

# NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot #03-A  
 Well: Sullivan 3H-A  
 Wellbore: Sullivan 3H-A PWB

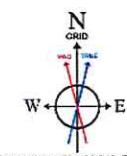
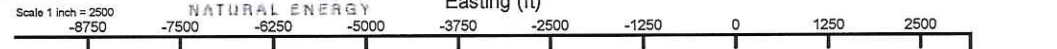


Full wellbore depth is as measured in Slot #03-A Rev-B.0	Grid System: NAD83 / Lambert Conformal Conic (NAD83) US Feet
True vertical depths are referenced to Patterson 277 (RKB)	North Reference: Grid North
Reference wellbore measured depths are referenced to Patterson 277 (RKB)	Scale: True Strata
Patterson 277 (RKB) is the base line for all other wellbore depths	Coordinates are as well referenced to Slot #03-A
Mean Sea Level is assumed to be 1049.05ft (322.70m)	Created by: mchambers on 2/22/2023 Date: 2023-02-22
Current wellbore depth is as measured in Slot #03-A Rev-B.0	

Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Sullivan Pad	17648.15.000	406882.090	39°38'53.4792"N	80°13'22.9021"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Longitude
Slot #03-A	-46.13	-51.49	1764783.510	4068816.960	80°13'23.5633"W
Comment: 12-Apr-2023 Slot location has changed as per new 'top hole log out' dated 4-11-23.					
Patterson 277 (RKB) to Ground level (At Slot: Slot #03-A)					28ft
Mean Sea Level to Ground level (At Slot: Slot #03-A)					-1476ft
Patterson 277 (RKB) to Mean Sea Level					1504ft

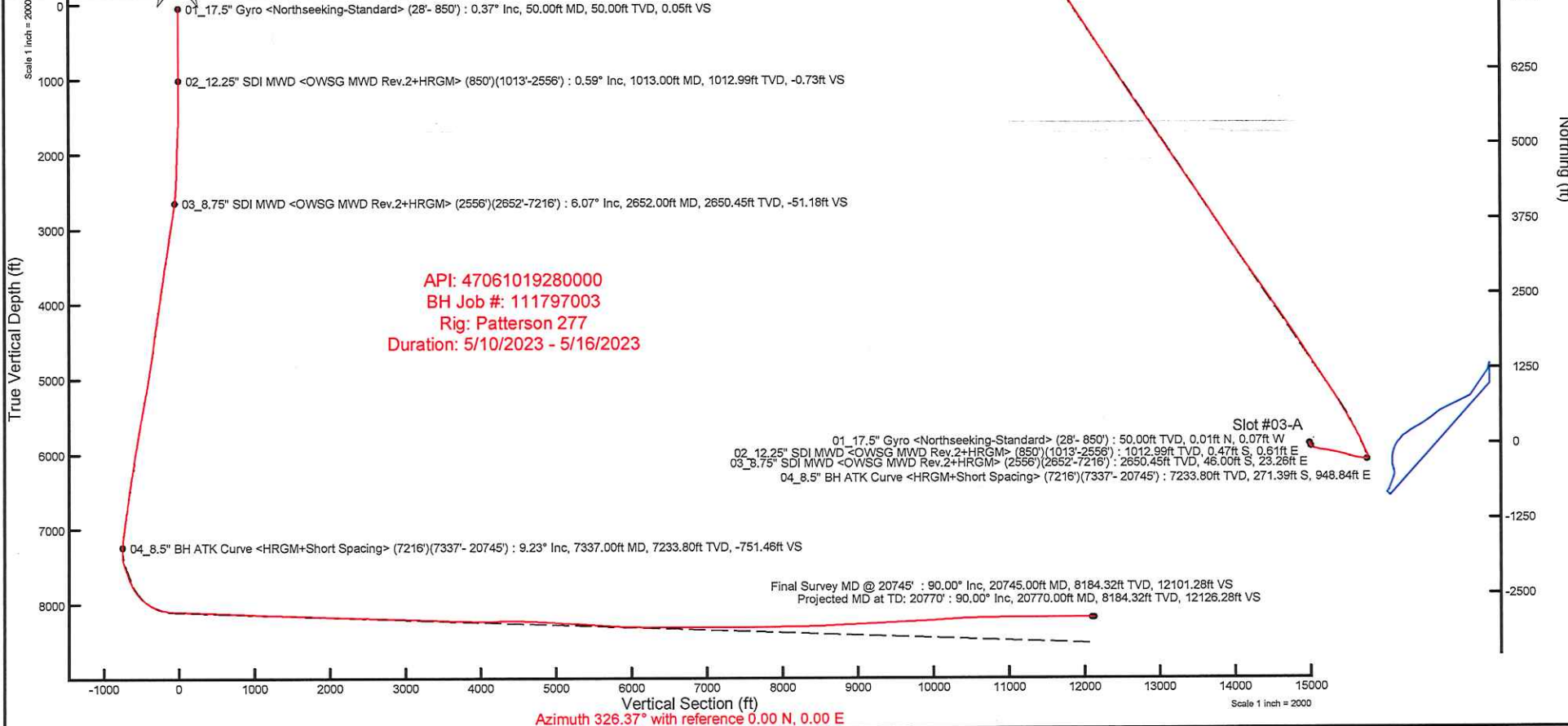
Well Profile Data								
Design Comment	MD (ft)	Inc (°)	As (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS ('1000)	VS (ft)
To On	72.16.00	11.230	91.110	7114.73	-271.70	927.37	1.09	-739.83
Projection	7299.00	11.230	91.110	7196.14	-272.21	943.53	0.00	-749.04
Avoid No Co Zone	7599.24	20.778	338.803	7489.19	-222.00	953.70	9.00	-713.03
Curve KOP	7812.66	20.778	338.803	7688.73	-151.41	926.32	0.00	-639.09
Landing Pt	8560.82	88.000	333.000	8100.00	366.44	679.53	9.00	-71.23
End of Turn	8896.56	88.000	328.281	8111.73	655.80	510.04	2.00	283.57
BH-L	20767.44	88.000	328.281	8525.98	10523.83	-6075.70	0.00	12127.20

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #03-A	Sullivan 3H-A	Sullivan 3H-A AWB	Sullivan 3H-A AWP Proj: 20770'
Slot #03-A	Sullivan 3H-A	Sullivan 3H-A PWB	Sullivan 3H-A Rev-B.0



User specified HDGM Dip: 66.31° Field: 51839 nT  
 Magnetic North is 9.07 degrees West of True North (at 5/9/2023)  
 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 8.61 degrees

Projected MD at TD: 20770' : 8184.32ft TVD, 10520.03ft N, 6079.47ft W  
 Final Survey MD @ 20745' : 8184.32ft TVD, 10499.05ft N, 6085.86ft W



API: 47061019280000  
 BH Job #: 111797003  
 Rig: Patterson 277  
 Duration: 5/10/2023 - 5/16/2023

Slot #03-A  
 01\_17.5" Gyro <Northseeking-Standard> (28'- 850') : 50.00ft TVD, 0.01ft N, 0.07ft W  
 02\_12.25" SDI MWD <OWSG MWD Rev.2+HRGM> (850')(1013'-2556') : 1012.99ft TVD, 0.47ft S, 0.61ft E  
 03\_8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2556')(2652'-7216') : 2650.45ft TVD, 46.00ft S, 23.26ft E  
 04\_8.5" BH ATK Curve <HRGM+Short Spacing> (7216')(7337'- 20745') : 7233.80ft TVD, 271.39ft S, 948.84ft E

Final Survey MD @ 20745' : 90.00° Inc, 20745.00ft MD, 8184.32ft TVD, 12101.28ft VS  
 Projected MD at TD: 20770' : 90.00° Inc, 20770.00ft MD, 8184.32ft TVD, 12126.28ft VS



# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

## 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	5/18/2023 at 11:43:21 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	-66.13	-51.49	1764763.51	406815.96	39°36'52.8215"N	80°13'23.5533"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 #03-A)	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 3H-A AWP Proj: 20770'

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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

## WELLPATH DATA (229 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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	281.780	0.00	-1504.00	0.00	0.00	0.00	1764763.51	406815.96	39°36'52.8215"N	80°13'23.5533"W	0.00	0.00	0.00
28.00	0.000	281.780	28.00	-1476.00	0.00	0.00	0.00	1764763.51	406815.96	39°36'52.8215"N	80°13'23.5533"W	0.00	0.00	0.00
50.00	0.370	281.780	50.00	-1454.00	0.05	0.01	-0.07	1764763.44	406815.97	39°36'52.8217"N	80°13'23.5542"W	1.68	1.68	0.00
100.00	0.080	309.880	100.00	-1404.00	0.20	0.07	-0.25	1764763.26	406816.03	39°36'52.8222"N	80°13'23.5566"W	0.60	-0.58	56.20
150.00	0.120	296.590	150.00	-1354.00	0.28	0.12	-0.33	1764763.18	406816.08	39°36'52.8227"N	80°13'23.5575"W	0.09	0.08	-26.58
200.00	0.130	184.850	200.00	-1304.00	0.28	0.08	-0.38	1764763.13	406816.04	39°36'52.8223"N	80°13'23.5582"W	0.41	0.02	-223.48
250.00	0.590	258.630	250.00	-1254.00	0.33	-0.02	-0.64	1764762.87	406815.94	39°36'52.8212"N	80°13'23.5614"W	1.14	0.92	147.56
300.00	0.200	311.630	300.00	-1204.00	0.51	-0.02	-0.95	1764762.56	406815.94	39°36'52.8213"N	80°13'23.5655"W	0.99	-0.78	106.00
350.00	0.270	284.190	350.00	-1154.00	0.69	0.07	-1.13	1764762.38	406816.03	39°36'52.8221"N	80°13'23.5678"W	0.26	0.14	-54.88
400.00	0.280	305.590	400.00	-1104.00	0.89	0.17	-1.35	1764762.16	406816.13	39°36'52.8231"N	80°13'23.5705"W	0.21	0.02	42.80
450.00	0.310	23.680	450.00	-1054.00	1.07	0.36	-1.39	1764762.12	406816.32	39°36'52.8250"N	80°13'23.5711"W	0.74	0.06	156.18
500.00	0.170	74.330	500.00	-1004.00	1.12	0.51	-1.27	1764762.24	406816.47	39°36'52.8265"N	80°13'23.5695"W	0.48	-0.28	101.30
550.00	0.180	181.940	550.00	-954.00	1.04	0.45	-1.20	1764762.31	406816.41	39°36'52.8259"N	80°13'23.5687"W	0.57	0.02	215.22
600.00	0.170	142.070	599.99	-904.01	0.90	0.31	-1.15	1764762.36	406816.27	39°36'52.8245"N	80°13'23.5681"W	0.24	-0.02	-79.74
650.00	0.450	154.960	649.99	-854.01	0.63	0.08	-1.03	1764762.48	406816.04	39°36'52.8222"N	80°13'23.5664"W	0.57	0.56	25.78
700.00	0.290	149.380	699.99	-804.01	0.31	-0.21	-0.88	1764762.63	406815.75	39°36'52.8194"N	80°13'23.5645"W	0.33	-0.32	-11.16
750.00	0.570	141.020	749.99	-754.01	-0.06	-0.51	-0.66	1764762.85	406815.45	39°36'52.8164"N	80°13'23.5617"W	0.57	0.56	-16.72
800.00	0.420	151.230	799.99	-704.01	-0.49	-0.87	-0.41	1764763.10	406815.09	39°36'52.8129"N	80°13'23.5585"W	0.35	-0.30	20.42
850.00	0.220	102.880	849.99	-654.01	-0.74	-1.05	-0.23	1764763.28	406814.91	39°36'52.8112"N	80°13'23.5562"W	0.64	-0.40	-96.70
1013.00	0.590	39.840	1012.99	-491.01	-0.73	-0.47	0.61	1764764.12	406815.49	39°36'52.8169"N	80°13'23.5454"W	0.32	0.23	-38.67
1108.00	1.100	35.390	1107.97	-396.03	-0.27	0.64	1.45	1764764.96	406816.60	39°36'52.8280"N	80°13'23.5348"W	0.54	0.54	-4.68
1204.00	1.580	32.620	1203.95	-300.05	0.60	2.51	2.70	1764766.21	406818.47	39°36'52.8466"N	80°13'23.5191"W	0.50	0.50	-2.89
1299.00	0.940	25.180	1298.92	-205.08	1.53	4.32	3.74	1764767.25	406820.28	39°36'52.8645"N	80°13'23.5060"W	0.69	-0.67	-7.83
1394.00	0.470	133.720	1393.92	-110.08	1.55	4.76	4.35	1764767.86	406820.71	39°36'52.8689"N	80°13'23.4982"W	1.24	-0.49	114.25
1489.00	1.430	195.090	1488.91	-15.09	0.39	3.34	4.32	1764767.83	406819.30	39°36'52.8549"N	80°13'23.4984"W	1.34	1.01	64.60
1584.00	2.310	191.530	1583.86	79.86	-1.74	0.32	3.63	1764767.14	406816.28	39°36'52.8250"N	80°13'23.5069"W	0.93	0.93	-3.75
1679.00	2.380	164.550	1678.78	174.78	-4.97	-3.46	3.78	1764767.28	406812.50	39°36'52.7877"N	80°13'23.5047"W	1.15	0.07	-28.40
1774.00	3.140	146.020	1773.67	269.67	-9.44	-7.52	5.75	1764769.26	406808.45	39°36'52.7477"N	80°13'23.4790"W	1.22	0.80	-19.51
1869.00	3.000	145.970	1868.53	364.53	-14.53	-11.73	8.60	1764772.11	406804.23	39°36'52.7063"N	80°13'23.4422"W	0.15	-0.15	-0.05
1964.00	1.810	156.360	1963.45	459.45	-18.50	-15.17	10.59	1764774.10	406800.79	39°36'52.6725"N	80°13'23.4164"W	1.33	-1.25	10.94



# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

## WELLPATH DATA (229 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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2059.00	1.500	175.610	2058.41	554.41	-21.06	-17.78	11.29	1764774.80	406798.18	39°36'52.6467"N	80°13'23.4072"W	0.67	-0.33	20.26
2154.00	1.940	176.100	2153.37	649.37	-23.54	-20.63	11.49	1764775.00	406795.34	39°36'52.6186"N	80°13'23.4043"W	0.46	0.46	0.52
2250.00	1.950	170.190	2249.31	745.31	-26.45	-23.86	11.88	1764775.39	406792.10	39°36'52.5867"N	80°13'23.3990"W	0.21	0.01	-6.16
2345.00	2.460	158.370	2344.24	840.24	-29.92	-27.34	12.91	1764776.42	406788.62	39°36'52.5523"N	80°13'23.3855"W	0.72	0.54	-12.44
2440.00	3.280	152.300	2439.12	935.12	-34.62	-31.65	14.93	1764778.43	406784.32	39°36'52.5100"N	80°13'23.3593"W	0.92	0.86	-6.39
2556.00	4.440	149.870	2554.86	1050.86	-42.40	-38.47	18.72	1764782.23	406777.49	39°36'52.4429"N	80°13'23.3101"W	1.01	1.00	-2.09
2652.00	6.070	148.190	2650.45	1146.45	-51.18	-46.00	23.26	1764786.77	406769.97	39°36'52.3688"N	80°13'23.2513"W	1.71	1.70	-1.75
2746.00	8.800	147.220	2743.65	1239.65	-63.34	-56.27	29.78	1764793.28	406759.70	39°36'52.2678"N	80°13'23.1670"W	2.91	2.90	-1.03
2841.00	9.780	138.980	2837.41	1333.41	-78.61	-68.46	39.01	1764802.51	406747.50	39°36'52.1480"N	80°13'23.0478"W	1.74	1.03	-8.67
2935.00	10.170	124.220	2930.00	1426.00	-94.22	-79.16	51.11	1764814.62	406736.81	39°36'52.0433"N	80°13'22.8921"W	2.74	0.41	-15.70
3030.00	10.980	111.860	3023.40	1519.40	-109.44	-87.24	66.45	1764829.95	406728.72	39°36'51.9646"N	80°13'22.6953"W	2.53	0.85	-13.01
3125.00	10.700	105.000	3116.71	1612.71	-123.51	-92.89	83.36	1764846.87	406723.07	39°36'51.9101"N	80°13'22.4786"W	1.39	-0.29	-7.22
3220.00	10.270	101.840	3210.12	1706.12	-136.17	-96.92	100.17	1764863.67	406719.05	39°36'51.8717"N	80°13'22.2634"W	0.76	-0.45	-3.33
3315.00	10.690	102.660	3303.54	1799.54	-148.58	-100.58	117.05	1764880.56	406715.38	39°36'51.8368"N	80°13'22.0473"W	0.47	0.44	0.86
3410.00	13.060	108.800	3396.50	1892.50	-163.46	-105.97	135.82	1764899.32	406709.99	39°36'51.7850"N	80°13'21.8070"W	2.82	2.49	6.46
3509.00	12.920	105.610	3492.97	1988.97	-180.71	-112.56	157.06	1764920.56	406703.41	39°36'51.7217"N	80°13'21.5348"W	0.74	-0.14	-3.22
3604.00	11.350	99.110	3585.85	2081.85	-195.10	-116.90	176.52	1764940.02	406699.07	39°36'51.6803"N	80°13'21.2857"W	2.19	-1.65	-6.84
3699.00	12.300	96.830	3678.83	2174.83	-208.01	-119.58	195.80	1764959.30	406696.39	39°36'51.6553"N	80°13'21.0391"W	1.11	1.00	-2.40
3793.00	12.960	97.530	3770.56	2266.56	-221.44	-122.15	216.19	1764979.69	406693.82	39°36'51.6315"N	80°13'20.7783"W	0.72	0.70	0.74
3888.00	11.850	94.250	3863.34	2359.34	-234.44	-124.27	236.48	1764999.98	406691.70	39°36'51.6122"N	80°13'20.5188"W	1.38	-1.17	-3.45
3983.00	12.630	96.970	3956.18	2452.18	-247.19	-126.25	256.52	1765020.01	406689.71	39°36'51.5942"N	80°13'20.2626"W	1.02	0.82	2.86
4078.00	13.120	102.030	4048.79	2544.79	-261.66	-129.76	277.38	1765040.87	406686.21	39°36'51.5612"N	80°13'19.9957"W	1.29	0.52	5.33
4173.00	11.830	96.930	4141.55	2637.55	-275.71	-133.18	297.59	1765061.08	406682.78	39°36'51.5290"N	80°13'19.7371"W	1.78	-1.36	-5.37
4267.00	12.200	101.980	4233.49	2729.49	-289.07	-136.41	316.87	1765080.36	406679.56	39°36'51.4986"N	80°13'19.4904"W	1.19	0.39	5.37
4361.00	11.980	104.130	4325.41	2821.41	-303.39	-140.85	336.05	1765099.54	406675.12	39°36'51.4563"N	80°13'19.2449"W	0.53	-0.23	2.29
4459.00	10.060	101.200	4421.60	2917.60	-316.96	-145.00	354.31	1765117.80	406670.97	39°36'51.4167"N	80°13'19.0112"W	2.04	-1.96	-2.99
4554.00	10.350	103.350	4515.10	3011.10	-329.04	-148.58	370.75	1765134.24	406667.39	39°36'51.3826"N	80°13'18.8007"W	0.50	0.31	2.26
4649.00	11.320	103.410	4608.40	3104.40	-342.11	-152.71	388.12	1765151.61	406663.26	39°36'51.3432"N	80°13'18.5783"W	1.02	1.02	0.06
4744.00	12.730	99.030	4701.32	3197.32	-356.02	-156.52	407.53	1765171.02	406659.45	39°36'51.3071"N	80°13'18.3299"W	1.77	1.48	-4.61
4839.00	12.530	99.530	4794.02	3290.02	-370.17	-159.87	428.03	1765191.52	406656.10	39°36'51.2756"N	80°13'18.0676"W	0.24	-0.21	0.53





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

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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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
4933.00	12.320	100.740	4885.82	3381.82	-384.15	-163.42	447.94	1765211.42	406652.55	39°36'51.2421"N	80°13'17.8129"W	0.36	-0.22	1.29
5027.00	12.780	102.410	4977.57	3473.57	-398.65	-167.53	467.95	1765231.43	406648.44	39°36'51.2031"N	80°13'17.5568"W	0.62	0.49	1.78
5123.00	13.390	103.990	5071.08	3567.08	-414.51	-172.50	489.10	1765252.58	406643.47	39°36'51.1557"N	80°13'17.2860"W	0.74	0.64	1.65
5218.00	13.490	104.070	5163.48	3659.48	-430.83	-177.85	510.53	1765274.01	406638.12	39°36'51.1045"N	80°13'17.0117"W	0.11	0.11	0.08
5313.00	13.550	104.880	5255.84	3751.84	-447.36	-183.40	532.03	1765295.51	406632.57	39°36'51.0513"N	80°13'16.7364"W	0.21	0.06	0.85
5411.00	13.630	103.290	5351.10	3847.10	-464.39	-189.00	554.36	1765317.84	406626.97	39°36'50.9977"N	80°13'16.4504"W	0.39	0.08	-1.62
5505.00	13.360	104.420	5442.51	3938.51	-480.56	-194.25	575.66	1765339.14	406621.72	39°36'50.9475"N	80°13'16.1778"W	0.40	-0.29	1.20
5600.00	13.800	108.210	5534.85	4030.85	-497.63	-200.53	597.05	1765360.53	406615.44	39°36'50.8872"N	80°13'15.9038"W	1.04	0.46	3.99
5694.00	13.660	108.260	5626.16	4122.16	-515.18	-207.51	618.24	1765381.72	406608.46	39°36'50.8199"N	80°13'15.6323"W	0.15	-0.15	0.05
5789.00	12.260	104.880	5718.74	4214.74	-531.56	-213.62	638.65	1765402.12	406602.36	39°36'50.7612"N	80°13'15.3710"W	1.68	-1.47	-3.56
5884.00	11.870	106.250	5811.65	4307.65	-546.59	-218.94	657.78	1765421.25	406597.03	39°36'50.7101"N	80°13'15.1260"W	0.51	-0.41	1.44
5979.00	12.310	109.220	5904.54	4400.54	-562.13	-225.01	676.72	1765440.19	406590.97	39°36'50.6516"N	80°13'14.8833"W	0.80	0.46	3.13
6074.00	12.390	107.690	5997.34	4493.34	-578.16	-231.44	695.99	1765459.46	406584.54	39°36'50.5896"N	80°13'14.6364"W	0.35	0.08	-1.61
6168.00	10.660	109.980	6089.44	4585.44	-593.03	-237.47	713.77	1765477.24	406578.50	39°36'50.5314"N	80°13'14.4086"W	1.90	-1.84	2.44
6263.00	11.030	104.060	6182.75	4678.75	-606.83	-242.68	730.84	1765494.31	406573.29	39°36'50.4812"N	80°13'14.1899"W	1.23	0.39	-6.23
6361.00	13.220	103.080	6278.56	4774.56	-621.92	-247.50	750.86	1765514.32	406568.48	39°36'50.4352"N	80°13'13.9337"W	2.24	2.23	-1.00
6456.00	12.380	102.000	6371.20	4867.20	-637.11	-252.07	771.40	1765534.86	406563.90	39°36'50.3916"N	80°13'13.6708"W	0.92	-0.88	-1.14
6551.00	11.850	98.380	6464.08	4960.08	-650.91	-255.61	791.01	1765554.47	406560.36	39°36'50.3582"N	80°13'13.4198"W	0.97	-0.56	-3.81
6646.00	11.980	95.570	6557.03	5053.03	-663.67	-257.99	810.47	1765573.93	406557.98	39°36'50.3362"N	80°13'13.1709"W	0.63	0.14	-2.96
6740.00	12.040	96.350	6648.98	5144.98	-676.14	-260.02	829.93	1765593.39	406555.95	39°36'50.3177"N	80°13'12.9221"W	0.18	0.06	0.83
6835.00	12.050	99.570	6741.89	5237.89	-689.29	-262.77	849.55	1765613.01	406553.21	39°36'50.2921"N	80°13'12.6711"W	0.71	0.01	3.39
6930.00	12.360	97.600	6834.74	5330.74	-702.78	-265.76	869.41	1765632.87	406550.22	39°36'50.2641"N	80°13'12.4170"W	0.55	0.33	-2.07
7025.00	12.030	96.790	6927.60	5423.60	-715.90	-268.28	889.32	1765652.77	406547.70	39°36'50.2409"N	80°13'12.1624"W	0.39	-0.35	-0.85
7120.00	11.470	96.270	7020.60	5516.60	-728.38	-270.48	908.54	1765671.99	406545.50	39°36'50.2206"N	80°13'11.9166"W	0.60	-0.59	-0.55
7216.00	11.230	91.110	7114.73	5610.73	-739.83	-271.70	927.37	1765690.83	406544.28	39°36'50.2100"N	80°13'11.6758"W	1.09	-0.25	-5.37
7337.00	9.230	86.790	7233.80	5729.80	-751.46	-271.39	948.84	1765712.30	406544.59	39°36'50.2148"N	80°13'11.4015"W	1.77	-1.65	-3.57
7431.00	10.890	51.510	7326.44	5822.44	-754.53	-265.43	963.34	1765726.79	406550.54	39°36'50.2748"N	80°13'11.2169"W	6.67	1.77	-37.53
7527.00	14.460	349.090	7420.48	5916.48	-742.65	-247.94	968.19	1765731.64	406568.04	39°36'50.4481"N	80°13'11.1567"W	13.97	3.72	-65.02
7622.00	19.720	338.030	7511.28	6007.28	-715.99	-221.40	959.94	1765723.39	406594.57	39°36'50.7097"N	80°13'11.2648"W	6.49	5.54	-11.64
7717.00	21.920	340.760	7600.07	6096.07	-683.11	-189.79	948.10	1765711.55	406626.18	39°36'51.0211"N	80°13'11.4194"W	2.53	2.32	2.87





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

WELLPATH DATA (229 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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
7812.00	22.110	334.680	7688.16	6184.16	-648.24	-156.89	934.61	1765698.06	406659.08	39°36'51.3453"N	80°13'11.5951"W	2.41	0.20	-6.40
7907.00	30.260	335.390	7773.34	6269.34	-606.84	-118.90	916.96	1765680.42	406697.07	39°36'51.7193"N	80°13'11.8245"W	8.59	8.58	0.75
8001.00	37.750	335.240	7851.21	6347.21	-554.94	-71.17	895.02	1765658.47	406744.80	39°36'52.1893"N	80°13'12.1098"W	7.97	7.97	-0.16
8095.00	46.640	336.530	7920.78	6416.78	-492.75	-13.58	869.30	1765632.76	406802.38	39°36'52.7564"N	80°13'12.4442"W	9.50	9.46	1.37
8190.00	55.170	335.090	7980.63	6476.63	-420.08	53.59	839.07	1765602.53	406869.55	39°36'53.4178"N	80°13'12.8374"W	9.06	8.98	-1.52
8285.00	63.970	331.020	8028.72	6524.72	-338.81	126.46	801.88	1765565.34	406942.41	39°36'54.1349"N	80°13'13.3200"W	9.97	9.26	-4.28
8379.00	72.620	332.370	8063.45	6559.45	-251.94	203.29	760.54	1765524.00	407019.24	39°36'54.8910"N	80°13'13.8562"W	9.30	9.20	1.44
8474.00	80.570	332.190	8085.46	6581.46	-160.10	285.03	717.59	1765481.05	407100.97	39°36'55.6954"N	80°13'14.4134"W	8.37	8.37	-0.19
8569.00	88.180	328.410	8094.77	6590.77	-65.86	367.06	670.77	1765434.24	407183.00	39°36'56.5024"N	80°13'15.0200"W	8.93	8.01	-3.98
8663.00	87.780	331.310	8098.08	6594.08	27.90	448.30	623.61	1765387.08	407264.23	39°36'57.3014"N	80°13'15.6310"W	3.11	-0.43	3.09
8758.00	87.970	329.610	8101.60	6597.60	122.58	530.89	576.80	1765340.28	407346.82	39°36'58.1139"N	80°13'16.2376"W	1.80	0.20	-1.79
8853.00	87.970	329.380	8104.97	6600.97	217.38	612.69	528.61	1765292.09	407428.61	39°36'58.9185"N	80°13'16.8618"W	0.24	0.00	-0.24
8948.00	88.210	327.790	8108.13	6604.13	312.26	693.71	479.12	1765242.60	407509.63	39°36'59.7153"N	80°13'17.5024"W	1.69	0.25	-1.67
9043.00	88.400	326.970	8110.94	6606.94	407.20	773.69	427.93	1765191.42	407589.61	39°37'0.5017"N	80°13'18.1647"W	0.89	0.20	-0.86
9138.00	87.440	326.490	8114.39	6610.39	502.13	853.07	375.85	1765139.34	407668.98	39°37'1.2820"N	80°13'18.8384"W	1.13	-1.01	-0.51
9232.00	87.970	326.880	8118.16	6614.16	596.06	931.56	324.27	1765087.76	407747.46	39°37'2.0536"N	80°13'19.5056"W	0.70	0.56	0.41
9325.00	88.180	327.200	8121.28	6617.28	689.00	1009.54	273.70	1765037.19	407825.44	39°37'2.8203"N	80°13'20.1598"W	0.41	0.23	0.34
9420.00	87.720	326.540	8124.68	6620.68	783.93	1089.05	221.81	1764985.31	407904.94	39°37'3.6019"N	80°13'20.8310"W	0.85	-0.48	-0.69
9516.00	87.510	327.140	8128.67	6624.67	879.85	1169.35	169.34	1764932.84	407985.23	39°37'4.3912"N	80°13'21.5097"W	0.66	-0.22	0.63
9610.00	87.170	326.820	8133.04	6629.04	973.74	1248.08	118.18	1764881.68	408063.96	39°37'5.1653"N	80°13'22.1716"W	0.50	-0.36	-0.34
9704.00	87.480	326.830	8137.42	6633.42	1067.63	1326.67	66.80	1764830.30	408142.55	39°37'5.9379"N	80°13'22.8362"W	0.33	0.33	0.01
9799.00	88.030	327.090	8141.14	6637.14	1162.55	1406.25	15.04	1764778.55	408222.12	39°37'6.7202"N	80°13'23.5058"W	0.64	0.58	0.27
9894.00	88.310	326.740	8144.18	6640.18	1257.50	1485.80	-36.79	1764726.72	408301.67	39°37'7.5023"N	80°13'24.1763"W	0.47	0.29	-0.37
9989.00	88.340	327.000	8146.95	6642.95	1352.46	1565.32	-88.69	1764674.82	408381.19	39°37'8.2840"N	80°13'24.8477"W	0.28	0.03	0.27
10084.00	87.910	327.280	8150.06	6646.06	1447.40	1645.08	-140.21	1764623.31	408460.94	39°37'9.0681"N	80°13'25.5142"W	0.54	-0.45	0.29
10179.00	88.150	327.250	8153.33	6649.33	1542.33	1724.95	-191.55	1764571.97	408540.80	39°37'9.8533"N	80°13'26.1785"W	0.25	0.25	-0.03
10273.00	87.940	327.200	8156.54	6652.54	1636.26	1803.94	-242.41	1764521.12	408619.78	39°37'10.6299"N	80°13'26.8365"W	0.23	-0.22	-0.05
10368.00	88.000	325.780	8159.90	6655.90	1731.20	1883.09	-294.82	1764468.71	408698.94	39°37'11.4080"N	80°13'27.5144"W	1.50	0.06	-1.49
10463.00	87.940	325.890	8163.27	6659.27	1826.14	1961.65	-348.14	1764415.39	408777.49	39°37'12.1801"N	80°13'28.2038"W	0.13	-0.06	0.12
10557.00	87.780	326.270	8166.78	6662.78	1920.07	2039.60	-400.56	1764362.98	408855.43	39°37'12.9463"N	80°13'28.8817"W	0.44	-0.17	0.40





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

WELLPATH DATA (229 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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
10652.00	88.000	326.260	8170.27	6666.27	2015.01	2118.55	-453.28	1764310.26	408934.38	39°37'13.7223"N	80°13'29.5636"W	0.23	0.23	-0.01
10747.00	88.120	326.090	8173.49	6669.49	2109.95	2197.42	-506.13	1764257.41	409013.25	39°37'14.4976"N	80°13'30.2471"W	0.22	0.13	-0.18
10842.00	88.030	326.020	8176.68	6672.68	2204.90	2276.19	-559.15	1764204.40	409092.01	39°37'15.2718"N	80°13'30.9327"W	0.12	-0.09	-0.07
10937.00	87.970	326.340	8180.00	6676.00	2299.84	2355.06	-611.99	1764151.56	409170.88	39°37'16.0471"N	80°13'31.6161"W	0.34	-0.06	0.34
11030.00	87.810	325.530	8183.42	6679.42	2392.77	2432.05	-664.05	1764099.50	409247.86	39°37'16.8038"N	80°13'32.2893"W	0.89	-0.17	-0.87
11125.00	88.210	326.170	8186.72	6682.72	2487.71	2510.62	-717.35	1764046.21	409326.43	39°37'17.5760"N	80°13'32.9785"W	0.79	0.42	0.67
11220.00	88.610	326.120	8189.36	6685.36	2582.67	2589.49	-770.25	1763993.31	409405.29	39°37'18.3511"N	80°13'33.6627"W	0.42	0.42	-0.05
11314.00	88.150	325.370	8192.01	6688.01	2676.63	2667.15	-823.14	1763940.42	409482.95	39°37'19.1144"N	80°13'34.3466"W	0.94	-0.49	-0.80
11410.00	89.020	325.900	8194.38	6690.38	2772.59	2746.37	-877.31	1763886.26	409562.16	39°37'19.8930"N	80°13'35.0470"W	1.06	0.91	0.55
11504.00	88.460	325.780	8196.45	6692.45	2866.56	2824.13	-930.08	1763833.49	409639.92	39°37'20.6573"N	80°13'35.7294"W	0.61	-0.60	-0.13
11599.00	88.060	325.600	8199.34	6695.34	2961.51	2902.57	-983.60	1763779.97	409718.35	39°37'21.4281"N	80°13'36.4215"W	0.46	-0.42	-0.19
11694.00	87.910	325.620	8202.68	6698.68	3056.45	2980.91	-1037.23	1763726.35	409796.69	39°37'22.1981"N	80°13'37.1149"W	0.16	-0.16	0.02
11789.00	88.150	325.620	8205.94	6701.94	3151.38	3059.27	-1090.84	1763672.74	409875.04	39°37'22.9682"N	80°13'37.8081"W	0.25	0.25	0.00
11884.00	89.110	326.100	8208.21	6704.21	3246.35	3137.88	-1144.14	1763619.44	409953.64	39°37'23.7408"N	80°13'38.4974"W	1.13	1.01	0.51
11979.00	88.210	325.760	8210.43	6706.43	3341.32	3216.55	-1197.34	1763566.24	410032.31	39°37'24.5140"N	80°13'39.1854"W	1.01	-0.95	-0.36
12074.00	86.670	326.250	8214.68	6710.68	3436.22	3295.23	-1250.40	1763513.18	410110.99	39°37'25.2873"N	80°13'39.8717"W	1.70	-1.62	0.52
12169.00	88.060	326.030	8219.04	6715.04	3531.12	3374.03	-1303.28	1763460.31	410189.78	39°37'26.0619"N	80°13'40.5555"W	1.48	1.46	-0.23
12263.00	88.650	326.170	8221.74	6717.74	3625.07	3452.02	-1355.68	1763407.91	410267.77	39°37'26.8284"N	80°13'41.2333"W	0.65	0.63	0.15
12358.00	87.720	326.250	8224.75	6720.75	3720.03	3530.93	-1408.49	1763355.11	410346.68	39°37'27.6040"N	80°13'41.9163"W	0.98	-0.98	0.08
12453.00	89.540	327.720	8227.02	6723.02	3814.99	3610.56	-1460.23	1763303.37	410426.30	39°37'28.3869"N	80°13'42.5858"W	2.46	1.92	1.55
12548.00	89.450	325.880	8227.86	6723.86	3909.98	3690.05	-1512.25	1763251.35	410505.78	39°37'29.1682"N	80°13'43.2588"W	1.94	-0.09	-1.94
12642.00	89.540	326.040	8228.69	6724.69	4003.97	3767.94	-1564.86	1763198.74	410583.67	39°37'29.9338"N	80°13'43.9393"W	0.20	0.10	0.17
12737.00	89.480	325.630	8229.50	6725.50	4098.96	3846.54	-1618.21	1763145.40	410662.27	39°37'30.7063"N	80°13'44.6292"W	0.44	-0.06	-0.43
12832.00	91.720	326.680	8228.51	6724.51	4193.95	3925.43	-1671.12	1763092.50	410741.15	39°37'31.4817"N	80°13'45.3135"W	2.60	2.36	1.11
12927.00	90.520	326.220	8226.65	6722.65	4288.93	4004.59	-1723.61	1763040.01	410820.30	39°37'32.2598"N	80°13'45.9925"W	1.35	-1.26	-0.48
13021.00	90.770	326.050	8225.59	6721.59	4382.92	4082.64	-1775.98	1762987.63	410898.35	39°37'33.0269"N	80°13'46.6700"W	0.32	0.27	-0.18
13115.00	89.420	326.060	8225.44	6721.44	4476.92	4160.62	-1828.47	1762935.15	410976.32	39°37'33.7933"N	80°13'47.3488"W	1.44	-1.44	0.01
13210.00	88.280	325.980	8227.34	6723.34	4571.90	4239.38	-1881.56	1762882.07	411055.08	39°37'34.5674"N	80°13'48.0354"W	1.20	-1.20	-0.08
13306.00	87.470	325.410	8230.90	6726.90	4667.82	4318.62	-1935.62	1762828.00	411134.32	39°37'35.3462"N	80°13'48.7346"W	1.03	-0.84	-0.59
13401.00	88.250	326.220	8234.45	6730.45	4762.75	4397.15	-1988.96	1762774.67	411212.84	39°37'36.1180"N	80°13'49.4245"W	1.18	0.82	0.85





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

WELLPATH DATA (229 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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
13496.00	86.150	326.110	8239.09	6735.09	4857.63	4475.96	-2041.79	1762721.84	411291.65	39°37'36.8926"N	80°13'50.1078"W	2.21	-2.21	-0.12
13590.00	85.840	325.900	8245.66	6741.66	4951.40	4553.71	-2094.22	1762669.42	411369.39	39°37'37.6567"N	80°13'50.7859"W	0.40	-0.33	-0.22
13685.00	86.270	326.270	8252.19	6748.19	5046.17	4632.36	-2147.10	1762616.54	411448.03	39°37'38.4298"N	80°13'51.4699"W	0.60	0.45	0.39
13780.00	86.830	325.810	8257.91	6753.91	5141.00	4711.01	-2200.07	1762563.57	411526.68	39°37'39.2028"N	80°13'52.1551"W	0.76	0.59	-0.48
13876.00	87.100	326.140	8262.99	6758.99	5236.86	4790.46	-2253.72	1762509.93	411606.13	39°37'39.9837"N	80°13'52.8489"W	0.44	0.28	0.34
13971.00	86.240	325.560	8268.51	6764.51	5331.69	4868.95	-2306.96	1762456.70	411684.61	39°37'40.7550"N	80°13'53.5374"W	1.09	-0.91	-0.61
14066.00	86.000	325.560	8274.94	6770.94	5426.47	4947.12	-2360.56	1762403.10	411762.77	39°37'41.5232"N	80°13'54.2306"W	0.25	-0.25	0.00
14161.00	86.340	326.070	8281.28	6777.28	5521.25	5025.53	-2413.82	1762349.84	411841.18	39°37'42.2938"N	80°13'54.9195"W	0.64	0.36	0.54
14255.00	86.270	326.100	8287.34	6783.34	5615.05	5103.37	-2466.16	1762297.51	411919.02	39°37'43.0589"N	80°13'55.5965"W	0.08	-0.07	0.03
14350.00	86.270	326.040	8293.52	6789.52	5709.85	5182.03	-2519.07	1762244.59	411997.67	39°37'43.8320"N	80°13'56.2809"W	0.06	0.00	-0.06
14446.00	86.860	326.020	8299.27	6795.27	5805.68	5261.50	-2572.61	1762191.05	412077.14	39°37'44.6131"N	80°13'56.9735"W	0.61	0.61	-0.02
14541.00	88.650	325.910	8302.99	6798.99	5900.60	5340.16	-2625.74	1762137.93	412155.80	39°37'45.3862"N	80°13'57.6607"W	1.89	1.88	-0.12
14636.00	88.800	325.920	8305.11	6801.11	5995.57	5418.82	-2678.97	1762084.70	412234.45	39°37'46.1593"N	80°13'58.3492"W	0.16	0.16	0.01
14731.00	88.890	325.660	8307.02	6803.02	6090.55	5497.37	-2732.37	1762031.31	412313.00	39°37'46.9312"N	80°13'59.0399"W	0.29	0.09	-0.27
14826.00	89.110	326.170	8308.68	6804.68	6185.53	5576.04	-2785.60	1761978.08	412391.66	39°37'47.7044"N	80°13'59.7284"W	0.58	0.23	0.54
14921.00	89.970	326.040	8309.44	6805.44	6280.52	5654.89	-2838.58	1761925.10	412470.51	39°37'48.4794"N	80°14'0.4137"W	0.92	0.91	-0.14
15016.00	89.940	325.990	8309.52	6805.52	6375.52	5733.66	-2891.68	1761872.01	412549.27	39°37'49.2536"N	80°14'1.1006"W	0.06	-0.03	-0.05
15111.00	89.880	326.050	8309.67	6805.67	6470.52	5812.44	-2944.78	1761818.91	412628.05	39°37'50.0278"N	80°14'1.7874"W	0.09	-0.06	0.06
15207.00	89.720	326.800	8310.00	6806.00	6566.52	5892.42	-2997.87	1761765.83	412708.02	39°37'50.8140"N	80°14'2.4743"W	0.80	-0.17	0.78
15302.00	89.940	326.880	8310.29	6806.29	6661.52	5971.95	-3049.83	1761713.87	412787.55	39°37'51.5957"N	80°14'3.1467"W	0.25	0.23	0.08
15397.00	89.910	326.640	8310.41	6806.41	6756.51	6051.41	-3101.90	1761661.80	412867.00	39°37'52.3767"N	80°14'3.8205"W	0.25	-0.03	-0.25
15492.00	90.060	327.520	8310.43	6806.43	6851.50	6131.15	-3153.53	1761610.17	412946.74	39°37'53.1607"N	80°14'4.4887"W	0.94	0.16	0.93
15587.00	88.920	327.380	8311.28	6807.28	6946.48	6211.23	-3204.64	1761559.06	413026.81	39°37'53.9479"N	80°14'5.1503"W	1.21	-1.20	-0.15
15682.00	89.200	326.750	8312.84	6808.84	7041.46	6290.95	-3256.29	1761507.42	413106.52	39°37'54.7315"N	80°14'5.8187"W	0.73	0.29	-0.66
15777.00	90.060	326.560	8313.45	6809.45	7136.46	6370.31	-3308.50	1761455.21	413185.88	39°37'55.5116"N	80°14'6.4944"W	0.93	0.91	-0.20
15872.00	90.090	327.090	8313.33	6809.33	7231.45	6449.82	-3360.49	1761403.23	413265.39	39°37'56.2932"N	80°14'7.1671"W	0.56	0.03	0.56
15967.00	89.880	326.830	8313.35	6809.35	7326.45	6529.46	-3412.28	1761351.43	413345.02	39°37'57.0760"N	80°14'7.8374"W	0.35	-0.22	-0.27
16062.00	90.220	327.190	8313.27	6809.27	7421.44	6609.14	-3464.01	1761299.71	413424.70	39°37'57.8593"N	80°14'8.5069"W	0.52	0.36	0.38
16157.00	90.180	327.030	8312.94	6808.94	7516.43	6688.91	-3515.60	1761248.13	413504.46	39°37'58.6435"N	80°14'9.1746"W	0.17	-0.04	-0.17
16252.00	90.340	326.870	8312.51	6808.51	7611.43	6768.54	-3567.41	1761196.32	413584.09	39°37'59.4262"N	80°14'9.8451"W	0.24	0.17	-0.17



# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

WELLPATH DATA (229 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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
16347.00	90.150	327.120	8312.10	6808.10	7706.42	6848.21	-3619.16	1761144.58	413663.75	39°38'0.2094"N	80°14'10.5148"W	0.33	-0.20	0.26
16442.00	91.290	326.530	8310.91	6806.91	7801.41	6927.72	-3671.13	1761092.60	413743.25	39°38'0.9909"N	80°14'11.1875"W	1.35	1.20	-0.62
16537.00	91.020	326.410	8308.99	6804.99	7896.39	7006.89	-3723.60	1761040.14	413822.42	39°38'1.7691"N	80°14'11.8664"W	0.31	-0.28	-0.13
16631.00	90.830	327.140	8307.47	6803.47	7990.37	7085.51	-3775.10	1760988.64	413901.04	39°38'2.5419"N	80°14'12.5328"W	0.80	-0.20	0.78
16726.00	90.650	326.840	8306.25	6802.25	8085.36	7165.17	-3826.85	1760936.90	413980.69	39°38'3.3250"N	80°14'13.2026"W	0.37	-0.19	-0.32
16820.00	91.320	327.020	8304.63	6800.63	8179.34	7243.93	-3878.13	1760885.62	414059.45	39°38'4.0992"N	80°14'13.8663"W	0.74	0.71	0.19
16915.00	91.350	326.870	8302.42	6798.42	8274.31	7323.54	-3929.93	1760833.82	414139.05	39°38'4.8817"N	80°14'14.5368"W	0.16	0.03	-0.16
17010.00	90.920	325.430	8300.54	6796.54	8369.29	7402.41	-3982.84	1760780.91	414217.92	39°38'5.6569"N	80°14'15.2213"W	1.58	-0.45	-1.52
17105.00	91.390	326.330	8298.62	6794.62	8464.27	7481.05	-4036.12	1760727.64	414296.55	39°38'6.4296"N	80°14'15.9105"W	1.07	0.49	0.95
17200.00	92.990	325.750	8294.99	6790.99	8559.19	7559.78	-4089.14	1760674.62	414375.28	39°38'7.2035"N	80°14'16.5965"W	1.79	1.68	-0.61
17296.00	93.450	325.970	8289.60	6785.60	8655.04	7639.11	-4142.94	1760620.83	414454.60	39°38'7.9831"N	80°14'17.2924"W	0.53	0.48	0.23
17391.00	92.920	325.690	8284.32	6780.32	8749.88	7717.59	-4196.21	1760567.56	414533.08	39°38'8.7543"N	80°14'17.9816"W	0.63	-0.56	-0.29
17487.00	92.190	325.820	8280.04	6776.04	8845.78	7796.87	-4250.18	1760513.59	414612.35	39°38'9.5334"N	80°14'18.6797"W	0.77	-0.76	0.14
17582.00	92.890	326.030	8275.83	6771.83	8940.69	7875.48	-4303.35	1760460.42	414690.96	39°38'10.3060"N	80°14'19.3676"W	0.77	0.74	0.22
17677.00	92.590	325.630	8271.29	6767.29	9035.57	7953.99	-4356.65	1760407.13	414769.46	39°38'11.0775"N	80°14'20.0570"W	0.53	-0.32	-0.42
17772.00	93.080	326.070	8266.59	6762.59	9130.45	8032.51	-4409.91	1760353.87	414847.98	39°38'11.8492"N	80°14'20.7461"W	0.69	0.52	0.46
17868.00	92.520	325.360	8261.90	6757.90	9226.33	8111.74	-4463.92	1760299.86	414927.20	39°38'12.6278"N	80°14'21.4448"W	0.94	-0.58	-0.74
17963.00	92.890	326.070	8257.42	6753.42	9321.22	8190.14	-4517.38	1760246.41	415005.60	39°38'13.3983"N	80°14'22.1363"W	0.84	0.39	0.75
18059.00	92.770	326.160	8252.68	6748.68	9417.10	8269.74	-4570.84	1760192.95	415085.19	39°38'14.1805"N	80°14'22.8280"W	0.16	-0.13	0.09
18154.00	93.140	326.020	8247.78	6743.78	9511.97	8348.48	-4623.76	1760140.03	415163.92	39°38'14.9544"N	80°14'23.5128"W	0.42	0.39	-0.15
18249.00	93.020	326.340	8242.68	6738.68	9606.83	8427.29	-4676.56	1760087.23	415242.73	39°38'15.7289"N	80°14'24.1960"W	0.36	-0.13	0.34
18345.00	92.990	326.180	8237.64	6733.64	9702.70	8507.01	-4729.81	1760033.99	415322.45	39°38'16.5124"N	80°14'24.8850"W	0.17	-0.03	-0.17
18440.00	92.310	325.750	8233.25	6729.25	9797.60	8585.65	-4782.93	1759980.88	415401.08	39°38'17.2853"N	80°14'25.5721"W	0.85	-0.72	-0.45
18536.00	93.140	325.720	8228.69	6724.69	9893.48	8664.90	-4836.91	1759926.89	415480.33	39°38'18.0641"N	80°14'26.2706"W	0.87	0.86	-0.03
18631.00	93.260	325.870	8223.38	6719.38	9988.33	8743.34	-4890.24	1759873.57	415558.77	39°38'18.8350"N	80°14'26.9604"W	0.20	0.13	0.16
18727.00	93.510	326.120	8217.72	6713.72	10084.16	8822.79	-4943.83	1759819.98	415638.21	39°38'19.6157"N	80°14'27.6538"W	0.37	0.26	0.26
18822.00	93.420	325.770	8211.97	6707.97	10178.98	8901.35	-4996.93	1759766.88	415716.76	39°38'20.3878"N	80°14'28.3409"W	0.38	-0.09	-0.37
18917.00	93.020	324.070	8206.64	6702.64	10273.80	8978.97	-5051.44	1759712.38	415794.38	39°38'21.1504"N	80°14'29.0458"W	1.84	-0.42	-1.79
19012.00	93.300	325.990	8201.40	6697.40	10368.62	9056.69	-5105.81	1759658.02	415872.10	39°38'21.9141"N	80°14'29.7489"W	2.04	0.29	2.02
19108.00	91.750	326.480	8197.17	6693.17	10464.53	9136.42	-5159.11	1759604.72	415951.82	39°38'22.6977"N	80°14'30.4386"W	1.69	-1.61	0.51





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

## WELLPATH DATA (229 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	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
19203.00	91.350	324.430	8194.60	6690.60	10559.47	9214.64	-5212.96	1759550.87	416030.03	39°38'23.4663"N	80°14'31.1352"W	2.20	-0.42	-2.16
19298.00	91.420	326.010	8192.30	6688.30	10654.42	9292.64	-5267.13	1759496.70	416108.03	39°38'24.2327"N	80°14'31.8359"W	1.66	0.07	1.66
19394.00	91.290	325.480	8190.03	6686.03	10750.39	9371.96	-5321.15	1759442.69	416187.35	39°38'25.0122"N	80°14'32.5348"W	0.57	-0.14	-0.55
19489.00	91.080	326.860	8188.07	6684.07	10845.37	9450.86	-5374.03	1759389.81	416266.24	39°38'25.7876"N	80°14'33.2190"W	1.47	-0.22	1.45
19584.00	90.890	325.650	8186.44	6682.44	10940.35	9529.84	-5426.79	1759337.05	416345.22	39°38'26.5639"N	80°14'33.9018"W	1.29	-0.20	-1.27
19679.00	90.800	326.870	8185.04	6681.04	11035.34	9608.83	-5479.55	1759284.30	416424.20	39°38'27.3402"N	80°14'34.5845"W	1.29	-0.09	1.28
19774.00	90.550	326.810	8183.92	6679.92	11130.33	9688.35	-5531.51	1759232.34	416503.72	39°38'28.1218"N	80°14'35.2571"W	0.27	-0.26	-0.06
19869.00	90.430	326.880	8183.10	6679.10	11225.32	9767.89	-5583.46	1759180.39	416583.25	39°38'28.9035"N	80°14'35.9296"W	0.15	-0.13	0.07
19964.00	89.450	325.330	8183.20	6679.20	11320.32	9846.74	-5636.44	1759127.42	416662.09	39°38'29.6785"N	80°14'36.6151"W	1.93	-1.03	-1.63
20060.00	90.150	326.860	8183.54	6679.54	11416.31	9926.41	-5689.99	1759073.87	416741.76	39°38'30.4615"N	80°14'37.3081"W	1.75	0.73	1.59
20154.00	90.180	325.940	8183.27	6679.27	11510.31	10004.70	-5742.01	1759021.86	416820.05	39°38'31.2309"N	80°14'37.9813"W	0.98	0.03	-0.98
20249.00	89.660	327.110	8183.40	6679.40	11605.31	10083.94	-5794.40	1758969.46	416899.29	39°38'32.0098"N	80°14'38.6595"W	1.35	-0.55	1.23
20344.00	90.030	326.900	8183.66	6679.66	11700.30	10163.62	-5846.14	1758917.73	416978.96	39°38'32.7929"N	80°14'39.3292"W	0.45	0.39	-0.22
20439.00	89.910	326.540	8183.71	6679.71	11795.30	10243.04	-5898.27	1758865.60	417058.37	39°38'33.5735"N	80°14'40.0040"W	0.40	-0.13	-0.38
20534.00	89.290	326.460	8184.37	6680.37	11890.30	10322.26	-5950.70	1758813.18	417137.59	39°38'34.3521"N	80°14'40.6826"W	0.66	-0.65	-0.08
20630.00	90.430	327.250	8184.61	6680.61	11986.29	10402.64	-6003.19	1758760.69	417217.96	39°38'35.1422"N	80°14'41.3620"W	1.44	1.19	0.82
20723.00	89.940	326.740	8184.31	6680.31	12079.28	10480.63	-6053.84	1758710.04	417295.95	39°38'35.9088"N	80°14'42.0179"W	0.76	-0.53	-0.55
20745.00	90.000	327.030	8184.32	6680.32	12101.28	10499.05	-6065.86	1758698.02	417314.37	39°38'36.0899"N	80°14'42.1735"W	1.35	0.27	1.32
20770.00‡	90.000	327.030	8184.32	6680.32	12126.28	10520.03	-6079.47	1758684.41	417335.34	39°38'36.2960"N	80°14'42.3496"W	0.00	0.00	0.00





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

HOLE & CASING SECTIONS - Ref Wellbore: Sullivan 3H-A AWB Ref Wellpath: Sullivan 3H-A AWP Proj: 20770'									
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]
32in Open Hole	28.00	100.00	72.00	28.00	100.00	0.00	0.00	0.07	-0.25
24in Conductor	28.00	100.00	72.00	28.00	100.00	0.00	0.00	0.07	-0.25
22in Open Hole	100.00	1030.00	930.00	100.00	1029.98	0.07	-0.25	-0.33	0.73
13.375in Casing Surface	28.00	1000.00	972.00	28.00	999.99	0.00	0.00	-0.57	0.53
12.25in Open Hole	1030.00	2680.00	1650.00	1029.98	2678.27	-0.33	0.73	-48.67	24.94
9.625in Casing Intermediate	28.00	2650.00	2622.00	28.00	2648.46	0.00	0.00	-45.82	23.15
8.75in Open Hole	2680.00	7299.00	4619.00	2678.27	7196.33	-48.67	24.94	-271.65	942.55
8.5in Open Hole	7299.00	20770.00	13471.00	7196.33	8184.32	-271.65	942.55	10520.03	-6079.47
5.5in Casing Production	28.00	20740.00	20712.00	28.00	8184.32	0.00	0.00	10494.86	-6063.14





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Sullivan 3H-A LP Rev-1	8100.00	366.44	679.53	1765443.00	407182.38	39°36'56.4969"N	80°13'14.9080"W	point
Sullivan 3H-A BHL Rev-0	8275.00	10523.63	-6075.70	1758688.18	417338.95	39°38'36.3320"N	80°14'42.3018"W	point
Sullivan 3H-A LP Rev-0	8275.00	366.44	679.53	1765443.00	407182.38	39°36'56.4969"N	80°13'14.9080"W	point
Sullivan 3H-A BHL Rev-1	8525.98	10523.63	-6075.70	1758688.18	417338.95	39°38'36.3320"N	80°14'42.3018"W	point
Sullivan Hardline #1 02.14.2023	9500.00	-838.54	1293.64	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 3H-A AWB Ref Wellpath: Sullivan 3H-A AWP Proj: 20770'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	850.00	BH Generic gyro - northseeking (Standard)	01 17.5" Gyro <Northseeking-Standard> (28'- 850')	Sullivan 3H-A AWB	5/9/2023
850.00	2556.00	OWSG MWD rev2 + HRGM	02 12.25" SDI MWD <OWSG MWD Rev.2+HRGM> (850')(1013'-2556')	Sullivan 3H-A AWB	5/9/2023
2556.00	7216.00	OWSG MWD rev2 + HRGM	03 8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2556')(2652'-7216')	Sullivan 3H-A AWB	5/9/2023
7216.00	20770.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04 8.5" BH ATK Curve <HRGM+Short Spacing> (7216')(7337'- 20745')	Sullivan 3H-A AWB	5/9/2023





# Actual Wellpath Report

Sullivan 3H-A AWP Proj: 20770'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 3H-A
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 3H-A AWB
Slot	Slot #03-A		

## COMMENTS

### Wellpath general comments

API: 47061019280000

BH Job #: 111797003

Rig: Patterson 277

Duration: 5/10/2023 - 5/16/2023

01\_17.5" Gyro <Northseeking-Standard> (28'- 850')

02\_12.25" SDI MWD <OWSG MWD Rev.2+HRGM> (850')(1013'-2556')

03\_8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2556')(2652'-7216')

04\_8.5" BH ATK Curve <HRGM+Short Spacing> (7216')(7337'- 20745')

Final Survey MD @ 20745'

Projected MD at TD: 20770'