

NORTHEAST NATURAL ENERGY, LLC

Location: Monongalia County, WV
 Field: Monongalia
 Facility: Sullivan Pad

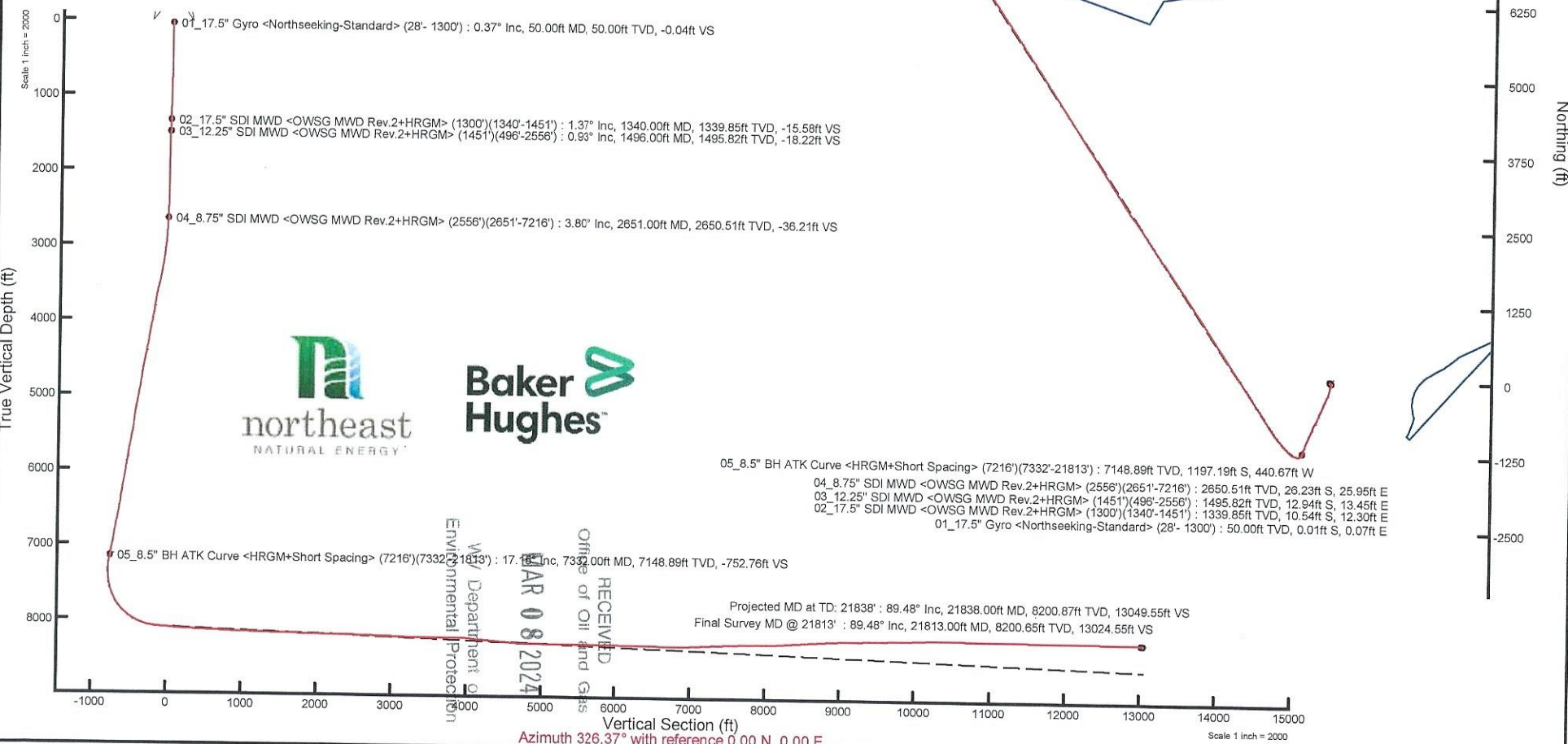
Slot: Slot #09
 Well: Sullivan 9H
 Wellbore: Sullivan 9H PWB

Well Reference: Sullivan 9H Rev-A-0	Slot System: NAD83 / Lambert Well Logge SP, Northern Zone 4701, US Nat
True Azimuth: 326.37 degrees with reference to Patterson 277 (RKB)	North Reference: Geocentric
Reference Azimuth: 326.37 degrees with reference to Patterson 277 (RKB)	Scale: True distance
Reference: 277 (RKB) Mean Sea Level: 1504 ft	Coordinates are as listed reference to Slot
Mean Sea Level to Ground level (At Slot: Slot #09): -1470 ft	Scale: as noted
US State Wellbore IDs are referenced to each path to final MD datum	Created by: mason on 2024/02/28, Database: WVA-MPL-Geodatabase-Data

Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Sullivan Pad	1764815.000	406682.090	39°36'53.4792"N	80°13'22.9021"W	
Slot #09	-34.19	-49.30	39°36'53.1374"N	80°13'23.6266"W	
Patterson 277 (RKB) to Ground level (At Slot: Slot #09)	288				
Mean Sea Level to Ground level (At Slot: Slot #09)	+1470 ft				
Patterson 277 (RKB) to Mean Sea Level	1504 ft				

Well Profile Data							
Design Comment	MD (ft)	Incl. (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
TD On	7216.00	17.760	200.220	7036.23	-1164.23	-429.57	-731.47
Projection	7363.00	17.516	199.251	7206.91	-1214.69	-447.73	-763.43
Build/Turn	7652.66	23.141	294.089	7647.44	-1243.76	-556.96	-727.91
Landing Pt.	8684.73	88.000	326.373	8100.00	-773.13	-988.09	-96.50
BH-L	21838.85	88.000	326.373	8559.07	12173.16	-8268.13	13049.61

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #09	Sullivan 9H	Sullivan 9H AWP	Sullivan 9H AWP Proj: 21838'
Slot #09	Sullivan 9H	Sullivan 9H PWB	Sullivan 9H Rev-A-0



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Actual Wellpath Report

Sullivan 9H AWP Proj: 21838'

Page 1 of 12

REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 9H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Manajohj
Scale	0.999941	Report Generated	2/23/2023 at 11:46:28 AM
Convergence at slot	0.46° West	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	-34.19	-49.30	1764765.70	406847.90	39°36'53.1374"N	80°13'23.5286"W
Facility Reference Pt			1764815.00	406882.09	39°36'53.4792"N	80°13'22.9021"W
Field Reference Pt			1777685.71	440640.65	39°42'28.1140"N	80°10'41.6900"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 277 (RKB) to Facility Vertical Datum	1504.00ft
Horizontal Reference Pt	Slot	Patterson 277 (RKB) to Mean Sea Level	1504.00ft
Vertical Reference Pt	Patterson 277 (RKB)	Patterson 277 (RKB) to Ground Level at Slot (Slot #09)	28.00ft
MD Reference Pt	Patterson 277 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	326.37°

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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations) † = interpolated, ‡ = extrapolated station																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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	95.410	0.00	-1504.00	0.00	0.00	0.00	1764765.70	406847.90	39°36'53.1374"N	80°13'23.5286"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	95.410	28.00	-1476.00	0.00	0.00	0.00	1764765.70	406847.90	39°36'53.1374"N	80°13'23.5286"W	0.00	0.000	0.00	0.00	0.00
50.00	0.370	95.410	50.00	-1454.00	-0.04	-0.01	0.07	1764765.77	406847.89	39°36'53.1373"N	80°13'23.5277"W	0.07	95.410	1.68	1.68	0.00
100.00	0.440	111.380	100.00	-1404.00	-0.30	-0.09	0.41	1764766.11	406847.81	39°36'53.1365"N	80°13'23.5234"W	0.42	102.628	0.26	0.14	31.94
150.00	0.370	112.410	150.00	-1354.00	-0.59	-0.22	0.74	1764766.44	406847.68	39°36'53.1352"N	80°13'23.5191"W	0.77	106.839	0.14	-0.14	2.06
200.00	0.430	106.220	200.00	-1304.00	-0.87	-0.34	1.07	1764767.11	406847.56	39°36'53.1341"N	80°13'23.5149"W	1.12	107.538	0.15	0.12	-12.38
250.00	0.420	115.900	249.99	-1254.01	-1.17	-0.47	1.41	1764767.11	406847.43	39°36'53.1328"N	80°13'23.5105"W	1.49	108.397	0.14	-0.02	19.36
300.00	0.310	97.780	299.99	-1204.01	-1.42	-0.57	1.71	1764767.41	406847.33	39°36'53.1319"N	80°13'23.5067"W	1.80	108.366	0.32	-0.22	-36.24
350.00	0.490	70.200	349.99	-1154.01	-1.56	-0.51	2.05	1764767.75	406847.39	39°36'53.1325"N	80°13'23.5024"W	2.11	104.100	0.52	0.36	-55.16
400.00	0.580	62.170	399.99	-1104.01	-1.64	-0.32	2.47	1764768.17	406847.58	39°36'53.1344"N	80°13'23.4970"W	2.49	97.457	0.23	0.18	-16.06
450.00	0.570	70.500	449.99	-1054.01	-1.72	-0.12	2.93	1764768.63	406847.78	39°36'53.1364"N	80°13'23.4912"W	2.93	92.392	0.17	-0.02	16.66
500.00	0.660	77.160	499.99	-1004.01	-1.89	0.02	3.45	1764769.14	406847.92	39°36'53.1379"N	80°13'23.4846"W	3.45	89.590	0.23	0.18	13.32
550.00	0.610	89.040	549.98	-954.02	-2.13	0.09	3.99	1764769.69	406847.99	39°36'53.1386"N	80°13'23.4776"W	3.99	88.664	0.28	-0.10	23.76
600.00	0.590	113.660	599.98	-904.02	-2.49	-0.01	4.49	1764770.19	406847.89	39°36'53.1377"N	80°13'23.4712"W	4.49	90.073	0.51	-0.04	49.24
650.00	0.710	133.600	649.98	-854.02	-3.01	-0.32	4.95	1764770.65	406847.58	39°36'53.1346"N	80°13'23.4653"W	4.96	93.727	0.51	0.24	39.88
700.00	0.790	148.540	699.97	-804.03	-3.66	-0.83	5.36	1764771.06	406847.07	39°36'53.1296"N	80°13'23.4601"W	5.42	98.809	0.42	0.16	29.88
750.00	0.830	151.490	749.97	-754.03	-4.36	-1.44	5.71	1764771.41	406846.46	39°36'53.1236"N	80°13'23.4555"W	5.89	104.176	0.12	0.08	5.90
800.00	0.690	156.800	799.96	-704.04	-5.02	-2.04	6.00	1764771.70	406845.86	39°36'53.1177"N	80°13'23.4517"W	6.34	108.750	0.31	-0.28	10.62
850.00	0.620	148.800	849.96	-654.04	-5.59	-2.55	6.26	1764771.96	406845.35	39°36'53.1127"N	80°13'23.4483"W	6.76	112.125	0.23	-0.14	-16.00
900.00	0.640	153.990	899.96	-604.04	-6.13	-3.03	6.52	1764772.22	406844.87	39°36'53.1080"N	80°13'23.4449"W	7.19	114.898	0.12	0.04	10.38
950.00	0.720	145.840	949.95	-554.05	-6.73	-3.54	6.82	1764772.52	406844.36	39°36'53.1029"N	80°13'23.4411"W	7.69	117.416	0.25	0.16	-16.30
1000.00	1.130	134.320	999.95	-504.05	-7.52	-4.14	7.35	1764773.05	406843.76	39°36'53.0970"N	80°13'23.4342"W	8.44	119.405	0.90	0.82	-23.04
1050.00	1.270	130.290	1049.94	-454.06	-8.54	-4.85	8.13	1764773.83	406843.05	39°36'53.0901"N	80°13'23.4243"W	9.46	120.807	0.33	0.28	-8.06
1100.00	1.320	138.110	1099.92	-404.08	-9.64	-5.63	8.93	1764774.63	406842.27	39°36'53.0824"N	80°13'23.4139"W	10.56	122.232	0.37	0.10	15.64
1150.00	1.310	135.470	1149.91	-354.09	-10.77	-6.47	9.72	1764775.42	406841.43	39°36'53.0742"N	80°13'23.4037"W	11.68	123.647	0.12	-0.02	-5.28
1200.00	1.450	144.030	1199.89	-304.11	-11.96	-7.39	10.49	1764776.19	406840.51	39°36'53.0652"N	80°13'23.3938"W	12.83	125.154	0.50	0.28	17.12
1250.00	1.530	151.320	1249.88	-254.12	-13.26	-8.49	11.18	1764776.88	406839.41	39°36'53.0544"N	80°13'23.3848"W	14.04	127.191	0.41	0.16	14.58
1300.00	1.510	151.620	1299.86	-204.14	-14.58	-9.65	11.82	1764777.52	406838.25	39°36'53.0429"N	80°13'23.3766"W	15.26	129.239	0.04	-0.04	0.60
1340.00	1.370	151.410	1339.85	-164.15	-15.58	-10.54	12.30	1764778.00	406837.37	39°36'53.0342"N	80°13'23.3704"W	16.19	130.588	0.35	-0.35	-0.53
1451.00	0.720	155.270	1450.83	-53.17	-17.59	-12.33	13.22	1764778.92	406835.57	39°36'53.0165"N	80°13'23.3584"W	18.08	133.006	0.59	-0.59	3.48

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Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations)																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
1496.00	0.930	162.120	1495.82	-8.18	-18.22	-12.94	13.45	1764779.15	406834.96	39°36'53.0106"N	80°13'23.3554"W	18.67	133.880	0.51	0.47	15.22
1592.00	1.190	164.050	1591.81	87.81	-19.92	-14.64	13.97	1764779.67	406833.26	39°36'52.9938"N	80°13'23.3486"W	20.23	136.344	0.27	0.27	2.01
1687.00	1.910	186.080	1686.77	182.77	-22.08	-17.16	14.07	1764779.77	406830.74	39°36'52.9689"N	80°13'23.3470"W	22.19	140.651	0.97	0.76	23.19
1782.00	0.860	141.570	1781.75	277.75	-24.01	-19.29	14.35	1764780.05	406828.61	39°36'52.9478"N	80°13'23.3433"W	24.04	143.367	1.51	-1.11	-46.85
1877.00	0.820	83.260	1876.74	372.74	-25.03	-19.77	15.46	1764781.16	406828.13	39°36'52.9432"N	80°13'23.3290"W	25.10	141.971	0.86	-0.04	-61.38
1972.00	1.280	61.940	1971.72	467.72	-25.44	-19.19	17.08	1764782.77	406828.71	39°36'52.9491"N	80°13'23.3084"W	25.69	138.342	0.63	0.48	-22.44
2067.00	1.270	81.930	2066.70	562.70	-26.00	-18.55	19.05	1764784.75	406829.35	39°36'52.9556"N	80°13'23.2832"W	26.59	134.226	0.47	-0.01	21.04
2162.00	1.110	77.620	2161.68	657.68	-26.78	-18.20	21.00	1764786.69	406829.70	39°36'52.9592"N	80°13'23.2585"W	27.79	130.923	0.19	-0.17	-4.54
2257.00	1.000	101.010	2256.66	752.66	-27.70	-18.16	22.71	1764788.41	406829.74	39°36'52.9597"N	80°13'23.2366"W	29.08	128.654	0.46	-0.12	24.62
2352.00	0.810	140.000	2351.65	847.65	-28.95	-18.84	23.95	1764789.65	406829.07	39°36'52.9531"N	80°13'23.2206"W	30.47	128.179	0.66	-0.20	41.04
2477.00	1.200	145.530	2476.63	972.63	-31.14	-20.59	25.26	1764790.96	406827.31	39°36'52.9359"N	80°13'23.2037"W	32.59	129.184	0.32	0.31	4.42
2525.00	1.500	148.140	2524.62	1020.62	-32.27	-21.54	25.88	1764791.58	406826.36	39°36'52.9266"N	80°13'23.1957"W	33.67	129.772	0.64	0.63	5.44
2556.00	1.520	146.130	2555.61	1051.61	-33.08	-22.23	26.32	1764792.02	406825.68	39°36'52.9198"N	80°13'23.1900"W	34.45	130.177	0.18	0.06	-6.48
2651.00	3.800	199.950	2650.51	1146.51	-36.21	-26.23	25.95	1764791.65	406821.67	39°36'52.8802"N	80°13'23.1943"W	36.90	135.310	3.32	2.40	56.65
2746.00	4.990	203.330	2745.23	1241.23	-40.33	-32.98	23.24	1764788.94	406814.92	39°36'52.8133"N	80°13'23.2283"W	40.35	144.834	1.28	1.25	3.56
2841.00	6.130	195.750	2839.78	1335.78	-45.89	-41.66	20.23	1764785.92	406806.24	39°36'52.7273"N	80°13'23.2659"W	46.31	154.104	1.42	1.20	-7.98
2937.00	6.710	186.120	2935.18	1431.18	-53.54	-52.17	18.24	1764783.94	406795.73	39°36'52.6232"N	80°13'23.2902"W	55.27	160.733	1.27	0.60	-10.03
3032.00	7.290	191.190	3029.48	1525.48	-62.08	-63.60	16.48	1764782.17	406784.30	39°36'52.5101"N	80°13'23.3115"W	65.70	165.478	0.89	0.61	5.34
3126.00	9.520	192.260	3122.46	1618.46	-71.72	-77.05	13.67	1764779.37	406770.85	39°36'52.3770"N	80°13'23.3460"W	78.25	169.942	2.38	2.37	1.14
3221.00	11.930	193.820	3215.79	1711.79	-83.83	-94.26	9.65	1764775.35	406753.64	39°36'52.2066"N	80°13'23.3956"W	94.76	174.153	2.55	2.54	1.64
3316.00	14.640	191.990	3308.24	1804.24	-98.87	-115.55	4.81	1764770.51	406732.36	39°36'51.9958"N	80°13'23.4552"W	115.65	177.615	2.89	2.85	-1.93
3410.00	16.230	195.710	3398.85	1894.85	-115.74	-139.81	-1.21	1764764.49	406708.09	39°36'51.7555"N	80°13'23.5297"W	139.82	180.497	1.99	1.69	3.96
3539.00	17.440	195.580	3522.32	2018.32	-140.12	-175.79	-11.29	1764754.41	406672.12	39°36'51.3992"N	80°13'23.6547"W	176.15	183.674	0.94	0.94	-0.10
3603.00	17.260	187.580	3583.42	2079.42	-153.53	-194.44	-15.12	1764750.59	406653.47	39°36'51.2146"N	80°13'23.7017"W	195.03	184.445	3.74	-0.28	-12.50
3698.00	16.320	199.920	3674.40	2170.40	-172.07	-220.97	-21.52	1764744.18	406626.94	39°36'50.9519"N	80°13'23.7809"W	222.02	185.564	3.87	-0.99	12.99
3794.00	17.260	206.590	3766.31	2262.31	-187.16	-246.39	-32.50	1764733.21	406601.52	39°36'50.6998"N	80°13'23.9185"W	248.53	187.513	2.23	0.98	6.95
3889.00	17.810	206.590	3856.90	2352.90	-201.37	-271.99	-45.31	1764720.40	406575.93	39°36'50.4458"N	80°13'24.0795"W	275.73	189.457	0.58	0.58	0.00
3984.00	18.230	205.640	3947.24	2443.24	-216.18	-298.38	-58.24	1764707.46	406549.54	39°36'50.1840"N	80°13'24.2421"W	304.01	191.045	0.54	0.44	-1.00
4079.00	17.260	204.600	4037.72	2533.72	-281.20	-324.59	-70.54	1764695.17	406523.33	39°36'49.9240"N	80°13'24.3965"W	332.16	192.261	1.07	-1.02	-1.09
4174.00	16.930	202.830	4128.52	2624.52	-246.26	-350.15	-81.77	1764683.93	406497.77	39°36'49.6705"N	80°13'24.5374"W	359.57	193.145	0.65	-0.35	-1.86

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Actual Wellpath Report

Sullivan 9H AWP Proj: 21838'

Page 4 of 12

REFERENCE WELLPATH IDENTIFICATION			
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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations)																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
4269.00	17.230	200.560	4219.33	2715.33	-262.13	-376.07	-92.08	1764673.63	406471.85	39°36'49.4135"N	80°13'24.6665"W	387.18	193.758	0.77	0.32	-2.39
4364.00	17.550	201.730	4309.99	2805.99	-278.51	-402.55	-102.32	1764663.38	406445.37	39°36'49.1510"N	80°13'24.7946"W	415.35	194.262	0.50	0.34	1.23
4462.00	17.920	200.670	4403.33	2899.33	-295.70	-430.38	-113.12	1764652.59	406417.54	39°36'48.8750"N	80°13'24.9297"W	445.00	194.726	0.50	0.38	-1.08
4556.00	16.660	200.560	4493.08	2989.08	-312.03	-456.53	-122.95	1764642.75	406391.40	39°36'48.6159"N	80°13'25.0527"W	472.80	195.073	1.34	-1.34	-0.12
4650.00	15.880	204.240	4583.32	3079.32	-326.75	-480.87	-132.97	1764632.74	406367.05	39°36'48.3745"N	80°13'25.1781"W	498.92	195.457	1.37	-0.83	3.91
4744.00	16.270	206.930	4673.64	3169.64	-340.06	-504.34	-144.21	1764621.50	406343.59	39°36'48.1417"N	80°13'25.3194"W	524.55	195.957	0.89	0.41	2.86
4838.00	16.580	206.870	4763.81	3259.81	-353.14	-528.05	-156.23	1764609.47	406319.89	39°36'47.9065"N	80°13'25.4706"W	550.67	196.482	0.33	0.33	-0.06
4933.00	16.910	203.510	4854.78	3350.78	-367.31	-552.81	-167.87	1764597.84	406295.13	39°36'47.6608"N	80°13'25.6167"W	577.73	196.892	1.08	0.35	-3.54
5028.00	17.410	201.200	4945.55	3441.55	-382.99	-578.73	-178.52	1764587.19	406269.21	39°36'47.4038"N	80°13'25.7501"W	605.64	197.144	0.89	0.53	-2.43
5124.00	16.870	199.460	5037.29	3533.29	-399.63	-605.25	-188.36	1764577.35	406242.69	39°36'47.1409"N	80°13'25.8731"W	633.88	197.287	0.78	-0.56	-1.81
5219.00	15.710	199.870	5128.48	3624.48	-415.56	-630.34	-197.32	1764568.39	406217.59	39°36'46.8922"N	80°13'25.9850"W	660.51	197.382	1.23	-1.22	0.43
5312.00	16.530	208.090	5217.83	3713.83	-429.32	-653.86	-207.83	1764557.88	406194.08	39°36'46.6590"N	80°13'26.1169"W	686.10	197.633	2.61	0.88	8.84
5407.00	17.700	212.240	5308.62	3804.62	-441.63	-678.00	-221.90	1764543.81	406169.94	39°36'46.4193"N	80°13'26.2942"W	713.39	198.123	1.78	1.23	4.37
5502.00	17.050	210.150	5399.29	3895.29	-453.69	-702.26	-236.60	1764529.11	406145.68	39°36'46.1784"N	80°13'26.4795"W	741.04	198.619	0.95	-0.68	-2.20
5601.00	17.630	204.550	5493.80	3989.80	-468.00	-728.45	-250.12	1764515.59	406119.50	39°36'45.9185"N	80°13'26.6496"W	770.19	198.950	1.78	0.59	-5.66
5697.00	18.480	201.830	5585.07	4081.07	-484.30	-755.80	-261.82	1764503.90	406092.15	39°36'45.6473"N	80°13'26.7962"W	799.86	199.107	1.25	0.89	-2.83
5791.00	17.750	201.090	5674.41	4170.41	-501.02	-782.99	-272.51	1764493.20	406064.95	39°36'45.3776"N	80°13'26.9301"W	829.06	199.190	0.81	-0.78	-0.79
5886.00	16.480	200.340	5765.20	4261.20	-517.31	-809.14	-282.41	1764483.31	406038.81	39°36'45.1184"N	80°13'27.0538"W	857.01	199.240	1.36	-1.34	-0.79
5981.00	15.990	203.790	5856.42	4352.42	-532.28	-833.75	-292.37	1764473.35	406014.20	39°36'44.8744"N	80°13'27.1786"W	883.53	199.324	1.14	-0.52	3.63
6075.00	16.680	206.360	5946.62	4442.62	-546.00	-857.68	-303.58	1764462.13	405990.27	39°36'44.6370"N	80°13'27.3194"W	909.83	199.492	1.06	0.73	2.73
6169.00	16.880	203.220	6036.62	4532.62	-560.21	-882.31	-314.96	1764450.76	405965.64	39°36'44.3927"N	80°13'27.4621"W	936.84	199.645	0.99	0.21	-3.34
6264.00	15.930	201.050	6127.75	4623.75	-575.29	-907.16	-325.08	1764440.64	405940.80	39°36'44.1464"N	80°13'27.5889"W	963.64	199.715	1.19	-1.00	-2.28
6359.00	14.830	201.360	6219.35	4715.35	-589.80	-930.65	-334.19	1764431.53	405917.31	39°36'43.9135"N	80°13'27.7029"W	988.83	199.753	1.16	-1.16	0.33
6454.00	15.580	206.140	6311.03	4807.03	-603.20	-953.42	-344.24	1764421.48	405894.53	39°36'43.6876"N	80°13'27.8289"W	1013.67	199.852	1.54	0.79	5.03
6552.00	16.810	204.260	6405.14	4901.14	-617.36	-978.16	-355.86	1764409.86	405869.80	39°36'43.4422"N	80°13'27.9749"W	1040.88	199.992	1.36	1.26	-1.92
6647.00	17.720	203.590	6495.86	4991.86	-632.49	-1003.93	-367.29	1764398.43	405844.03	39°36'43.1866"N	80°13'28.1182"W	1069.01	200.095	0.98	0.96	-0.71
6742.00	17.110	200.050	6586.50	5082.50	-648.60	-1030.31	-377.87	1764387.86	405817.65	39°36'42.9251"N	80°13'28.2507"W	1097.42	200.140	1.29	-0.64	-3.73
6836.00	17.020	199.640	6676.37	5172.37	-665.02	-1056.26	-387.23	1764378.49	405791.71	39°36'42.6679"N	80°13'28.3677"W	1125.00	200.133	0.16	-0.10	-0.44
6931.00	18.150	201.620	6766.93	5262.93	-681.76	-1083.11	-397.36	1764368.37	405764.86	39°36'42.4017"N	80°13'28.4943"W	1153.70	200.146	1.35	1.19	2.08
7026.00	18.040	201.870	6857.23	5353.23	-698.53	-1110.52	-408.29	1764357.44	405737.45	39°36'42.1300"N	80°13'28.6311"W	1183.19	200.186	0.14	-0.12	0.26

REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 9H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations)																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
7120.00	17.510	202.200	6946.74	5442.74	-714.72	-1137.12	-419.05	1764346.67	405710.85	39°36'41.8663"N	80°13'28.7659"W	1211.87	200.230	0.57	-0.56	0.35
7216.00	17.760	200.220	7038.23	5534.23	-731.47	-1164.23	-429.57	1764336.16	405683.74	39°36'41.5975"N	80°13'28.8975"W	1240.95	200.253	0.68	0.26	-2.06
7332.00	17.150	196.940	7148.89	5644.89	-752.76	-1197.19	-440.67	1764325.06	405650.78	39°36'41.2709"N	80°13'29.0359"W	1275.72	200.208	1.00	-0.53	-2.83
7427.00	16.170	207.070	7239.92	5735.92	-768.14	-1222.37	-450.77	1764314.96	405625.60	39°36'41.0212"N	80°13'29.1624"W	1302.84	200.242	3.22	-1.03	10.66
7523.00	16.080	228.490	7332.23	5828.23	-776.51	-1243.11	-466.82	1764298.91	405604.87	39°36'40.8150"N	80°13'29.3654"W	1327.87	200.583	6.16	-0.09	22.31
7618.00	16.210	254.820	7423.60	5919.60	-774.11	-1255.32	-489.50	1764276.23	405592.66	39°36'40.6925"N	80°13'29.6539"W	1347.38	201.303	7.65	0.14	27.72
7712.00	16.880	275.690	7513.79	6009.79	-761.30	-1257.40	-515.77	1764249.96	405590.58	39°36'40.6698"N	80°13'29.9893"W	1359.07	202.303	6.33	0.71	22.20
7806.00	20.660	291.690	7602.83	6098.83	-739.00	-1249.91	-544.79	1764220.95	405598.07	39°36'40.7415"N	80°13'30.3608"W	1363.48	203.551	6.76	4.02	17.02
7900.00	26.850	294.010	7688.83	6184.83	-707.40	-1235.13	-579.62	1764186.11	405612.85	39°36'40.8848"N	80°13'30.8074"W	1364.37	205.140	6.66	6.59	2.47
7994.00	33.380	303.850	7770.15	6266.15	-665.51	-1212.05	-620.56	1764145.18	405635.93	39°36'41.1097"N	80°13'31.3329"W	1361.67	207.112	8.69	6.95	10.47
8089.00	39.600	316.470	7846.59	6342.59	-611.41	-1175.45	-663.22	1764102.52	405672.52	39°36'41.4679"N	80°13'31.8817"W	1349.65	209.433	10.23	6.55	13.28
8184.00	48.110	316.990	7915.03	6411.03	-546.58	-1127.56	-708.27	1764057.47	405720.41	39°36'41.9377"N	80°13'32.4623"W	1331.55	212.135	8.97	8.96	0.55
8278.00	55.290	316.680	7973.26	6469.26	-473.88	-1073.79	-758.71	1764007.03	405774.17	39°36'42.4650"N	80°13'33.1124"W	1314.79	215.244	7.64	7.64	-0.33
8373.00	63.280	319.000	8021.74	6517.74	-393.17	-1013.26	-813.43	1763952.32	405834.70	39°36'43.0588"N	80°13'33.8178"W	1299.37	218.757	8.67	8.41	2.44
8468.00	70.580	321.090	8058.95	6554.95	-306.36	-946.28	-869.49	1763896.27	405901.68	39°36'43.7163"N	80°13'34.5409"W	1285.09	222.578	7.95	7.68	2.20
8563.00	78.600	324.210	8084.18	6580.18	-215.05	-873.52	-924.96	1763840.80	405974.44	39°36'44.4309"N	80°13'35.2572"W	1272.23	226.638	9.02	8.44	3.28
8657.00	85.220	326.670	8097.40	6593.40	-122.06	-796.92	-977.70	1763788.06	406051.03	39°36'45.1838"N	80°13'35.9390"W	1261.34	230.817	7.50	7.04	2.62
8751.00	85.930	326.890	8104.65	6600.65	-28.34	-718.51	-1029.05	1763736.72	406129.43	39°36'45.9545"N	80°13'36.6032"W	1255.07	235.076	0.79	0.76	0.23
8845.00	85.870	326.350	8111.37	6607.37	65.42	-640.22	-1080.63	1763685.13	406207.72	39°36'46.7241"N	80°13'37.2704"W	1256.05	239.355	0.58	-0.06	-0.57
8941.00	86.120	326.820	8118.08	6614.08	161.18	-560.28	-1133.37	1763632.40	406287.65	39°36'47.5099"N	80°13'37.9525"W	1264.30	243.694	0.55	0.26	0.49
9035.00	87.290	326.220	8123.48	6619.48	255.02	-482.01	-1185.14	1763580.63	406365.92	39°36'48.2793"N	80°13'38.6221"W	1279.41	247.868	1.40	1.24	-0.64
9129.00	88.120	326.900	8127.25	6623.25	348.95	-403.64	-1236.90	1763528.88	406444.29	39°36'49.0497"N	80°13'39.2915"W	1301.09	251.927	1.14	0.88	0.72
9224.00	87.690	327.070	8130.72	6626.72	443.88	-324.03	-1288.62	1763477.16	406523.89	39°36'49.8323"N	80°13'39.9607"W	1328.74	255.885	0.49	-0.45	0.18
9320.00	87.690	326.140	8134.59	6630.59	539.80	-243.95	-1341.42	1763424.36	406603.97	39°36'50.6195"N	80°13'40.6436"W	1363.42	259.693	0.97	0.00	-0.97
9414.00	87.540	326.440	8138.50	6634.50	633.72	-165.82	-1393.54	1763372.24	406682.09	39°36'51.3874"N	80°13'41.3177"W	1403.37	263.214	0.36	-0.16	0.32
9509.00	88.060	326.520	8142.15	6638.15	728.64	-86.68	-1445.97	1763319.82	406761.23	39°36'52.1653"N	80°13'41.9957"W	1448.56	266.570	0.55	0.55	0.08
9604.00	87.410	325.660	8145.90	6641.90	823.57	-7.90	-1498.92	1763266.87	406840.00	39°36'52.9396"N	80°13'42.6806"W	1498.94	269.698	1.13	-0.68	-0.91
9698.00	88.340	327.700	8149.39	6645.39	917.50	70.59	-1550.52	1763215.28	406918.49	39°36'53.7112"N	80°13'43.3480"W	1552.13	272.607	2.38	0.99	2.17
9793.00	88.650	327.910	8151.88	6647.88	1012.43	150.96	-1601.12	1763164.68	406998.85	39°36'54.5013"N	80°13'44.0029"W	1608.22	275.386	0.39	0.33	0.22
9888.00	88.550	327.130	8154.20	6650.20	1107.39	231.07	-1652.12	1763113.68	407078.96	39°36'55.2890"N	80°13'44.6628"W	1668.20	277.962	0.83	-0.11	-0.82

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 Environmental Protection
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 9H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
9982.00	88.550	327.280	8156.58	6652.58	1201.35	310.06	-1703.01	1763062.79	407157.94	39°36'56.0656"N	80°13'45.3214"W	1731.01	280.319	0.16	0.00	0.16
10077.00	88.740	326.820	8158.83	6654.83	1296.31	389.76	-1754.67	1763011.14	407237.64	39°36'56.8490"N	80°13'45.9897"W	1797.44	282.524	0.52	0.20	-0.48
10172.00	88.460	326.980	8161.15	6657.15	1391.28	469.32	-1806.54	1762959.28	407317.19	39°36'57.6311"N	80°13'46.6607"W	1866.50	284.563	0.34	-0.29	0.17
10267.00	88.370	326.220	8163.78	6659.78	1486.24	548.60	-1858.81	1762907.00	407396.47	39°36'58.4104"N	80°13'47.3369"W	1938.08	286.443	0.81	-0.09	-0.80
10362.00	87.910	326.250	8166.86	6662.86	1581.19	627.53	-1911.58	1762854.23	407475.39	39°36'59.1863"N	80°13'48.0194"W	2011.95	288.174	0.49	-0.48	0.03
10456.00	87.510	327.220	8170.62	6666.62	1675.11	706.07	-1963.10	1762802.72	407553.92	39°36'59.9583"N	80°13'48.6858"W	2086.22	289.782	1.12	-0.43	1.03
10550.00	87.720	327.510	8174.53	6670.53	1769.02	785.16	-2013.75	1762752.07	407633.01	39°37'0.7358"N	80°13'49.3413"W	2161.40	291.301	0.38	0.22	0.31
10645.00	87.690	328.820	8178.33	6674.33	1863.89	865.80	-2063.82	1762702.01	407713.65	39°37'1.5288"N	80°13'49.9894"W	2238.07	292.759	1.38	-0.03	1.38
10740.00	89.780	325.450	8180.43	6676.43	1958.84	945.56	-2115.35	1762650.48	407793.40	39°37'2.3128"N	80°13'50.6562"W	2317.06	294.085	4.17	2.20	-3.55
10835.00	89.750	325.610	8180.82	6676.82	2053.83	1023.88	-2169.12	1762596.72	407871.72	39°37'3.0825"N	80°13'51.3514"W	2398.62	295.269	0.17	-0.03	0.17
10929.00	89.350	325.270	8181.56	6677.56	2147.81	1101.29	-2222.44	1762543.40	407949.12	39°37'3.8432"N	80°13'52.0408"W	2480.34	296.360	0.56	-0.43	-0.36
11024.00	89.720	325.550	8182.33	6678.33	2242.80	1179.49	-2276.37	1762489.47	408027.32	39°37'4.6118"N	80°13'52.7380"W	2563.80	297.391	0.49	0.39	0.29
11119.00	88.980	326.750	8183.41	6679.41	2337.79	1258.38	-2329.28	1762436.56	408106.21	39°37'5.3872"N	80°13'53.4224"W	2647.47	298.380	1.48	-0.78	1.26
11214.00	88.830	325.900	8185.22	6681.22	2432.77	1337.43	-2381.95	1762383.90	408185.24	39°37'6.1641"N	80°13'54.1036"W	2731.73	299.314	0.91	-0.16	-0.89
11309.00	88.210	325.030	8187.68	6683.68	2527.73	1415.66	-2435.78	1762330.07	408263.47	39°37'6.9329"N	80°13'54.7997"W	2817.29	300.165	1.12	-0.65	-0.92
11404.00	88.950	326.370	8190.03	6686.03	2622.69	1494.11	-2489.30	1762276.55	408341.92	39°37'7.7039"N	80°13'55.4917"W	2903.27	300.973	1.61	0.78	1.41
11499.00	87.660	326.220	8192.84	6688.84	2717.64	1573.11	-2541.99	1762223.86	408420.91	39°37'8.4803"N	80°13'56.1733"W	2989.38	301.751	1.37	-1.36	-0.16
11594.00	88.490	326.500	8196.03	6692.03	2812.59	1652.15	-2594.59	1762171.27	408499.95	39°37'9.2573"N	80°13'56.8536"W	3075.96	302.488	0.92	0.87	0.29
11688.00	88.980	326.280	8198.11	6694.11	2906.57	1730.42	-2646.61	1762119.25	408578.21	39°37'10.0266"N	80°13'57.5265"W	3162.10	303.178	0.57	0.52	-0.23
11783.00	88.120	326.530	8200.51	6696.51	3001.53	1809.52	-2699.16	1762066.71	408657.31	39°37'10.8041"N	80°13'58.2062"W	3249.59	303.838	0.94	-0.91	0.26
11878.00	87.440	325.060	8204.19	6700.19	3096.45	1888.03	-2752.52	1762013.35	408735.81	39°37'11.5757"N	80°13'58.8963"W	3337.82	304.447	1.70	-0.72	-1.55
11973.00	88.180	326.000	8207.82	6703.82	3191.37	1966.29	-2806.25	1761959.62	408814.07	39°37'12.3447"N	80°13'59.5910"W	3426.56	305.018	1.26	0.78	0.99
12068.00	89.510	325.020	8209.74	6705.74	3286.34	2044.57	-2860.03	1761905.85	408892.35	39°37'13.1140"N	80°14'0.2865"W	3515.69	305.560	1.74	1.40	-1.03
12162.00	89.290	325.080	8210.72	6706.72	3380.31	2121.62	-2913.88	1761852.00	408969.39	39°37'13.8711"N	80°14'0.9826"W	3604.43	306.059	0.24	-0.23	0.06
12257.00	89.780	325.610	8211.49	6707.49	3475.29	2199.76	-2967.89	1761797.99	409047.53	39°37'14.6390"N	80°14'1.6810"W	3694.23	306.545	0.76	0.52	0.56
12352.00	89.910	325.780	8211.75	6707.75	3570.28	2278.23	-3021.44	1761744.45	409126.00	39°37'15.4102"N	80°14'2.3734"W	3784.10	307.017	0.23	0.14	0.18
12447.00	90.280	326.590	8211.59	6707.59	3665.28	2357.16	-3074.30	1761691.58	409204.92	39°37'16.1860"N	80°14'3.0573"W	3873.96	307.478	0.94	0.39	0.85
12541.00	89.970	325.820	8211.39	6707.39	3759.28	2435.28	-3126.59	1761639.30	409283.03	39°37'16.9537"N	80°14'3.7336"W	3963.10	307.915	0.88	-0.33	-0.82
12636.00	90.250	325.770	8211.20	6707.20	3854.28	2513.85	-3179.99	1761585.90	409361.59	39°37'17.7259"N	80°14'4.4242"W	4053.61	308.327	0.30	0.29	-0.05
12731.00	88.280	325.530	8212.42	6708.42	3949.26	2592.27	-3233.59	1761532.31	409440.01	39°37'18.4966"N	80°14'5.1173"W	4144.39	308.718	2.09	-2.07	-0.25

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 9H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations)																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
12826.00	83.220	320.980	8219.46	6715.46	4043.80	2668.15	-3290.22	1761475.68	409515.88	39°37'19.2418"N	80°14'5.8490"W	4236.10	309.040	7.15	-5.33	-4.79
12921.00	85.380	324.320	8228.90	6724.90	4138.11	2743.28	-3347.56	1761418.35	409591.01	39°37'19.9797"N	80°14'6.5895"W	4328.02	309.334	4.17	2.27	3.52
13015.00	85.840	326.790	8236.10	6732.10	4231.82	2820.57	-3400.56	1761365.34	409668.29	39°37'20.7392"N	80°14'7.2750"W	4418.08	309.674	2.67	0.49	2.63
13110.00	85.160	327.820	8243.55	6739.55	4326.51	2900.27	-3451.72	1761314.19	409747.99	39°37'21.5227"N	80°14'7.9371"W	4508.43	310.038	1.30	-0.72	1.08
13205.00	84.110	327.230	8252.43	6748.43	4421.07	2980.06	-3502.51	1761263.41	409827.78	39°37'22.3072"N	80°14'8.5944"W	4598.73	310.392	1.27	-1.11	-0.62
13301.00	83.710	327.020	8262.62	6758.62	4516.52	3060.23	-3554.32	1761211.60	409907.94	39°37'23.0953"N	80°14'9.2649"W	4690.22	310.728	0.47	-0.42	-0.22
13396.00	85.660	326.750	8271.42	6767.42	4611.11	3139.45	-3606.00	1761159.93	409987.16	39°37'23.8740"N	80°14'9.9336"W	4781.15	311.043	2.07	2.05	-0.28
13491.00	89.200	327.320	8275.68	6771.68	4705.99	3219.07	-3657.63	1761108.30	410066.77	39°37'24.6566"N	80°14'10.6017"W	4872.43	311.351	3.77	3.73	0.60
13586.00	90.090	327.610	8276.27	6772.27	4800.97	3299.15	-3708.72	1761057.21	410146.85	39°37'25.4440"N	80°14'11.2630"W	4963.77	311.655	0.99	0.94	0.31
13680.00	87.940	326.340	8277.88	6773.88	4894.94	3377.95	-3759.94	1761005.99	410225.64	39°37'26.2185"N	80°14'11.9258"W	5054.47	311.937	2.66	-2.29	-1.35
13775.00	89.020	326.470	8280.40	6776.40	4989.91	3457.05	-3812.48	1760953.45	410304.74	39°37'26.9960"N	80°14'12.6056"W	5146.48	312.201	1.15	1.14	0.14
13871.00	89.170	327.430	8281.92	6777.92	5085.89	3537.51	-3864.83	1760901.11	410385.19	39°37'27.7869"N	80°14'13.2830"W	5239.36	312.468	1.01	0.16	1.00
13966.00	89.780	326.950	8282.79	6778.79	5180.88	3617.35	-3916.30	1760849.64	410465.03	39°37'28.5718"N	80°14'13.9492"W	5331.29	312.728	0.82	0.64	-0.51
14061.00	89.910	327.240	8283.05	6779.05	5275.87	3697.11	-3967.91	1760798.03	410544.78	39°37'29.3558"N	80°14'14.6171"W	5423.37	312.977	0.33	0.14	0.31
14156.00	89.540	327.140	8283.50	6779.50	5370.86	3776.95	-4019.39	1760746.56	410624.62	39°37'30.1407"N	80°14'15.2833"W	5515.51	313.219	0.40	-0.39	-0.11
14251.00	89.480	326.730	8284.31	6780.31	5465.85	3856.56	-4071.22	1760694.73	410704.23	39°37'30.9233"N	80°14'15.9540"W	5607.84	313.449	0.44	-0.06	-0.43
14346.00	89.510	326.790	8285.15	6781.15	5560.84	3936.02	-4123.29	1760642.66	410783.68	39°37'31.7042"N	80°14'16.6278"W	5700.33	313.669	0.07	0.03	0.06
14441.00	90.000	326.950	8285.56	6781.56	5655.84	4015.57	-4175.21	1760590.75	410863.23	39°37'32.4862"N	80°14'17.2997"W	5792.86	313.883	0.54	0.52	0.17
14536.00	90.060	326.920	8285.51	6781.51	5750.83	4095.19	-4227.04	1760538.92	410942.84	39°37'33.2688"N	80°14'17.9705"W	5885.44	314.092	0.07	0.06	-0.03
14632.00	89.600	326.880	8285.79	6781.79	5846.83	4175.61	-4279.47	1760486.50	411023.25	39°37'34.0593"N	80°14'18.6489"W	5979.09	314.296	0.48	-0.48	-0.04
14727.00	89.690	326.450	8286.38	6782.38	5941.82	4254.98	-4331.67	1760434.29	411102.61	39°37'34.8395"N	80°14'19.3244"W	6071.92	314.488	0.46	0.09	-0.45
14822.00	89.230	326.310	8287.28	6783.28	6036.82	4334.08	-4384.27	1760381.70	411181.72	39°37'35.6170"N	80°14'20.0049"W	6164.91	314.670	0.51	-0.48	-0.15
14917.00	89.260	327.080	8288.53	6784.53	6131.81	4413.47	-4436.43	1760329.54	411261.10	39°37'36.3973"N	80°14'20.6798"W	6257.84	314.851	0.81	0.03	0.81
15012.00	89.260	327.370	8289.76	6785.76	6226.79	4493.34	-4487.85	1760278.12	411340.96	39°37'37.1824"N	80°14'21.3454"W	6350.66	315.035	0.31	0.00	0.31
15107.00	89.380	326.760	8290.88	6786.88	6321.78	4573.07	-4539.50	1760226.48	411420.69	39°37'37.9661"N	80°14'22.0138"W	6443.60	315.211	0.65	0.13	-0.64
15202.00	89.140	327.000	8292.11	6788.11	6416.77	4652.62	-4591.40	1760174.58	411500.24	39°37'38.7482"N	80°14'22.6855"W	6536.66	315.379	0.36	-0.25	0.25
15297.00	89.230	327.040	8293.46	6789.46	6511.75	4732.31	-4643.11	1760122.88	411579.92	39°37'39.5314"N	80°14'23.3547"W	6629.72	315.545	0.10	0.09	0.04
15392.00	89.350	327.030	8294.64	6790.64	6606.74	4812.01	-4694.80	1760071.19	411659.61	39°37'40.3149"N	80°14'24.0237"W	6722.84	315.706	0.13	0.13	-0.01
15487.00	89.380	327.260	8295.69	6791.69	6701.72	4891.81	-4746.33	1760019.66	411739.41	39°37'41.0993"N	80°14'24.6907"W	6815.97	315.865	0.24	0.03	0.24
15582.00	89.910	327.270	8296.28	6792.28	6796.71	4971.72	-4797.70	1759968.29	411819.31	39°37'41.8848"N	80°14'25.3557"W	6909.12	316.020	0.56	0.56	0.01

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Actual Wellpath Report

Sullivan 9H AWP Proj: 21838'
Page 8 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 9H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations)																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
15677.00	90.000	326.700	8296.35	6792.35	6891.70	5051.38	-4849.46	1759916.53	411898.97	39°37'42.6679"N	80°14'26.0256"W	7002.41	316.168	0.61	0.09	-0.60
15772.00	91.630	326.190	8295.00	6791.00	6986.69	5130.54	-4901.97	1759864.03	411978.12	39°37'43.4459"N	80°14'26.7049"W	7095.89	316.305	1.80	1.72	-0.54
15867.00	92.860	325.890	8291.28	6787.28	7081.61	5209.27	-4954.99	1759811.01	412056.85	39°37'44.2197"N	80°14'27.3909"W	7189.47	316.433	1.33	1.29	-0.32
15962.00	92.740	327.030	8286.64	6782.64	7176.50	5288.36	-5007.42	1759758.59	412135.93	39°37'44.9970"N	80°14'28.0693"W	7282.92	316.563	1.21	-0.13	1.20
16056.00	92.800	326.050	8282.10	6778.10	7270.39	5366.68	-5059.18	1759706.83	412214.26	39°37'45.7668"N	80°14'28.7391"W	7375.41	316.689	1.04	0.06	-1.04
16151.00	92.710	327.170	8277.53	6773.53	7365.27	5445.91	-5111.40	1759654.61	412293.48	39°37'46.5456"N	80°14'29.4149"W	7468.90	316.815	1.18	-0.09	1.18
16246.00	92.060	326.820	8273.58	6769.58	7460.18	5525.51	-5163.11	1759602.91	412373.07	39°37'47.3280"N	80°14'30.0841"W	7562.34	316.942	0.78	-0.68	-0.37
16340.00	91.630	327.000	8270.55	6766.55	7554.13	5604.22	-5214.40	1759551.62	412451.78	39°37'48.1017"N	80°14'30.7479"W	7654.89	317.064	0.50	-0.46	0.19
16436.00	91.720	327.000	8267.75	6763.75	7650.08	5684.70	-5266.66	1759499.36	412532.25	39°37'48.8928"N	80°14'31.4244"W	7749.42	317.186	0.09	0.09	0.00
16530.00	91.850	327.140	8264.82	6760.82	7744.03	5763.56	-5317.74	1759448.29	412611.11	39°37'49.6679"N	80°14'32.0854"W	7842.00	317.304	0.20	0.14	0.15
16625.00	91.750	325.790	8261.83	6757.83	7838.98	5842.71	-5370.19	1759395.84	412690.25	39°37'50.4458"N	80°14'32.7642"W	7935.75	317.413	1.42	-0.11	-1.42
16721.00	91.050	326.240	8259.49	6755.49	7934.95	5922.28	-5423.84	1759342.19	412769.82	39°37'51.2279"N	80°14'33.4582"W	8030.66	317.515	0.87	-0.73	0.47
16816.00	90.890	326.450	8257.88	6753.88	8029.94	6001.35	-5476.48	1759289.56	412848.88	39°37'52.0049"N	80°14'34.1394"W	8124.53	317.618	0.28	-0.17	0.22
16912.00	91.050	326.760	8256.26	6752.26	8125.92	6081.49	-5529.31	1759236.73	412929.02	39°37'52.7926"N	80°14'34.8231"W	8219.35	317.723	0.36	0.17	0.32
17007.00	94.810	327.180	8251.40	6747.40	8220.78	6161.02	-5581.02	1759185.03	413008.54	39°37'53.5743"N	80°14'35.4923"W	8312.99	317.828	3.98	3.96	0.44
17102.00	93.540	325.340	8244.48	6740.48	8315.52	6239.80	-5633.64	1759132.41	413087.32	39°37'54.3486"N	80°14'36.1732"W	8406.72	317.923	2.35	-1.34	-1.94
17198.00	93.420	325.780	8238.66	6734.66	8411.33	6318.83	-5687.83	1759078.22	413166.34	39°37'55.1252"N	80°14'36.8742"W	8501.71	318.008	0.47	-0.12	0.46
17293.00	93.390	326.400	8233.01	6729.01	8506.16	6397.53	-5740.74	1759025.31	413245.04	39°37'55.8986"N	80°14'37.5587"W	8595.61	318.097	0.65	-0.03	0.65
17388.00	93.420	326.200	8227.37	6723.37	8600.99	6476.43	-5793.35	1758972.70	413323.93	39°37'56.6740"N	80°14'38.2395"W	8689.48	318.186	0.21	0.03	-0.21
17484.00	93.260	326.440	8221.78	6717.78	8696.83	6556.18	-5846.50	1758919.56	413403.67	39°37'57.4578"N	80°14'38.9272"W	8784.36	318.275	0.30	-0.17	0.25
17579.00	93.570	325.630	8216.12	6712.12	8791.66	6634.83	-5899.48	1758866.58	413482.32	39°37'58.2307"N	80°14'39.6127"W	8878.33	318.357	0.91	0.33	-0.85
17674.00	91.690	325.700	8211.76	6707.76	8886.55	6713.19	-5953.01	1758813.06	413560.68	39°37'59.0008"N	80°14'40.3051"W	8972.47	318.435	1.98	-1.98	0.07
17770.00	92.550	326.990	8208.21	6704.21	8982.48	6793.04	-6006.17	1758759.90	413640.52	39°37'59.7856"N	80°14'40.9931"W	9067.49	318.518	1.61	0.90	1.34
17865.00	91.850	326.180	8204.56	6700.56	9077.41	6872.28	-6058.45	1758707.62	413719.75	39°38'0.5643"N	80°14'41.6696"W	9161.49	318.601	1.13	-0.74	-0.85
17961.00	90.550	326.200	8202.55	6698.55	9173.38	6952.02	-6111.85	1758654.22	413799.50	39°38'1.3481"N	80°14'42.3607"W	9256.64	318.680	1.35	-1.35	0.02
18056.00	90.740	326.040	8201.48	6697.48	9268.38	7030.89	-6164.81	1758601.27	413878.36	39°38'2.1231"N	80°14'43.0458"W	9350.84	318.755	0.26	0.20	-0.17
18152.00	90.490	323.740	8200.45	6696.45	9364.33	7109.41	-6220.01	1758546.02	413956.87	39°38'2.8946"N	80°14'43.7598"W	9446.28	318.817	2.41	-0.26	-2.40
18247.00	91.450	325.060	8198.84	6694.84	9459.26	7186.64	-6275.31	1758490.78	414034.10	39°38'3.6533"N	80°14'44.4747"W	9540.82	318.873	1.72	1.01	1.39
18343.00	91.020	325.900	8196.77	6692.77	9555.22	7265.72	-6329.70	1758436.39	414113.17	39°38'4.4303"N	80°14'45.1782"W	9636.17	318.939	0.98	-0.45	0.87
18438.00	92.090	325.890	8194.20	6690.20	9650.19	7344.35	-6382.94	1758383.15	414191.80	39°38'5.2030"N	80°14'45.8672"W	9730.44	319.006	1.13	1.13	-0.01

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Actual Wellpath Report

Sullivan 9H AWP Proj: 21838'

Page 9 of 12

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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations)																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
18533.00	91.260	324.940	8191.42	6687.42	9745.13	7422.53	-6436.84	1758329.25	414269.97	39°38'5.9712"N	80°14'46.5644"W	9824.81	319.068	1.33	-0.87	-1.00
18628.00	90.650	325.950	8189.84	6685.84	9840.10	7500.75	-6490.72	1758275.38	414348.19	39°38'6.7399"N	80°14'47.2613"W	9919.21	319.129	1.24	-0.64	1.06
18723.00	90.430	322.700	8188.94	6684.94	9935.02	7577.91	-6546.11	1758219.99	414425.35	39°38'7.4979"N	80°14'47.9775"W	10013.81	319.178	3.43	-0.23	-3.42
18819.00	93.170	325.560	8185.92	6681.92	10030.88	7655.65	-6602.33	1758163.78	414503.08	39°38'8.2615"N	80°14'48.7042"W	10109.39	319.225	4.12	2.85	2.98
18914.00	91.630	326.410	8181.95	6677.95	10125.80	7734.32	-6655.42	1758110.69	414581.75	39°38'9.0346"N	80°14'49.3912"W	10203.65	319.288	1.85	-1.62	0.89
19009.00	90.620	326.180	8180.08	6676.08	10220.78	7813.34	-6708.13	1758057.98	414660.76	39°38'9.8112"N	80°14'50.0733"W	10297.92	319.352	1.09	-1.06	-0.24
19104.00	90.120	326.850	8179.47	6675.47	10315.77	7892.57	-6760.54	1758005.58	414739.99	39°38'10.5899"N	80°14'50.7516"W	10392.19	319.418	0.88	-0.53	0.71
19199.00	90.220	326.900	8179.19	6675.19	10410.77	7972.13	-6812.45	1757953.66	414819.54	39°38'11.3719"N	80°14'51.4236"W	10486.39	319.485	0.12	0.11	0.05
19295.00	89.420	326.150	8179.49	6675.49	10506.77	8052.20	-6865.40	1757900.72	414899.61	39°38'12.1588"N	80°14'52.1090"W	10581.67	319.549	1.14	-0.83	-0.78
19389.00	89.540	326.350	8180.34	6676.34	10600.76	8130.36	-6917.62	1757848.50	414977.76	39°38'12.9269"N	80°14'52.7848"W	10675.03	319.608	0.25	0.13	0.21
19485.00	89.660	325.950	8181.01	6677.01	10696.76	8210.08	-6971.10	1757795.03	415057.48	39°38'13.7104"N	80°14'53.4767"W	10770.41	319.666	0.44	0.12	-0.42
19579.00	89.880	326.110	8181.39	6677.39	10790.76	8288.04	-7023.62	1757742.51	415135.43	39°38'14.4765"N	80°14'54.1563"W	10863.83	319.721	0.29	0.23	0.17
19674.00	89.630	326.250	8181.79	6677.79	10885.76	8366.96	-7076.49	1757689.64	415214.35	39°38'15.2521"N	80°14'54.8406"W	10958.23	319.777	0.30	-0.26	0.15
19769.00	89.630	325.930	8182.41	6678.41	10980.75	8445.80	-7129.49	1757636.64	415293.19	39°38'16.0269"N	80°14'55.5264"W	11052.66	319.831	0.34	0.00	-0.34
19864.00	89.660	326.130	8183.00	6679.00	11075.75	8524.59	-7182.57	1757583.57	415371.97	39°38'16.8011"N	80°14'56.2133"W	11147.11	319.883	0.21	0.03	0.21
19960.00	89.290	325.850	8183.88	6679.88	11171.74	8604.16	-7236.27	1757529.88	415451.54	39°38'17.5831"N	80°14'56.9081"W	11242.56	319.936	0.48	-0.39	-0.29
20055.00	89.420	326.250	8184.95	6680.95	11266.73	8682.96	-7289.32	1757476.83	415530.33	39°38'18.3575"N	80°14'57.5946"W	11337.02	319.987	0.44	0.14	0.42
20149.00	89.380	325.860	8185.93	6681.93	11360.73	8760.94	-7341.81	1757424.34	415608.30	39°38'19.1238"N	80°14'58.2738"W	11430.49	320.036	0.42	-0.04	-0.41
20243.00	89.350	326.090	8186.97	6682.97	11454.72	8838.84	-7394.40	1757371.75	415686.20	39°38'19.8893"N	80°14'58.9544"W	11523.99	320.085	0.25	-0.03	0.24
20338.00	89.600	326.240	8187.84	6683.84	11549.71	8917.75	-7447.29	1757318.86	415765.10	39°38'20.6647"N	80°14'59.6389"W	11618.45	320.134	0.31	0.26	0.16
20433.00	89.630	326.760	8188.48	6684.48	11644.71	8996.97	-7499.73	1757266.43	415844.32	39°38'21.4433"N	80°15'0.3175"W	11712.87	320.186	0.55	0.03	0.55
20528.00	89.820	326.780	8188.94	6684.94	11739.71	9076.43	-7551.79	1757214.38	415923.77	39°38'22.2243"N	80°15'0.9914"W	11807.25	320.239	0.20	0.20	0.02
20624.00	89.970	327.230	8189.11	6685.11	11835.70	9156.95	-7604.06	1757162.10	416004.29	39°38'23.0157"N	80°15'1.6683"W	11902.58	320.293	0.49	0.16	0.47
20719.00	89.940	327.010	8189.19	6685.19	11930.69	9236.73	-7655.64	1757110.53	416084.06	39°38'23.7999"N	80°15'2.3360"W	11996.91	320.347	0.23	-0.03	-0.23
20815.00	89.660	327.130	8189.52	6685.52	12026.69	9317.30	-7707.82	1757058.35	416164.63	39°38'24.5919"N	80°15'3.0117"W	12092.26	320.400	0.32	-0.29	0.13
20909.00	89.690	327.070	8190.06	6686.06	12120.68	9396.23	-7758.88	1757007.29	416243.55	39°38'25.3676"N	80°15'3.6728"W	12185.62	320.452	0.07	0.03	-0.06
21004.00	89.170	326.740	8191.00	6687.00	12215.67	9475.81	-7810.75	1756955.43	416323.13	39°38'26.1498"N	80°15'4.3443"W	12280.02	320.502	0.65	-0.55	-0.35
21099.00	89.380	326.880	8192.20	6688.20	12310.66	9555.31	-7862.75	1756903.43	416402.62	39°38'26.9312"N	80°15'5.0175"W	12374.44	320.550	0.27	0.22	0.15
21195.00	89.260	327.080	8193.34	6689.34	12406.64	9635.79	-7915.06	1756851.12	416483.10	39°38'27.7223"N	80°15'5.6947"W	12469.83	320.600	0.24	-0.12	0.21
21290.00	89.320	327.270	8194.52	6690.52	12501.63	9715.62	-7966.56	1756799.63	416562.93	39°38'28.5069"N	80°15'6.3615"W	12564.21	320.649	0.21	0.06	0.20

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Actual Wellpath Report

Sullivan 9H AWP Proj: 21838'

Page 10 of 12

REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 9H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

WELLPATH DATA (247 stations) † = interpolated, ‡ = extrapolated station																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	TVDSS [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]
21384.00	89.260	327.110	8195.68	6691.68	12595.61	9794.62	-8017.49	1756748.71	416641.92	39°38'29.2834"N	80°15'7.0210"W	12657.59	320.698	0.18	-0.06	-0.17
21478.00	89.420	327.070	8196.77	6692.77	12689.60	9873.53	-8068.55	1756697.64	416720.82	39°38'30.0590"N	80°15'7.6822"W	12751.01	320.745	0.18	0.17	-0.04
21574.00	89.320	326.970	8197.82	6693.82	12785.59	9954.05	-8120.81	1756645.39	416801.34	39°38'30.8505"N	80°15'8.3588"W	12846.43	320.791	0.15	-0.10	-0.10
21668.00	89.140	326.900	8199.09	6695.09	12879.57	10032.82	-8172.09	1756594.11	416880.11	39°38'31.6247"N	80°15'9.0227"W	12939.88	320.836	0.21	-0.19	-0.07
21763.00	89.510	327.600	8200.20	6696.20	12974.55	10112.72	-8223.48	1756542.73	416960.00	39°38'32.4100"N	80°15'9.6881"W	13034.29	320.883	0.83	0.39	0.74
21813.00	89.480	326.680	8200.65	6696.65	13024.55	10154.71	-8250.61	1756515.60	417001.99	39°38'32.8228"N	80°15'10.0394"W	13083.99	320.906	1.84	-0.06	-1.84
21838.00‡	89.480	326.680	8200.87	6696.87	13049.55	10175.60	-8264.34	1756501.87	417022.88	39°38'33.0281"N	80°15'10.2172"W	13108.86	320.917	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Sullivan 9H AWB Ref Wellpath: Sullivan 9H AWP Proj: 21838'									
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]
17.5in Open Hole	28.00	1475.00	1447.00	28.00	1474.83	0.00	0.00	-12.63	13.35
13.375in Casing Surface	28.00	1505.00	1477.00	28.00	1504.82	0.00	0.00	-13.08	13.50
12.25in Open Hole	1505.00	2680.00	1175.00	1504.82	2679.44	-13.08	13.50	-28.12	25.24
9.625in Casing Intermediate	28.00	2650.00	2622.00	28.00	2649.51	0.00	0.00	-26.17	25.97
8.75in Open Hole	2680.00	7393.00	4713.00	2679.44	7207.29	-28.12	25.24	-1213.73	-446.71
8.5in Open Hole	7393.00	21838.00	14445.00	7207.29	8200.87	-1213.73	-446.71	10175.60	-8264.34
5.5in Casing Production	28.00	21808.00	21780.00	28.00	8200.60	0.00	0.00	10150.53	-8247.86

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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Sullivan 9H LP Rev-2	8100.00	-773.13	-988.09	1763777.67	406074.82	39°36'45.4180"N	80°13'36.0742"W	point
Sullivan 9H BHL Rev-2	8559.07	10173.16	-8268.13	1756498.08	417020.43	39°38'33.0036"N	80°15'10.2654"W	point
Sullivan Hardline #1 02.14.2023	9500.00	-870.48	1291.45	1766057.07	405977.47	39°36'44.6371"N	80°13'6.9378"W	polygon
2D Polygon: dimensions not calculated								
Sullivan Hardline #2 02.14.2023	9500.00	6784.56	-4998.13	1759767.88	413632.04	39°37'59.7842"N	80°14'28.1083"W	polygon
2D Polygon: dimensions not calculated								

WELLPATH COMPOSITION - Ref Wellbore: Sullivan 9H AWB					Ref Wellpath: Sullivan 9H AWP Proj: 21838'	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date	
28.00	1300.00	BH Generic gyro - northseeking (Standard)	01 17.5" Gyro <Northseeking-Standard> (28'- 1300')			
1300.00	1451.00	OWSG MWD rev2 + HRGM	02 17.5" SDI MWD <OWSG MWD Rev.2+HRGM> (1300')(1340'-1451')	Sullivan 9H AWB	2/17/2023	
1451.00	2556.00	OWSG MWD rev2 + HRGM	03 12.25" SDI MWD <OWSG MWD Rev.2+HRGM> (1451')(496'-2556')	Sullivan 9H AWB	2/17/2023	
2556.00	7216.00	OWSG MWD rev2 + HRGM	04 8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2556')(2651'-7216')	Sullivan 9H AWB	2/17/2023	
7216.00	21838.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	05 8.5" BH ATK Curve <HRGM+Short Spacing> (7216')(7332'-21813')	Sullivan 9H AWB	2/17/2023	

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 MAR 08 2024



Actual Wellpath Report

Sullivan 9H AWP Proj: 21838'

Page 12 of 12



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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 9H AWB
Slot	Slot #09		

COMMENTS
<p>Wellpath general comments API: 47061019200000 BH Job #: 111699076 Rig: Patterson 277 Duration: 2/17/2023 - 2/23/2023</p> <p>01_17.5" Gyro <Northseeking-Standard> (28'- 1300') 02_17.5" SDI MWD <OWSG MWD Rev.2+HRGM> (1300')(1340'-1451') 03_12.25" SDI MWD <OWSG MWD Rev.2+HRGM> (1451')(496'-2556') 04_8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2556')(2651'-7216') 05_8.5" BH ATK Curve <HRGM+Short Spacing> (7216')(7332'-21813')</p> <p>Final Survey MD @ 21813' Projected MD at TD: 21838'</p>

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