

NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot #01
 Well: Sullivan 1H
 Wellbore: Sullivan 1H PWB

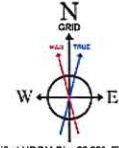
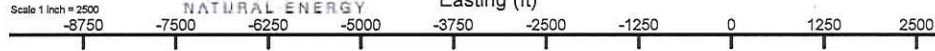


Well reference wellbore is Sullivan 1H Rev-A-D	Grid System: NAD83 (Lambert West Virginia Zone 18, Northern Zone 14701), US Feet
True vertical depths are referenced to Patterson 277 (RKB)	North Reference: Grid north
Reference wellbore measured depths are referenced to Patterson 277 (RKB)	Scale: True distance
Patterson 277 (RKB) to Mean Sea Level: 1554 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: Slot #01): -1478 feet	Depths are in feet
Other wellbore MDs are referenced to each path's default MD datum	Created by: remanish on 2023-04-28; Database: WVA_MPL_EASTERNUG_Data

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Sullivan Pad	1764815.000	406882.090	38°36'53.4792"N	80°13'22.9021"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #01	0.00	0.00	1764815.000	406882.090
Patterson 277 (RKB) to Ground level (At Slot: Slot #01)	28ft			
Mean Sea Level to Ground level (At Slot: Slot #01)	-1478ft			
Patterson 277 (RKB) to Mean Sea Level	1504ft			

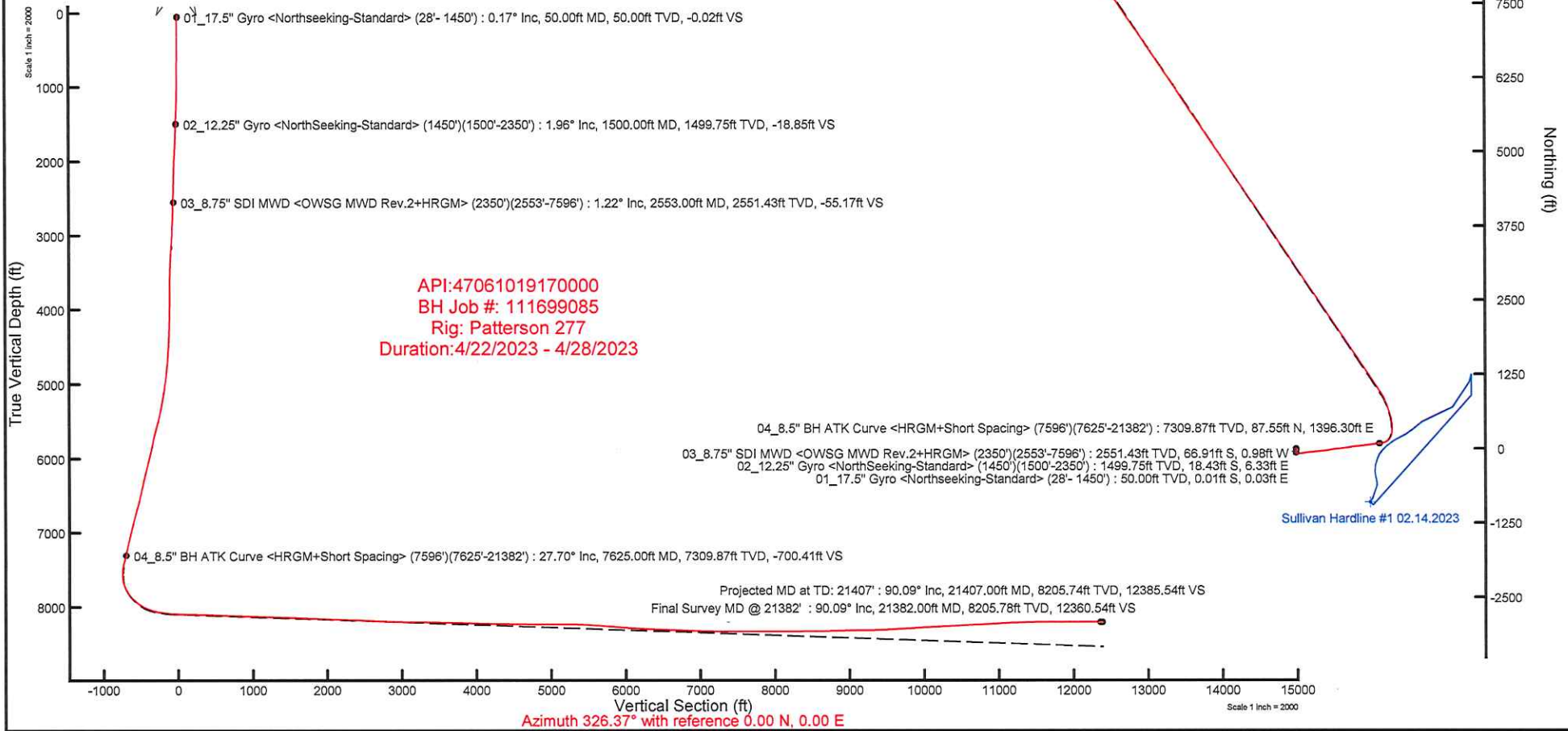
Well Profile Data								
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	7596.00	27.210	81.470	7284.14	85.86	1383.06	1.39	-594.65
Projection	7776.35	27.210	81.470	7444.53	97.90	1464.61	0.00	-729.63
Build+Turn	8770.00	82.847	336.637	8083.57	723.07	1521.82	9.00	-240.77
Landing Pt.	8875.21	88.000	326.373	8100.00	904.06	1427.53	6.46	-37.84
BHL	21406.73	88.000	326.373	8533.85	11249.04	-5452.59	0.00	12386.10

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #01	Sullivan 1H	Sullivan 1H AWPB	Sullivan 1H AWP Proj: 21407'
Slot #01	Sullivan 1H	Sullivan 1H PWB	Sullivan 1H Rev-A-D



User specified HDGM Dip: 66.33° Field: 51863 nT
 Magnetic North is 9.09 degrees West of True North (at 4/21/2023)
 Grid North is 0.46 degrees West of True North
 To correct azimuth from True to Grid add 0.46 degrees
 To correct azimuth from Magnetic to Grid subtract 8.63 degrees

Projected MD at TD: 21407' : 8205.74ft TVD, 11254.19ft N, 5443.83ft W
 Final Survey MD @ 21382' : 8205.78ft TVD, 11233.30ft N, 5430.11ft W





Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

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	4/28/2023 at 6:05:50 PM
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	0.00	0.00	1764815.00	406882.09	39°36'53.4792"N	80°13'22.9021"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 #01)	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°

Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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	102.080	0.00	-1504.00	0.00	0.00	0.00	1764815.00	406882.09	39°36'53.4792"N	80°13'22.9021"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	102.080	28.00	-1476.00	0.00	0.00	0.00	1764815.00	406882.09	39°36'53.4792"N	80°13'22.9021"W	0.00	0.000	0.00	0.00	0.00
50.00	0.170	102.080	50.00	-1454.00	-0.02	-0.01	0.03	1764815.03	406882.08	39°36'53.4791"N	80°13'22.9017"W	0.03	102.080	0.77	0.77	0.00
100.00	0.220	74.370	100.00	-1404.00	-0.11	0.00	0.20	1764815.20	406882.09	39°36'53.4793"N	80°13'22.8996"W	0.20	88.979	0.21	0.10	-55.42
150.00	0.180	78.750	150.00	-1354.00	-0.17	0.04	0.37	1764815.37	406882.13	39°36'53.4797"N	80°13'22.8975"W	0.37	83.045	0.09	-0.08	8.76
200.00	0.110	299.900	200.00	-1304.00	-0.15	0.08	0.40	1764815.40	406882.17	39°36'53.4801"N	80°13'22.8970"W	0.41	78.199	0.55	-0.14	-277.70
250.00	0.440	134.750	250.00	-1254.00	-0.30	-0.03	0.50	1764815.50	406882.06	39°36'53.4790"N	80°13'22.8958"W	0.50	93.146	1.09	0.66	-330.30
300.00	0.390	169.830	300.00	-1204.00	-0.64	-0.33	0.66	1764815.66	406881.76	39°36'53.4760"N	80°13'22.8936"W	0.74	116.460	0.51	-0.10	70.16
350.00	0.360	156.140	350.00	-1154.00	-0.95	-0.64	0.76	1764815.76	406881.45	39°36'53.4729"N	80°13'22.8924"W	0.99	130.280	0.19	-0.06	-27.38
400.00	0.350	154.890	400.00	-1104.00	-1.26	-0.92	0.88	1764815.88	406881.17	39°36'53.4702"N	80°13'22.8907"W	1.28	136.210	0.03	-0.02	-2.50
450.00	0.370	143.500	449.99	-1054.01	-1.57	-1.19	1.05	1764816.05	406880.90	39°36'53.4675"N	80°13'22.8887"W	1.58	138.720	0.15	0.04	-22.78
500.00	0.330	130.400	499.99	-1004.01	-1.87	-1.41	1.25	1764816.25	406880.68	39°36'53.4653"N	80°13'22.8860"W	1.89	138.496	0.18	-0.08	-26.20
550.00	0.290	99.140	549.99	-954.01	-2.09	-1.53	1.49	1764816.49	406880.56	39°36'53.4642"N	80°13'22.8830"W	2.13	135.792	0.34	-0.08	-62.52
600.00	0.630	101.450	599.99	-904.01	-2.38	-1.60	1.88	1764816.88	406880.49	39°36'53.4635"N	80°13'22.8779"W	2.47	130.436	0.68	0.68	4.62
650.00	0.520	124.480	649.99	-854.01	-2.78	-1.79	2.34	1764817.34	406880.30	39°36'53.4618"N	80°13'22.8721"W	2.94	127.380	0.51	-0.22	46.06
700.00	0.460	142.030	699.99	-804.01	-3.19	-2.07	2.65	1764817.65	406880.02	39°36'53.4589"N	80°13'22.8681"W	3.36	128.050	0.32	-0.12	35.10
750.00	0.420	165.180	749.99	-754.01	-3.56	-2.41	2.82	1764817.82	406879.68	39°36'53.4556"N	80°13'22.8659"W	3.71	130.510	0.36	-0.08	46.30
800.00	0.500	172.130	799.98	-704.02	-3.93	-2.80	2.89	1764817.89	406879.29	39°36'53.4518"N	80°13'22.8649"W	4.03	134.057	0.19	0.16	13.90
850.00	0.450	145.570	849.98	-654.02	-4.33	-3.18	3.04	1764818.04	406878.91	39°36'53.4480"N	80°13'22.8630"W	4.40	136.322	0.45	-0.10	-53.12
900.00	0.440	181.540	899.98	-604.02	-4.68	-3.53	3.14	1764818.14	406878.56	39°36'53.4446"N	80°13'22.8616"W	4.73	138.357	0.55	-0.02	71.94
950.00	0.870	168.640	949.98	-554.02	-5.19	-4.10	3.21	1764818.21	406877.99	39°36'53.4390"N	80°13'22.8607"W	5.20	141.913	0.90	0.86	-25.80
1000.00	0.390	176.970	999.97	-504.03	-5.69	-4.64	3.29	1764818.29	406877.45	39°36'53.4336"N	80°13'22.8596"W	5.69	144.617	0.97	-0.96	16.66
1050.00	0.780	167.800	1049.97	-454.03	-6.15	-5.14	3.38	1764818.38	406876.95	39°36'53.4287"N	80°13'22.8585"W	6.15	146.714	0.80	0.78	-18.34
1100.00	0.980	163.890	1099.97	-404.03	-6.87	-5.88	3.57	1764818.57	406876.21	39°36'53.4213"N	80°13'22.8560"W	6.88	148.785	0.42	0.40	-7.82
1150.00	1.120	151.410	1149.96	-354.04	-7.77	-6.72	3.92	1764818.92	406875.37	39°36'53.4131"N	80°13'22.8514"W	7.78	149.770	0.53	0.28	-24.96
1200.00	1.520	159.630	1199.94	-304.06	-8.90	-7.78	4.38	1764819.38	406874.32	39°36'53.4027"N	80°13'22.8453"W	8.93	150.589	0.88	0.80	16.44
1250.00	1.880	166.950	1249.92	-254.08	-10.31	-9.20	4.80	1764819.80	406872.89	39°36'53.3887"N	80°13'22.8399"W	10.37	152.441	0.84	0.72	14.64
1300.00	2.150	165.300	1299.89	-204.11	-11.97	-10.90	5.22	1764820.22	406871.19	39°36'53.3719"N	80°13'22.8343"W	12.09	154.405	0.55	0.54	-3.30
1350.00	2.090	172.030	1349.86	-154.14	-13.68	-12.71	5.59	1764820.59	406869.38	39°36'53.3540"N	80°13'22.8294"W	13.89	156.276	0.51	-0.12	13.46
1400.00	2.330	167.890	1399.82	-104.18	-15.45	-14.61	5.93	1764820.93	406867.48	39°36'53.3353"N	80°13'22.8249"W	15.77	157.919	0.58	0.48	-8.28



Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	Sullivan 1H
Field	Monongalia		API/Legal	
Facility	Sullivan Pad		Wellbore	Sullivan 1H AWB
Slot	Slot #01			

WELLPATH DATA (250 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]
1450.00	2.270	175.570	1449.78	-54.22	-17.26	-16.59	6.22	1764821.22	406865.50	39°36'53.3158"N	80°13'22.8210"W	17.72	159.460	0.63	-0.12	15.36
1500.00	1.960	177.270	1499.75	-4.25	-18.85	-18.43	6.33	1764821.33	406863.66	39°36'53.2976"N	80°13'22.8193"W	19.49	161.036	0.63	-0.62	3.40
1550.00	2.080	177.400	1549.71	45.71	-20.37	-20.19	6.42	1764821.41	406861.90	39°36'53.2802"N	80°13'22.8181"W	21.19	162.374	0.24	0.24	0.26
1600.00	2.590	184.300	1599.67	95.67	-22.03	-22.22	6.37	1764821.37	406859.87	39°36'53.2601"N	80°13'22.8184"W	23.12	164.003	1.16	1.02	13.80
1650.00	3.410	193.690	1649.60	145.60	-23.93	-24.80	5.94	1764820.93	406857.30	39°36'53.2346"N	80°13'22.8238"W	25.50	166.539	1.91	1.64	18.78
1700.00	3.530	194.880	1699.51	195.51	-25.96	-27.73	5.19	1764820.19	406854.36	39°36'53.2056"N	80°13'22.8330"W	28.21	169.403	0.28	0.24	2.38
1750.00	4.140	194.270	1749.40	245.40	-28.19	-30.97	4.35	1764819.35	406851.13	39°36'53.1735"N	80°13'22.8434"W	31.27	172.008	1.22	1.22	-1.22
1800.00	4.260	192.490	1799.27	295.27	-30.69	-34.53	3.50	1764818.50	406847.56	39°36'53.1383"N	80°13'22.8539"W	34.70	174.210	0.35	0.24	-3.56
1850.00	4.240	194.430	1849.13	345.13	-33.21	-38.13	2.64	1764817.64	406843.96	39°36'53.1026"N	80°13'22.8645"W	38.22	176.041	0.29	-0.04	3.88
1900.00	3.980	194.030	1899.00	395.00	-35.61	-41.60	1.76	1764816.76	406840.49	39°36'53.0682"N	80°13'22.8754"W	41.64	177.581	0.52	-0.52	-0.80
1950.00	3.560	193.460	1948.89	444.89	-37.84	-44.80	0.98	1764815.98	406837.30	39°36'53.0366"N	80°13'22.8851"W	44.81	178.752	0.84	-0.84	-1.14
2000.00	3.620	191.740	1998.79	494.79	-40.01	-47.85	0.29	1764815.29	406834.24	39°36'53.0063"N	80°13'22.8935"W	47.85	179.649	0.25	0.12	-3.44
2050.00	2.950	193.550	2048.71	544.71	-41.99	-50.65	-0.33	1764814.67	406831.44	39°36'52.9786"N	80°13'22.9011"W	50.65	180.373	1.36	-1.34	3.62
2100.00	2.660	186.060	2098.65	594.65	-43.76	-53.05	-0.75	1764814.25	406829.00	39°36'52.9548"N	80°13'22.9063"W	53.06	180.814	0.93	-0.58	-14.98
2150.00	2.410	188.200	2148.60	644.60	-45.43	-55.25	-1.03	1764813.97	406826.85	39°36'52.9331"N	80°13'22.9096"W	55.26	181.064	0.53	-0.50	4.28
2200.00	2.010	185.590	2198.57	694.57	-46.90	-57.16	-1.26	1764813.74	406824.93	39°36'52.9142"N	80°13'22.9124"W	57.17	181.264	0.82	-0.80	-5.22
2250.00	1.840	185.010	2248.54	744.54	-48.20	-58.83	-1.42	1764813.58	406823.26	39°36'52.8977"N	80°13'22.9142"W	58.85	181.379	0.34	-0.34	-1.16
2300.00	1.540	183.320	2298.52	794.52	-49.37	-60.30	-1.53	1764813.47	406821.79	39°36'52.8831"N	80°13'22.9154"W	60.32	181.449	0.61	-0.60	-3.38
2350.00	1.800	184.300	2348.49	844.49	-50.52	-61.76	-1.62	1764813.38	406820.34	39°36'52.8688"N	80°13'22.9165"W	61.78	181.506	0.52	0.52	1.96
2553.00	1.220	155.780	2551.43	1047.43	-55.17	-66.91	-0.98	1764814.02	406815.19	39°36'52.8179"N	80°13'22.9077"W	66.91	180.836	0.46	-0.29	-14.05
2649.00	1.710	129.520	2647.39	1143.39	-57.55	-68.75	0.55	1764815.55	406813.34	39°36'52.7998"N	80°13'22.8881"W	68.75	179.543	0.85	0.51	-27.35
2744.00	2.790	112.360	2742.32	1238.32	-60.82	-70.53	3.78	1764818.78	406811.56	39°36'52.7825"N	80°13'22.8466"W	70.63	176.932	1.33	1.14	-18.06
2839.00	3.220	118.950	2837.19	1333.19	-65.11	-72.70	8.25	1764823.25	406809.39	39°36'52.7614"N	80°13'22.7892"W	73.17	173.524	0.58	0.45	6.94
2934.00	3.370	113.490	2932.03	1428.03	-69.82	-75.11	13.15	1764828.15	406806.99	39°36'52.7380"N	80°13'22.7264"W	76.25	170.070	0.37	0.16	-5.75
3029.00	3.770	119.250	3026.85	1522.85	-74.94	-77.75	18.43	1764833.43	406804.35	39°36'52.7123"N	80°13'22.6586"W	79.90	166.661	0.57	0.42	6.06
3123.00	4.450	123.510	3120.61	1616.61	-81.06	-81.27	24.17	1764839.17	406800.82	39°36'52.6780"N	80°13'22.5849"W	84.79	163.437	0.79	0.72	4.53
3219.00	4.210	124.900	3216.33	1712.33	-87.77	-85.34	30.17	1764845.16	406796.75	39°36'52.6382"N	80°13'22.5079"W	90.52	160.533	0.27	-0.25	1.45
3313.00	3.490	118.900	3310.12	1806.12	-93.52	-88.70	35.50	1764850.50	406793.40	39°36'52.6054"N	80°13'22.4394"W	95.54	158.187	0.88	-0.77	-6.38
3411.00	3.090	104.800	3407.96	1903.96	-98.14	-90.82	40.67	1764855.66	406791.28	39°36'52.5849"N	80°13'22.3732"W	99.51	155.878	0.92	-0.41	-14.39
3506.00	1.650	121.760	3502.88	1998.88	-101.30	-92.19	44.31	1764859.30	406789.91	39°36'52.5717"N	80°13'22.3265"W	102.28	154.332	1.67	-1.52	17.85

Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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]
3600.00	1.520	102.130	3596.84	2092.84	-103.42	-93.16	46.67	1764861.67	406788.93	39°36'52.5622"N	80°13'22.2962"W	104.20	153.390	0.59	-0.14	-20.88
3695.00	1.740	63.110	3691.81	2187.81	-104.49	-92.78	49.19	1764864.19	406789.32	39°36'52.5662"N	80°13'22.2640"W	105.01	152.066	1.17	0.23	-41.07
3791.00	2.460	46.040	3787.74	2283.74	-104.30	-90.69	51.98	1764866.97	406791.41	39°36'52.5871"N	80°13'22.2287"W	104.53	150.182	0.99	0.75	-17.78
3886.00	2.020	79.140	3882.67	2378.67	-104.58	-88.96	55.09	1764870.08	406793.14	39°36'52.6045"N	80°13'22.1891"W	104.63	148.231	1.41	-0.46	34.84
3981.00	2.450	79.830	3977.60	2473.60	-106.03	-88.28	58.73	1764873.73	406793.81	39°36'52.6114"N	80°13'22.1426"W	106.03	146.366	0.45	0.45	0.73
4079.00	2.370	85.410	4075.51	2571.51	-107.85	-87.75	62.81	1764877.81	406794.34	39°36'52.6170"N	80°13'22.0905"W	107.91	144.405	0.25	-0.08	5.69
4174.00	3.250	81.440	4170.40	2666.40	-109.95	-87.19	67.43	1764882.43	406794.90	39°36'52.6229"N	80°13'22.0315"W	110.23	142.282	0.95	0.93	-4.18
4269.00	4.780	77.310	4265.16	2761.16	-112.50	-85.92	73.96	1764888.95	406796.17	39°36'52.6360"N	80°13'21.9483"W	113.37	139.280	1.64	1.61	-4.35
4364.00	5.740	77.950	4359.76	2855.76	-115.66	-84.06	82.47	1764897.46	406798.03	39°36'52.6550"N	80°13'21.8398"W	117.76	135.549	1.01	1.01	0.67
4459.00	7.140	82.060	4454.16	2950.16	-119.97	-82.25	92.96	1764907.95	406799.84	39°36'52.6737"N	80°13'21.7059"W	124.13	131.503	1.55	1.47	4.33
4554.00	8.870	77.980	4548.23	3044.23	-125.23	-79.91	105.97	1764920.97	406802.18	39°36'52.6979"N	80°13'21.5398"W	132.73	127.020	1.92	1.82	-4.29
4648.00	9.970	80.970	4640.96	3136.96	-131.28	-77.13	121.10	1764936.09	406804.97	39°36'52.7266"N	80°13'21.3469"W	143.57	122.493	1.28	1.17	3.18
4742.00	11.540	81.310	4733.31	3229.31	-138.64	-74.43	138.43	1764953.42	406807.67	39°36'52.7547"N	80°13'21.1257"W	157.17	118.265	1.67	1.67	0.36
4839.00	13.850	81.610	4827.93	3323.93	-147.68	-71.27	159.51	1764974.50	406810.83	39°36'52.7876"N	80°13'20.8567"W	174.71	114.075	2.38	2.38	0.31
4934.00	16.010	82.310	4919.72	3415.72	-158.26	-67.86	183.74	1764998.73	406814.24	39°36'52.8232"N	80°13'20.5473"W	195.87	110.269	2.28	2.27	0.74
5029.00	17.100	84.490	5010.78	3506.78	-170.57	-64.76	210.63	1765025.62	406817.33	39°36'52.8559"N	80°13'20.2041"W	220.36	107.091	1.32	1.15	2.29
5124.00	18.570	85.130	5101.21	3597.21	-184.44	-62.14	239.61	1765054.59	406819.96	39°36'52.8842"N	80°13'19.8341"W	247.53	104.538	1.56	1.55	0.67
5219.00	20.070	86.080	5190.86	3686.86	-199.79	-59.74	270.94	1765085.93	406822.36	39°36'52.9104"N	80°13'19.4340"W	277.45	102.434	1.61	1.58	1.00
5313.00	21.770	83.650	5278.66	3774.66	-215.78	-56.71	304.36	1765119.34	406825.39	39°36'52.9430"N	80°13'19.0073"W	309.60	100.554	2.03	1.81	-2.59
5406.00	22.750	83.920	5364.73	3860.73	-232.00	-52.89	339.38	1765154.36	406829.20	39°36'52.9835"N	80°13'18.5602"W	343.48	98.858	1.06	1.05	0.29
5503.00	26.630	83.820	5452.85	3948.85	-250.70	-48.57	379.66	1765194.64	406833.53	39°36'53.0294"N	80°13'18.0459"W	382.76	97.290	4.00	4.00	-0.10
5602.00	29.170	86.190	5540.34	4036.34	-272.93	-44.57	425.80	1765240.78	406837.52	39°36'53.0725"N	80°13'17.4568"W	428.13	95.976	2.80	2.57	2.39
5697.00	29.460	84.000	5623.17	4119.17	-295.28	-40.59	472.14	1765287.11	406841.50	39°36'53.1156"N	80°13'16.8651"W	473.88	94.914	1.17	0.31	-2.31
5792.00	29.710	80.620	5705.79	4201.79	-315.79	-34.31	518.60	1765333.57	406847.78	39°36'53.1813"N	80°13'16.2721"W	519.73	93.785	1.78	0.26	-3.56
5886.00	28.530	79.260	5787.91	4283.91	-334.09	-26.33	563.64	1765378.61	406855.76	39°36'53.2637"N	80°13'15.6974"W	564.25	92.675	1.44	-1.26	-1.45
5981.00	28.860	79.620	5871.24	4367.24	-351.96	-17.97	608.48	1765423.44	406864.12	39°36'53.3499"N	80°13'15.1253"W	608.75	91.692	0.39	0.35	0.38
6075.00	28.620	82.770	5953.67	4449.67	-370.93	-11.05	653.13	1765468.09	406871.04	39°36'53.4218"N	80°13'14.5555"W	653.23	90.970	1.63	-0.26	3.35
6170.00	28.380	84.460	6037.16	4533.16	-391.67	-6.01	698.18	1765513.13	406876.08	39°36'53.4753"N	80°13'13.9804"W	698.20	90.493	0.89	-0.25	1.78
6264.00	28.140	83.610	6119.95	4615.95	-412.34	-1.39	742.44	1765557.40	406880.70	39°36'53.5245"N	80°13'13.4153"W	742.44	90.107	0.50	-0.26	-0.90
6360.00	29.310	82.670	6204.14	4700.14	-433.11	4.13	788.25	1765603.20	406886.22	39°36'53.5826"N	80°13'12.8306"W	788.26	89.700	1.31	1.22	-0.98



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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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]
6455.00	29.600	80.780	6286.86	4782.86	-453.11	10.86	834.47	1765649.42	406892.95	39°36'53.6527"N	80°13'12.2406"W	834.54	89.255	1.02	0.31	-1.99
6549.00	28.660	80.070	6368.97	4864.97	-471.77	18.46	879.59	1765694.54	406900.55	39°36'53.7315"N	80°13'11.6649"W	879.78	88.797	1.07	-1.00	-0.76
6644.00	27.870	79.900	6452.64	4948.64	-489.79	26.29	923.89	1765738.83	406908.38	39°36'53.8123"N	80°13'11.0996"W	924.26	88.370	0.84	-0.83	-0.18
6742.00	27.840	83.520	6539.29	5035.29	-509.38	32.89	969.18	1765784.12	406914.97	39°36'53.8811"N	80°13'10.5216"W	969.74	88.057	1.73	-0.03	3.69
6836.00	29.450	85.170	6621.79	5117.79	-530.53	37.31	1014.02	1765828.96	406919.40	39°36'53.9284"N	80°13'9.9491"W	1014.71	87.893	1.91	1.71	1.76
6932.00	31.530	83.480	6704.51	5200.51	-553.34	42.15	1062.48	1765877.42	406924.24	39°36'53.9800"N	80°13'9.3303"W	1063.32	87.728	2.34	2.17	-1.76
7027.00	31.270	83.170	6785.60	5281.60	-575.77	47.90	1111.64	1765926.57	406929.99	39°36'54.0408"N	80°13'8.7028"W	1112.67	87.533	0.32	-0.27	-0.33
7121.00	29.280	82.990	6866.77	5362.77	-597.08	53.61	1158.69	1765973.61	406935.69	39°36'54.1009"N	80°13'8.1023"W	1159.92	87.351	2.12	-2.12	-0.19
7216.00	27.820	82.830	6950.22	5446.22	-617.36	59.21	1203.74	1766018.67	406941.30	39°36'54.1598"N	80°13'7.5271"W	1205.20	87.184	1.54	-1.54	-0.17
7311.00	28.120	83.510	7034.12	5530.12	-637.45	64.51	1247.98	1766062.90	406946.59	39°36'54.2157"N	80°13'6.9624"W	1249.65	87.041	0.46	0.32	0.72
7406.00	30.060	80.940	7117.14	5613.14	-657.56	70.79	1293.73	1766108.65	406952.87	39°36'54.2813"N	80°13'6.3785"W	1295.66	86.868	2.43	2.04	-2.71
7501.00	28.310	79.890	7200.07	5696.07	-676.45	78.49	1339.40	1766154.32	406960.57	39°36'54.3611"N	80°13'5.7956"W	1341.70	86.646	1.92	-1.84	-1.11
7596.00	27.210	81.470	7284.14	5780.14	-694.65	85.66	1383.06	1766197.98	406967.75	39°36'54.4354"N	80°13'5.2385"W	1385.71	86.456	1.39	-1.16	1.66
7625.00	27.700	82.270	7309.87	5805.87	-700.41	87.55	1396.30	1766211.21	406969.64	39°36'54.4552"N	80°13'5.0696"W	1399.04	86.412	2.11	1.69	2.76
7719.00	28.910	83.510	7392.63	5888.63	-720.32	93.06	1440.52	1766255.43	406975.14	39°36'54.5131"N	80°13'4.5050"W	1443.53	86.304	1.43	1.29	1.32
7813.00	27.610	75.610	7475.46	5971.46	-737.87	101.05	1484.22	1766299.12	406983.13	39°36'54.5954"N	80°13'3.9476"W	1487.65	86.105	4.21	-1.38	-8.40
7909.00	28.190	54.530	7560.51	6056.51	-744.48	119.78	1524.33	1766339.24	407001.86	39°36'54.7837"N	80°13'3.4369"W	1529.03	85.507	10.25	0.60	-21.96
8004.00	30.750	40.670	7643.31	6139.31	-737.18	151.26	1558.48	1766373.38	407033.34	39°36'55.0976"N	80°13'3.0038"W	1565.80	84.456	7.65	2.69	-14.59
8099.00	35.290	26.410	7723.06	6219.06	-716.86	194.35	1586.57	1766401.47	407076.43	39°36'55.5256"N	80°13'2.6492"W	1598.43	83.016	9.45	4.78	-15.01
8194.00	40.250	9.510	7798.34	6294.34	-680.65	249.38	1603.90	1766418.80	407131.45	39°36'56.0708"N	80°13'2.4334"W	1623.17	81.162	12.04	5.22	-17.79
8289.00	46.310	3.260	7867.50	6363.50	-630.71	314.03	1610.93	1766425.84	407196.10	39°36'56.7103"N	80°13'2.3501"W	1641.26	78.969	7.81	6.38	-6.58
8383.00	53.800	357.310	7927.84	6423.84	-570.88	385.98	1611.09	1766425.99	407268.05	39°36'57.4214"N	80°13'2.3555"W	1656.68	76.527	9.32	7.97	-6.33
8477.00	60.330	351.820	7978.95	6474.95	-501.37	464.42	1603.48	1766418.39	407346.48	39°36'58.1959"N	80°13'2.4606"W	1669.39	73.847	8.50	6.95	-5.84
8572.00	67.120	344.530	8021.02	6517.02	-422.34	547.64	1585.90	1766400.80	407429.69	39°36'59.0170"N	80°13'2.6938"W	1677.79	70.949	9.92	7.15	-7.67
8667.00	74.290	340.970	8052.40	6548.40	-336.37	633.18	1559.28	1766374.18	407515.23	39°36'59.8602"N	80°13'3.0428"W	1682.93	67.899	8.33	7.55	-3.75
8761.00	81.730	341.340	8071.92	6567.92	-247.53	720.14	1529.60	1766344.51	407602.18	39°37'0.7173"N	80°13'3.4308"W	1690.64	64.789	7.92	7.91	0.39
8856.00	83.960	335.820	8083.76	6579.76	-155.44	807.84	1495.18	1766310.09	407689.88	39°37'1.5813"N	80°13'3.8796"W	1699.46	61.618	6.22	2.35	-5.81
8951.00	83.900	330.330	8093.81	6589.81	-61.65	892.04	1452.42	1766267.33	407774.07	39°37'2.4100"N	80°13'4.4346"W	1704.48	58.443	5.75	-0.06	-5.78
9045.00	88.210	326.360	8100.28	6596.28	32.03	971.82	1403.22	1766218.13	407853.85	39°37'3.1946"N	80°13'5.0714"W	1706.89	55.295	6.23	4.59	-4.22
9140.00	88.710	326.040	8102.83	6598.83	126.99	1050.74	1350.39	1766165.31	407932.76	39°37'3.9703"N	80°13'5.7545"W	1711.02	52.114	0.62	0.53	-0.34

Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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]
9235.00	88.770	325.040	8104.92	6600.92	221.96	1129.05	1296.65	1766111.57	408011.07	39°37'4.7400"N	80°13'6.4493"W	1719.32	48.953	1.05	0.06	-1.05
9329.00	88.980	326.950	8106.77	6602.77	315.93	1206.95	1244.09	1766059.02	408088.97	39°37'5.5058"N	80°13'7.1288"W	1733.35	45.868	2.04	0.22	2.03
9425.00	87.750	326.080	8109.51	6605.51	411.89	1286.98	1191.15	1766006.08	408168.99	39°37'6.2925"N	80°13'7.8135"W	1753.62	42.785	1.57	-1.28	-0.91
9520.00	87.750	325.850	8113.24	6609.24	506.81	1365.65	1138.02	1765952.95	408247.66	39°37'7.0657"N	80°13'8.5005"W	1777.66	39.805	0.24	0.00	-0.24
9614.00	88.060	326.490	8116.67	6612.67	600.75	1443.68	1085.72	1765900.62	408325.68	39°37'7.8328"N	80°13'9.1767"W	1806.38	36.945	0.76	0.33	0.68
9707.00	87.940	326.010	8119.92	6615.92	693.69	1520.96	1034.09	1765849.02	408402.96	39°37'8.5924"N	80°13'9.8445"W	1839.20	34.211	0.53	-0.13	-0.52
9802.00	87.970	325.780	8123.31	6619.31	788.63	1599.57	980.85	1765795.79	408481.56	39°37'9.3651"N	80°13'10.5328"W	1876.35	31.517	0.24	0.03	-0.24
9897.00	88.250	325.990	8126.44	6622.44	883.57	1678.18	927.60	1765742.54	408560.17	39°37'10.1377"N	80°13'11.2213"W	1917.48	28.931	0.37	0.29	0.22
9992.00	88.280	326.190	8129.32	6625.32	978.53	1756.99	874.63	1765689.57	408638.97	39°37'10.9123"N	80°13'11.9063"W	1962.64	26.464	0.21	0.03	0.21
10086.00	87.880	325.390	8132.47	6628.47	1072.47	1834.68	821.81	1765636.76	408716.66	39°37'11.6759"N	80°13'12.5892"W	2010.33	24.129	0.95	-0.43	-0.85
10181.00	88.340	326.460	8135.60	6631.60	1167.42	1913.32	768.61	1765583.56	408795.30	39°37'12.4490"N	80°13'13.2771"W	2061.93	21.886	1.23	0.48	1.13
10276.00	88.250	326.080	8138.43	6634.43	1262.37	1992.30	715.88	1765530.84	408874.26	39°37'13.2252"N	80°13'13.9590"W	2117.01	19.765	0.41	-0.09	-0.40
10371.00	88.150	326.470	8141.41	6637.41	1357.33	2071.27	663.16	1765478.12	408953.23	39°37'14.0015"N	80°13'14.6407"W	2174.84	17.754	0.42	-0.11	0.41
10466.00	88.400	326.350	8144.27	6640.27	1452.28	2150.37	610.63	1765425.59	409032.33	39°37'14.7791"N	80°13'15.3202"W	2235.39	15.853	0.29	0.26	-0.13
10560.00	88.060	326.410	8147.17	6643.17	1546.24	2228.61	558.61	1765373.57	409110.56	39°37'15.5482"N	80°13'15.9930"W	2297.55	14.071	0.37	-0.36	0.06
10655.00	87.140	325.850	8151.15	6647.15	1641.15	2307.42	505.71	1765320.68	409189.37	39°37'16.3228"N	80°13'16.6770"W	2362.19	12.362	1.13	-0.97	-0.59
10749.00	87.780	326.010	8155.32	6651.32	1735.06	2385.21	453.10	1765268.08	409267.15	39°37'17.0874"N	80°13'17.3573"W	2427.86	10.756	0.70	0.68	0.17
10844.00	87.750	326.430	8159.02	6655.02	1829.98	2464.11	400.32	1765215.30	409346.05	39°37'17.8630"N	80°13'18.0398"W	2496.42	9.228	0.44	-0.03	0.44
10939.00	87.450	326.650	8163.00	6659.00	1924.90	2543.29	347.99	1765162.97	409425.23	39°37'18.6414"N	80°13'18.7167"W	2566.99	7.791	0.39	-0.32	0.23
11033.00	87.380	326.110	8167.24	6663.24	2018.80	2621.49	296.00	1765110.98	409503.42	39°37'19.4100"N	80°13'19.3892"W	2638.15	6.442	0.58	-0.07	-0.57
11129.00	88.180	326.260	8170.96	6666.96	2114.73	2701.19	242.61	1765057.60	409583.12	39°37'20.1934"N	80°13'20.0796"W	2712.06	5.132	0.85	0.83	0.16
11223.00	88.520	326.750	8173.67	6669.67	2208.69	2779.55	190.76	1765005.75	409661.47	39°37'20.9637"N	80°13'20.7503"W	2786.09	3.926	0.63	0.36	0.52
11318.00	87.540	326.170	8176.93	6672.93	2303.63	2858.68	138.30	1764953.29	409740.60	39°37'21.7416"N	80°13'21.4288"W	2862.03	2.770	1.20	-1.03	-0.61
11412.00	87.940	326.340	8180.64	6676.64	2397.56	2936.78	86.13	1764901.12	409818.69	39°37'22.5093"N	80°13'22.1036"W	2938.05	1.680	0.46	0.43	0.18
11507.00	87.080	326.660	8184.76	6680.76	2492.47	3015.93	33.74	1764848.74	409897.83	39°37'23.2873"N	80°13'22.7811"W	3016.12	0.641	0.97	-0.91	0.34
11602.00	87.010	326.590	8189.66	6685.66	2587.34	3095.16	-18.45	1764796.55	409977.06	39°37'24.0661"N	80°13'23.4562"W	3095.21	359.658	0.10	-0.07	-0.07
11696.00	86.860	326.880	8194.69	6690.69	2681.20	3173.64	-69.94	1764745.07	410055.54	39°37'24.8376"N	80°13'24.1223"W	3174.41	358.738	0.35	-0.16	0.31
11792.00	87.780	325.900	8199.18	6695.18	2777.10	3253.50	-123.02	1764691.99	410135.39	39°37'25.6227"N	80°13'24.8088"W	3255.83	357.835	1.40	0.96	-1.02
11886.00	88.430	326.010	8202.29	6698.29	2871.04	3331.35	-175.61	1764639.40	410213.23	39°37'26.3878"N	80°13'25.4890"W	3335.97	356.982	0.70	0.69	0.12
11981.00	88.610	326.020	8204.74	6700.74	2966.01	3410.09	-228.70	1764586.32	410291.97	39°37'27.1618"N	80°13'26.1755"W	3417.75	356.163	0.19	0.19	0.01



Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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]
12076.00	89.630	326.630	8206.20	6702.20	3061.00	3489.14	-281.37	1764533.65	410371.02	39°37'27.9388"N	80°13'26.8567"W	3500.47	355.390	1.25	1.07	0.64
12171.00	89.420	326.500	8206.99	6702.99	3155.99	3568.42	-333.71	1764481.31	410450.29	39°37'28.7181"N	80°13'27.5338"W	3583.99	354.657	0.26	-0.22	-0.14
12266.00	89.290	326.350	8208.06	6704.06	3250.99	3647.56	-386.24	1764428.78	410529.43	39°37'29.4960"N	80°13'28.2133"W	3667.95	353.955	0.21	-0.14	-0.16
12361.00	89.140	326.250	8209.36	6705.36	3345.98	3726.59	-438.95	1764376.08	410608.45	39°37'30.2728"N	80°13'28.8950"W	3752.35	353.282	0.19	-0.16	-0.11
12456.00	88.950	326.350	8210.94	6706.94	3440.96	3805.62	-491.65	1764323.38	410687.47	39°37'31.0496"N	80°13'29.5767"W	3837.24	352.639	0.23	-0.20	0.11
12551.00	88.770	326.110	8212.83	6708.83	3535.94	3884.57	-544.45	1764270.59	410766.42	39°37'31.8257"N	80°13'30.2595"W	3922.54	352.022	0.32	-0.19	-0.25
12645.00	88.920	326.000	8214.72	6710.72	3629.92	3962.53	-596.92	1764218.11	410844.38	39°37'32.5920"N	80°13'30.9382"W	4007.24	351.433	0.20	0.16	-0.12
12740.00	88.620	325.980	8216.76	6712.76	3724.90	4041.27	-650.05	1764164.99	410923.11	39°37'33.3658"N	80°13'31.6253"W	4093.21	350.862	0.32	-0.32	-0.02
12834.00	88.550	326.190	8219.09	6715.09	3818.87	4119.25	-702.48	1764112.56	411001.09	39°37'34.1323"N	80°13'32.3034"W	4178.72	350.322	0.24	-0.07	0.22
12929.00	88.460	325.460	8221.56	6717.56	3913.83	4197.82	-755.83	1764059.22	411079.65	39°37'34.9045"N	80°13'32.9933"W	4265.32	349.793	0.77	-0.09	-0.77
13024.00	87.940	325.970	8224.55	6720.55	4008.78	4276.27	-809.31	1764005.73	411158.10	39°37'35.6756"N	80°13'33.6849"W	4352.18	349.283	0.77	-0.55	0.54
13119.00	88.430	325.980	8227.56	6723.56	4103.73	4354.97	-862.45	1763952.61	411236.79	39°37'36.4491"N	80°13'34.3721"W	4439.54	348.798	0.52	0.52	0.01
13214.00	89.480	326.250	8229.29	6725.29	4198.71	4433.82	-915.40	1763899.65	411315.64	39°37'37.2241"N	80°13'35.0570"W	4527.33	348.335	1.14	1.11	0.28
13309.00	89.140	326.000	8230.43	6726.43	4293.70	4512.69	-968.35	1763846.71	411394.50	39°37'37.9993"N	80°13'35.7418"W	4615.41	347.889	0.44	-0.36	-0.26
13403.00	89.260	325.730	8231.75	6727.75	4387.69	4590.48	-1021.09	1763793.97	411472.29	39°37'38.7639"N	80°13'36.4239"W	4702.68	347.459	0.31	0.13	-0.29
13497.00	89.260	325.870	8232.96	6728.96	4481.68	4668.22	-1073.92	1763741.14	411550.03	39°37'39.5280"N	80°13'37.1071"W	4790.16	347.045	0.15	0.00	0.15
13592.00	89.200	325.970	8234.24	6730.24	4576.67	4746.90	-1127.15	1763687.92	411628.70	39°37'40.3012"N	80°13'37.7955"W	4878.89	346.643	0.12	-0.06	0.11
13687.00	89.050	326.000	8235.69	6731.69	4671.65	4825.64	-1180.29	1763634.78	411707.43	39°37'41.0751"N	80°13'38.4828"W	4967.88	346.256	0.16	-0.16	0.03
13783.00	90.310	326.050	8236.22	6732.22	4767.65	4905.24	-1233.93	1763581.14	411787.03	39°37'41.8576"N	80°13'39.1766"W	5058.06	345.880	1.31	1.31	0.05
13877.00	89.350	325.620	8236.50	6732.50	4861.64	4983.02	-1286.72	1763528.36	411864.81	39°37'42.6220"N	80°13'39.8593"W	5146.47	345.521	1.12	-1.02	-0.46
13972.00	89.600	325.420	8237.37	6733.37	4956.63	5061.33	-1340.50	1763474.58	411943.11	39°37'43.3915"N	80°13'40.5547"W	5235.84	345.166	0.34	0.26	-0.21
14067.00	89.660	326.080	8237.99	6733.99	5051.62	5139.85	-1393.97	1763421.12	412021.63	39°37'44.1633"N	80°13'41.2461"W	5325.53	344.826	0.70	0.06	0.69
14162.00	90.120	325.950	8238.17	6734.17	5146.62	5218.62	-1447.07	1763368.02	412100.39	39°37'44.9375"N	80°13'41.9330"W	5415.54	344.502	0.50	0.48	-0.14
14257.00	90.520	327.040	8237.64	6733.64	5241.61	5297.84	-1499.51	1763315.58	412179.60	39°37'45.7161"N	80°13'42.6114"W	5505.96	344.196	1.22	0.42	1.15
14352.00	88.580	326.250	8238.38	6734.38	5336.60	5377.18	-1551.74	1763263.36	412258.94	39°37'46.4961"N	80°13'43.2871"W	5596.60	343.903	2.20	-2.04	-0.83
14448.00	86.700	326.090	8242.34	6738.34	5432.52	5456.86	-1605.13	1763209.96	412338.61	39°37'47.2792"N	80°13'43.9778"W	5688.03	343.609	1.97	-1.96	-0.17
14542.00	86.920	326.050	8247.57	6743.57	5526.37	5534.73	-1657.52	1763157.58	412416.48	39°37'48.0446"N	80°13'44.6554"W	5777.60	343.328	0.24	0.23	-0.04
14637.00	85.930	326.060	8253.49	6749.49	5621.18	5613.38	-1710.47	1763104.64	412495.13	39°37'48.8177"N	80°13'45.3402"W	5868.20	343.053	1.04	-1.04	0.01
14732.00	85.810	326.120	8260.33	6756.33	5715.94	5692.02	-1763.33	1763051.78	412573.76	39°37'49.5906"N	80°13'46.0240"W	5958.90	342.788	0.14	-0.13	0.06
14828.00	85.010	326.600	8268.02	6764.02	5811.63	5771.69	-1816.34	1762998.77	412653.42	39°37'50.3736"N	80°13'46.7098"W	6050.74	342.531	0.97	-0.83	0.50



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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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]
14922.00	84.820	326.100	8276.35	6772.35	5905.26	5849.63	-1868.22	1762946.89	412731.36	39°37'51.1397"N	80°13'47.3810"W	6140.72	342.288	0.57	-0.20	-0.53
15017.00	86.250	327.110	8283.74	6779.74	5999.96	5928.70	-1920.35	1762894.77	412810.43	39°37'51.9170"N	80°13'48.0554"W	6231.95	342.052	1.84	1.51	1.06
15113.00	86.400	327.480	8289.90	6785.90	6095.75	6009.31	-1972.11	1762843.01	412891.04	39°37'52.7095"N	80°13'48.7253"W	6324.64	341.831	0.42	0.16	0.39
15208.00	86.830	326.360	8295.51	6791.51	6190.58	6088.78	-2023.87	1762791.25	412970.49	39°37'53.4906"N	80°13'49.3951"W	6416.33	341.614	1.26	0.45	-1.18
15303.00	86.800	327.290	8300.78	6796.78	6285.43	6168.17	-2075.77	1762739.35	413049.88	39°37'54.2710"N	80°13'50.0667"W	6508.08	341.400	0.98	-0.03	0.98
15398.00	87.780	326.690	8305.28	6801.28	6380.32	6247.74	-2127.47	1762687.66	413129.45	39°37'55.0533"N	80°13'50.7357"W	6600.03	341.195	1.21	1.03	-0.63
15493.00	87.880	325.740	8308.87	6804.87	6475.25	6326.64	-2180.26	1762634.87	413208.34	39°37'55.8288"N	80°13'51.4186"W	6691.78	340.985	1.00	0.11	-1.00
15589.00	88.250	326.280	8312.11	6808.11	6571.19	6406.19	-2233.90	1762581.24	413287.89	39°37'56.6106"N	80°13'52.1124"W	6784.51	340.776	0.68	0.39	0.56
15684.00	87.810	326.560	8315.38	6811.38	6666.13	6485.29	-2286.41	1762528.73	413366.98	39°37'57.3881"N	80°13'52.7918"W	6876.53	340.580	0.55	-0.46	0.29
15779.00	87.380	325.960	8319.37	6815.37	6761.05	6564.22	-2339.13	1762476.01	413445.91	39°37'58.1639"N	80°13'53.4738"W	6968.54	340.387	0.78	-0.45	-0.63
15874.00	87.630	325.250	8323.50	6819.50	6855.95	6642.54	-2392.74	1762422.40	413524.22	39°37'58.9335"N	80°13'54.1672"W	7060.35	340.190	0.79	0.26	-0.75
15969.00	88.030	325.900	8327.10	6823.10	6950.87	6720.84	-2446.41	1762368.74	413602.52	39°37'59.7031"N	80°13'54.8613"W	7152.25	339.998	0.80	0.42	0.68
16064.00	88.610	326.350	8329.88	6825.88	7045.83	6799.68	-2499.34	1762315.81	413681.35	39°38'0.4780"N	80°13'55.5460"W	7244.47	339.818	0.77	0.61	0.47
16159.00	88.920	326.610	8331.93	6827.93	7140.81	6878.86	-2551.79	1762263.37	413760.53	39°38'1.2563"N	80°13'56.2246"W	7336.92	339.647	0.43	0.33	0.27
16254.00	89.170	326.210	8333.52	6829.52	7235.79	6957.99	-2604.34	1762210.82	413839.65	39°38'2.0340"N	80°13'56.9045"W	7429.41	339.479	0.50	0.26	-0.42
16349.00	89.880	325.960	8334.30	6830.30	7330.79	7036.82	-2657.34	1762157.82	413918.48	39°38'2.8088"N	80°13'57.5902"W	7521.86	339.312	0.79	0.75	-0.26
16444.00	89.850	325.950	8334.53	6830.53	7425.79	7115.54	-2710.53	1762104.64	413997.19	39°38'3.5825"N	80°13'58.2782"W	7614.32	339.147	0.03	-0.03	-0.01
16539.00	89.720	324.600	8334.88	6830.88	7520.77	7193.62	-2764.64	1762050.53	414075.27	39°38'4.3497"N	80°13'58.9780"W	7706.58	338.977	1.43	-0.14	-1.42
16634.00	90.220	326.440	8334.93	6830.93	7615.75	7271.92	-2818.42	1761996.75	414153.57	39°38'5.1192"N	80°13'59.6735"W	7799.00	338.815	2.01	0.53	1.94
16729.00	89.720	326.060	8334.98	6830.98	7710.75	7350.91	-2871.20	1761943.98	414232.55	39°38'5.8956"N	80°14'0.3563"W	7891.75	338.665	0.66	-0.53	-0.40
16824.00	89.660	325.910	8335.50	6831.50	7805.75	7429.66	-2924.34	1761890.84	414311.29	39°38'6.6695"N	80°14'1.0438"W	7984.46	338.515	0.17	-0.06	-0.16
16918.00	90.490	325.890	8335.37	6831.37	7899.74	7507.49	-2977.04	1761838.14	414389.12	39°38'7.4345"N	80°14'1.7255"W	8076.21	338.370	0.88	0.88	-0.02
17013.00	90.060	325.890	8334.92	6830.92	7994.74	7586.15	-3030.32	1761784.87	414467.77	39°38'8.2075"N	80°14'2.4146"W	8168.99	338.226	0.45	-0.45	0.00
17108.00	90.860	326.160	8334.16	6830.16	8089.73	7664.93	-3083.40	1761731.79	414546.55	39°38'8.9818"N	80°14'3.1014"W	8261.87	338.086	0.89	0.84	0.28
17202.00	89.510	324.480	8333.85	6829.85	8183.71	7742.22	-3136.88	1761678.31	414623.84	39°38'9.7413"N	80°14'3.7931"W	8353.57	337.944	2.29	-1.44	-1.79
17297.00	90.770	326.280	8333.62	6829.62	8278.69	7820.40	-3190.85	1761624.34	414702.01	39°38'10.5095"N	80°14'4.4910"W	8446.31	337.804	2.31	1.33	1.89
17392.00	90.550	325.580	8332.53	6828.53	8373.68	7899.08	-3244.07	1761571.13	414780.69	39°38'11.2829"N	80°14'5.1794"W	8539.29	337.673	0.77	-0.23	-0.74
17487.00	90.030	326.660	8332.04	6828.04	8468.68	7977.95	-3297.03	1761518.18	414859.55	39°38'12.0580"N	80°14'5.8646"W	8632.39	337.546	1.26	-0.55	1.14
17582.00	90.150	326.940	8331.90	6827.90	8563.67	8057.44	-3349.04	1761466.16	414939.04	39°38'12.8394"N	80°14'6.5378"W	8725.74	337.430	0.32	0.13	0.29
17677.00	90.860	326.850	8331.06	6827.06	8658.67	8137.02	-3400.93	1761414.28	415018.61	39°38'13.6216"N	80°14'7.2093"W	8819.15	337.317	0.75	0.75	-0.09



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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]
17773.00	91.940	326.240	8328.71	6824.71	8754.63	8217.09	-3453.83	1761361.38	415098.68	39°38'14.4086"N	80°14'7.8939"W	8913.45	337.202	1.29	1.13	-0.64
17868.00	92.340	327.360	8325.17	6821.17	8849.56	8296.52	-3505.82	1761309.40	415178.11	39°38'15.1894"N	80°14'8.5666"W	9006.83	337.093	1.25	0.42	1.18
17964.00	90.920	325.840	8322.43	6818.43	8945.52	8376.63	-3558.64	1761256.58	415258.21	39°38'15.9768"N	80°14'9.2502"W	9101.20	336.983	2.17	-1.48	-1.58
18059.00	91.630	326.770	8320.32	6816.32	9040.49	8455.65	-3611.33	1761203.89	415337.22	39°38'16.7535"N	80°14'9.9319"W	9194.55	336.873	1.23	0.75	0.98
18154.00	90.370	326.170	8318.66	6814.66	9135.48	8534.83	-3663.79	1761151.43	415416.40	39°38'17.5317"N	80°14'10.6108"W	9287.99	336.767	1.47	-1.33	-0.63
18249.00	90.620	326.560	8317.84	6813.84	9230.47	8613.92	-3716.41	1761098.82	415495.48	39°38'18.3091"N	80°14'11.2917"W	9381.44	336.663	0.49	0.26	0.41
18345.00	91.570	327.040	8316.01	6812.01	9326.45	8694.24	-3768.97	1761046.26	415575.79	39°38'19.0985"N	80°14'11.9719"W	9476.01	336.563	1.11	0.99	0.50
18440.00	91.750	326.700	8313.26	6809.26	9421.41	8773.76	-3820.87	1760994.37	415655.31	39°38'19.8802"N	80°14'12.6436"W	9569.63	336.467	0.40	0.19	-0.36
18536.00	93.110	327.000	8309.19	6805.19	9517.32	8854.06	-3873.31	1760941.92	415735.61	39°38'20.6696"N	80°14'13.3224"W	9664.21	336.372	1.45	1.42	0.31
18631.00	92.860	326.970	8304.24	6800.24	9612.18	8933.61	-3925.01	1760890.23	415815.15	39°38'21.4516"N	80°14'13.9915"W	9757.82	336.282	0.27	-0.26	-0.03
18726.00	93.420	326.680	8299.03	6795.03	9707.04	9013.01	-3976.91	1760838.33	415894.54	39°38'22.2320"N	80°14'14.6633"W	9851.40	336.191	0.66	0.59	-0.31
18822.00	93.360	326.740	8293.36	6789.36	9802.87	9093.11	-4029.51	1760785.74	415974.65	39°38'23.0194"N	80°14'15.3440"W	9945.94	336.100	0.09	-0.06	0.06
18917.00	93.540	326.580	8287.64	6783.64	9897.69	9172.33	-4081.63	1760733.62	416053.86	39°38'23.7981"N	80°14'16.0185"W	10039.49	336.011	0.25	0.19	-0.17
19013.00	92.990	325.960	8282.17	6778.17	9993.54	9252.04	-4134.85	1760680.40	416133.57	39°38'24.5815"N	80°14'16.7072"W	10133.97	335.920	0.86	-0.57	-0.65
19109.00	93.290	327.150	8276.91	6772.91	10089.39	9332.03	-4187.68	1760627.58	416213.54	39°38'25.3676"N	80°14'17.3909"W	10228.56	335.832	1.28	0.31	1.24
19204.00	92.830	327.210	8271.84	6767.84	10184.24	9411.75	-4239.09	1760576.16	416293.26	39°38'26.1513"N	80°14'18.0565"W	10322.35	335.753	0.49	-0.48	0.06
19299.00	93.260	326.600	8266.80	6762.80	10279.10	9491.22	-4290.89	1760524.37	416372.73	39°38'26.9325"N	80°14'18.7269"W	10416.10	335.673	0.78	0.45	-0.64
19394.00	93.390	327.080	8261.29	6757.29	10373.94	9570.62	-4342.77	1760472.50	416452.12	39°38'27.7129"N	80°14'19.3984"W	10509.82	335.593	0.52	0.14	0.51
19490.00	92.960	327.050	8255.97	6751.97	10469.79	9651.06	-4394.88	1760420.39	416532.56	39°38'28.5037"N	80°14'20.0730"W	10604.62	335.517	0.45	-0.45	-0.03
19585.00	92.950	327.010	8251.07	6747.07	10564.65	9730.66	-4446.51	1760368.76	416612.15	39°38'29.2861"N	80°14'20.7413"W	10698.47	335.442	0.04	-0.01	-0.04
19680.00	93.080	326.730	8246.08	6742.08	10659.52	9810.11	-4498.36	1760316.91	416691.59	39°38'30.0670"N	80°14'21.4124"W	10792.29	335.366	0.32	0.14	-0.29
19775.00	92.830	326.960	8241.18	6737.18	10754.39	9889.53	-4550.25	1760265.03	416771.02	39°38'30.8478"N	80°14'22.0840"W	10886.12	335.292	0.36	-0.26	0.24
19871.00	93.260	327.060	8236.08	6732.08	10850.25	9969.94	-4602.45	1760212.83	416851.42	39°38'31.6382"N	80°14'22.7597"W	10980.99	335.220	0.46	0.45	0.10
19966.00	93.110	327.020	8230.80	6726.80	10945.09	10049.53	-4654.05	1760161.23	416931.00	39°38'32.4205"N	80°14'23.4278"W	11074.89	335.151	0.16	-0.16	-0.04
20061.00	93.080	327.000	8225.67	6721.67	11039.95	10129.09	-4705.70	1760109.58	417010.56	39°38'33.2026"N	80°14'24.0964"W	11168.80	335.082	0.04	-0.03	-0.02
20156.00	93.050	326.890	8220.59	6716.59	11134.81	10208.60	-4757.45	1760057.84	417090.07	39°38'33.9841"N	80°14'24.7662"W	11262.72	335.013	0.12	-0.03	-0.12
20251.00	91.660	327.390	8216.69	6712.69	11229.72	10288.33	-4808.95	1760006.35	417169.79	39°38'34.7679"N	80°14'25.4329"W	11356.75	334.948	1.55	-1.46	0.53
20346.00	91.880	326.380	8213.75	6709.75	11324.67	10367.86	-4860.82	1759954.48	417249.32	39°38'35.5496"N	80°14'26.1044"W	11450.77	334.881	1.09	0.23	-1.06
20441.00	91.880	326.950	8210.64	6706.64	11419.61	10447.19	-4913.00	1759902.30	417328.64	39°38'36.3293"N	80°14'26.7797"W	11544.76	334.814	0.60	0.00	0.60
20536.00	91.020	327.110	8208.23	6704.23	11514.58	10526.87	-4964.68	1759850.62	417408.31	39°38'37.1125"N	80°14'27.4488"W	11638.86	334.750	0.92	-0.91	0.17



Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

WELLPATH DATA (250 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]
20631.00	90.310	327.200	8207.13	6703.13	11609.56	10606.67	-5016.20	1759799.10	417488.11	39°38'37.8970"N	80°14'28.1158"W	11733.02	334.689	0.75	-0.75	0.09
20726.00	89.940	326.530	8206.92	6702.92	11704.56	10686.22	-5068.13	1759747.18	417567.66	39°38'38.6790"N	80°14'28.7880"W	11827.14	334.627	0.81	-0.39	-0.71
20821.00	90.030	326.750	8206.95	6702.95	11799.55	10765.57	-5120.37	1759694.94	417647.00	39°38'39.4589"N	80°14'29.4641"W	11921.23	334.563	0.25	0.09	0.23
20916.00	89.850	326.330	8207.05	6703.05	11894.55	10844.83	-5172.75	1759642.57	417726.25	39°38'40.2378"N	80°14'30.1421"W	12015.31	334.500	0.48	-0.19	-0.44
21011.00	90.000	326.910	8207.17	6703.17	11989.55	10924.15	-5225.02	1759590.30	417805.58	39°38'41.0175"N	80°14'30.8186"W	12109.42	334.438	0.63	0.16	0.61
21105.00	90.030	325.800	8207.15	6703.15	12083.55	11002.41	-5277.10	1759538.23	417883.82	39°38'41.7866"N	80°14'31.4926"W	12202.49	334.376	1.18	0.03	-1.18
21200.00	90.030	326.280	8207.10	6703.10	12178.55	11081.20	-5330.16	1759485.16	417962.61	39°38'42.5610"N	80°14'32.1793"W	12296.49	334.312	0.51	0.00	0.51
21295.00	90.770	326.900	8206.43	6702.43	12273.55	11160.50	-5382.47	1759432.86	418041.91	39°38'43.3404"N	80°14'32.8563"W	12390.63	334.253	1.02	0.78	0.65
21382.00	90.090	326.700	8205.78	6701.78	12360.54	11233.30	-5430.11	1759385.22	418114.70	39°38'44.0559"N	80°14'33.4730"W	12476.90	334.201	0.81	-0.78	-0.23
21407.00‡	90.090	326.700	8205.74	6701.74	12385.54	11254.19	-5443.83	1759371.50	418135.59	39°38'44.2613"N	80°14'33.6507"W	12501.69	334.186	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Sullivan 1H AWB Ref Wellpath: Sullivan 1H AWP Proj: 21407'

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	1505.00	1477.00	28.00	1504.74	0.00	0.00	-18.60	6.34
13.375in Casing Surface	28.00	1475.00	1447.00	28.00	1474.76	0.00	0.00	-17.54	6.28
12.25in Open Hole	1505.00	2680.00	1175.00	1504.74	2678.38	-18.60	6.34	-69.34	1.37
9.625in Casing Intermediate	28.00	2650.00	2622.00	28.00	2648.39	0.00	0.00	-68.77	0.57
8.75in Open Hole	2680.00	7776.35	5096.35	2678.38	7443.05	-69.34	1.37	97.26	1467.53
8.5in Open Hole	7776.35	21407.00	13630.65	7443.05	8205.74	97.26	1467.53	11254.19	-5443.83
5.5in Casing Production	28.00	21377.00	21349.00	28.00	8205.79	0.00	0.00	11229.12	-5427.36



Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SULLIVAN 1H LP Rev-1	8100.00	904.08	1427.53	1766242.44	407786.11	39°37'2.5270"N	80°13'4.7539"W	point
SULLIVAN 1H BHL Rev-2	8533.85	11249.04	-5452.59	1759362.74	418130.44	39°38'44.2097"N	80°14'33.7621"W	point
Sullivan Hardline #1 02.14.2023	9500.00	-904.67	1242.15	1766057.07	405977.47	39°36'44.6371"N	80°13'6.9378"W	polygon
2D Polygon: dimensions not calculated								

WELLPATH COMPOSITION - Ref Wellbore: Sullivan 1H AWB Ref Wellpath: Sullivan 1H AWP Proj: 21407'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	1450.00	BH Generic gyro - northseeking (Standard)	01 17.5" Gyro <Northseeking-Standard> (28'- 1450')	Sullivan 1H AWB	4/21/2023
1450.00	2350.00	BH Generic gyro - northseeking (Standard)	02 12.25" Gyro <NorthSeeking-Standard> (1450')(1500'-2350')	Sullivan 1H AWB	4/21/2023
2350.00	7596.00	OWSG MWD rev2 + HRGM	03 8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2350')(2553'-7596')	Sullivan 1H AWB	4/21/2023
7596.00	21407.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04 8.5" BH ATK Curve <HRGM+Short Spacing> (7596')(7625'-21382')	Sullivan 1H AWB	4/21/2023



Actual Wellpath Report

Sullivan 1H AWP Proj: 21407'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 1H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 1H AWB
Slot	Slot #01		

COMMENTS

Wellpath general comments

API:47061019170000

BH Job #: 111699085

Rig: Patterson 277

Duration:4/22/2023 - 4/28/2023

01_17.5" Gyro <Northseeking-Standard> (28'- 1450')

02_12.25" Gyro <NorthSeeking-Standard> (1450')(1500'-2350')

03_8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2350')(2553'-7596')

04_8.5" BH ATK Curve <HRGM+Short Spacing> (7596')(7625'-21382')

Final Survey MD @ 21382'

Projected MD at TD: 21407'