground Level at Slot (Slot 206H)	26.00ft
MD Reference Pt	SDC 41 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	173.74°

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 206H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 206H
Area	Wellbore	Rayle Coal OHI 206H AWB
Field		
Facility		

WELLPATH DATA (260 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	30.220	0.00	0.00	0.00	0.00	1744668.03	14585770.20	40°09'41.482"N	80°37'36.700"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	30.220	26.00	0.00	0.00	0.00	1744668.03	14585770.20	40°09'41.482"N	80°37'36.700"W	0.00	0.000	0.00	0.00	0.00
50.00	0.330	30.220	50.00	-0.06	0.06	0.03	1744668.06	14585770.26	40°09'41.483"N	80°37'36.700"W	0.07	30.220	1.38	1.38	125.92
100.00	0.480	46.380	100.00	-0.30	0.33	0.26	1744668.29	14585770.53	40°09'41.485"N	80°37'36.697"W	0.42	38.229	0.37	0.30	32.32
150.00	0.540	46.040	150.00	-0.57	0.64	0.58	1744668.61	14585770.84	40°09'41.488"N	80°37'36.693"W	0.86	42.338	0.12	0.12	-0.68
200.00	0.420	10.510	199.99	-0.89	0.98	0.78	1744668.81	14585771.18	40°09'41.492"N	80°37'36.690"W	1.25	38.617	0.63	0.24	-71.06
250.00	0.340	4.590	249.99	-1.21	1.31	0.83	1744668.86	14585771.51	40°09'41.495"N	80°37'36.690"W	1.55	32.339	0.18	-0.16	-11.84
300.00	0.280	331.300	299.99	-1.47	1.56	0.78	1744668.81	14585771.76	40°09'41.497"N	80°37'36.690"W	1.75	26.561	0.37	-0.12	-66.58
314.00	0.090	343.920	313.99	-1.51	1.60	0.76	1744668.79	14585771.80	40°09'41.498"N	80°37'36.690"W	1.78	25.414	1.38	-1.36	90.14
404.00	0.410	112.750	403.99	-1.42	1.55	1.04	1744669.07	14585771.75	40°09'41.497"N	80°37'36.687"W	1.86	33.892	0.52	0.36	143.14
495.00	0.760	150.050	494.99	-0.71	0.90	1.64	1744669.67	14585771.10	40°09'41.491"N	80°37'36.679"W	1.87	61.296	0.55	0.38	40.99
585.00	0.870	153.100	584.98	0.47	-0.23	2.25	1744670.28	14585769.97	40°09'41.480"N	80°37'36.671"W	2.26	95.788	0.13	0.12	3.39
677.00	0.930	198.940	676.97	1.80	-1.56	2.32	1744670.35	14585768.64	40°09'41.466"N	80°37'36.671"W	2.80	123.844	0.76	0.07	49.83
767.00	2.350	250.000	766.93	2.90	-2.88	0.35	1744668.38	14585767.32	40°09'41.453"N	80°37'36.696"W	2.90	173.054	2.12	1.58	56.73
882.00	5.140	264.990	881.68	3.35	-4.14	-7.00	1744661.03	14585766.07	40°09'41.441"N	80°37'36.791"W	8.13	239.419	2.55	2.43	13.03
972.00	7.340	269.210	971.14	2.71	-4.57	-16.76	1744651.27	14585765.63	40°09'41.437"N	80°37'36.917"W	17.37	254.761	2.50	2.44	4.69
1062.00	9.550	265.790	1060.16	1.90	-5.19	-29.96	1744638.08	14585765.01	40°09'41.432"N	80°37'37.087"W	30.41	260.164	2.52	2.46	-3.80
1152.00	11.270	265.630	1148.67	1.34	-6.41	-46.18	1744621.87	14585763.79	40°09'41.420"N	80°37'37.295"W	46.62	262.094	1.91	1.91	-0.18
1245.00	11.060	266.930	1239.91	0.54	-7.58	-64.14	1744603.91	14585762.62	40°09'41.410"N	80°37'37.527"W	64.59	263.258	0.35	-0.23	1.40
1338.00	10.100	272.010	1331.33	-1.13	-7.77	-81.20	1744586.86	14585762.43	40°09'41.408"N	80°37'37.747"W	81.57	264.531	1.44	-1.03	5.46
1431.00	10.160	276.090	1422.89	-4.05	-6.62	-97.51	1744570.56	14585763.58	40°09'41.421"N	80°37'37.957"W	97.73	266.117	0.77	0.06	4.39
1523.00	11.040	276.710	1513.32	-7.77	-4.73	-114.33	1744553.75	14585765.47	40°09'41.440"N	80°37'38.173"W	114.42	267.632	0.96	0.96	0.67
1616.00	12.280	277.250	1604.39	-12.08	-2.44	-132.98	1744535.10	14585767.76	40°09'41.463"N	80°37'38.413"W	133.00	268.949	1.34	1.33	0.58
1681.00	12.950	274.330	1667.83	-15.03	-1.02	-147.10	1744520.99	14585769.18	40°09'41.478"N	80°37'38.595"W	147.10	269.604	1.42	1.03	-4.49
1766.00	11.820	270.260	1750.85	-17.77	-0.26	-165.30	1744502.79	14585769.94	40°09'41.486"N	80°37'38.829"W	165.30	269.910	1.68	-1.33	-4.79
1813.00	11.780	268.490	1796.85	-18.71	-0.36	-174.91	1744493.18	14585769.84	40°09'41.486"N	80°37'38.953"W	174.91	269.881	0.77	-0.09	-3.77
1906.00	14.220	265.300	1887.47	-19.81	-1.55	-195.79	1744472.31	14585768.65	40°09'41.475"N	80°37'39.222"W	195.80	269.547	2.73	2.62	-3.43
1998.00	15.520	262.300	1976.38	-19.81	-4.12	-219.25	1744448.86	14585766.08	40°09'41.450"N	80°37'39.525"W	219.29	268.922	1.64	1.41	-3.26
2090.00	15.830	260.520	2064.96	-18.79	-7.84	-243.83	1744424.30	14585762.36	40°09'41.415"N	80°37'39.841"W	243.95	268.158	0.62	0.34	-1.93
2183.00	15.440	265.150	2154.52	-18.39	-10.98	-268.67	1744399.46	14585759.23	40°09'41.385"N	80°37'40.161"W	268.90	267.660	1.41	-0.42	4.98

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 206H
Area	Ohio County, WV	Well	Rayle Coal OHI 206H
Field	Ohio	Wellbore	Rayle Coal OHI 206H AWB
Facility	Rayle Coal OHI Pad		

WELLPATH DATA (260 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert.Sect	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]
2275.00	17.590	267.320	2242.73	-19.55	-12.66	-294.77	1744373.38	14585757.54	40°09'41.369"N	80°37'40.498"W	295.04	267.540	2.43	2.34	2.36
2368.00	20.750	266.750	2330.56	-21.30	-14.25	-325.26	1744342.90	14585755.95	40°09'41.355"N	80°37'40.890"W	325.57	267.491	3.40	3.40	-0.61
2461.00	21.650	264.450	2417.26	-22.38	-16.85	-358.78	1744309.39	14585753.36	40°09'41.330"N	80°37'41.322"W	359.18	267.312	1.32	0.97	-2.47
2553.00	23.630	263.810	2502.17	-22.61	-20.48	-394.01	1744274.17	14585749.73	40°09'41.296"N	80°37'41.776"W	394.54	267.025	2.17	2.15	-0.70
2646.00	24.850	262.310	2586.97	-22.14	-25.10	-431.91	1744236.29	14585745.11	40°09'41.252"N	80°37'42.265"W	432.64	266.674	1.47	1.31	-1.61
2739.00	25.580	264.280	2671.11	-21.84	-29.72	-471.25	1744196.96	14585740.49	40°09'41.208"N	80°37'42.772"W	472.19	266.392	1.20	0.78	2.12
2831.00	26.550	263.190	2753.75	-21.83	-34.14	-511.43	1744156.80	14585736.08	40°09'41.166"N	80°37'43.289"W	512.57	266.181	1.18	1.05	-1.18
2924.00	26.040	265.950	2837.13	-22.42	-38.04	-552.43	1744115.81	14585732.17	40°09'41.129"N	80°37'43.818"W	553.74	266.061	1.42	-0.55	2.97
3016.00	26.300	265.560	2919.70	-23.85	-41.05	-592.90	1744075.36	14585729.17	40°09'41.101"N	80°37'44.339"W	594.32	266.040	0.34	0.28	-0.42
3109.00	25.490	268.600	3003.37	-26.20	-43.13	-633.45	1744034.83	14585727.09	40°09'41.082"N	80°37'44.861"W	634.91	266.105	1.67	-0.87	3.27
3202.00	25.440	269.030	3087.33	-29.74	-43.96	-673.42	1743994.87	14585726.26	40°09'41.075"N	80°37'45.376"W	674.86	266.265	0.21	-0.05	0.46
3295.00	26.040	265.760	3171.11	-32.30	-45.80	-713.75	1743954.55	14585724.41	40°09'41.059"N	80°37'45.896"W	715.22	266.328	1.66	0.65	-3.52
3388.00	24.320	269.100	3255.27	-34.81	-47.61	-753.26	1743915.06	14585722.60	40°09'41.043"N	80°37'46.405"W	754.77	266.383	2.40	-1.85	3.59
3480.00	23.600	268.540	3339.34	-38.12	-48.38	-790.62	1743877.72	14585721.84	40°09'41.037"N	80°37'46.886"W	792.10	266.498	0.82	-0.78	-0.61
3573.00	25.080	264.730	3424.08	-40.01	-50.67	-828.86	1743839.49	14585719.55	40°09'41.016"N	80°37'47.379"W	830.41	266.502	2.32	1.59	-4.10
3666.00	25.050	261.610	3508.33	-39.62	-55.35	-867.97	1743800.40	14585714.87	40°09'40.971"N	80°37'47.883"W	869.73	266.351	1.42	-0.03	-3.35
3758.00	24.120	268.450	3592.00	-40.44	-58.70	-906.03	1743762.35	14585711.52	40°09'40.939"N	80°37'48.373"W	907.93	266.293	3.25	-1.01	7.43
3851.00	25.020	269.410	3676.58	-43.95	-59.42	-944.70	1743723.70	14585710.81	40°09'40.934"N	80°37'48.871"W	946.56	266.401	1.06	0.97	1.03
3944.00	25.180	266.110	3760.80	-46.71	-60.96	-984.10	1743684.31	14585709.26	40°09'40.920"N	80°37'49.379"W	985.99	266.455	1.51	0.17	-3.55
4037.00	24.240	267.410	3845.29	-48.75	-63.17	-1022.91	1743645.52	14585707.06	40°09'40.900"N	80°37'49.879"W	1024.86	266.466	1.17	-1.01	1.40
4129.00	24.810	268.580	3928.99	-51.59	-64.50	-1061.08	1743607.37	14585705.73	40°09'40.888"N	80°37'50.370"W	1063.03	266.521	0.81	0.62	1.27
4219.00	26.270	269.310	4010.19	-55.11	-65.21	-1099.87	1743568.59	14585705.02	40°09'40.883"N	80°37'50.870"W	1101.80	266.607	1.66	1.62	0.81
4311.00	25.580	266.730	4092.93	-58.12	-66.59	-1140.06	1743528.41	14585703.64	40°09'40.871"N	80°37'51.388"W	1142.00	266.657	1.44	-0.75	-2.80
4404.00	26.230	265.880	4176.59	-59.94	-69.21	-1180.60	1743487.89	14585701.02	40°09'40.847"N	80°37'51.910"W	1182.63	266.645	0.80	0.70	-0.91
4494.00	27.130	267.480	4257.01	-62.02	-71.54	-1220.94	1743447.56	14585698.69	40°09'40.825"N	80°37'52.430"W	1223.04	266.647	1.28	1.00	1.78
4584.00	26.310	265.650	4337.40	-64.02	-73.95	-1261.33	1743407.19	14585696.28	40°09'40.803"N	80°37'52.950"W	1263.50	266.645	1.29	-0.91	-2.03
4677.00	26.490	266.560	4420.70	-65.73	-76.76	-1302.59	1743365.95	14585693.47	40°09'40.777"N	80°37'53.482"W	1304.85	266.627	0.48	0.19	0.98
4770.00	28.460	269.600	4503.21	-69.01	-78.16	-1345.46	1743323.10	14585692.07	40°09'40.765"N	80°37'54.034"W	1347.72	266.675	2.60	2.12	3.27
4863.00	26.600	268.050	4585.68	-72.84	-79.02	-1388.43	1743280.14	14585691.21	40°09'40.758"N	80°37'54.587"W	1390.68	266.742	2.14	-2.00	-1.67
4955.00	25.040	264.810	4668.49	-74.75	-81.49	-1428.41	1743240.18	14585688.75	40°09'40.736"N	80°37'55.102"W	1430.73	266.735	2.29	-1.70	-3.52

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 206H
Area	Ohio County, WV	Well	Rayle Coal OHI 206H
Field	Ohio	Wellbore	Rayle Coal OHI 206H AWB
Facility	Rayle Coal OHI Pad		

WELLPATH DATA (260 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]
5048.00	24.740	268.160	4752.86	-76.62	-83.89	-1467.46	1743201.14	14585686.34	40°09'40.713"N	80°37'55.606"W	1469.86	266.728	1.55	-0.32	3.60
5141.00	25.490	271.750	4837.07	-80.91	-83.91	-1506.92	1743161.70	14585686.33	40°09'40.715"N	80°37'56.114"W	1509.25	266.813	1.83	0.81	3.86
5234.00	25.310	271.980	4921.08	-86.55	-82.61	-1546.79	1743121.85	14585687.62	40°09'40.729"N	80°37'56.627"W	1548.99	266.943	0.22	-0.19	0.25
5327.00	22.920	268.300	5005.96	-90.84	-82.46	-1584.76	1743083.89	14585687.77	40°09'40.732"N	80°37'57.116"W	1586.91	267.021	3.04	-2.57	-3.96
5399.00	21.850	268.020	5072.54	-92.95	-83.34	-1612.17	1743056.49	14585686.90	40°09'40.725"N	80°37'57.469"W	1614.32	267.041	1.49	-1.49	-0.39
5496.00	22.960	268.720	5162.21	-95.94	-84.38	-1649.12	1743019.55	14585685.85	40°09'40.716"N	80°37'57.945"W	1651.28	267.071	1.18	1.14	0.72
5543.00	23.790	260.620	5205.37	-96.14	-86.22	-1667.63	1743001.05	14585684.02	40°09'40.699"N	80°37'58.184"W	1669.86	267.040	7.48	1.77	-18.34
5589.00	24.500	250.100	5247.36	-93.38	-90.98	-1685.78	1742982.91	14585679.26	40°09'40.652"N	80°37'58.418"W	1688.23	266.911	8.56	1.54	-20.61
5622.00	25.440	243.680	5277.28	-89.39	-96.39	-1698.59	1742970.11	14585673.84	40°09'40.599"N	80°37'58.583"W	1701.32	266.752	9.32	2.85	-21.03
5652.00	26.670	236.820	5304.24	-84.14	-102.94	-1710.00	1742958.70	14585667.30	40°09'40.535"N	80°37'58.731"W	1713.10	266.555	10.84	4.10	-22.87
5682.00	27.890	236.710	5330.90	-77.90	-110.47	-1721.50	1742947.20	14585659.77	40°09'40.461"N	80°37'58.879"W	1725.04	266.328	4.07	4.07	-0.37
5728.00	29.430	230.170	5371.27	-66.76	-123.62	-1739.18	1742929.53	14585646.63	40°09'40.332"N	80°37'59.107"W	1743.57	265.934	7.59	3.35	-14.22
5774.00	30.740	221.730	5411.09	-52.63	-139.64	-1755.69	1742913.02	14585630.61	40°09'40.174"N	80°37'59.321"W	1761.24	265.452	9.62	2.85	-18.35
5867.00	36.590	209.290	5488.56	-14.09	-181.64	-1785.13	1742883.59	14585588.63	40°09'39.760"N	80°37'59.702"W	1794.35	264.190	9.70	6.29	-13.38
5960.00	43.070	200.180	5560.00	36.99	-235.72	-1809.69	1742859.04	14585534.57	40°09'38.591"N	80°38'00.022"W	1824.98	262.579	9.36	6.97	-9.80
6053.00	49.390	192.010	5624.36	99.06	-300.18	-1828.03	1742840.71	14585470.14	40°09'37.883"N	80°38'00.261"W	1852.51	260.675	9.29	6.80	-8.78
6099.00	51.710	188.560	5653.59	133.10	-335.12	-1834.35	1742834.39	14585435.21	40°09'38.246"N	80°38'00.344"W	1864.71	259.647	7.68	5.04	-7.50
6145.00	55.650	185.590	5680.83	169.16	-371.89	-1838.89	1742829.86	14585398.45	40°09'37.883"N	80°38'00.405"W	1876.12	258.567	10.02	8.57	-6.46
6192.00	61.170	182.120	5705.45	208.55	-411.81	-1841.54	1742827.20	14585358.55	40°09'37.488"N	80°38'00.441"W	1887.03	257.395	13.32	11.74	-7.38
6238.00	64.170	180.380	5726.57	249.06	-452.66	-1842.43	1742826.32	14585317.71	40°09'37.085"N	80°38'00.455"W	1897.22	256.197	7.34	6.52	-3.78
6284.00	67.920	179.010	5745.24	290.87	-494.69	-1842.20	1742826.55	14585275.70	40°09'36.669"N	80°38'00.454"W	1907.46	254.969	8.59	8.15	-2.98
6331.00	71.660	178.070	5761.48	334.79	-538.78	-1841.34	1742827.41	14585231.63	40°09'36.233"N	80°38'00.445"W	1918.55	253.690	7.97	7.96	-0.51
6377.00	76.560	178.250	5774.07	378.86	-582.99	-1840.19	1742828.56	14585187.43	40°09'35.797"N	80°38'00.433"W	1930.33	252.421	10.71	10.65	-1.13
6423.00	79.040	177.900	5783.79	423.69	-627.93	-1838.68	1742830.07	14585142.52	40°09'35.352"N	80°38'00.416"W	1942.94	251.144	5.44	5.39	-0.76
6470.00	82.160	177.680	5791.46	469.94	-674.25	-1836.89	1742831.86	14585096.21	40°09'34.895"N	80°38'00.395"W	1956.73	249.844	6.65	6.64	-0.47
6516.00	85.900	176.900	5796.25	515.59	-719.95	-1834.73	1742834.02	14585050.53	40°09'34.443"N	80°38'00.370"W	1970.92	248.575	8.30	8.13	-1.70
6609.00	86.860	175.510	5802.12	608.32	-812.55	-1828.58	1742840.16	14584957.96	40°09'33.528"N	80°38'00.296"W	2000.99	246.041	1.81	1.03	-1.49
6702.00	87.440	172.560	5806.74	701.19	-904.92	-1818.93	1742849.81	14584865.63	40°09'32.614"N	80°38'00.176"W	2031.60	243.549	3.23	0.62	-3.17
6794.00	88.150	167.660	5810.29	792.91	-995.46	-1803.14	1742865.59	14584775.13	40°09'31.719"N	80°37'59.978"W	2059.68	241.098	5.38	0.77	-5.33
6841.00	88.090	167.390	5811.83	839.61	-1041.33	-1793.00	1742875.73	14584729.28	40°09'31.265"N	80°37'59.849"W	2073.45	239.853	0.59	-0.13	-0.57

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 206H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 206H
Area	Wellbore	Rayle Coal OHI 206H AWB
Field		
Facility		

WELLPATH DATA (260 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]
6887.00	88.150	166.950	5813.34	885.28	-1086.15	-1782.79	1742885.94	14584684.47	40°09'30.822"N	80°37'59.720"W	2087.60	238.648	0.96	0.13	-0.96
6933.00	88.120	166.560	5814.83	930.92	-1130.91	-1772.25	1742896.47	14584639.73	40°09'30.379"N	80°37'59.587"W	2102.34	237.457	0.85	-0.07	-0.85
6980.00	88.180	166.560	5816.35	977.52	-1176.60	-1761.34	1742907.38	14584594.06	40°09'29.927"N	80°37'59.449"W	2118.18	236.257	0.13	0.13	0.00
7026.00	88.210	166.070	5817.80	1023.12	-1221.27	-1750.46	1742918.25	14584549.41	40°09'29.485"N	80°37'59.311"W	2134.39	235.097	1.07	0.07	-1.07
7073.00	88.180	165.350	5819.28	1069.63	-1266.79	-1738.86	1742929.84	14584503.90	40°09'29.035"N	80°37'59.164"W	2151.37	233.926	1.53	-0.06	-1.53
7177.00	88.060	166.440	5822.69	1172.60	-1367.60	-1713.53	1742955.17	14584403.13	40°09'28.038"N	80°37'58.843"W	2192.38	231.406	1.05	-0.12	1.05
7269.00	89.570	167.710	5824.59	1263.95	-1457.24	-1692.96	1742975.73	14584313.52	40°09'26.253"N	80°37'58.329"W	2233.76	229.279	2.14	1.64	1.38
7362.00	89.660	167.320	5825.22	1356.40	-1548.04	-1672.86	1742995.83	14584222.76	40°09'25.357"N	80°37'58.064"W	2279.23	227.219	0.43	0.10	-0.42
7455.00	89.570	166.680	5825.84	1448.76	-1638.66	-1651.94	1743016.74	14584132.18	40°09'24.462"N	80°37'57.794"W	2326.82	225.231	0.69	-0.10	-0.69
7548.00	89.680	166.610	5826.47	1541.06	-1729.16	-1630.56	1743038.11	14584041.71	40°09'23.576"N	80°37'57.526"W	2376.71	223.319	0.12	0.10	0.06
7640.00	89.600	166.730	5827.71	1632.36	-1818.69	-1609.35	1743059.30	14583952.22	40°09'22.681"N	80°37'57.254"W	2428.51	221.506	0.16	-0.07	-0.14
7733.00	89.600	166.730	5827.71	1724.65	-1909.18	-1587.91	1743080.74	14583861.77	40°09'21.786"N	80°37'56.984"W	2483.23	219.751	0.13	0.00	0.13
7826.00	89.570	166.740	5828.39	1816.95	-1999.69	-1566.57	1743102.07	14583771.28	40°09'20.890"N	80°37'56.715"W	2540.26	218.075	0.03	-0.03	0.01
7919.00	89.600	166.770	5829.06	1909.26	-2090.22	-1545.27	1743123.37	14583680.80	40°09'20.004"N	80°37'56.450"W	2599.40	216.475	0.05	0.03	0.03
8011.00	89.630	166.950	5829.68	2000.59	-2179.81	-1524.35	1743144.27	14583591.24	40°09'19.107"N	80°37'56.187"W	2659.93	214.965	0.20	0.03	0.20
8104.00	89.630	167.230	5830.28	2092.97	-2270.45	-1503.57	1743165.04	14583500.63	40°09'18.209"N	80°37'55.932"W	2723.18	213.514	0.30	0.00	0.30
8197.00	89.600	167.660	5830.90	2185.40	-2361.23	-1483.36	1743185.25	14583409.89	40°09'17.310"N	80°37'55.686"W	2788.50	212.138	0.46	-0.03	0.46
8290.00	89.600	168.180	5831.55	2277.92	-2452.17	-1463.90	1743204.70	14583318.99	40°09'16.419"N	80°37'55.452"W	2855.89	210.836	0.56	0.00	0.56
8382.00	89.660	168.550	5832.15	2369.51	-2542.27	-1445.34	1743223.25	14583228.92	40°09'15.518"N	80°37'55.217"W	2924.41	209.619	0.41	0.07	0.40
8475.00	89.630	168.310	5832.72	2462.11	-2633.38	-1426.69	1743241.89	14583137.84	40°09'14.618"N	80°37'54.973"W	2995.02	208.448	0.26	-0.03	-0.26
8568.00	89.630	167.770	5833.32	2554.65	-2724.36	-1407.42	1743261.16	14583046.90	40°09'13.730"N	80°37'54.722"W	3066.43	207.321	0.58	0.00	-0.58
8660.00	89.630	167.230	5833.92	2646.10	-2814.18	-1387.51	1743281.06	14582957.12	40°09'12.833"N	80°37'54.456"W	3137.64	206.245	0.59	0.00	-0.59
8753.00	89.630	166.660	5834.52	2738.45	-2904.77	-1366.50	1743302.06	14582866.56	40°09'11.939"N	80°37'54.183"W	3210.14	205.194	0.61	0.00	-0.61
8846.00	89.600	166.540	5835.14	2830.73	-2995.24	-1344.95	1743323.61	14582776.13	40°09'11.054"N	80°37'53.907"W	3283.34	204.181	0.13	-0.03	-0.13
8938.00	89.630	166.040	5835.76	2921.95	-3084.62	-1323.14	1743345.40	14582686.79	40°09'10.161"N	80°37'53.624"W	3356.42	203.217	0.54	0.03	-0.54
9031.00	89.570	166.150	5836.41	3014.12	-3174.89	-1300.80	1743367.74	14582596.55	40°09'09.269"N	80°37'53.339"W	3431.03	202.280	0.13	-0.06	0.12
9124.00	89.630	165.860	5837.06	3106.27	-3265.12	-1278.31	1743390.22	14582506.35	40°09'08.376"N	80°37'53.055"W	3506.44	201.380	0.32	0.06	-0.31
9217.00	89.660	166.240	5837.64	3198.43	-3355.38	-1255.89	1743412.63	14582416.13	40°09'07.491"N	80°37'52.783"W	3582.71	200.520	0.41	0.03	0.41
9309.00	89.600	166.670	5838.23	3289.69	-3444.82	-1234.34	1743434.17	14582326.72	40°09'06.595"N	80°37'52.516"W	3659.29	199.713	0.47	-0.07	0.47
9402.00	89.320	167.120	5839.11	3382.02	-3535.39	-1213.25	1743455.25	14582236.18			3737.78	198.941	0.57	-0.30	0.48

REFERENCE WELLPATH IDENTIFICATION	
Operator	SOUTHWESTERN ENERGY
Area	Ohio County, WV
Field	Ohio
Facility	Rayle Coal OHI Pad
Slot	Slot 206H
Well	Rayle Coal OHI 206H
Wellbore	Rayle Coal OHI 206H AWB

WELLPATH DATA (260 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]
9495.00	89.600	167.520	5839.98	3474.43	-3626.12	-1192.84	1743475.65	14582145.49	40°09'05.698"N	80°37'52.258"W	3817.28	198.209	0.52	0.30	0.43
9588.00	89.600	167.560	5840.63	3566.88	-3716.93	-1172.78	1743495.71	14582054.72	40°09'04.800"N	80°37'52.004"W	3897.56	197.512	0.04	0.00	0.04
9680.00	89.600	167.490	5841.27	3658.34	-3806.75	-1152.90	1743515.58	14581964.93	40°09'03.911"N	80°37'51.753"W	3977.51	196.849	0.08	0.00	-0.08
9773.00	89.510	168.460	5842.00	3750.87	-3897.71	-1133.53	1743534.94	14581874.01	40°09'03.012"N	80°37'51.509"W	4059.19	196.215	1.05	-0.10	1.04
9866.00	89.750	169.000	5842.60	3843.51	-3988.91	-1115.35	1743553.11	14581782.84	40°09'02.110"N	80°37'51.279"W	4141.91	195.622	0.64	0.26	0.58
9958.00	89.600	167.630	5843.12	3935.09	-4079.00	-1096.72	1743571.74	14581692.79	40°09'01.219"N	80°37'51.044"W	4223.87	195.049	1.50	-0.16	-1.49
10051.00	89.750	169.250	5843.65	4027.69	-4170.11	-1078.09	1743590.36	14581601.71	40°09'00.318"N	80°37'50.809"W	4307.22	194.495	1.75	0.16	1.74
10143.00	89.570	168.470	5844.19	4119.36	-4260.38	-1060.31	1743608.13	14581511.48	40°08'59.425"N	80°37'50.585"W	4390.34	193.976	0.87	-0.20	-0.85
10236.00	89.570	168.810	5844.89	4211.99	-4351.55	-1041.99	1743626.44	14581420.34	40°08'58.523"N	80°37'50.354"W	4474.57	193.466	0.37	0.00	0.37
10329.00	89.850	167.720	5845.36	4304.56	-4442.60	-1023.08	1743645.35	14581329.33	40°08'57.622"N	80°37'50.115"W	4558.88	192.968	1.21	0.30	-1.17
10421.00	89.880	166.620	5845.58	4395.95	-4532.31	-1002.65	1743665.77	14581239.66	40°08'56.735"N	80°37'49.857"W	4641.89	192.474	1.20	0.03	-1.20
10514.00	89.820	165.140	5845.82	4488.08	-4622.49	-979.96	1743688.45	14581149.51	40°08'55.843"N	80°37'49.570"W	4725.23	191.969	1.59	-0.06	-1.59
10607.00	89.750	164.220	5846.17	4579.91	-4712.19	-955.39	1743713.01	14581059.85	40°08'54.956"N	80°37'49.258"W	4808.06	191.461	0.99	-0.08	-0.99
10699.00	89.750	163.420	5846.57	4670.54	-4800.54	-929.76	1743738.64	14580971.53	40°08'54.082"N	80°37'48.933"W	4889.75	190.961	0.87	0.00	-0.87
10792.00	89.750	163.060	5846.98	4761.98	-4889.59	-902.94	1743765.44	14580882.51	40°08'53.200"N	80°37'48.592"W	4972.26	190.463	0.39	0.00	-0.39
10885.00	89.690	162.330	5847.43	4853.25	-4978.38	-875.28	1743793.10	14580793.76	40°08'52.322"N	80°37'48.241"W	5054.74	189.972	0.79	-0.06	-0.78
10977.00	89.720	162.820	5847.91	4943.51	-5066.16	-847.73	1743820.63	14580706.02	40°08'51.453"N	80°37'47.891"W	5136.59	189.499	0.53	0.03	0.53
11070.00	89.780	164.170	5848.31	5035.03	-5155.32	-821.31	1743847.04	14580616.89	40°08'50.571"N	80°37'47.555"W	5220.33	189.052	1.45	0.06	1.45
11163.00	89.690	165.890	5848.74	5126.95	-5245.16	-797.28	1743871.06	14580527.08	40°08'49.682"N	80°37'47.251"W	5305.41	188.643	1.85	-0.10	1.85
11256.00	89.570	166.720	5849.34	5219.16	-5335.51	-775.27	1743893.07	14580436.77	40°08'48.789"N	80°37'46.972"W	5391.54	188.267	0.90	-0.13	0.89
11349.00	89.780	168.410	5849.87	5311.62	-5426.33	-755.24	1743913.08	14580354.99	40°08'47.890"N	80°37'46.719"W	5478.63	187.924	1.83	0.23	1.82
11442.00	89.910	169.200	5850.12	5404.27	-5517.56	-737.19	1743931.13	14580264.79	40°08'46.988"N	80°37'46.492"W	5566.59	187.610	0.86	0.14	0.85
11534.00	89.970	169.650	5850.22	5496.01	-5607.99	-720.30	1743948.01	14580164.39	40°08'46.094"N	80°37'46.279"W	5654.06	187.319	0.49	0.07	0.49
11627.00	89.750	169.740	5850.45	5588.78	-5699.49	-703.67	1743964.64	14580072.93	40°08'45.189"N	80°37'46.070"W	5742.77	187.038	0.26	-0.24	0.10
11719.00	90.280	169.960	5850.42	5680.57	-5790.05	-687.45	1743980.85	14579982.40	40°08'44.293"N	80°37'45.866"W	5830.72	186.771	0.62	0.58	0.24
11812.00	90.120	169.230	5850.10	5773.32	-5881.52	-670.66	1743997.63	14579890.97	40°08'43.389"N	80°37'45.654"W	5919.64	186.505	0.80	-0.17	-0.78
11905.00	90.180	168.340	5849.85	5865.98	-5972.74	-652.57	1744015.72	14579799.78	40°08'42.486"N	80°37'45.426"W	6008.29	186.235	0.96	0.06	-0.96
11997.00	90.120	166.720	5849.61	5957.43	-6062.57	-632.70	1744035.57	14579709.99	40°08'41.598"N	80°37'45.175"W	6095.50	185.958	1.76	-0.07	-1.76
12090.00	89.850	165.880	5849.64	6049.65	-6152.92	-610.68	1744057.59	14579619.67	40°08'40.704"N	80°37'44.897"W	6183.16	185.668	0.95	-0.29	-0.90
12183.00	89.880	165.790	5849.86	6141.76	-6243.10	-587.92	1744080.34	14579529.54	40°08'39.812"N	80°37'44.608"W	6270.72	185.380	0.10	0.03	-0.10



Actual Wellpath Report

Rayle Coal OHI 206H AWP Proj: 22446'MD
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 206H
Area	Ohio County, WV	Well	Rayle Coal OHI 206H
Field	Ohio	Wellbore	Rayle Coal OHI 206H AWB
Facility	Rayle Coal OHI Pad		

WELLPATH DATA (260 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]
12276.00	89.820	165.650	5850.10	6233.85	-6333.22	-564.98	1744103.27	14579439.44	40°08'38.921"N	80°37'44.318"W	6358.37	185.098	0.16	-0.06	-0.15
12368.00	89.820	165.910	5850.39	6324.97	-6422.40	-542.38	1744125.86	14579350.30	40°08'38.038"N	80°37'44.032"W	6445.27	184.827	0.28	0.00	0.28
12461.00	89.820	166.320	5850.68	6417.14	-6512.69	-520.06	1744148.17	14579260.05	40°08'37.145"N	80°37'43.749"W	6533.42	184.566	0.44	0.00	0.44
12554.00	89.910	166.530	5850.90	6509.39	-6603.09	-498.24	1744169.99	14579169.69	40°08'36.251"N	80°37'43.473"W	6621.86	184.315	0.25	0.10	0.23
12647.00	89.880	165.790	5851.07	6601.57	-6693.39	-475.99	1744192.23	14579079.42	40°08'35.358"N	80°37'43.191"W	6710.29	184.068	0.80	-0.03	-0.80
12740.00	89.880	164.790	5851.26	6693.56	-6783.34	-452.37	1744215.83	14578989.51	40°08'34.468"N	80°37'42.892"W	6798.40	183.815	1.08	0.00	-1.08
12832.00	89.780	164.170	5851.54	6784.36	-6871.98	-427.76	1744240.44	14578900.90	40°08'33.591"N	80°37'42.580"W	6885.28	183.562	0.68	-0.11	-0.67
12925.00	89.660	165.760	5851.99	6876.27	-6961.79	-403.63	1744264.55	14578811.12	40°08'32.702"N	80°37'42.274"W	6973.48	183.318	1.71	-0.13	1.71
13018.00	89.690	165.310	5852.52	6968.32	-7051.84	-380.40	1744287.77	14578721.10	40°08'31.812"N	80°37'41.980"W	7062.10	183.088	0.48	0.03	-0.48
13110.00	89.780	164.810	5852.95	7059.26	-7140.73	-356.69	1744311.48	14578632.25	40°08'30.932"N	80°37'41.679"W	7149.64	182.860	0.55	0.10	-0.54
13203.00	89.630	166.910	5853.42	7151.38	-7230.91	-333.97	1744334.19	14578542.11	40°08'30.040"N	80°37'41.392"W	7238.62	182.644	2.26	-0.16	2.26
13296.00	89.630	168.300	5854.02	7243.84	-7321.74	-314.01	1744354.15	14578451.32	40°08'29.142"N	80°37'41.139"W	7328.47	182.456	1.49	0.00	1.49
13389.00	89.600	168.560	5854.65	7336.44	-7412.84	-295.35	1744372.79	14578360.24	40°08'28.241"N	80°37'40.904"W	7418.73	182.282	0.28	-0.03	0.28
13481.00	89.660	168.810	5855.24	7428.08	-7503.05	-277.30	1744390.83	14578270.07	40°08'27.348"N	80°37'40.677"W	7508.18	182.117	0.28	0.07	0.27
13574.00	89.660	168.880	5855.80	7520.74	-7594.30	-259.31	1744408.82	14578178.86	40°08'26.446"N	80°37'40.450"W	7598.72	181.956	0.08	0.00	0.08
13667.00	89.630	168.430	5856.37	7613.37	-7685.48	-241.02	1744427.11	14578087.72	40°08'25.544"N	80°37'40.219"W	7689.26	181.796	0.48	-0.03	-0.48
13759.00	89.540	168.390	5857.04	7704.97	-7775.60	-222.54	1744445.58	14577997.63	40°08'24.653"N	80°37'39.986"W	7778.78	181.639	0.11	-0.10	-0.04
13849.00	89.660	167.870	5857.67	7794.54	-7863.67	-204.02	1744464.09	14577909.59	40°08'23.782"N	80°37'39.753"W	7866.32	181.486	0.59	0.13	-0.58
13942.00	89.600	167.540	5858.27	7887.02	-7954.54	-184.22	1744483.88	14577818.76	40°08'22.883"N	80°37'39.502"W	7956.67	181.327	0.36	-0.06	-0.35
14034.00	89.600	167.770	5858.91	7978.50	-8044.41	-164.55	1744503.54	14577728.93	40°08'21.994"N	80°37'39.254"W	8046.09	181.172	0.25	0.00	0.25
14127.00	89.450	167.610	5859.68	8070.98	-8135.27	-144.72	1744523.36	14577638.10	40°08'21.095"N	80°37'39.004"W	8136.55	181.019	0.24	-0.16	-0.17
14220.00	89.510	167.090	5860.52	8163.40	-8226.00	-124.36	1744543.72	14577547.40	40°08'20.198"N	80°37'38.746"W	8226.94	180.866	0.56	0.06	-0.56
14312.00	89.540	166.560	5861.29	8254.72	-8315.58	-103.39	1744564.68	14577457.86	40°08'19.312"N	80°37'38.481"W	8316.22	180.712	0.58	0.03	-0.58
14405.00	89.510	166.050	5862.06	8346.94	-8405.93	-81.37	1744586.69	14577367.54	40°08'18.418"N	80°37'38.203"W	8406.33	180.555	0.55	-0.03	-0.55
14498.00	89.510	164.930	5862.85	8438.97	-8495.96	-58.07	1744609.98	14577277.55	40°08'17.527"N	80°37'37.907"W	8496.16	180.392	1.20	0.00	-1.20
14590.00	89.420	165.120	5863.71	8529.90	-8584.83	-34.30	1744633.74	14577188.71	40°08'16.648"N	80°37'37.606"W	8584.90	180.229	0.23	-0.10	0.21
14683.00	89.480	167.130	5864.61	8622.07	-8675.11	-12.00	1744656.03	14577098.47	40°08'15.755"N	80°37'37.324"W	8675.12	180.070	2.16	0.06	2.16
14776.00	89.420	168.560	5865.50	8714.58	-8766.02	7.58	1744675.61	14577007.60	40°08'14.856"N	80°37'37.077"W	8766.02	179.950	1.54	-0.06	1.54
14869.00	89.510	167.920	5866.37	8807.14	-8857.06	26.53	1744694.55	14576916.59	40°08'13.956"N	80°37'36.838"W	8857.10	179.828	0.69	0.10	-0.69
14962.00	89.540	166.980	5867.14	8899.58	-8947.84	46.74	1744714.75	14576825.85	40°08'13.058"N	80°37'36.582"W	8947.96	179.701	1.01	0.03	-1.01



Actual Wellpath Report

Rayle Coal OHI 206H AWP Proj: 22446'MD
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REFERENCE WELLPATH IDENTIFICATION

Operator	Slot
SOUTHWESTERN ENERGY	Slot 206H
Area	Well
Ohio County, WV	Rayle Coal OHI 206H
Field	Wellbore
Ohio	Rayle Coal OHI 206H AWB
Facility	Rayle Coal OHI Pad

WELLPATH DATA (260 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]
15055.00	89.510	165.950	5867.91	8991.83	-9038.25	68.50	1744736.51	14576735.47	40°08'12.163"N	80°37'36.307"W	9038.51	179.566	1.11	-0.03	-1.11
15147.00	89.510	163.780	5868.70	9082.72	-9127.05	92.52	1744760.52	14576646.71	40°08'11.285"N	80°37'36.003"W	9127.52	179.419	2.36	0.00	-2.36
15240.00	89.290	163.290	5869.67	9174.24	-9216.23	118.88	1744786.86	14576557.56	40°08'10.402"N	80°37'35.668"W	9217.00	179.261	0.58	-0.24	-0.53
15333.00	89.380	162.910	5870.75	9265.63	-9305.21	145.91	1744813.89	14576468.62	40°08'09.522"N	80°37'35.325"W	9306.35	179.102	0.42	0.10	-0.41
15425.00	89.260	164.060	5871.84	9356.16	-9393.40	172.06	1744840.03	14576380.46	40°08'08.649"N	80°37'34.993"W	9394.98	178.951	1.26	-0.13	1.25
15518.00	89.380	165.390	5872.94	9448.00	-9483.11	196.56	1744864.52	14576290.78	40°08'07.762"N	80°37'34.682"W	9485.15	178.813	1.44	0.13	1.43
15611.00	89.350	169.220	5873.98	9540.39	-9573.81	217.00	1744884.94	14576200.12	40°08'06.865"N	80°37'34.424"W	9576.27	178.702	4.12	-0.03	4.12
15704.00	89.450	170.370	5874.95	9633.16	-9665.34	233.47	1744901.41	14576108.63	40°08'05.960"N	80°37'34.217"W	9668.16	178.616	1.24	0.11	1.24
15797.00	89.350	170.500	5875.92	9726.00	-9757.04	248.92	1744916.86	14576016.96	40°08'05.053"N	80°37'34.023"W	9760.21	178.539	0.18	-0.11	0.14
15893.00	89.320	169.880	5877.04	9821.81	-9851.63	265.28	1744933.21	14575922.41	40°08'04.117"N	80°37'33.818"W	9855.20	178.458	0.65	-0.03	-0.65
15988.00	89.290	170.200	5878.19	9916.61	-9945.19	281.71	1744949.63	14575828.88	40°08'03.192"N	80°37'33.611"W	9949.18	178.377	0.34	-0.03	0.34
16083.00	89.480	168.420	5879.21	10011.31	-10038.53	299.33	1744967.24	14575735.58	40°08'02.269"N	80°37'33.389"W	10042.99	178.292	1.88	0.20	-1.87
16177.00	89.320	168.030	5880.19	10104.87	-10130.55	318.51	1744986.42	14575643.60	40°08'01.359"N	80°37'33.147"W	10135.55	178.199	0.45	-0.17	-0.41
16272.00	89.380	169.060	5881.27	10199.48	-10223.65	337.38	1745005.27	14575550.53	40°08'00.438"N	80°37'32.909"W	10229.21	178.110	1.09	0.06	1.08
16368.00	89.350	167.170	5882.34	10295.00	-10317.58	357.14	1745025.04	14575456.64	40°07'59.509"N	80°37'32.660"W	10323.76	178.017	1.97	-0.03	-1.97
16464.00	89.350	165.820	5883.42	10390.23	-10410.92	379.56	1745047.44	14575363.34	40°07'58.586"N	80°37'32.376"W	10417.83	177.912	1.41	0.00	-1.41
16559.00	89.350	164.630	5884.50	10484.17	-10502.77	403.79	1745071.66	14575271.52	40°07'57.677"N	80°37'32.070"W	10510.53	177.798	1.25	0.00	-1.25
16653.00	89.320	163.720	5885.59	10576.86	-10593.20	429.42	1745097.28	14575181.13	40°07'56.782"N	80°37'31.745"W	10601.90	177.679	0.97	-0.03	-0.97
16748.00	89.320	162.690	5886.72	10670.25	-10684.14	456.87	1745124.72	14575090.22	40°07'55.882"N	80°37'31.396"W	10693.90	177.551	1.08	0.00	-1.08
16843.00	89.600	161.820	5887.62	10763.34	-10774.61	485.82	1745153.66	14574999.78	40°07'54.987"N	80°37'31.028"W	10785.56	177.418	0.96	0.29	-0.92
16937.00	89.600	163.310	5888.27	10855.56	-10884.29	513.98	1745181.81	14574910.14	40°07'54.100"N	80°37'30.671"W	10876.44	177.291	1.59	0.00	1.59
17032.00	89.570	163.390	5888.96	10949.00	-10955.31	547.20	1745209.02	14574819.16	40°07'53.199"N	80°37'30.325"W	10968.67	177.172	0.09	-0.03	0.08
17127.00	89.600	164.900	5889.65	11042.66	-11046.69	567.15	1745234.96	14574727.82	40°07'52.295"N	80°37'29.996"W	11061.24	177.061	1.59	0.03	1.59
17222.00	89.230	164.260	5890.62	11136.44	-11138.26	592.41	1745260.21	14574636.28	40°07'51.389"N	80°37'29.676"W	11154.00	176.955	0.78	-0.39	-0.67
17317.00	89.110	164.090	5892.00	11230.11	-11229.65	618.32	1745286.11	14574544.92	40°07'50.485"N	80°37'29.347"W	11246.66	176.848	0.22	-0.13	-0.18
17411.00	89.350	165.690	5893.26	11322.98	-11320.39	642.82	1745310.60	14574454.22	40°07'49.587"N	80°37'29.037"W	11338.63	176.750	1.72	0.26	1.70
17506.00	89.510	167.540	5894.20	11417.24	-11412.80	663.77	1745332.58	14574361.84	40°07'48.673"N	80°37'28.759"W	11432.15	176.666	1.95	0.17	1.95
17600.00	89.450	169.180	5895.06	11510.82	-11504.86	684.81	1745351.53	14574269.82	40°07'47.763"N	80°37'28.519"W	11525.16	176.599	1.75	-0.06	1.74
17695.00	89.260	170.390	5896.13	11605.59	-11598.35	700.62	1745368.37	14574176.37	40°07'46.838"N	80°37'28.308"W	11619.49	176.543	1.29	-0.20	-1.27
17790.00	89.170	169.810	5897.43	11700.38	-11691.92	716.95	1745384.70	14574082.83	40°07'45.913"N	80°37'28.102"W	11713.88	176.491	0.62	-0.09	-0.61

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot 206H
SOUTHWESTERN ENERGY	Slot
Ohio County, WV	Well
Ohio	Wellbore
Rayle Coal OHI Pad	Rayle Coal OHI 206H AWB

WELLPATH DATA (260 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]
17886.00	89.260	169.430	5898.74	11796.13	-11786.34	734.24	1745401.99	14573988.45	40°07'44.979"N	80°37'27.885"W	11809.19	176.435	0.41	0.09	-0.40
17981.00	89.260	169.260	5899.97	11890.84	-11879.70	751.81	1745419.54	14573895.13	40°07'44.056"N	80°37'27.664"W	11903.46	176.379	0.18	0.00	-0.18
18077.00	89.260	168.690	5901.21	11986.50	-11973.92	770.16	1745437.89	14573800.95	40°07'43.124"N	80°37'27.433"W	11998.66	176.320	0.59	0.00	-0.59
18171.00	89.320	168.570	5902.37	12080.12	-12066.07	788.69	1745456.42	14573708.83	40°07'42.212"N	80°37'27.199"W	12091.81	176.260	0.14	0.06	-0.13
18266.00	89.690	168.280	5903.20	12174.71	-12159.13	807.76	1745475.47	14573615.81	40°07'41.292"N	80°37'26.959"W	12185.93	176.199	0.49	0.39	-0.31
18362.00	89.660	168.110	5903.74	12270.26	-12253.10	827.40	1745495.10	14573521.88	40°07'40.363"N	80°37'26.711"W	12281.00	176.137	0.18	-0.03	-0.18
18456.00	89.600	167.600	5904.35	12363.76	-12344.99	847.17	1745514.87	14573430.02	40°07'39.454"N	80°37'26.462"W	12374.03	176.074	0.55	-0.06	-0.54
18551.00	89.630	166.930	5904.99	12458.15	-12437.65	868.11	1745535.80	14573337.39	40°07'38.537"N	80°37'26.197"W	12467.91	176.007	0.71	0.03	-0.71
18646.00	89.600	166.580	5905.62	12552.44	-12530.12	889.88	1745557.56	14573244.96	40°07'37.622"N	80°37'25.922"W	12561.68	175.938	0.37	-0.03	-0.37
18742.00	89.630	166.220	5906.27	12647.65	-12623.43	912.45	1745580.13	14573151.69	40°07'36.699"N	80°37'25.636"W	12656.36	175.886	0.38	0.03	-0.38
18836.00	89.630	165.980	5906.88	12740.82	-12714.67	935.03	1745602.70	14573060.48	40°07'35.797"N	80°37'25.351"W	12749.01	175.794	0.26	0.00	-0.26
18931.00	89.600	165.270	5907.51	12834.86	-12806.70	958.62	1745626.27	14572968.49	40°07'34.886"N	80°37'25.052"W	12842.52	175.719	0.75	-0.03	-0.75
19027.00	89.630	164.120	5908.16	12929.67	-12899.29	983.96	1745651.60	14572875.94	40°07'33.970"N	80°37'24.731"W	12936.76	175.638	1.20	0.03	-1.20
19122.00	89.570	163.700	5908.82	13023.27	-12990.57	1010.28	1745677.92	14572784.70	40°07'33.067"N	80°37'24.397"W	13029.79	175.553	0.45	-0.06	-0.44
19217.00	89.600	163.760	5909.51	13116.82	-13081.76	1036.90	1745704.52	14572693.54	40°07'32.165"N	80°37'24.059"W	13122.79	175.468	0.07	0.03	0.06
19312.00	89.600	163.400	5910.17	13210.33	-13172.88	1063.75	1745731.37	14572602.45	40°07'31.263"N	80°37'23.719"W	13215.76	175.383	0.38	0.00	-0.38
19407.00	89.630	164.820	5910.81	13303.98	-13264.25	1089.76	1745757.37	14572511.12	40°07'30.359"N	80°37'23.389"W	13308.94	175.303	1.50	0.03	1.49
19501.00	89.600	166.390	5911.44	13397.03	-13355.29	1113.13	1745780.73	14572420.11	40°07'29.459"N	80°37'23.093"W	13401.60	175.236	1.67	-0.03	1.67
19596.00	89.600	167.520	5912.11	13491.36	-13447.84	1134.57	1745802.16	14572327.60	40°07'28.543"N	80°37'22.822"W	13495.61	175.177	1.19	0.00	1.19
19692.00	89.820	167.620	5912.59	13586.81	-13541.58	1155.23	1745822.81	14572233.89	40°07'27.616"N	80°37'22.561"W	13590.77	175.124	0.25	0.23	0.10
19788.00	89.850	167.390	5912.87	13682.24	-13635.31	1176.00	1745843.58	14572140.20	40°07'26.689"N	80°37'22.299"W	13685.93	175.071	0.24	0.03	-0.24
19883.00	89.850	168.130	5913.12	13776.72	-13728.15	1196.14	1745863.71	14572047.40	40°07'25.771"N	80°37'22.045"W	13780.16	175.020	0.78	0.00	0.78
19977.00	89.880	168.510	5913.34	13870.31	-13820.20	1215.17	1745882.73	14571955.38	40°07'24.860"N	80°37'21.805"W	13873.52	174.975	0.41	0.03	0.40
20072.00	89.910	168.600	5913.51	13964.91	-13913.20	1234.02	1745901.57	14571862.31	40°07'23.939"N	80°37'21.567"W	13967.93	174.931	0.10	0.03	0.09
20166.00	89.450	168.060	5914.04	14058.49	-14005.37	1253.04	1745920.58	14571770.29	40°07'23.029"N	80°37'21.327"W	14061.31	174.887	0.75	-0.49	-0.57
20261.00	89.450	167.380	5914.95	14152.96	-14098.19	1273.24	1745940.78	14571677.50	40°07'22.111"N	80°37'21.072"W	14155.57	174.839	0.72	0.00	-0.72
20355.00	89.480	166.940	5915.83	14246.34	-14189.84	1294.13	1745961.66	14571585.89	40°07'21.204"N	80°37'20.808"W	14248.73	174.789	0.47	0.03	-0.47
20450.00	89.480	166.920	5916.69	14340.66	-14282.37	1315.61	1745983.13	14571493.39	40°07'20.289"N	80°37'20.537"W	14342.84	174.737	0.02	0.00	-0.02
20544.00	89.480	167.800	5917.54	14434.08	-14374.09	1336.18	1746003.69	14571401.71	40°07'19.382"N	80°37'20.277"W	14436.06	174.689	0.94	0.00	0.94
20639.00	89.510	168.620	5918.38	14528.63	-14467.08	1355.59	1746023.09	14571308.76	40°07'18.462"N	80°37'20.032"W	14530.45	174.647	0.86	0.03	0.86

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 206H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 206H
Area	Wellbore	Rayle Coal OHI 206H AWB
Field		
Facility		

WELLPATH DATA (260 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]
20733.00	89.480	169.060	5919.21	14622.28	-14559.30	1373.79	1746041.28	14571216.57	40°07'17.550"N	80°37'19.803"W	14623.97	174.610	0.47	-0.03	0.47
20829.00	89.450	169.440	5920.11	14717.98	-14653.61	1391.69	1746059.18	14571122.30	40°07'16.617"N	80°37'19.578"W	14719.55	174.575	0.40	-0.03	0.40
20924.00	89.450	168.950	5921.02	14812.68	-14746.92	1409.50	1746076.98	14571029.03	40°07'15.694"N	80°37'19.354"W	14814.13	174.540	0.52	0.00	-0.52
21018.00	89.510	168.170	5921.87	14906.29	-14839.05	1428.14	1746095.62	14570936.93	40°07'14.783"N	80°37'19.119"W	14907.61	174.503	0.83	0.06	-0.83
21113.00	89.450	168.660	5922.73	15000.88	-14932.11	1447.22	1746114.69	14570843.91	40°07'13.863"N	80°37'18.878"W	15002.08	174.464	0.52	-0.06	0.52
21209.00	89.540	168.570	5923.58	15096.49	-15026.22	1466.17	1746133.63	14570749.84	40°07'12.932"N	80°37'18.640"W	15097.58	174.427	0.13	0.09	-0.09
21305.00	89.480	167.380	5924.40	15192.00	-15120.10	1486.17	1746153.62	14570655.99	40°07'12.003"N	80°37'18.387"W	15192.97	174.386	1.24	-0.06	-1.24
21401.00	89.510	166.000	5925.25	15287.27	-15213.52	1508.27	1746175.71	14570562.61	40°07'11.079"N	80°37'18.108"W	15288.10	174.338	1.44	0.03	-1.44
21498.00	89.480	165.540	5926.10	15383.33	-15307.54	1532.11	1746199.54	14570468.62	40°07'10.149"N	80°37'17.806"W	15384.02	174.284	0.48	-0.03	-0.47
21594.00	89.450	165.170	5927.00	15478.30	-15400.42	1556.38	1746223.81	14570375.78	40°07'09.230"N	80°37'17.499"W	15478.86	174.229	0.39	-0.03	-0.39
21690.00	89.450	164.580	5927.92	15573.15	-15493.09	1581.43	1746248.84	14570283.15	40°07'08.313"N	80°37'17.182"W	15573.59	174.172	0.61	0.00	-0.61
21785.00	89.480	165.220	5928.81	15667.01	-15584.80	1606.18	1746273.58	14570191.47	40°07'07.406"N	80°37'16.868"W	15667.35	174.116	0.67	0.03	0.67
21880.00	89.380	164.540	5929.75	15760.87	-15676.51	1630.95	1746298.35	14570099.80	40°07'06.499"N	80°37'16.554"W	15761.12	174.060	0.72	-0.11	-0.72
21976.00	89.040	165.030	5931.07	15855.69	-15769.13	1656.15	1746323.53	14570007.21	40°07'05.582"N	80°37'16.235"W	15855.86	174.005	0.62	-0.35	0.51
22072.00	88.980	163.550	5932.73	15950.37	-15861.53	1682.14	1746349.51	14569914.85	40°07'04.668"N	80°37'15.906"W	15950.48	173.946	1.54	-0.06	-1.54
22167.00	88.980	163.570	5934.42	16043.86	-15952.63	1709.02	1746376.38	14569823.78	40°07'03.767"N	80°37'15.565"W	16043.92	173.885	0.02	0.00	0.02
22263.00	88.920	165.050	5936.18	16138.55	-16045.04	1734.97	1746402.33	14569731.41	40°07'02.852"N	80°37'15.236"W	16138.57	173.828	1.54	-0.06	1.54
22359.00	88.950	166.340	5937.97	16233.58	-16138.04	1758.69	1746426.03	14569638.44	40°07'01.932"N	80°37'14.935"W	16233.59	173.781	1.34	0.03	1.34
22421.00	88.980	166.820	5939.09	16295.09	-16198.34	1773.08	1746440.42	14569578.17	40°07'01.336"N	80°37'14.754"W	16295.09	173.753	0.78	0.05	0.77
22446.00	88.980	166.820	5939.53	16319.90	-16222.68	1778.78	1746446.11	14569553.84	40°07'01.095"N	80°37'14.681"W	16319.90	173.743	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 206H
Area	Ohio County, WV	Well	Rayle Coal OHI 206H
Field	Ohio	Wellbore	Rayle Coal OHI 206H AWB
Facility	Rayle Coal OHI Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Rayle Coal OHI 206H AWB Ref Wellpath: Rayle Coal OHI 206H AWP Proj: 22446'MD

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	End N/S [ft]	Start E/W [ft]	End E/W [ft]
17.5in Open Hole	100.00	355.00	255.00	100.00	354.99	0.33	0.26	1.63	0.81
13.375in Casing	26.00	355.00	329.00	26.00	354.99	0.00	0.00	1.63	0.81
12.25in Open Hole	355.00	1730.00	1375.00	354.99	1715.64	1.63	0.81	-0.41	-157.79
9.625in Casing	26.00	1730.00	1704.00	26.00	1715.64	0.00	0.00	-0.41	-157.79
8.75in Open Hole	1730.00	5470.00	3740.00	1715.64	5138.25	-0.41	-157.79	-84.14	-1639.05
8.5in Open Hole	5470.00	22446.00	16976.00	5138.25	5939.53	-84.14	-16222.68	1778.78	1778.78

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Rayle Coal OHI 206H LP Rev-6	5818.00	-1104.40	-1753.50	1742915.21	14584666.23	40°09'30.640"N	80°37'59.344"W	point
Rayle Coal OHI 206H BHL Rev-6	5960.00	-16259.03	1785.04	1746452.38	14569517.50	40°07'00.736"N	80°37'14.603"W	point

WELLPATH COMPOSITION - Ref Wellbore: Rayle Coal OHI 206H AWB Ref Wellpath: Rayle Coal OHI 206H AWP Proj: 22446'MD

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	767.00	Custom BHI SRG (SWN SRG-Gyro-MS)	04 MS Gyro <17 1/2"> (50'-767')	Rayle Coal OHI 206H AWB
767.00	1681.00	OWSG MWD rev2 + HRGM	05 Premier MWD+HRGM <12 1/4"> (882'-1681')	Rayle Coal OHI 206H AWB
1681.00	5399.00	OWSG MWD rev2 + HRGM	05 Premier MWD + HRGM <8 3/4"> (1766'-5399')	Rayle Coal OHI 206H AWB
5399.00	7026.00	BHI AutoTrak Curve (Short)	03 BH AT Curve <8-1/2"> (5496'-7026')	Rayle Coal OHI 206H AWB
7026.00	22421.00	BHI AutoTrak Curve (Short)	03 BH AT Curve <8-1/2"> (7073'-22421')	Rayle Coal OHI 206H AWB
22421.00	22446.00	Blind Drilling (std)	Projection to bit	Rayle Coal OHI 206H AWB

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 206H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 206H
Ohio County, WV	Wellbore	Rayle Coal OHI 206H AWB
Ohio		
Rayle Coal OHI Pad		

COMMENTS

Wellpath general comments
API: 47-069-00270-0000
BH Job #: 109326130
Rig: SDC 41
Duration: 09/02/2018 - 09/11/2018