

NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot #05
 Well: Sullivan 5H
 Wellbore: Sullivan 5H PWB

See reference depths & Sub- at 100 ft intervals	Grid System: NAD83 / Lambert Merit Zone 5P, Northern Zone (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 distance
Patterson 277 (RKB) Mean Sea Level: 158 ft	Coordinates are in feet referenced to Grid
Mean Sea Level at Location of Slot: Slot #05: +158 ft	Depth: see at foot
Other wellbore MDs are referenced to each pairs actual MD datum	Created by: mason@2024-01-10 Database: #SULLIVAN_5H_PWB_05

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
Sullivan Pad	1764815.000	406882.090	39°36'53.4792"N	80°13'22.9021"W		
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)	Grid East (US ft)	Latitude	Longitude
Slot #05	-22.80	-32.86	1764782.140	406859.290	39°36'53.2513"N	80°13'23.3197"W

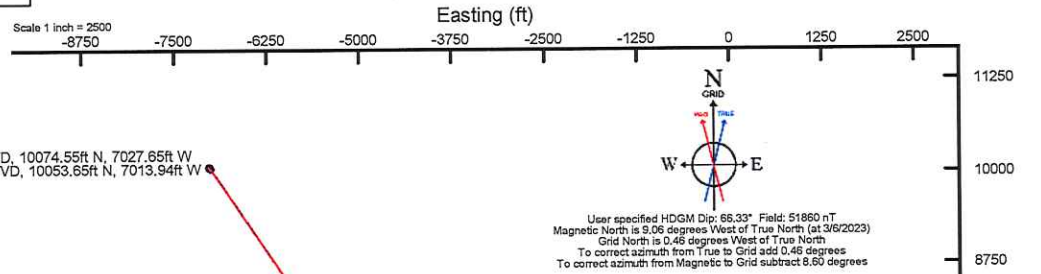
Design Comment	MD (ft)	Inc (°)	Ac (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°100ft)	VS (ft)
Tie On	7025.99	22.640	163.550	6907.56	-629.72	226.57	0.94	-649.80
Projection	7203.00	22.640	163.550	7070.93	-695.07	245.86	0.00	-714.90
Build+Turn	8003.29	36.621	321.238	7627.37	-653.01	129.93	7.26	-615.67
Landing Point	8609.81	88.000	326.373	8100.00	-236.70	-171.81	8.50	-66.94
BHL	29995.71	88.000	326.373	8522.26	10079.30	-7026.69	0.00	12281.42

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Ac (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°100ft)	VS (ft)
Tie On	7025.99	22.640	163.550	6907.56	-629.72	226.57	0.94	-649.80
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BHL	29995.71	88.000	326.373	8522.26	10079.30	-7026.69	0.00	12281.42

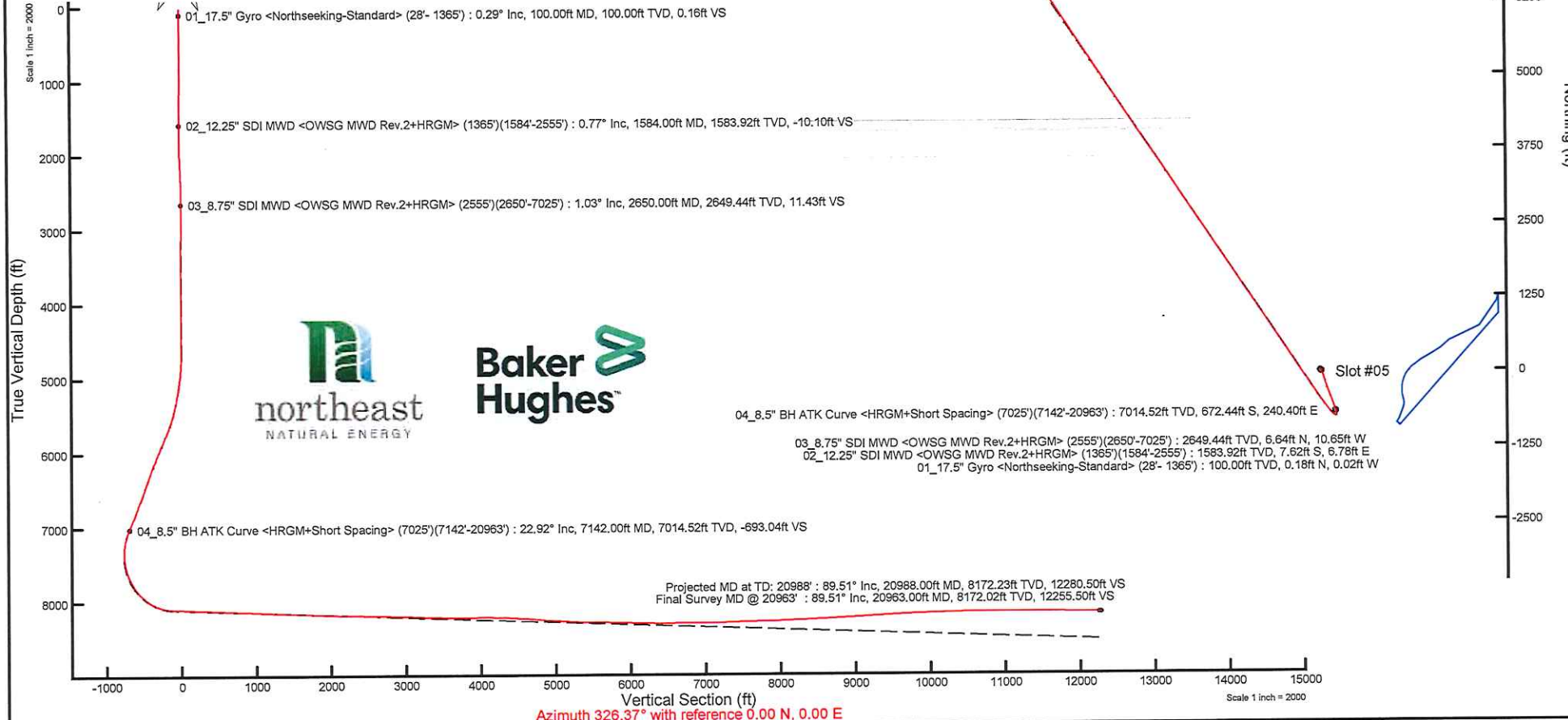
Well Data

Slot	Well	Wellbore	Wellpath
Slot #05	Sullivan 5H	Sullivan 5H AWB	Sullivan 5H AWP Proj: 20988'
Slot #05	Sullivan 5H	Sullivan 5H PWB	Sullivan 5H Rev-A.0



Projected MD at TD: 20988' : 8172.23ft TVD, 10074.55ft N, 7027.65ft W
 Final Survey MD @ 20963' : 8172.02ft TVD, 10053.65ft N, 7013.94ft W

API: 47061019180000
 BH Job #: 111699079
 Rig: Patterson 277
 Duration: 3/7/2023 - 3/12/2023





Actual Wellpath Report

Sullivan 5H AWP Proj: 20988'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

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	3/13/2023 at 11:21:11 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	-22.80	-32.86	1764782.14	406859.29	39°36'53.2513"N	80°13'23.3197"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 #05)	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 5H AWP Proj: 20988'

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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

WELLPATH DATA (221 stations) † = interpolated, ‡ = extrapolated station															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	353.280	0.00	0.00	0.00	0.00	1764782.14	406859.29	39°36'53.2513"N	80°13'23.3197"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	353.280	28.00	0.00	0.00	0.00	1764782.14	406859.29	39°36'53.2513"N	80°13'23.3197"W	0.00	0.000	0.00	0.00	0.00
100.00	0.290	353.280	100.00	0.16	0.18	-0.02	1764782.12	406859.47	39°36'53.2530"N	80°13'23.3200"W	0.18	353.280	0.40	0.40	0.00
200.00	0.280	3.150	200.00	0.58	0.68	-0.04	1764782.10	406859.97	39°36'53.2579"N	80°13'23.3202"W	0.68	356.825	0.05	-0.01	9.87
300.00	0.140	343.850	300.00	0.90	1.04	-0.06	1764782.08	406860.33	39°36'53.2615"N	80°13'23.3205"W	1.04	356.797	0.15	-0.14	-19.30
400.00	0.410	338.190	400.00	1.36	1.49	-0.22	1764781.92	406860.78	39°36'53.2659"N	80°13'23.3227"W	1.50	351.397	0.27	0.27	-5.66
500.00	0.130	9.860	500.00	1.80	1.93	-0.34	1764781.80	406861.22	39°36'53.2703"N	80°13'23.3242"W	1.96	350.058	0.31	-0.28	31.67
600.00	0.370	123.010	599.99	1.58	1.87	-0.05	1764782.09	406861.16	39°36'53.2697"N	80°13'23.3205"W	1.87	358.518	0.44	0.24	113.15
700.00	0.560	123.950	699.99	0.83	1.42	0.63	1764782.77	406860.71	39°36'53.2653"N	80°13'23.3118"W	1.55	23.880	0.19	0.19	0.94
800.00	0.480	133.790	799.99	-0.03	0.86	1.34	1764783.48	406860.15	39°36'53.2598"N	80°13'23.3027"W	1.59	57.364	0.12	-0.08	9.84
900.00	0.540	137.300	899.98	-0.90	0.22	1.96	1764784.10	406859.51	39°36'53.2536"N	80°13'23.2947"W	1.97	83.612	0.07	0.06	3.51
1000.00	0.570	135.810	999.98	-1.86	-0.48	2.62	1764784.76	406858.81	39°36'53.2467"N	80°13'23.2861"W	2.67	100.447	0.03	0.03	-1.49
1100.00	0.710	141.830	1099.97	-2.96	-1.33	3.35	1764785.49	406857.96	39°36'53.2384"N	80°13'23.2767"W	3.61	111.598	0.16	0.14	6.02
1200.00	0.810	140.820	1199.96	-4.28	-2.36	4.18	1764786.32	406856.93	39°36'53.2282"N	80°13'23.2660"W	4.80	119.459	0.10	0.10	-1.01
1300.00	0.980	151.560	1299.95	-5.84	-3.66	5.04	1764787.18	406855.63	39°36'53.2155"N	80°13'23.2550"W	6.23	126.023	0.24	0.17	10.74
1365.00	0.940	151.140	1364.94	-6.92	-4.62	5.56	1764787.70	406854.67	39°36'53.2061"N	80°13'23.2482"W	7.23	129.720	0.06	-0.06	-0.65
1584.00	0.770	165.990	1583.92	-10.10	-7.62	6.78	1764788.92	406851.67	39°36'53.1765"N	80°13'23.2323"W	10.20	138.327	0.13	-0.08	6.78
1680.00	0.310	15.160	1679.92	-10.54	-7.99	7.01	1764789.15	406851.30	39°36'53.1728"N	80°13'23.2294"W	10.63	138.769	1.10	-0.48	-157.11
1775.00	1.200	2.350	1774.91	-9.56	-6.75	7.11	1764789.25	406852.54	39°36'53.1851"N	80°13'23.2281"W	9.81	133.506	0.95	0.94	-13.48
1870.00	1.410	2.830	1869.88	-7.82	-4.59	7.21	1764789.35	406854.70	39°36'53.2065"N	80°13'23.2271"W	8.55	122.478	0.22	0.22	0.51
1965.00	1.730	335.350	1964.85	-5.46	-2.12	6.67	1764788.81	406857.17	39°36'53.2308"N	80°13'23.2342"W	7.00	107.630	0.85	0.34	-28.93
2060.00	2.140	314.740	2059.79	-2.31	0.43	4.81	1764786.95	406859.72	39°36'53.2559"N	80°13'23.2582"W	4.83	84.878	0.84	0.43	-21.69
2155.00	2.500	306.130	2154.72	1.37	2.90	1.88	1764784.02	406862.19	39°36'53.2801"N	80°13'23.2960"W	3.46	32.952	0.53	0.38	-9.06
2250.00	3.040	301.990	2249.61	5.61	5.46	-1.93	1764780.21	406864.75	39°36'53.3050"N	80°13'23.3449"W	5.79	340.534	0.61	0.57	-4.36
2345.00	2.280	295.800	2344.50	9.53	7.61	-5.77	1764776.37	406866.90	39°36'53.3261"N	80°13'23.3942"W	9.55	322.862	0.85	-0.80	-6.52
2440.00	0.910	267.410	2439.46	11.55	8.40	-8.22	1764773.92	406867.69	39°36'53.3337"N	80°13'23.4256"W	11.76	315.624	1.62	-1.44	-29.88
2555.99	0.790	220.540	2555.44	11.81	7.75	-9.66	1764772.48	406867.04	39°36'53.3271"N	80°13'23.4440"W	12.39	308.748	0.59	-0.10	-40.41
2650.99	1.030	222.410	2650.43	11.42	6.63	-10.66	1764771.48	406865.92	39°36'53.3159"N	80°13'23.4566"W	12.55	301.855	0.25	0.25	1.97
2745.99	0.390	176.410	2745.42	10.94	5.67	-11.22	1764770.92	406864.96	39°36'53.3064"N	80°13'23.4636"W	12.57	296.823	0.85	-0.67	-48.42
2840.99	0.360	55.250	2840.42	10.66	5.52	-10.95	1764771.19	406864.81	39°36'53.3049"N	80°13'23.4602"W	12.27	296.746	0.69	-0.03	-127.54



Actual Wellpath Report

Sullivan 5H AWP Proj: 20988'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

WELLPATH DATA (221 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2935.99	0.370	151.030	2935.42	10.36	5.42	-10.56	1764771.58	406864.71	39°36'53.3040"N	80°13'23.4552"W	11.87	297.178	0.57	0.01	100.82
3030.99	0.140	180.610	3030.42	9.96	5.04	-10.41	1764771.73	406864.33	39°36'53.3002"N	80°13'23.4533"W	11.57	295.817	0.27	-0.24	31.14
3125.99	0.470	155.880	3125.42	9.48	4.57	-10.25	1764771.89	406863.86	39°36'53.2956"N	80°13'23.4512"W	11.23	294.001	0.37	0.35	-26.03
3220.99	0.530	161.560	3220.42	8.67	3.79	-9.96	1764772.18	406863.08	39°36'53.2880"N	80°13'23.4473"W	10.65	290.857	0.08	0.06	5.98
3314.99	0.670	161.420	3314.41	7.72	2.86	-9.64	1764772.50	406862.15	39°36'53.2788"N	80°13'23.4432"W	10.06	286.519	0.15	0.15	-0.15
3413.99	0.540	171.390	3413.40	6.74	1.85	-9.39	1764772.75	406861.14	39°36'53.2688"N	80°13'23.4399"W	9.57	281.147	0.17	-0.13	10.07
3508.99	0.420	34.000	3508.40	6.47	1.70	-9.13	1764773.01	406860.99	39°36'53.2673"N	80°13'23.4365"W	9.28	280.527	0.94	-0.13	-144.62
3602.99	0.290	168.600	3602.40	6.38	1.75	-8.89	1764773.25	406861.04	39°36'53.2678"N	80°13'23.4334"W	9.06	281.130	0.70	-0.14	143.19
3697.99	0.370	177.240	3697.40	5.89	1.21	-8.83	1764773.31	406860.50	39°36'53.2625"N	80°13'23.4326"W	8.91	277.784	0.10	0.08	9.09
3793.99	0.890	172.050	3793.39	4.95	0.16	-8.71	1764773.43	406859.45	39°36'53.2521"N	80°13'23.4310"W	8.71	271.043	0.54	0.54	-5.41
3888.99	0.500	131.420	3888.39	3.89	-0.85	-8.29	1764773.85	406858.44	39°36'53.2422"N	80°13'23.4256"W	8.34	264.173	0.64	-0.41	-42.77
3983.99	0.410	47.140	3983.39	3.54	-0.89	-7.73	1764774.41	406858.40	39°36'53.2419"N	80°13'23.4184"W	7.79	263.440	0.65	-0.09	-88.72
4078.99	0.520	26.610	4078.38	3.81	-0.27	-7.29	1764774.85	406859.02	39°36'53.2480"N	80°13'23.4129"W	7.30	267.857	0.21	0.12	-21.61
4172.99	0.380	20.320	4172.38	4.21	0.40	-6.99	1764775.15	406859.69	39°36'53.2547"N	80°13'23.4091"W	7.00	273.280	0.16	-0.15	-6.69
4267.99	0.550	5.740	4267.38	4.74	1.15	-6.84	1764775.30	406860.44	39°36'53.2621"N	80°13'23.4072"W	6.93	279.545	0.22	0.18	-15.35
4366.99	0.430	333.470	4366.37	5.48	1.96	-6.96	1764775.18	406861.24	39°36'53.2700"N	80°13'23.4088"W	7.23	285.697	0.30	-0.12	-32.60
4461.99	0.390	302.220	4461.37	6.13	2.45	-7.39	1764774.75	406861.74	39°36'53.2748"N	80°13'23.4144"W	7.78	288.318	0.24	-0.04	-32.89
4555.99	0.770	282.940	4555.37	6.88	2.76	-8.28	1764773.86	406862.05	39°36'53.2779"N	80°13'23.4257"W	8.72	288.434	0.45	0.40	-20.51
4650.99	0.670	191.210	4650.36	6.95	2.36	-9.01	1764773.13	406861.65	39°36'53.2738"N	80°13'23.4350"W	9.31	284.663	1.09	-0.11	-96.56
4744.99	1.840	152.800	4744.34	5.06	0.48	-8.42	1764773.72	406859.77	39°36'53.2553"N	80°13'23.4274"W	8.44	273.228	1.47	1.24	-40.86
4838.99	3.710	142.030	4838.22	0.53	-3.26	-5.86	1764776.28	406856.03	39°36'53.2185"N	80°13'23.3943"W	6.71	240.882	2.06	1.99	-11.46
4933.99	5.490	149.330	4932.92	-7.08	-9.60	-1.65	1764780.49	406849.69	39°36'53.1563"N	80°13'23.3398"W	9.74	189.768	1.97	1.87	7.68
5028.99	7.050	150.940	5027.34	-17.43	-18.60	3.50	1764785.64	406840.69	39°36'53.0677"N	80°13'23.2731"W	18.93	169.351	1.65	1.64	1.69
5123.99	8.400	152.540	5121.48	-30.14	-29.86	9.53	1764791.67	406829.44	39°36'52.9570"N	80°13'23.1949"W	31.34	162.298	1.44	1.42	1.68
5218.99	10.160	153.800	5215.23	-45.35	-43.53	16.43	1764798.57	406815.76	39°36'52.8223"N	80°13'23.1053"W	46.53	159.323	1.86	1.85	1.33
5315.99	12.030	155.110	5310.42	-63.82	-60.38	24.46	1764806.60	406798.91	39°36'52.6565"N	80°13'23.0009"W	65.15	157.946	1.95	1.93	1.35
5410.99	13.530	157.580	5403.06	-84.51	-79.63	32.87	1764815.01	406779.66	39°36'52.4669"N	80°13'22.8915"W	86.15	157.573	1.68	1.58	2.60
5505.99	15.770	160.940	5494.97	-107.91	-102.11	41.32	1764823.46	406757.18	39°36'52.2454"N	80°13'22.7812"W	110.16	157.968	2.52	2.36	3.54
5601.99	19.520	166.050	5586.44	-135.65	-130.02	49.45	1764831.59	406729.28	39°36'51.9703"N	80°13'22.6744"W	139.11	159.176	4.22	3.91	5.32
5696.99	22.990	163.320	5674.97	-168.35	-163.21	58.61	1764840.74	406696.09	39°36'51.6430"N	80°13'22.5541"W	173.41	160.247	3.80	3.65	-2.87

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Slot	Slot #05		

WELLPATH DATA (221 stations)															
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5791.99	23.680	160.290	5762.20	-204.61	-198.94	70.37	1764852.50	406660.36	39°36'51.2908"N	80°13'22.4001"W	211.02	160.521	1.46	0.73	-3.19
5885.99	23.870	160.600	5848.22	-241.37	-234.65	83.05	1764865.18	406624.66	39°36'50.9389"N	80°13'22.2344"W	248.91	160.509	0.24	0.20	0.33
5980.99	23.850	161.430	5935.10	-278.55	-270.98	95.55	1764877.69	406588.32	39°36'50.5808"N	80°13'22.0709"W	287.34	160.577	0.35	-0.02	0.87
6074.99	22.940	161.520	6021.37	-314.58	-306.37	107.41	1764889.54	406552.93	39°36'50.2320"N	80°13'21.9157"W	324.66	160.680	0.97	-0.97	0.10
6169.99	22.040	159.960	6109.15	-349.78	-340.68	119.39	1764901.52	406518.63	39°36'49.8939"N	80°13'21.7592"W	360.99	160.688	1.14	-0.95	-1.64
6266.99	21.350	158.930	6199.28	-384.71	-374.26	131.97	1764914.10	406485.06	39°36'49.5631"N	80°13'21.5949"W	396.84	160.576	0.81	-0.71	-1.06
6361.99	20.680	158.040	6287.96	-418.01	-405.95	144.46	1764926.59	406453.36	39°36'49.2509"N	80°13'21.4321"W	430.89	160.411	0.78	-0.71	-0.94
6457.99	19.820	157.060	6378.02	-450.61	-436.66	157.14	1764939.28	406422.66	39°36'48.9484"N	80°13'21.2669"W	464.08	160.207	0.96	-0.90	-1.02
6551.99	19.810	158.300	6466.46	-481.85	-466.14	169.25	1764951.38	406393.18	39°36'48.6581"N	80°13'21.1092"W	495.91	160.045	0.45	-0.01	1.32
6646.99	20.940	158.400	6555.51	-514.21	-496.88	181.45	1764963.58	406362.44	39°36'48.3552"N	80°13'20.9502"W	528.97	159.939	1.19	1.19	0.11
6741.99	21.640	159.390	6644.03	-547.88	-529.06	193.86	1764975.99	406330.26	39°36'48.0382"N	80°13'20.7882"W	563.46	159.876	0.83	0.74	1.04
6835.99	21.720	161.730	6731.38	-581.54	-561.80	205.42	1764987.54	406297.53	39°36'47.7155"N	80°13'20.6372"W	598.17	159.915	0.92	0.09	2.49
6930.99	21.800	162.750	6819.61	-615.41	-595.34	216.16	1764998.29	406263.99	39°36'47.3849"N	80°13'20.4965"W	633.36	160.045	0.41	0.08	1.07
7025.99	22.640	163.550	6907.56	-649.80	-629.72	226.57	1765008.69	406229.61	39°36'47.0460"N	80°13'20.3600"W	669.24	160.212	0.94	0.88	0.84
7142.00	22.920	160.590	7014.52	-693.04	-672.44	240.40	1765022.52	406186.89	39°36'46.6249"N	80°13'20.1789"W	714.12	160.328	1.02	0.24	-2.55
7238.00	19.640	164.070	7103.97	-726.54	-705.60	251.04	1765033.17	406153.74	39°36'46.2980"N	80°13'20.0395"W	748.93	160.415	3.66	-3.42	3.62
7333.00	13.870	175.840	7194.92	-751.69	-732.34	256.26	1765038.38	406127.00	39°36'46.0342"N	80°13'19.9701"W	775.88	160.714	7.02	-6.07	12.39
7428.00	8.640	200.920	7288.12	-765.76	-750.38	254.53	1765036.66	406108.96	39°36'45.8557"N	80°13'19.9903"W	792.37	161.263	7.42	-5.51	26.40
7523.00	8.650	257.750	7382.20	-767.29	-758.58	244.99	1765027.11	406100.76	39°36'45.7740"N	80°13'20.1114"W	797.15	162.102	8.64	0.01	59.82
7618.00	11.970	293.970	7475.75	-756.36	-756.09	228.98	1765011.11	406103.25	39°36'45.7973"N	80°13'20.3161"W	790.00	163.151	7.49	3.49	38.13
7712.00	16.620	309.050	7566.84	-735.28	-743.65	209.62	1764991.75	406115.69	39°36'45.9187"N	80°13'20.5648"W	772.62	164.258	6.30	4.95	16.04
7806.00	23.080	313.650	7655.21	-704.43	-722.44	185.82	1764967.95	406136.90	39°36'46.1265"N	80°13'20.8711"W	745.95	165.575	7.07	6.87	4.89
7901.00	29.410	323.800	7740.42	-662.91	-690.71	158.53	1764940.66	406168.62	39°36'46.4378"N	80°13'21.2231"W	708.67	167.074	8.15	6.66	10.68
7995.00	35.450	323.060	7819.72	-612.59	-650.26	128.49	1764910.62	406209.07	39°36'46.8352"N	80°13'21.6111"W	662.83	168.823	6.44	6.43	-0.79
8090.00	42.810	322.280	7893.37	-552.80	-602.64	92.13	1764874.27	406256.68	39°36'47.3029"N	80°13'22.0805"W	609.65	171.308	7.76	7.75	-0.82
8184.00	51.770	322.860	7957.06	-483.96	-547.84	50.21	1764832.35	406311.49	39°36'47.8412"N	80°13'22.6217"W	550.13	174.763	9.54	9.53	0.62
8279.00	59.320	323.740	8010.77	-405.79	-485.06	3.46	1764785.60	406374.26	39°36'48.4579"N	80°13'23.2256"W	485.07	179.592	7.98	7.95	0.93
8373.00	68.650	324.070	8051.95	-321.48	-416.87	-46.25	1764735.90	406442.45	39°36'49.1278"N	80°13'23.8677"W	419.43	186.331	9.93	9.93	0.35
8468.00	77.910	325.610	8079.26	-230.64	-342.55	-98.56	1764683.59	406516.76	39°36'49.8581"N	80°13'24.5438"W	356.45	196.051	9.87	9.75	1.62
8564.00	85.900	326.560	8092.76	-135.67	-263.74	-151.54	1764630.61	406595.57	39°36'50.6328"N	80°13'25.2289"W	304.17	209.881	8.38	8.32	0.99



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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

WELLPATH DATA (221 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
8658.00	88.340	326.850	8097.49	-41.80	-185.27	-203.07	1764579.08	406674.03	39°36'51.4041"N	80°13'25.8954"W	274.89	227.624	2.61	2.60	0.31
8751.00	87.140	326.120	8101.15	51.13	-107.80	-254.38	1764527.78	406751.50	39°36'52.1657"N	80°13'26.5590"W	276.28	247.034	1.51	-1.29	-0.78
8846.00	87.410	326.390	8105.67	146.02	-28.89	-307.09	1764475.07	406830.40	39°36'52.9413"N	80°13'27.2407"W	308.45	264.625	0.40	0.28	0.28
8941.00	87.970	326.300	8109.50	240.94	50.12	-359.70	1764422.46	406909.41	39°36'53.7179"N	80°13'27.9210"W	363.17	277.932	0.60	0.59	-0.09
9035.00	88.490	327.090	8112.40	334.89	128.64	-411.29	1764370.88	406987.92	39°36'54.4898"N	80°13'28.5883"W	430.94	287.369	1.01	0.55	0.84
9129.00	87.690	325.990	8115.54	428.84	207.02	-463.08	1764319.08	407066.30	39°36'55.2603"N	80°13'29.2582"W	507.25	294.087	1.45	-0.85	-1.17
9225.00	87.910	326.360	8119.22	524.77	286.71	-516.48	1764265.69	407145.98	39°36'56.0436"N	80°13'29.9487"W	590.73	299.036	0.45	0.23	0.39
9320.00	88.000	326.120	8122.61	619.71	365.64	-569.24	1764212.93	407224.91	39°36'56.8194"N	80°13'30.6310"W	676.56	302.714	0.27	0.09	-0.25
9415.00	87.600	326.240	8126.26	714.64	444.51	-622.08	1764160.10	407303.77	39°36'57.5946"N	80°13'31.3143"W	764.57	305.548	0.44	-0.42	0.13
9510.00	87.940	326.350	8129.96	809.56	523.48	-674.76	1764107.42	407382.74	39°36'58.3709"N	80°13'31.9956"W	854.01	307.804	0.38	0.36	0.12
9604.00	88.090	326.470	8133.21	903.51	601.74	-726.73	1764055.45	407460.99	39°36'59.1401"N	80°13'32.6678"W	943.52	309.625	0.20	0.16	0.13
9699.00	87.110	326.350	8137.19	998.42	680.80	-779.24	1764002.95	407540.05	39°36'59.9173"N	80°13'33.3469"W	1034.75	311.143	1.04	-1.03	-0.13
9793.00	87.320	325.550	8141.76	1092.31	758.59	-831.81	1763950.38	407617.84	39°37'0.6819"N	80°13'34.0267"W	1125.78	312.364	0.88	0.22	-0.85
9888.00	87.690	326.030	8145.89	1187.21	837.08	-885.17	1763897.02	407696.32	39°37'1.4533"N	80°13'34.7166"W	1218.29	313.401	0.64	0.39	0.51
9983.00	87.510	326.360	8149.87	1282.13	915.95	-937.98	1763844.22	407775.18	39°37'2.2285"N	80°13'35.3996"W	1311.02	314.319	0.40	-0.19	0.35
10077.00	87.820	326.400	8153.70	1376.05	994.16	-989.98	1763792.22	407853.39	39°37'2.9973"N	80°13'36.0722"W	1403.01	315.121	0.33	0.33	0.04
10172.00	87.940	326.960	8157.21	1470.98	1073.49	-1042.13	1763740.07	407932.71	39°37'3.7771"N	80°13'36.7467"W	1496.14	315.849	0.60	0.13	0.59
10267.00	87.660	326.440	8160.86	1565.91	1152.83	-1094.25	1763687.96	408012.05	39°37'4.5570"N	80°13'37.4209"W	1589.47	316.493	0.62	-0.29	-0.55
10362.00	87.970	326.480	8164.48	1660.84	1231.96	-1146.70	1763635.51	408091.17	39°37'5.3348"N	80°13'38.0994"W	1683.05	317.053	0.33	0.33	0.04
10456.00	87.200	325.950	8168.44	1754.76	1310.01	-1198.93	1763583.29	408169.22	39°37'6.1020"N	80°13'38.7748"W	1775.83	317.535	0.99	-0.82	-0.56
10551.00	87.720	325.760	8172.65	1849.66	1388.56	-1252.20	1763530.02	408247.77	39°37'6.8740"N	80°13'39.4636"W	1869.79	317.956	0.58	0.55	-0.20
10646.00	88.210	326.600	8176.03	1944.60	1467.44	-1305.04	1763477.18	408326.64	39°37'7.6493"N	80°13'40.1470"W	1963.80	318.352	1.02	0.52	0.88
10740.00	87.970	326.440	8179.16	2038.55	1545.79	-1356.86	1763425.36	408404.99	39°37'8.4195"N	80°13'40.8174"W	2056.83	318.724	0.31	-0.26	-0.17
10835.00	88.980	326.660	8181.69	2133.51	1625.03	-1409.21	1763373.02	408484.22	39°37'9.1984"N	80°13'41.4945"W	2150.95	319.069	1.09	1.06	0.23
10930.00	88.580	325.990	8183.71	2228.49	1704.07	-1461.87	1763320.36	408563.26	39°37'9.9753"N	80°13'42.1756"W	2245.20	319.375	0.82	-0.42	-0.71
11025.00	88.950	326.190	8185.76	2323.46	1782.89	-1514.86	1763267.37	408642.08	39°37'10.7500"N	80°13'42.8609"W	2339.55	319.647	0.44	0.39	0.21
11120.00	89.260	326.380	8187.24	2418.45	1861.91	-1567.58	1763214.65	408721.08	39°37'11.5266"N	80°13'43.5428"W	2433.93	319.905	0.38	0.33	0.20
11215.00	88.430	326.030	8189.16	2513.43	1940.84	-1620.41	1763161.82	408800.01	39°37'12.3025"N	80°13'44.2261"W	2528.36	320.141	0.95	-0.87	-0.37
11310.00	89.140	326.130	8191.17	2608.41	2019.65	-1673.42	1763108.83	408878.82	39°37'13.0771"N	80°13'44.9116"W	2622.84	320.356	0.75	0.75	0.11
11404.00	89.110	326.260	8192.61	2702.40	2097.75	-1725.71	1763056.54	408956.91	39°37'13.8447"N	80°13'45.5879"W	2716.36	320.558	0.14	-0.03	0.14

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Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

WELLPATH DATA (221 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
11500.00	88.860	327.060	8194.31	2798.38	2177.94	-1778.46	1763003.79	409037.09	39°37'14.6330"N	80°13'46.2703"W	2811.82	320.766	0.87	-0.26	0.83
11594.00	88.250	325.640	8196.68	2892.35	2256.16	-1830.53	1762951.72	409115.31	39°37'15.4018"N	80°13'46.9438"W	2905.36	320.946	1.64	-0.65	-1.51
11689.00	88.860	327.260	8199.08	2987.31	2335.31	-1883.01	1762899.24	409194.45	39°37'16.1798"N	80°13'47.6227"W	2999.90	321.120	1.82	0.64	1.71
11783.00	89.020	326.900	8200.81	3081.29	2414.20	-1934.09	1762848.17	409273.34	39°37'16.9553"N	80°13'48.2836"W	3093.39	321.301	0.42	0.17	-0.38
11878.00	86.890	326.590	8204.20	3176.22	2493.59	-1986.15	1762796.11	409352.72	39°37'17.7357"N	80°13'48.9571"W	3187.91	321.463	2.27	-2.24	-0.33
11973.00	87.750	325.920	8208.65	3271.12	2572.49	-2038.86	1762743.40	409431.62	39°37'18.5113"N	80°13'49.6390"W	3282.48	321.601	1.15	0.91	-0.71
12068.00	88.680	326.670	8211.61	3366.07	2651.48	-2091.55	1762690.71	409510.61	39°37'19.2877"N	80°13'50.3205"W	3377.12	321.733	1.26	0.98	0.79
12163.00	88.740	326.130	8213.74	3461.04	2730.59	-2144.11	1762638.16	409589.71	39°37'20.0653"N	80°13'51.0004"W	3471.79	321.860	0.57	0.06	-0.57
12258.00	89.750	326.180	8215.00	3556.03	2809.48	-2197.02	1762585.26	409668.60	39°37'20.8407"N	80°13'51.6847"W	3566.52	321.975	1.06	1.06	0.05
12352.00	89.940	326.860	8215.25	3650.03	2887.89	-2248.87	1762533.41	409747.00	39°37'21.6113"N	80°13'52.3555"W	3660.23	322.091	0.75	0.20	0.72
12447.00	89.970	326.400	8215.32	3745.03	2967.23	-2301.13	1762481.15	409826.33	39°37'22.3912"N	80°13'53.0315"W	3754.94	322.206	0.49	0.03	-0.48
12541.00	90.220	326.810	8215.17	3839.03	3045.71	-2352.86	1762429.42	409904.81	39°37'23.1626"N	80°13'53.7008"W	3848.67	322.313	0.51	0.27	0.44
12636.00	90.580	326.700	8214.51	3934.03	3125.15	-2404.94	1762377.34	409984.25	39°37'23.9436"N	80°13'54.3746"W	3943.39	322.420	0.40	0.38	-0.12
12731.00	90.890	326.340	8213.29	4029.02	3204.39	-2457.35	1762324.94	410063.48	39°37'24.7224"N	80°13'55.0525"W	4038.15	322.517	0.50	0.33	-0.38
12826.00	88.830	326.320	8213.52	4124.01	3283.44	-2510.01	1762272.28	410142.53	39°37'25.4995"N	80°13'55.7338"W	4132.94	322.604	2.17	-2.17	-0.02
12921.00	89.350	326.390	8215.03	4219.00	3362.52	-2562.64	1762219.66	410221.60	39°37'26.2767"N	80°13'56.4146"W	4227.73	322.688	0.55	0.55	0.07
13015.00	87.010	326.600	8218.01	4312.95	3440.86	-2614.50	1762167.80	410299.94	39°37'27.0467"N	80°13'57.0855"W	4321.47	322.771	2.50	-2.49	0.22
13110.00	87.040	326.340	8222.94	4407.82	3519.94	-2666.90	1762115.40	410379.02	39°37'27.8240"N	80°13'57.7634"W	4416.15	322.850	0.28	0.03	-0.27
13205.00	87.070	326.090	8227.82	4502.69	3598.79	-2719.66	1762062.65	410457.86	39°37'28.5991"N	80°13'58.4459"W	4510.86	322.921	0.26	0.03	-0.26
13301.00	87.140	326.210	8232.67	4598.57	3678.42	-2773.07	1762009.24	410537.48	39°37'29.3817"N	80°13'59.1367"W	4606.59	322.988	0.14	0.07	0.12
13396.00	85.160	325.210	8239.05	4693.34	3756.73	-2826.46	1761955.85	410615.79	39°37'30.1512"N	80°13'59.8272"W	4701.26	323.043	2.33	-2.08	-1.05
13491.00	84.270	326.610	8247.80	4787.93	3835.06	-2879.48	1761902.83	410694.12	39°37'30.9211"N	80°14'0.5129"W	4795.74	323.100	1.74	-0.94	1.47
13586.00	86.300	326.690	8255.61	4882.60	3914.15	-2931.53	1761850.79	410773.20	39°37'31.6985"N	80°14'1.1863"W	4890.24	323.168	2.14	2.14	0.08
13680.00	86.300	326.640	8261.68	4976.41	3992.52	-2983.08	1761799.25	410851.56	39°37'32.4688"N	80°14'1.8533"W	4983.87	323.234	0.05	0.00	-0.05
13776.00	86.400	326.620	8267.79	5072.21	4072.53	-3035.77	1761746.55	410931.57	39°37'33.2553"N	80°14'2.5351"W	5079.51	323.298	0.11	0.10	-0.02
13871.00	85.810	326.570	8274.24	5166.99	4151.65	-3087.96	1761694.37	411010.69	39°37'34.0330"N	80°14'3.2102"W	5174.14	323.359	0.62	-0.62	-0.05
13966.00	87.630	326.710	8279.68	5261.83	4230.87	-3140.11	1761642.22	411089.90	39°37'34.8117"N	80°14'3.8850"W	5268.82	323.418	1.92	1.92	0.15
14061.00	89.720	326.220	8281.87	5356.80	4310.03	-3192.57	1761589.76	411169.05	39°37'35.5897"N	80°14'4.5638"W	5363.66	323.471	2.26	2.20	-0.52
14156.00	89.820	326.680	8282.25	5451.80	4389.20	-3245.08	1761537.26	411248.22	39°37'36.3679"N	80°14'5.2430"W	5458.53	323.523	0.50	0.11	0.48
14251.00	88.400	326.370	8283.73	5546.78	4468.43	-3297.47	1761484.87	411327.45	39°37'37.1467"N	80°14'5.9209"W	5553.39	323.575	1.53	-1.49	-0.33

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
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Slot	Slot #05		

WELLPATH DATA (221 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
14347.00	88.890	327.330	8286.00	5642.75	4548.78	-3349.95	1761432.40	411407.79	39°37'37.9365"N	80°14'6.6000"W	5649.21	323.630	1.12	0.51	1.00
14442.00	88.650	326.510	8288.04	5737.72	4628.36	-3401.79	1761380.56	411487.37	39°37'38.7188"N	80°14'7.2708"W	5744.03	323.685	0.90	-0.25	-0.86
14536.00	88.490	325.780	8290.39	5831.69	4706.40	-3454.14	1761328.21	411565.40	39°37'39.4858"N	80°14'7.9480"W	5837.92	323.724	0.79	-0.17	-0.78
14632.00	89.110	326.420	8292.40	5927.67	4786.06	-3507.67	1761274.69	411645.06	39°37'40.2687"N	80°14'8.6405"W	5933.81	323.763	0.93	0.65	0.67
14728.00	88.250	326.470	8294.61	6023.64	4866.04	-3560.72	1761221.64	411725.04	39°37'41.0549"N	80°14'9.3268"W	6029.68	323.805	0.90	-0.90	0.05
14822.00	89.750	328.150	8296.25	6117.61	4945.14	-3611.47	1761170.89	411804.12	39°37'41.8324"N	80°14'9.9838"W	6123.49	323.859	2.40	1.60	1.79
14918.00	87.630	325.910	8298.44	6213.57	5025.65	-3663.70	1761118.67	411884.63	39°37'42.6238"N	80°14'10.6596"W	6219.31	323.908	3.21	-2.21	-2.33
15012.00	89.540	326.390	8300.76	6307.53	5103.69	-3716.04	1761066.33	411962.66	39°37'43.3908"N	80°14'11.3367"W	6313.20	323.941	2.10	2.03	0.51
15107.00	90.090	326.730	8301.07	6402.53	5182.96	-3768.39	1761013.98	412041.93	39°37'44.1700"N	80°14'12.0141"W	6408.11	323.980	0.68	0.58	0.36
15202.00	89.910	326.880	8301.07	6497.53	5262.46	-3820.40	1760961.97	412121.42	39°37'44.9514"N	80°14'12.6871"W	6502.99	324.021	0.25	-0.19	0.16
15297.00	90.280	326.620	8300.91	6592.53	5341.90	-3872.49	1760909.89	412200.87	39°37'45.7324"N	80°14'13.3612"W	6597.89	324.061	0.48	0.39	-0.27
15392.00	90.550	326.910	8300.23	6687.52	5421.36	-3924.55	1760857.83	412280.32	39°37'46.5134"N	80°14'14.0349"W	6692.78	324.099	0.42	0.28	0.31
15487.00	91.020	326.200	8298.92	6782.51	5500.62	-3976.91	1760805.48	412359.58	39°37'47.2925"N	80°14'14.7123"W	6787.68	324.133	0.90	0.49	-0.75
15583.00	90.460	326.380	8297.68	6878.50	5580.47	-4030.18	1760752.21	412439.42	39°37'48.0773"N	80°14'15.4016"W	6883.61	324.163	0.61	-0.58	0.19
15677.00	90.830	326.510	8296.63	6972.50	5658.80	-4082.13	1760700.26	412517.75	39°37'48.8472"N	80°14'16.0738"W	6977.53	324.194	0.42	0.39	0.14
15772.00	89.750	326.640	8296.15	7067.49	5738.09	-4134.46	1760647.93	412597.03	39°37'49.6265"N	80°14'16.7509"W	7072.44	324.226	1.15	-1.14	0.14
15868.00	90.120	326.440	8296.25	7163.49	5818.18	-4187.39	1760595.00	412677.11	39°37'50.4137"N	80°14'17.4358"W	7168.37	324.257	0.44	0.39	-0.21
15962.00	91.570	326.690	8294.87	7257.48	5896.61	-4239.18	1760543.22	412755.54	39°37'51.1846"N	80°14'18.1059"W	7262.28	324.287	1.57	1.54	0.27
16057.00	92.060	326.610	8291.86	7352.43	5975.93	-4291.38	1760491.02	412834.85	39°37'51.9642"N	80°14'18.7814"W	7357.15	324.317	0.52	0.52	-0.08
16151.00	92.460	326.530	8288.15	7446.36	6054.32	-4343.13	1760439.28	412913.24	39°37'52.7347"N	80°14'19.4510"W	7451.01	324.346	0.43	0.43	-0.09
16246.00	91.570	327.380	8284.81	7541.29	6133.90	-4394.90	1760387.51	412992.81	39°37'53.5169"N	80°14'20.1210"W	7545.85	324.379	1.30	-0.94	0.89
16341.00	91.510	327.070	8282.26	7636.25	6213.75	-4446.30	1760336.11	413072.66	39°37'54.3019"N	80°14'20.7864"W	7640.70	324.414	0.33	-0.06	-0.33
16436.00	91.260	326.560	8279.96	7731.22	6293.23	-4498.29	1760284.13	413152.13	39°37'55.0831"N	80°14'21.4592"W	7735.59	324.444	0.60	-0.26	-0.54
16531.00	90.220	326.370	8278.74	7826.21	6372.41	-4550.76	1760231.65	413231.31	39°37'55.8614"N	80°14'22.1382"W	7830.52	324.468	1.11	-1.09	-0.20
16626.00	91.450	325.660	8277.35	7921.19	6451.17	-4603.86	1760178.56	413310.07	39°37'56.6354"N	80°14'22.8251"W	7925.47	324.487	1.49	1.29	-0.75
16721.00	92.650	325.470	8273.95	8016.12	6529.47	-4657.54	1760124.88	413388.36	39°37'57.4049"N	80°14'23.5195"W	8020.39	324.499	1.28	1.26	-0.20
16816.00	92.090	325.620	8270.02	8111.03	6607.74	-4711.24	1760071.18	413466.62	39°37'58.1740"N	80°14'24.2141"W	8115.30	324.512	0.61	-0.59	0.16
16912.00	92.090	325.580	8266.52	8206.96	6686.90	-4765.45	1760016.99	413545.78	39°37'58.9519"N	80°14'24.9151"W	8211.22	324.524	0.04	0.00	-0.04
17008.00	92.370	325.980	8262.79	8302.88	6766.22	-4819.39	1759963.04	413625.09	39°37'59.7314"N	80°14'25.6130"W	8307.12	324.539	0.51	0.29	0.42
17103.00	92.740	324.950	8258.55	8397.77	6844.40	-4873.19	1759909.24	413703.27	39°38'0.4996"N	80°14'26.3089"W	8402.01	324.549	1.15	0.39	-1.08



Actual Wellpath Report

Sullivan 5H AWP Proj: 20988'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

WELLPATH DATA (221 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
17198.00	92.650	326.570	8254.09	8492.66	6922.84	-4926.59	1759855.86	413781.71	39°38'1.2705"N	80°14'26.9996"W	8496.88	324.563	1.71	-0.09	1.71
17389.00	93.050	326.170	8244.59	8683.42	7081.68	-5032.24	1759750.21	413940.54	39°38'2.8316"N	80°14'28.3666"W	8687.55	324.602	0.30	0.21	-0.21
17484.00	93.360	326.720	8239.28	8778.27	7160.72	-5084.66	1759697.79	414019.58	39°38'3.6085"N	80°14'29.0451"W	8782.36	324.622	0.66	0.33	0.58
17580.00	93.080	326.530	8233.89	8874.12	7240.77	-5137.39	1759645.06	414099.61	39°38'4.3952"N	80°14'29.7274"W	8878.15	324.644	0.35	-0.29	-0.20
17675.00	93.020	326.720	8228.83	8968.98	7319.99	-5189.58	1759592.88	414178.83	39°38'5.1739"N	80°14'30.4028"W	8972.96	324.665	0.21	-0.06	0.20
17770.00	93.140	326.380	8223.73	9063.84	7399.14	-5241.87	1759540.59	414257.97	39°38'5.9518"N	80°14'31.0795"W	9067.77	324.685	0.38	0.13	-0.36
17866.00	93.140	326.380	8218.47	9159.70	7478.96	-5294.94	1759487.52	414337.79	39°38'6.7363"N	80°14'31.7663"W	9163.58	324.702	0.00	0.00	0.00
17961.00	93.050	326.500	8213.34	9254.56	7558.01	-5347.38	1759435.09	414416.83	39°38'7.5132"N	80°14'32.4449"W	9258.40	324.720	0.16	-0.09	0.13
18057.00	92.920	325.620	8208.34	9350.43	7637.54	-5400.91	1759381.56	414496.36	39°38'8.2949"N	80°14'33.1374"W	9354.24	324.734	0.93	-0.14	-0.92
18152.00	93.020	326.020	8203.42	9445.30	7716.03	-5454.21	1759328.27	414574.85	39°38'9.0662"N	80°14'33.8270"W	9449.10	324.745	0.43	0.11	0.42
18247.00	93.050	326.310	8198.39	9540.16	7794.83	-5507.03	1759275.45	414653.64	39°38'9.8406"N	80°14'34.5104"W	9543.94	324.759	0.31	0.03	0.31
18343.00	93.080	326.570	8193.25	9636.03	7874.71	-5560.02	1759222.46	414733.52	39°38'10.6257"N	80°14'35.1962"W	9639.76	324.776	0.27	0.03	0.27
18438.00	93.020	326.430	8188.20	9730.89	7953.82	-5612.38	1759170.10	414812.62	39°38'11.4032"N	80°14'35.8738"W	9734.58	324.792	0.16	-0.06	-0.15
18533.00	91.600	326.010	8184.37	9825.81	8032.71	-5665.16	1759117.33	414891.51	39°38'12.1786"N	80°14'36.5568"W	9829.47	324.806	1.56	-1.49	-0.44
18629.00	91.660	326.210	8181.64	9921.77	8112.37	-5718.67	1759063.82	414971.17	39°38'12.9615"N	80°14'37.2491"W	9925.41	324.819	0.22	0.06	0.21
18723.00	91.570	326.090	8178.99	10015.73	8190.41	-5771.00	1759011.49	415049.20	39°38'13.7284"N	80°14'37.9264"W	10019.34	324.831	0.16	-0.10	-0.13
18819.00	91.600	326.040	8176.33	10111.69	8270.03	-5824.58	1758957.92	415128.81	39°38'14.5108"N	80°14'38.6195"W	10115.29	324.843	0.06	0.03	-0.05
18914.00	91.510	326.400	8173.76	10206.66	8348.96	-5877.38	1758905.12	415207.74	39°38'15.2866"N	80°14'39.3028"W	10210.22	324.856	0.39	-0.09	0.38
19010.00	91.880	326.720	8170.92	10302.62	8429.03	-5930.26	1758852.25	415287.81	39°38'16.0736"N	80°14'39.9872"W	10306.14	324.872	0.51	0.39	0.33
19105.00	91.420	325.970	8168.18	10397.58	8508.08	-5982.88	1758799.62	415366.84	39°38'16.8504"N	80°14'40.6682"W	10401.07	324.885	0.93	-0.48	-0.79
19200.00	90.370	326.390	8166.70	10492.56	8586.99	-6035.75	1758746.76	415445.75	39°38'17.6259"N	80°14'41.3523"W	10496.03	324.897	1.19	-1.11	0.44
19295.00	90.150	326.310	8166.27	10587.56	8666.07	-6088.39	1758694.12	415524.83	39°38'18.4032"N	80°14'42.0335"W	10591.00	324.910	0.25	-0.23	-0.08
19390.00	90.430	326.470	8165.79	10682.56	8745.19	-6140.98	1758641.54	415603.94	39°38'19.1807"N	80°14'42.7141"W	10685.97	324.923	0.34	0.29	0.17
19485.00	90.430	326.420	8165.07	10777.56	8824.35	-6193.48	1758589.03	415683.10	39°38'19.9588"N	80°14'43.3936"W	10780.93	324.936	0.05	0.00	-0.05
19579.00	90.150	326.050	8164.60	10871.55	8902.50	-6245.73	1758536.79	415761.24	39°38'20.7268"N	80°14'44.0697"W	10874.91	324.948	0.49	-0.30	-0.39
19675.00	90.310	325.940	8164.21	10967.55	8982.08	-6299.42	1758483.11	415840.82	39°38'21.5088"N	80°14'44.7644"W	10970.89	324.957	0.20	0.17	-0.11
19770.00	90.800	326.350	8163.29	11062.55	9060.97	-6352.34	1758430.19	415919.70	39°38'22.2841"N	80°14'45.4492"W	11065.86	324.967	0.67	0.52	0.43
19865.00	89.940	326.100	8162.68	11157.54	9139.93	-6405.15	1758377.38	415998.66	39°38'23.0602"N	80°14'46.1327"W	11160.84	324.978	0.94	-0.91	-0.26
19960.00	89.350	326.430	8163.27	11252.54	9218.93	-6457.91	1758324.63	416077.66	39°38'23.8366"N	80°14'46.8154"W	11255.81	324.989	0.71	-0.62	0.35
20055.00	89.510	326.190	8164.21	11347.54	9297.97	-6510.60	1758271.94	416156.70	39°38'24.6134"N	80°14'47.4974"W	11350.78	325.000	0.30	0.17	-0.25

REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

WELLPATH DATA (221 stations) † = interpolated, ‡ = extrapolated station															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
20149.00	89.450	326.220	8165.07	11441.53	9376.09	-6562.88	1758219.66	416234.80	39°38'25.3811"N	80°14'48.1740"W	11444.76	325.010	0.07	-0.06	0.03
20243.00	89.750	326.390	8165.72	11535.53	9454.29	-6615.03	1758167.51	416313.01	39°38'26.1496"N	80°14'48.8488"W	11538.73	325.020	0.37	0.32	0.18
20339.00	89.720	326.610	8166.17	11631.53	9534.35	-6668.02	1758114.53	416393.05	39°38'26.9364"N	80°14'49.5346"W	11634.70	325.032	0.23	-0.03	0.23
20434.00	89.480	326.370	8166.83	11726.52	9613.55	-6720.46	1758062.09	416472.26	39°38'27.7149"N	80°14'50.2135"W	11729.67	325.044	0.36	-0.25	-0.25
20529.00	89.420	326.380	8167.74	11821.52	9692.66	-6773.07	1758009.49	416551.35	39°38'28.4923"N	80°14'50.8943"W	11824.64	325.055	0.06	-0.06	0.01
20624.00	89.690	326.440	8168.48	11916.52	9771.79	-6825.62	1757956.93	416630.48	39°38'29.2700"N	80°14'51.5745"W	11919.61	325.066	0.29	0.28	0.06
20720.00	89.200	326.180	8169.41	12012.51	9851.66	-6878.87	1757903.69	416710.35	39°38'30.0550"N	80°14'52.2637"W	12015.58	325.076	0.58	-0.51	-0.27
20815.00	89.320	326.220	8170.64	12107.50	9930.60	-6931.72	1757850.85	416789.28	39°38'30.8307"N	80°14'52.9475"W	12110.55	325.084	0.13	0.13	0.04
20910.00	89.540	326.090	8171.58	12202.50	10009.50	-6984.62	1757797.94	416868.17	39°38'31.6061"N	80°14'53.6322"W	12205.53	325.093	0.27	0.23	-0.14
20963.00	89.510	326.740	8172.02	12255.50	10053.65	-7013.94	1757768.63	416912.32	39°38'32.0400"N	80°14'54.0117"W	12258.52	325.098	1.23	-0.06	1.23
20988.00‡	89.510	326.740	8172.23	12280.50	10074.55	-7027.65	1757754.92	416933.23	39°38'32.2455"N	80°14'54.1892"W	12283.50	325.102	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Sullivan 5H AWB Ref Wellpath: Sullivan 5H AWP Proj: 20988'									
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	1504.93	0.00	0.00	-6.57	6.46
13.375in Casing Surface	28.00	1475.00	1447.00	28.00	1474.93	0.00	0.00	-6.16	6.30
12.25in Open Hole	1505.00	2680.00	1175.00	1504.93	2679.44	-6.57	6.46	6.27	-10.96
9.625in Casing Intermediate	28.00	2650.00	2622.00	28.00	2649.44	0.00	0.00	6.64	-10.65
8.75in Open Hole	2680.00	7203.00	4523.00	2679.44	7071.13	6.27	-10.96	-694.00	247.58
8.5in Open Hole	7203.00	20988.00	13785.00	7071.13	8172.23	-694.00	247.58	10074.55	-7027.65
5.5in Casing Production	28.00	20958.00	20930.00	28.00	8171.98	0.00	0.00	10049.47	-7011.20



Actual Wellpath Report

Sullivan 5H AWP Proj: 20988'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Sullivan 5H LP Rev-1	8100.00	-230.70	-171.81	1764610.34	406628.60	39°36'50.9576"N	80°13'25.4913"W	point
Sullivan 5H BHL Rev-2	8532.26	10076.30	-7026.69	1757755.89	416934.97	39°38'32.2628"N	80°14'54.1770"W	point
Sullivan Hardline #1 02.14.2023	9500.00	-881.87	1275.01	1766057.07	405977.47	39°36'44.6371"N	80°13'6.9378"W	polygon
2D Polygon: dimensions not calculated								
Sullivan Hardline #2 02.14.2023	9500.00	6773.17	-5014.57	1759767.88	413632.04	39°37'59.7842"N	80°14'28.1083"W	polygon
2D Polygon: dimensions not calculated								

WELLPATH COMPOSITION - Ref Wellbore: Sullivan 5H AWB Ref Wellpath: Sullivan 5H AWP Proj: 20988'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	1365.00	BH Generic gyro - northseeking (Standard)	01 17.5" Gyro <Northseeking-Standard> (28'- 1365')	Sullivan 5H AWB	3/6/2023
1365.00	2555.99	OWSG MWD rev2 + HRGM	02 12.25" SDI MWD <OWSG MWD Rev.2+HRGM> (1365')(1584'-2555')	Sullivan 5H AWB	3/6/2023
2555.99	7025.99	OWSG MWD rev2 + HRGM	03 8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2555')(2650'-7025')	Sullivan 5H AWB	3/6/2023
7025.99	20988.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04 8.5" BH ATK Curve <HRGM+Short Spacing> (7025')(7142'-20963')	Sullivan 5H AWB	3/6/2023



Actual Wellpath Report

Sullivan 5H AWP Proj: 20988'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	Sullivan 5H
Field	Monongalia	API/Legal	
Facility	Sullivan Pad	Wellbore	Sullivan 5H AWB
Slot	Slot #05		

COMMENTS

Wellpath general comments

API: 47061019180000

BH Job #: 111699079

Rig: Patterson 277

Duration: 3/7/2023 - 3/12/2023

01_17.5" Gyro <Northseeking-Standard> (28'- 1365')

02_12.25" SDI MWD <OWSG MWD Rev.2+HRGM> (1365')(1584'-2555')

03_8.75" SDI MWD <OWSG MWD Rev.2+HRGM> (2555')(2650'-7025')

04_8.5" BH ATK Curve <HRGM+Short Spacing> (7025')(7142'-20963')

Final Survey MD @ 20963'

Projected MD at TD: 20988'