

SOUTHWESTERN ENERGY

Location: Ohio County, WV
 Field: Ohio
 Facility: Rayle Coal OHI Pad
 Slot: Slot 3H
 Well: Rayle Coal OHI 3H
 Wellbore: Rayle Coal OHI 3H PWB

Plot reference wellpath is Rayle Coal OHI 3H PWP Rev-A 0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 41 (RKB)	* = Wellpath was transformed from a different geoidetic datum
Measured depths are referenced to SDC 41 (RKB)	North Reference: Grid north
SDC 41 (RKB) to Mean Sea Level: 1090 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot Slot 3H): -1064 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: thomsuzc on 2018-08-17
	Database: WA_Pennsylvania

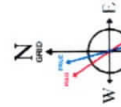
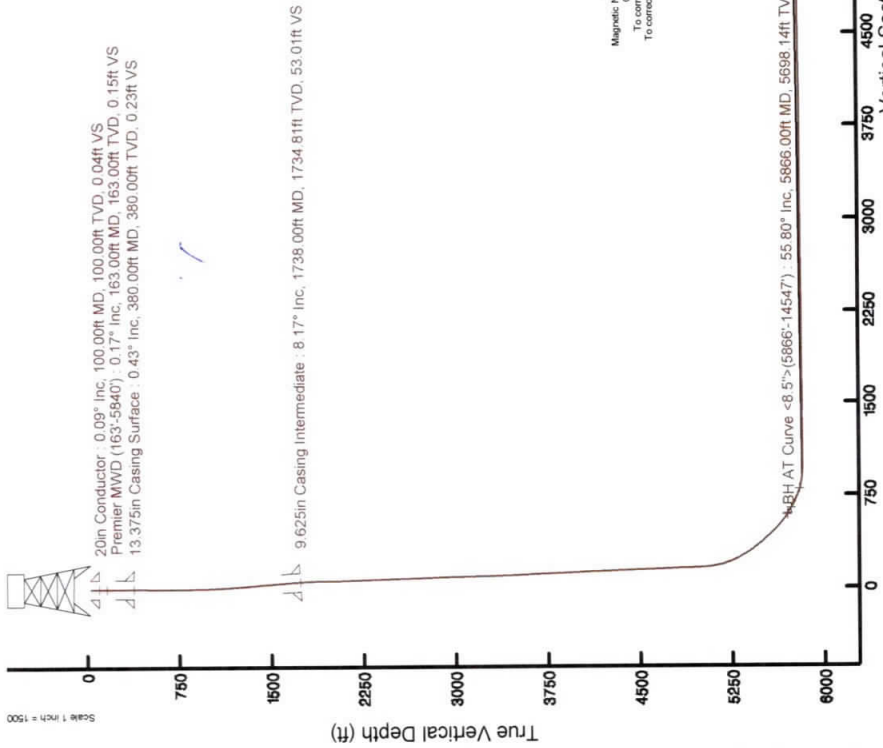


Location Information

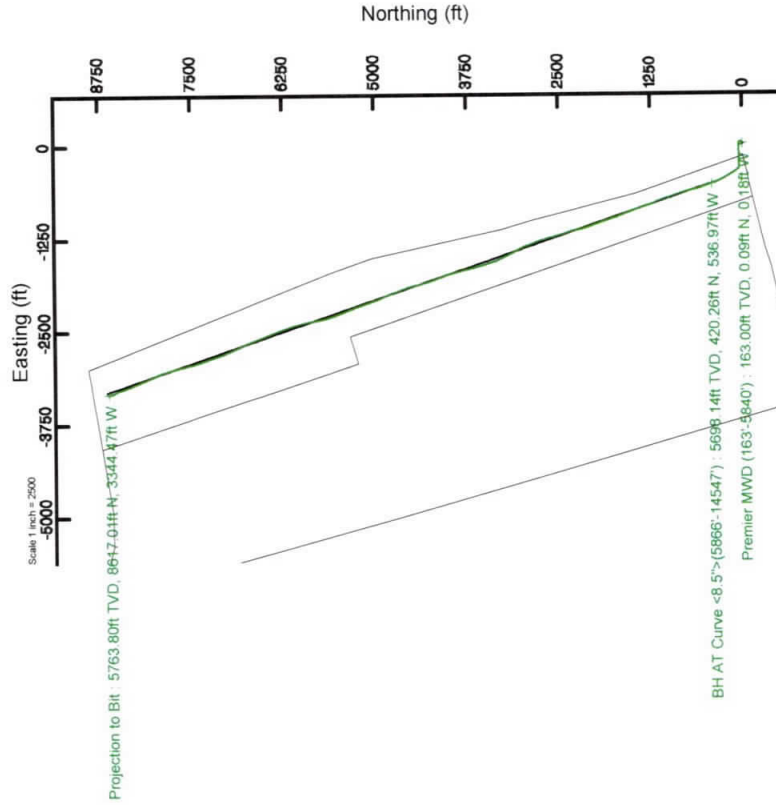
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Rayle Coal OHI Pad	1744351.331	14585677.739	40°09'40.581"N	80°37'40.785"W
Slot	Local E (ft)	Local N (ft)	Latitude	Longitude
Slot 3H	55.24	344.65	40°09'41.113"N	80°37'36.344"W
SDC 41 (RKB) to Ground level (At Slot Slot 3H)	1744695.850	14585732.960	26ft	
Mean Sea Level to Ground level (At Slot Slot 3H)			-1064ft	
SDC 41 (RKB) to Mean Sea Level			1090ft	

Comments

API: 47-069-00278-0000
 BH Job #: 109314994
 Rig: SDC 41
 Duration: 07/30/2018 - 08/01/2018



User specified Decl. of East. Field: 5866.0°
 Magnetic North is 8.06 degrees West of True North (at 7/25/2018)
 Grid North is 0.24 degrees East of True North
 To correct azimuth from True to Grid use: 0.24 degrees
 To correct azimuth from Magnetic to Grid subtract: 8.33 degrees



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 3H
Area	Ohio County, WV	Well	Rayle Coal OHI 3H
Field	Ohio	Wellbore	Rayle Coal OHI 3H AWB
Facility	Rayle Coal OHI Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Thomsuzc
Scale	0.999612	Report Generated	8/17/2018 at 11:56:54 AM
Convergence at slot	0.25° East	Database/Source file	WA_Pennsylvania/Rayle_Coal_OHI_3H_AWP_Proj_14572_MD.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	55.24	344.65	1744695.85	14585732.96	40°09'41.113"N	80°37'36.344"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 (RKB) to Facility Vertical Datum	1090.00ft
Horizontal Reference Pt	Slot	SDC 41 (RKB) to Mean Sea Level	1090.00ft
Vertical Reference Pt	SDC 41 (RKB)	SDC 41 (RKB) to Ground Level at Slot (Slot 3H)	26.00ft
MD Reference Pt	SDC 41 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	339.03°

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 3H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 3H
Area	Wellbore	Rayle Coal OHI 3H AWP
Field		
Facility		

WELLPATH DATA (175 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	297.040	0.00	0.00	0.00	0.00	1744695.85	14585732.96	40°09'41.113"N	80°37'36.344"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	297.040	26.00	0.00	0.00	0.00	1744695.85	14585732.96	40°09'41.113"N	80°37'36.344"W	0.00	0.000	0.00	0.00	0.00
163.00	0.170	297.040	163.00	0.15	0.09	-0.18	1744695.67	14585733.05	40°09'41.114"N	80°37'36.346"W	0.20	297.040	0.12	0.12	-45.96
224.00	0.190	294.130	224.00	0.29	0.17	-0.35	1744695.50	14585733.13	40°09'41.114"N	80°37'36.348"W	0.39	296.295	0.04	0.03	-4.77
305.00	0.190	267.140	305.00	0.43	0.22	-0.61	1744695.24	14585733.18	40°09'41.115"N	80°37'36.352"W	0.65	290.069	0.11	0.00	-33.32
403.00	0.550	185.860	403.00	0.06	-0.25	-0.82	1744695.03	14585732.71	40°09'41.110"N	80°37'36.355"W	0.86	252.877	0.57	0.37	-82.94
433.00	0.510	168.020	433.00	-0.20	-0.53	-0.81	1744695.04	14585732.43	40°09'41.107"N	80°37'36.354"W	0.96	236.896	0.56	-0.13	-59.47
523.00	0.540	178.400	522.99	-1.00	-1.34	-0.71	1744695.14	14585731.62	40°09'41.099"N	80°37'36.353"W	1.52	207.970	0.11	0.03	11.53
614.00	0.440	102.620	613.99	-1.60	-1.85	-0.36	1744695.49	14585731.11	40°09'41.094"N	80°37'36.349"W	1.88	191.026	0.67	-0.11	-83.27
705.00	1.110	60.940	704.98	-1.67	-1.50	0.75	1744696.60	14585731.46	40°09'41.098"N	80°37'36.334"W	1.67	153.325	0.92	0.74	-45.80
796.00	1.610	53.270	795.96	-1.19	-0.30	2.55	1744698.40	14585732.66	40°09'41.110"N	80°37'36.311"W	2.56	96.787	0.58	0.55	-8.43
888.00	2.000	47.130	887.91	-0.24	1.56	4.76	1744700.61	14585734.52	40°09'41.128"N	80°37'36.283"W	5.01	71.828	0.47	0.42	-6.67
977.00	2.450	30.280	976.84	1.53	4.26	6.86	1744702.70	14585737.22	40°09'41.154"N	80°37'36.255"W	8.07	58.138	0.89	0.51	-18.93
1068.00	3.360	22.390	1067.73	4.68	8.41	8.85	1744704.70	14585741.36	40°09'41.195"N	80°37'36.229"W	12.21	46.480	1.09	1.00	-8.67
1158.00	3.970	16.080	1157.54	9.09	13.84	10.72	1744706.57	14585746.79	40°09'41.249"N	80°37'36.205"W	17.51	37.763	0.81	0.68	-7.01
1247.00	4.980	14.440	1246.27	14.69	20.54	12.54	1744708.38	14585753.49	40°09'41.315"N	80°37'36.181"W	24.06	31.398	1.14	1.13	-1.84
1340.00	5.170	0.470	1338.91	21.88	28.64	13.58	1744709.42	14585761.59	40°09'41.395"N	80°37'36.167"W	31.70	25.365	1.34	0.20	-15.02
1433.00	4.990	338.330	1431.55	29.83	36.59	12.12	1744707.96	14585769.54	40°09'41.474"N	80°37'36.186"W	38.54	18.325	2.10	-0.19	-23.81
1525.00	5.220	316.080	1523.20	37.68	43.32	7.74	1744703.58	14585776.27	40°09'41.540"N	80°37'36.242"W	44.01	10.127	2.15	0.25	-24.18
1618.00	6.120	292.960	1615.75	45.02	48.31	0.24	1744696.09	14585781.25	40°09'41.590"N	80°37'36.338"W	48.31	0.282	2.62	0.97	-24.86
1684.00	7.320	279.280	1681.30	49.58	50.36	-7.15	1744688.70	14585783.30	40°09'41.611"N	80°37'36.433"W	50.86	351.916	3.02	1.82	-20.73
1756.00	8.460	274.170	1752.62	54.14	51.48	-16.96	1744678.89	14585784.42	40°09'41.622"N	80°37'36.560"W	54.20	341.764	1.86	1.58	-7.10
1817.00	8.000	270.970	1812.99	57.63	51.88	-25.68	1744670.18	14585784.82	40°09'41.626"N	80°37'36.672"W	57.89	333.664	1.06	-0.75	-5.25
1907.00	3.650	258.700	1902.51	60.46	51.42	-34.76	1744661.11	14585784.36	40°09'41.622"N	80°37'36.789"W	62.07	325.945	5.00	-4.83	-13.63
1997.00	2.890	249.730	1992.36	60.97	50.08	-39.69	1744656.17	14585783.02	40°09'41.609"N	80°37'36.852"W	63.90	321.597	1.02	-0.84	-9.97
2090.00	2.950	278.140	2085.25	62.16	49.60	-44.26	1744651.60	14585782.54	40°09'41.605"N	80°37'36.911"W	66.48	318.256	1.54	0.06	30.55
2182.00	3.260	281.660	2177.11	64.72	50.47	-49.17	1744646.70	14585783.41	40°09'41.613"N	80°37'36.974"W	70.46	315.746	0.40	0.34	3.83
2275.00	4.340	278.010	2269.91	67.85	51.49	-55.24	1744640.63	14585784.43	40°09'41.623"N	80°37'37.053"W	75.52	312.987	1.19	1.16	-3.92
2368.00	4.570	270.720	2362.62	70.93	52.03	-62.43	1744633.44	14585784.97	40°09'41.629"N	80°37'37.145"W	81.27	309.806	0.66	0.25	-7.84
2460.00	5.690	268.990	2454.25	73.84	51.99	-70.66	1744625.22	14585784.93	40°09'41.629"N	80°37'37.251"W	87.73	306.348	1.23	1.22	-1.88

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 3H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 3H
Area	Wellbore	Rayle Coal OHI 3H AWB
Field		
Facility		

WELLPATH DATA (175 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]
2553.00	5.510	267.630	2546.81	76.83	51.73	-79.73	1744616.15	14585784.67	40°09'41.627"N	80°37'37.368"W	95.04	302.976	0.24	-0.19	-1.46
2646.00	5.010	263.530	2639.42	79.28	51.09	-88.22	1744607.66	14585784.03	40°09'41.621"N	80°37'37.477"W	101.95	300.073	0.67	-0.54	-4.41
2739.00	5.570	268.380	2732.02	81.79	50.50	-96.77	1744599.12	14585783.44	40°09'41.616"N	80°37'37.588"W	109.16	297.558	0.77	0.60	5.22
2831.00	6.800	268.300	2823.49	85.06	50.21	-106.68	1744589.21	14585783.15	40°09'41.613"N	80°37'37.715"W	117.91	295.206	1.34	1.34	-0.09
2924.00	6.940	263.620	2915.82	88.30	49.42	-117.77	1744578.13	14585782.37	40°09'41.606"N	80°37'37.858"W	127.72	292.767	0.62	0.15	-5.03
3017.00	6.420	257.940	3008.19	90.52	47.71	-128.43	1744567.47	14585780.66	40°09'41.589"N	80°37'37.996"W	137.01	290.380	0.90	-0.56	-6.11
3111.00	5.200	262.150	3101.70	92.30	46.03	-137.79	1744558.11	14585778.98	40°09'41.573"N	80°37'38.116"W	145.28	288.473	1.37	-1.30	4.48
3204.00	4.720	274.290	3194.36	94.89	45.74	-145.78	1744550.12	14585778.69	40°09'41.571"N	80°37'38.219"W	152.79	287.421	1.24	-0.52	13.05
3297.00	5.810	272.940	3286.96	98.43	46.27	-154.30	1744541.61	14585779.21	40°09'41.576"N	80°37'38.329"W	161.09	286.693	1.18	1.17	-1.45
3390.00	5.920	266.050	3379.48	101.74	46.18	-163.79	1744532.13	14585779.13	40°09'41.576"N	80°37'38.451"W	170.17	285.747	0.77	0.12	-7.41
3482.00	5.650	268.850	3471.01	104.67	45.77	-173.05	1744522.87	14585778.71	40°09'41.572"N	80°37'38.570"W	179.00	284.814	0.42	-0.29	3.04
3575.00	5.800	277.660	3563.55	108.47	46.30	-182.28	1744513.64	14585779.24	40°09'41.578"N	80°37'38.689"W	188.07	284.252	0.96	0.16	9.47
3664.00	5.490	277.660	3652.12	112.66	47.47	-190.96	1744504.97	14585780.41	40°09'41.590"N	80°37'38.801"W	196.77	283.959	0.35	-0.35	0.00
3757.00	4.920	271.270	3744.73	116.30	48.15	-199.36	1744496.57	14585781.09	40°09'41.597"N	80°37'38.909"W	205.09	283.578	0.87	-0.61	-6.87
3850.00	5.300	277.850	3837.36	119.88	48.82	-207.60	1744488.33	14585781.76	40°09'41.604"N	80°37'39.015"W	213.26	283.235	0.75	0.41	7.08
3940.00	5.340	271.020	3926.98	123.46	49.47	-215.90	1744480.03	14585782.41	40°09'41.610"N	80°37'39.122"W	221.50	282.904	0.70	0.04	-7.59
4030.00	6.610	276.160	4016.49	127.39	50.10	-225.24	1744470.70	14585783.04	40°09'41.617"N	80°37'39.242"W	230.74	282.539	1.53	1.41	5.71
4123.00	6.500	270.980	4108.88	131.80	50.76	-235.83	1744460.12	14585783.70	40°09'41.624"N	80°37'39.379"W	241.23	282.147	0.65	-0.12	-5.57
4216.00	5.960	262.220	4201.33	134.87	50.20	-245.87	1744450.07	14585783.14	40°09'41.619"N	80°37'39.508"W	250.94	281.539	1.17	-0.58	-9.42
4308.00	6.000	271.170	4292.83	137.77	49.65	-255.41	1744440.54	14585782.59	40°09'41.614"N	80°37'39.631"W	260.19	281.000	1.01	0.04	9.73
4401.00	6.180	270.860	4385.31	141.46	49.82	-265.28	1744430.68	14585782.76	40°09'41.616"N	80°37'39.758"W	269.92	280.637	0.20	0.19	-0.33
4494.00	6.080	263.960	4477.78	144.59	49.38	-275.18	1744420.78	14585782.32	40°09'41.612"N	80°37'39.886"W	279.58	280.173	0.80	-0.11	-7.42
4587.00	6.360	268.970	4570.23	147.62	48.77	-285.23	1744410.73	14585781.71	40°09'41.606"N	80°37'40.015"W	289.37	279.703	0.66	0.30	5.39
4680.00	6.220	264.180	4662.67	150.69	48.17	-295.39	1744400.57	14585781.11	40°09'41.601"N	80°37'40.146"W	299.29	279.261	0.58	-0.15	-5.15
4773.00	5.610	275.920	4755.18	154.06	48.12	-304.93	1744391.04	14585781.07	40°09'41.601"N	80°37'40.269"W	308.70	278.969	1.45	-0.66	12.62
4865.00	5.730	275.210	4846.73	158.12	49.00	-313.97	1744382.00	14585781.95	40°09'41.613"N	80°37'40.385"W	317.77	278.871	0.15	0.13	-0.77
4958.00	5.300	268.410	4939.30	161.60	49.31	-322.89	1744373.09	14585782.25	40°09'41.610"N	80°37'40.500"W	326.63	278.682	0.84	-0.46	-7.31
5051.00	6.160	286.620	5031.84	166.07	50.62	-331.96	1744364.01	14585783.56	40°09'41.627"N	80°37'40.617"W	335.80	278.669	2.15	0.92	19.58
5097.00	8.510	302.000	5077.47	170.29	53.13	-337.22	1744358.76	14585786.06	40°09'41.652"N	80°37'40.684"W	341.38	278.953	6.61	5.11	33.43
5144.00	11.450	313.150	5123.76	177.27	58.16	-343.57	1744352.41	14585791.10	40°09'41.702"N	80°37'40.766"W	348.46	279.608	7.46	6.26	23.72

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 3H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 3H
Area	Wellbore	Rayle Coal OHI 3H AWB
Field		
Facility		

WELLPATH DATA (175 stations)

MD	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]
5190.00	15.410	321.430	5168.49	187.20	66.06	-350.72	1744345.27	14585799.00	40°09'41.780"N	80°37'40.858"W	356.88	280.668	9.55	8.61	18.00
5236.00	19.860	323.980	5212.32	200.58	77.17	-359.13	1744336.86	14585810.10	40°09'41.890"N	80°37'40.965"W	367.32	282.127	9.82	9.67	5.54
5283.00	24.200	325.010	5255.88	217.65	91.52	-369.35	1744326.64	14585824.45	40°09'42.032"N	80°37'41.096"W	380.52	283.918	9.27	9.23	2.19
5329.00	27.310	325.950	5297.30	237.08	108.00	-380.67	1744315.33	14585840.91	40°09'42.196"N	80°37'41.241"W	395.69	285.839	6.82	6.76	2.04
5376.00	30.580	326.870	5338.43	259.27	126.95	-393.24	1744302.76	14585859.86	40°09'42.383"N	80°37'41.402"W	413.23	287.891	7.02	6.96	1.96
5422.00	33.250	327.880	5377.47	283.09	147.43	-406.35	1744289.66	14585880.33	40°09'42.586"N	80°37'41.570"W	432.26	289.942	5.92	5.80	2.20
5468.00	35.500	328.980	5415.44	308.62	169.56	-419.94	1744276.08	14585902.45	40°09'42.806"N	80°37'41.744"W	452.88	291.988	5.07	4.89	2.39
5515.00	37.750	329.660	5453.15	336.25	193.67	-434.24	1744261.78	14585926.56	40°09'43.044"N	80°37'41.926"W	475.47	294.037	4.86	4.79	1.45
5561.00	40.160	330.730	5488.92	364.83	218.77	-448.60	1744247.42	14585951.65	40°09'43.293"N	80°37'42.110"W	499.11	295.997	5.44	5.24	2.33
5608.00	41.990	331.490	5524.35	395.41	245.81	-463.52	1744232.51	14585978.67	40°09'43.561"N	80°37'42.301"W	524.66	297.937	4.04	3.89	1.62
5654.00	43.000	332.730	5558.27	426.26	273.27	-478.05	1744217.98	14586006.13	40°09'43.833"N	80°37'42.486"W	550.65	299.754	2.85	2.20	2.70
5701.00	43.740	335.790	5592.44	458.41	302.34	-492.06	1744203.98	14586035.18	40°09'44.121"N	80°37'42.665"W	577.52	301.568	4.74	1.57	6.51
5747.00	46.680	338.420	5624.85	491.03	332.41	-504.74	1744191.31	14586065.24	40°09'44.418"N	80°37'42.827"W	604.37	303.368	7.57	6.39	5.72
5794.00	51.320	339.760	5655.67	526.49	365.54	-517.38	1744178.67	14586098.36	40°09'44.746"N	80°37'42.988"W	633.49	305.242	10.10	9.87	2.85
5840.00	54.760	340.590	5683.33	563.24	400.12	-529.84	1744166.22	14586132.92	40°09'45.089"N	80°37'43.147"W	663.95	307.059	7.62	7.48	1.80
5866.00	55.800	340.410	5698.14	584.60	420.26	-536.97	1744159.09	14586153.06	40°09'45.288"N	80°37'43.237"W	681.88	308.049	4.04	4.00	-0.69
5913.00	59.290	340.720	5723.35	624.24	457.66	-550.17	1744145.90	14586190.44	40°09'45.658"N	80°37'43.405"W	715.63	309.756	7.45	7.43	0.66
5959.00	61.280	340.250	5746.15	664.17	495.31	-563.51	1744132.56	14586228.08	40°09'46.031"N	80°37'43.575"W	750.25	311.315	4.42	4.33	-1.02
6005.00	65.410	340.710	5766.79	705.26	534.05	-577.24	1744118.83	14586266.80	40°09'46.414"N	80°37'43.750"W	786.40	312.774	9.02	8.98	1.00
6052.00	70.000	342.090	5784.61	748.70	575.26	-591.10	1744104.98	14586307.99	40°09'46.822"N	80°37'43.926"W	824.82	314.222	10.14	9.77	2.94
6098.00	74.270	344.250	5798.72	792.35	617.15	-603.76	1744092.32	14586349.87	40°09'47.236"N	80°37'44.087"W	863.37	315.628	10.30	9.28	4.70
6145.00	79.010	345.190	5809.58	837.84	661.25	-615.81	1744080.28	14586393.96	40°09'47.673"N	80°37'44.240"W	903.59	317.038	10.27	10.09	2.07
6191.00	81.630	345.450	5817.31	882.91	705.11	-627.30	1744068.80	14586437.80	40°09'48.107"N	80°37'44.386"W	943.76	318.342	5.72	5.70	0.57
6237.00	86.610	345.270	5822.03	928.38	749.37	-638.86	1744057.24	14586482.04	40°09'48.544"N	80°37'44.532"W	984.73	319.552	10.83	10.83	-0.39
6330.00	90.430	343.140	5824.43	1020.94	838.81	-664.16	1744031.95	14586571.44	40°09'49.429"N	80°37'44.853"W	1069.91	321.628	4.70	4.11	-2.29
6420.00	90.340	340.800	5823.82	1110.82	924.38	-692.01	1744004.10	14586656.98	40°09'50.276"N	80°37'45.207"W	1154.71	323.181	2.60	-0.10	-2.60
6513.00	90.150	341.620	5823.43	1203.75	1012.42	-721.97	1743974.16	14586744.99	40°09'51.147"N	80°37'45.588"W	1243.48	324.507	0.91	-0.20	0.88
6608.00	90.280	340.810	5823.07	1298.68	1102.36	-752.56	1743943.58	14586834.98	40°09'52.037"N	80°37'45.978"W	1334.75	325.679	0.86	0.14	-0.85
6701.00	90.030	337.980	5822.82	1391.66	1189.40	-785.29	1743910.87	14586921.90	40°09'52.899"N	80°37'46.394"W	1425.26	326.566	3.05	-0.27	-3.04
6794.00	89.570	339.800	5823.14	1484.66	1276.16	-818.78	1743877.39	14587008.62	40°09'53.757"N	80°37'46.821"W	1516.24	327.316	2.02	-0.49	1.96

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 3H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 3H
Ohio County, WV	Wellbore	Rayle Coal OHI 3H AWP
Ohio		
Facility		

WELLPATH DATA (175 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
6886.00	90.220	342.300	5823.31	1576.59	1363.16	-848.65	1743847.53	14587095.59	40°09'54.618"N	80°37'47.201"W	1605.75	328.095	2.81	0.71	2.72
6979.00	90.340	340.680	5822.86	1669.50	1451.35	-878.18	1743818.02	14587183.74	40°09'55.491"N	80°37'47.577"W	1696.35	328.823	1.75	0.13	-1.74
7072.00	90.370	339.070	5822.28	1762.49	1538.67	-910.17	1743786.03	14587271.03	40°09'56.355"N	80°37'47.984"W	1787.71	329.394	1.73	0.03	-1.73
7165.00	90.340	337.370	5821.70	1855.48	1625.02	-944.68	1743751.54	14587357.35	40°09'57.210"N	80°37'48.424"W	1879.66	329.829	1.83	-0.03	-1.83
7257.00	89.450	340.450	5821.87	1947.46	1710.85	-977.78	1743718.45	14587443.14	40°09'58.060"N	80°37'48.846"W	1970.55	330.251	3.48	-0.97	3.35
7350.00	90.250	343.730	5822.12	2040.32	1799.33	-1006.37	1743689.87	14587531.59	40°09'58.935"N	80°37'49.209"W	2061.64	330.781	3.63	0.86	3.53
7443.00	90.370	340.260	5821.61	2133.18	1887.76	-1035.12	1743661.14	14587619.99	40°09'59.810"N	80°37'49.575"W	2152.93	331.263	3.73	0.13	-3.73
7535.00	90.250	339.820	5821.11	2225.16	1974.23	-1066.52	1743629.75	14587706.42	40°10'00.666"N	80°37'49.975"W	2243.89	331.621	0.50	-0.13	-0.48
7628.00	90.280	340.890	5820.68	2318.13	2061.82	-1097.79	1743598.49	14587793.97	40°10'01.533"N	80°37'50.373"W	2335.86	331.968	1.15	0.03	1.15
7721.00	90.180	344.980	5820.31	2410.90	2150.70	-1125.07	1743571.22	14587882.83	40°10'02.412"N	80°37'50.720"W	2427.20	332.385	4.40	-0.11	4.40
7813.00	90.400	347.500	5819.85	2502.16	2240.05	-1146.95	1743549.35	14587972.14	40°10'03.296"N	80°37'50.997"W	2516.61	332.887	2.75	0.24	2.74
7906.00	90.920	343.730	5818.77	2594.52	2330.12	-1170.05	1743526.26	14588062.17	40°10'04.187"N	80°37'51.289"W	2607.39	333.337	4.09	0.56	-4.05
7999.00	90.340	341.090	5817.75	2687.35	2418.75	-1198.15	1743498.17	14588150.77	40°10'05.064"N	80°37'51.647"W	2699.25	333.648	2.91	-0.62	-2.84
8092.00	90.280	345.150	5817.25	2780.09	2507.73	-1225.15	1743471.18	14588239.71	40°10'05.944"N	80°37'51.990"W	2791.00	333.962	4.37	-0.06	4.37
8185.00	90.490	344.310	5816.62	2872.63	2597.44	-1249.64	1743446.70	14588329.39	40°10'06.832"N	80°37'52.300"W	2882.41	334.308	0.93	0.23	-0.90
8277.00	90.400	344.150	5815.91	2964.25	2685.98	-1274.64	1743421.70	14588417.89	40°10'07.708"N	80°37'52.618"W	2973.08	334.613	0.20	-0.10	-0.17
8370.00	90.680	341.710	5815.03	3057.02	2774.87	-1301.94	1743394.42	14588506.75	40°10'08.587"N	80°37'52.964"W	3065.12	334.865	2.64	0.30	-2.62
8463.00	90.090	339.020	5814.41	3149.98	2862.45	-1333.19	1743363.18	14588594.29	40°10'09.454"N	80°37'53.362"W	3157.69	335.026	2.96	-0.63	-2.89
8556.00	90.400	336.980	5814.01	3242.96	2948.67	-1368.02	1743328.36	14588680.48	40°10'10.308"N	80°37'53.806"W	3250.56	335.111	2.22	0.33	-2.19
8648.00	90.030	334.900	5813.66	3334.82	3032.67	-1405.53	1743290.87	14588764.45	40°10'11.139"N	80°37'54.285"W	3342.55	335.134	2.30	-0.40	-2.26
8740.00	90.000	331.370	5813.64	3426.32	3114.73	-1447.10	1743249.32	14588846.48	40°10'11.952"N	80°37'54.816"W	3434.48	335.081	3.84	-0.03	-3.84
8833.00	89.630	333.100	5813.94	3518.66	3197.02	-1490.42	1743206.01	14588928.74	40°10'12.767"N	80°37'55.370"W	3527.36	335.006	1.90	-0.40	1.86
8926.00	89.350	336.390	5814.77	3611.39	3281.12	-1530.09	1743166.36	14589012.80	40°10'13.600"N	80°37'55.876"W	3620.34	334.999	3.55	-0.30	3.54
9018.00	90.180	338.910	5815.14	3703.35	3366.20	-1565.07	1743131.39	14589097.85	40°10'14.442"N	80°37'56.322"W	3712.24	335.065	2.88	0.90	2.74
9111.00	90.280	342.630	5814.77	3796.29	3453.99	-1595.69	1743100.78	14589185.61	40°10'15.311"N	80°37'56.712"W	3804.77	335.204	4.00	0.11	4.00
9204.00	90.340	344.400	5814.27	3889.00	3543.16	-1622.08	1743074.40	14589274.74	40°10'16.193"N	80°37'57.047"W	3896.81	335.401	1.90	0.06	1.90
9296.00	90.430	345.540	5813.65	3980.51	3632.01	-1645.94	1743050.55	14589363.56	40°10'17.072"N	80°37'57.350"W	3987.56	335.621	1.24	0.10	1.24
9389.00	90.400	345.640	5812.98	4072.89	3722.09	-1669.08	1743027.42	14589453.60	40°10'17.963"N	80°37'57.643"W	4079.19	335.847	0.11	-0.03	0.11
9482.00	91.020	345.430	5811.82	4165.29	3812.13	-1692.31	1743004.20	14589543.60	40°10'18.854"N	80°37'57.938"W	4170.88	336.062	0.70	0.67	-0.23
9574.00	90.830	345.680	5810.34	4256.68	3901.21	-1715.26	1742981.26	14589632.65	40°10'19.735"N	80°37'58.229"W	4261.64	336.266	0.34	-0.21	0.27



REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 3H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 3H
Ohio County, WV	Wellbore	Rayle Coal OHI 3H AWP
Ohio		
Rayle Coal OHI Pad		

WELLPATH DATA (175 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]
9667.00	90.580	342.850	5809.19	4349.28	3990.71	-1740.47	1742956.05	14589722.11	40°10'20.620"N	80°37'58.549"W	4353.73	336.436	3.05	-0.27	-3.04
9760.00	90.430	339.260	5808.37	4442.20	4078.65	-1770.66	1742925.88	14589810.02	40°10'21.491"N	80°37'58.933"W	4446.42	336.533	3.86	-0.16	-3.86
9853.00	90.090	338.570	5807.95	4535.20	4165.42	-1804.12	1742892.43	14589896.76	40°10'22.349"N	80°37'59.359"W	4539.34	336.582	0.83	-0.37	-0.74
9945.00	90.950	342.200	5807.12	4627.15	4252.07	-1835.00	1742861.57	14589983.37	40°10'23.207"N	80°37'59.752"W	4631.12	336.657	4.05	0.93	3.95
10038.00	90.250	344.350	5806.14	4719.88	4341.12	-1861.76	1742834.82	14590072.39	40°10'24.088"N	80°38'00.092"W	4723.50	336.787	2.43	-0.75	2.31
10131.00	90.680	345.170	5805.39	4812.42	4430.85	-1886.20	1742810.38	14590162.08	40°10'24.976"N	80°38'00.403"W	4815.62	336.941	1.00	0.46	0.88
10224.00	91.380	343.750	5803.72	4904.98	4520.43	-1911.11	1742785.48	14590251.63	40°10'25.862"N	80°38'00.719"W	4907.81	337.083	1.70	0.75	-1.53
10316.00	90.490	340.980	5802.21	4996.80	4608.09	-1938.98	1742757.63	14590339.25	40°10'26.729"N	80°38'01.073"W	4999.41	337.180	3.16	-0.97	-3.01
10409.00	90.340	339.790	5801.54	5089.77	4695.69	-1970.20	1742726.42	14590426.82	40°10'27.596"N	80°38'01.470"W	5092.26	337.238	1.29	-0.16	-1.28
10502.00	90.310	338.440	5801.01	5182.77	4782.57	-2003.35	1742693.28	14590513.67	40°10'28.456"N	80°38'01.893"W	5185.21	337.272	1.45	-0.03	-1.45
10594.00	90.370	337.730	5800.47	5274.75	4867.92	-2037.68	1742658.96	14590598.99	40°10'29.301"N	80°38'02.331"W	5277.20	337.286	0.77	0.07	-0.77
10687.00	90.310	336.560	5799.92	5367.70	4953.62	-2073.80	1742622.85	14590684.65	40°10'30.149"N	80°38'02.792"W	5370.19	337.284	1.26	-0.06	-1.26
10780.00	89.970	339.920	5799.69	5460.68	5039.98	-2108.28	1742588.40	14590770.97	40°10'31.004"N	80°38'03.231"W	5463.17	337.300	3.63	-0.37	3.61
10873.00	90.740	342.620	5799.11	5553.60	5128.04	-2138.14	1742558.55	14590859.00	40°10'31.876"N	80°38'03.611"W	5555.94	337.366	3.02	0.83	2.90
10965.00	90.980	341.610	5797.73	5645.45	5215.59	-2166.39	1742530.31	14590946.51	40°10'32.742"N	80°38'03.970"W	5647.62	337.444	1.13	0.26	-1.10
11058.00	90.340	338.450	5796.66	5738.42	5302.98	-2198.14	1742498.56	14591033.87	40°10'33.607"N	80°38'04.375"W	5740.50	337.485	3.47	-0.69	-3.40
11151.00	90.310	337.920	5796.13	5831.41	5389.31	-2232.70	1742464.02	14591120.17	40°10'34.461"N	80°38'04.815"W	5833.49	337.497	0.57	-0.03	-0.57
11244.00	89.970	340.140	5795.90	5924.40	5476.15	-2265.98	1742430.75	14591206.98	40°10'35.321"N	80°38'05.240"W	5926.46	337.521	2.41	-0.37	2.39
11336.00	90.310	340.380	5795.68	6016.38	5562.74	-2297.05	1742399.69	14591293.54	40°10'36.178"N	80°38'05.635"W	6018.35	337.563	0.45	0.37	0.26
11429.00	90.620	343.570	5794.93	6109.24	5651.16	-2325.83	1742370.93	14591381.92	40°10'37.053"N	80°38'06.001"W	6111.07	337.630	3.45	0.33	3.43
11522.00	90.770	348.470	5793.80	6201.51	5741.37	-2348.29	1742348.48	14591472.10	40°10'37.945"N	80°38'06.286"W	6203.05	337.755	5.27	0.16	5.27
11615.00	90.740	351.020	5792.57	6292.88	5832.87	-2364.84	1742331.93	14591563.56	40°10'38.850"N	80°38'06.494"W	6294.04	337.931	2.74	-0.03	2.74
11708.00	91.380	348.550	5790.85	6384.22	5924.38	-2381.33	1742315.45	14591655.03	40°10'39.755"N	80°38'06.702"W	6385.06	338.102	2.74	0.69	-2.66
11800.00	91.570	344.080	5788.48	6475.42	6013.71	-2403.08	1742293.70	14591744.33	40°10'40.638"N	80°38'06.977"W	6476.07	338.218	4.86	0.21	-4.86
11893.00	90.650	343.530	5786.68	6568.08	6103.00	-2429.01	1742267.78	14591833.59	40°10'41.522"N	80°38'07.307"W	6568.62	338.297	1.15	-0.99	-0.59
11986.00	90.950	343.360	5785.38	6660.80	6192.14	-2455.51	1742241.30	14591922.69	40°10'42.404"N	80°38'07.643"W	6661.24	338.369	0.37	0.32	-0.18
12078.00	90.400	339.380	5784.30	6752.70	6279.29	-2484.89	1742219.93	14592009.81	40°10'43.286"N	80°38'08.017"W	6753.09	338.410	4.37	-0.60	-4.33
12171.00	90.520	338.560	5783.55	6845.69	6366.10	-2518.27	1742178.57	14592096.58	40°10'44.125"N	80°38'08.443"W	6846.08	338.418	0.89	0.13	-0.88
12264.00	90.460	337.780	5782.75	6938.68	6452.42	-2552.85	1742144.00	14592182.87	40°10'44.980"N	80°38'08.884"W	6939.08	338.414	0.84	-0.06	-0.84
12356.00	90.280	339.240	5782.16	7030.67	6538.02	-2586.55	1742110.31	14592268.44	40°10'45.827"N	80°38'09.313"W	7031.07	338.415	1.60	-0.20	1.59

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 3H
SOUTHWESTERN ENERGY	Well	Rayle Coal OHI 3H
Area	Wellbore	Rayle Coal OHI 3H AWB
Field		
Facility		

WELLPATH DATA (175 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]
12449.00	90.220	339.950	5781.75	7123.66	6625.19	-2618.97	1742077.90	14592355.57	40°10'46.690"N	80°38'09.726"W	7124.05	338.431	0.77	-0.06	0.76
12542.00	90.340	337.100	5781.30	7216.65	6711.72	-2653.01	1742043.87	14592442.07	40°10'47.546"N	80°38'10.160"W	7217.04	338.432	3.07	0.13	-3.06
12632.00	90.250	336.550	5780.84	7306.58	6794.46	-2688.43	1742008.46	14592524.77	40°10'48.365"N	80°38'10.612"W	7307.00	338.412	0.62	-0.10	-0.61
12724.00	90.400	335.650	5780.31	7398.46	6878.57	-2725.70	1741971.21	14592608.85	40°10'49.198"N	80°38'11.088"W	7398.93	338.384	0.99	0.16	-0.98
12817.00	90.490	336.150	5779.59	7491.32	6963.46	-2763.68	1741933.25	14592693.70	40°10'50.038"N	80°38'11.573"W	7491.84	338.353	0.55	0.10	0.54
12910.00	90.740	339.780	5778.59	7584.28	7049.64	-2798.56	1741898.38	14592779.86	40°10'50.892"N	80°38'12.018"W	7584.82	338.348	3.91	0.27	3.90
13002.00	90.680	341.300	5777.45	7676.24	7136.38	-2829.21	1741867.74	14592866.56	40°10'51.750"N	80°38'12.408"W	7676.74	338.374	1.65	-0.07	1.65
13095.00	90.520	340.360	5776.48	7769.18	7224.22	-2859.74	1741837.22	14592954.36	40°10'52.619"N	80°38'12.797"W	7769.65	338.404	1.03	-0.17	-1.01
13187.00	90.490	341.550	5775.67	7861.13	7311.18	-2889.76	1741807.21	14593041.29	40°10'53.480"N	80°38'13.179"W	7861.55	338.433	1.29	-0.03	1.29
13280.00	90.430	342.660	5774.92	7953.99	7399.67	-2918.34	1741778.65	14593129.75	40°10'54.355"N	80°38'13.542"W	7954.36	338.476	1.20	-0.06	1.19
13373.00	90.620	344.880	5774.07	8046.66	7488.96	-2944.33	1741752.67	14593219.00	40°10'55.239"N	80°38'13.873"W	8046.96	338.537	2.40	0.20	2.39
13466.00	90.180	345.950	5773.42	8139.08	7578.96	-2967.75	1741729.26	14593308.96	40°10'56.129"N	80°38'14.170"W	8139.29	338.616	1.24	-0.47	1.15
13558.00	90.120	346.170	5773.18	8230.39	7668.25	-2989.91	1741707.10	14593398.22	40°10'57.012"N	80°38'14.450"W	8230.53	338.699	0.25	-0.07	0.24
13651.00	90.280	345.150	5772.86	8322.77	7758.35	-3012.94	1741684.08	14593488.28	40°10'57.904"N	80°38'14.742"W	8322.85	338.776	1.11	0.17	-1.10
13744.00	90.890	341.970	5771.91	8415.46	7847.53	-3039.26	1741657.78	14593577.43	40°10'58.786"N	80°38'15.077"W	8415.51	338.829	3.48	0.66	-3.42
13837.00	90.250	338.110	5770.98	8508.42	7934.92	-3071.00	1741626.05	14593664.79	40°10'59.651"N	80°38'15.481"W	8508.47	338.842	4.21	-0.69	-4.15
13930.00	90.150	336.990	5770.66	8601.39	8020.87	-3106.51	1741590.55	14593750.71	40°11'00.502"N	80°38'15.934"W	8601.44	338.828	1.21	-0.11	-1.20
14022.00	90.520	337.460	5770.12	8693.34	8105.70	-3142.13	1741554.95	14593835.50	40°11'01.341"N	80°38'16.389"W	8693.40	338.811	0.65	0.40	0.51
14115.00	90.490	336.700	5769.30	8786.28	8191.35	-3178.34	1741518.75	14593921.12	40°11'02.189"N	80°38'16.851"W	8786.36	338.793	0.82	-0.03	-0.82
14208.00	90.650	339.170	5768.37	8879.25	8277.53	-3213.27	1741483.83	14594007.26	40°11'03.042"N	80°38'17.296"W	8879.33	338.784	2.66	0.17	2.66
14301.00	90.800	339.850	5767.20	8972.24	8364.64	-3245.82	1741451.29	14594094.34	40°11'03.904"N	80°38'17.711"W	8972.32	338.792	0.75	0.16	0.73
14393.00	90.740	338.710	5765.96	9064.23	8450.68	-3278.37	1741418.76	14594180.34	40°11'04.756"N	80°38'18.126"W	9064.31	338.797	1.24	-0.07	-1.24
14486.00	90.740	338.040	5764.76	9157.22	8537.12	-3312.64	1741384.50	14594266.76	40°11'05.611"N	80°38'18.563"W	9157.29	338.792	0.72	0.00	-0.72
14547.00	90.580	338.410	5764.06	9218.21	8593.77	-3335.27	1741361.88	14594323.38	40°11'06.172"N	80°38'18.851"W	9218.29	338.789	0.66	-0.26	0.61
14572.00	90.580	338.410	5763.80	9243.20	8617.01	-3344.47	1741352.69	14594346.61	40°11'06.402"N	80°38'18.969"W	9243.29	338.788	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 3H
Area	Ohio County, WV	Well	Rayle Coal OHI 3H
Field	Ohio	Wellbore	Rayle Coal OHI 3H AWB
Facility	Rayle Coal OHI Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Rayle Coal OHI 3H AWB Ref Wellpath: Rayle Coal OHI 3H AWP Proj: 14572'MD									
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	0.00	-0.05
17.5in Open Hole	100.00	380.00	280.00	100.00	380.00	0.03	-0.05	-0.06	-0.79
13.375in Casing Surface	26.00	380.00	354.00	26.00	380.00	0.00	0.00	-0.06	-0.79
12.25in Open Hole	380.00	1738.00	1358.00	380.00	1734.81	-0.06	-0.79	51.27	-14.37
9.625in Casing Intermediate	26.00	1738.00	1712.00	26.00	1734.81	0.00	0.00	51.27	-14.37
8.75in Open Hole	1738.00	5916.00	4178.00	1734.81	5724.88	51.27	-14.37	460.09	-551.02
8.5in Open Hole	5916.00	14572.00	8656.00	5724.88	5763.80	460.09	-551.02	8617.01	-3344.47

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Rayle Coal OHI 3H BHL Rev-4	5747.47	8642.81	-3313.25	1741383.89	14594372.40	40°11'06.656"N	80°38'18.565"W	point
Rayle Coal OHI 3H BHL Rev-3	5754.00	8642.80	-3313.25	1741383.89	14594372.40	40°11'06.656"N	80°38'18.565"W	point
Rayle Coal OHI 3H LP Rev-2	5820.00	577.45	-580.99	1744115.08	14586310.18	40°09'46.843"N	80°37'43.796"W	point
Rayle Coal OHI 3H LP Rev-3	5820.00	719.45	-629.55	1744066.55	14586452.13	40°09'48.248"N	80°37'44.414"W	point
Rayle Coal OHI 3H LP Rev-4	5820.00	770.81	-646.95	1744049.15	14586503.47	40°09'48.757"N	80°37'44.635"W	point

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

WELLPATH COMPOSITION - Ref Wellbore: Rayle Coal OHI 3H AWP Proj: 14572'MD		
Start MD [ft]	End MD [ft]	Log Name/Comment
26.00	5840.00	01 Premier Directional Surveys (163'-5840')
5840.00	14547.00	02 AT Curve <8-1/2">(5840')(5866'-14547')
14547.00	14572.00	Projection to bit

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 3H
Area	Ohio County, WV	Well	Rayle Coal OHI 3H
Field	Ohio	Wellbore	Rayle Coal OHI 3H AWB
Facility	Rayle Coal OHI Pad		

COMMENTS

Wellpath general comments
API: 47-069-00278-0000
BH Job #: 109314994
Rig: SDC 41
Duration: 07/30/2018 - 08/01/2018