

Yost 5H API# 47-061-01670

Lithology/Formation	Top Depth in FT Name TVD	Bottom Depth in FT TVD	Top Depth in FT MD	Bottom Depth in FT MD	Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)
Sand/Shale/Silt	0	420	0		sand/shale/silt
Red Rock	420	500			red rock
Sand/Shale/Silt	500	790			sand/shale/silt
Limestone/Silt	790	990			limestone
Sand/shale	990	1190			sand/shale
Limestone/Shale	1190	2350			limestone/shale
Sand/Shale	2350	7790			sand/shale
Middlesex	7790	7999	8022	8273	shale
Geneseo	7999	8029	8273	8312	shale
Tully	8029	8080	8312	8377	limestone
Hamilton	8080	8213	8377	8579	shale
Marcellus	8213		8579		shale

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MORGANTOWN, WV



Actual Wellpath Report

Yost 5H AWP Proj: 16223'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Slot	Slot 05
Area	Monongalia County, WV		Well	Yost 5H
Field	Monongalia		Wellbore	Yost 5H AWB
Facility	Yost Pad			

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet			Software System	WellArchitect® 4.0.1
North Reference	Grid			User	Stewdenk
Scale	0.999941			Report Generated	12/15/2014 at 10:11:37 AM
Convergence at slot	0.46° West			Database/Source file	WA_Eastern/Yost_5H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North [ft]	East [ft]	Easting [US ft]	Northing [US ft]	Latitude	Longitude
Slot Location	-16.30	11.60	1766296.30	416647.80	39°38'30.114"N	80°13'04.971"W
Facility Reference Pt			1766284.70	416664.10	39°38'30.274"N	80°13'05.121"W
Field Reference Pt			1777685.71	440640.65	39°42'28.114"N	80°10'41.690"W

WELLPATH DATUM

Calculation method	Minimum curvature	Pioneer 63 (RKB) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Slot	Pioneer 63 (RKB) to Mean Sea Level	1486.20ft
Vertical Reference Pt	Pioneer 63 (RKB)	Pioneer 63 (RKB) to Mud Line at Slot (Slot 05)	18.00ft
MD Reference Pt	Pioneer 63 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	325.00°

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north east NATURAL ENERGY
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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH DATA (222 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	217.100	0.00	0.00	0.00	0.00	1766296.30	416647.80	39°38'30.114"N	80°13'04.971"W	0.00	0.000	0.00	0.00	0.00
18.00	0.000	217.100	18.00	0.00	0.00	0.00	1766296.30	416647.80	39°38'30.114"N	80°13'04.971"W	0.00	0.000	0.00	0.00	0.00
108.00	0.100	217.100	108.00	-0.02	-0.06	-0.05	1766296.25	416647.74	39°38'30.113"N	80°13'04.971"W	0.08	217.100	0.11	0.11	0.00
208.00	0.090	236.450	208.00	-0.05	-0.18	-0.17	1766296.13	416647.62	39°38'30.112"N	80°13'04.973"W	0.24	223.291	0.03	-0.01	19.35
308.00	0.030	253.700	308.00	-0.04	-0.23	-0.26	1766296.04	416647.57	39°38'30.111"N	80°13'04.974"W	0.34	228.517	0.06	-0.06	17.25
408.00	0.110	242.130	408.00	-0.02	-0.28	-0.37	1766295.93	416647.52	39°38'30.111"N	80°13'04.975"W	0.46	232.722	0.08	0.08	-11.57
508.00	0.020	226.160	508.00	-0.01	-0.34	-0.46	1766295.84	416647.46	39°38'30.110"N	80°13'04.977"W	0.57	234.094	0.09	-0.09	-15.97
608.00	0.020	194.030	608.00	-0.02	-0.36	-0.48	1766295.82	416647.44	39°38'30.110"N	80°13'04.977"W	0.60	232.797	0.01	0.00	-32.13
708.00	0.100	170.450	708.00	-0.11	-0.47	-0.47	1766295.83	416647.33	39°38'30.109"N	80°13'04.977"W	0.66	225.150	0.08	0.08	-23.58
808.00	0.090	178.830	808.00	-0.26	-0.63	-0.45	1766295.85	416647.17	39°38'30.107"N	80°13'04.977"W	0.78	215.683	0.02	-0.01	8.38
908.00	0.110	175.360	908.00	-0.41	-0.81	-0.44	1766295.86	416646.99	39°38'30.106"N	80°13'04.976"W	0.92	208.871	0.02	0.02	-3.47
1008.00	0.210	194.260	1008.00	-0.61	-1.08	-0.48	1766295.82	416646.72	39°38'30.103"N	80°13'04.977"W	1.18	204.057	0.11	0.10	18.90
1108.00	0.160	204.780	1108.00	-0.80	-1.38	-0.59	1766295.71	416646.42	39°38'30.100"N	80°13'04.978"W	1.50	202.935	0.06	-0.05	10.52
1208.00	0.100	215.560	1208.00	-0.90	-1.58	-0.69	1766295.61	416646.22	39°38'30.098"N	80°13'04.980"W	1.73	203.717	0.06	-0.06	10.78
1308.00	0.240	181.690	1308.00	-1.09	-1.86	-0.75	1766295.55	416645.94	39°38'30.095"N	80°13'04.980"W	2.01	201.986	0.17	0.14	-33.87
1408.00	0.350	177.800	1408.00	-1.52	-2.38	-0.75	1766295.55	416645.42	39°38'30.090"N	80°13'04.980"W	2.49	197.433	0.11	0.11	-3.89
1508.00	0.260	150.130	1507.99	-2.00	-2.88	-0.62	1766295.68	416644.92	39°38'30.085"N	80°13'04.978"W	2.95	192.185	0.17	-0.09	-27.67
1608.00	0.140	196.190	1607.99	-2.30	-3.19	-0.54	1766295.76	416644.61	39°38'30.082"N	80°13'04.977"W	3.24	189.646	0.19	-0.12	46.06
1708.00	0.310	179.130	1707.99	-2.60	-3.58	-0.57	1766295.73	416644.22	39°38'30.078"N	80°13'04.978"W	3.63	189.086	0.18	0.17	-17.06
1808.00	0.150	184.080	1807.99	-2.93	-3.98	-0.58	1766295.72	416643.82	39°38'30.074"N	80°13'04.978"W	4.02	188.257	0.16	-0.16	4.95
1908.00	0.260	171.530	1907.99	-3.23	-4.34	-0.55	1766295.75	416643.46	39°38'30.071"N	80°13'04.977"W	4.37	187.276	0.12	0.11	-12.55
2008.00	0.340	166.490	2007.99	-3.71	-4.85	-0.45	1766295.85	416642.95	39°38'30.066"N	80°13'04.976"W	4.87	185.313	0.08	0.08	-5.04
2108.00	0.200	147.830	2107.99	-4.16	-5.29	-0.29	1766296.01	416642.51	39°38'30.061"N	80°13'04.974"W	5.29	183.127	0.16	-0.14	-18.66
2208.00	0.880	115.830	2207.98	-5.01	-5.77	0.50	1766296.80	416642.03	39°38'30.057"N	80°13'04.964"W	5.79	175.091	0.72	0.68	-32.00
2308.00	0.940	122.340	2307.97	-6.44	-6.54	1.88	1766296.18	416641.26	39°38'30.049"N	80°13'04.946"W	6.81	163.968	0.12	0.06	6.51
2408.00	1.160	127.450	2407.96	-8.16	-7.60	3.38	1766299.68	416640.20	39°38'30.039"N	80°13'04.927"W	8.31	156.035	0.24	0.22	5.11
2508.00	1.580	124.740	2507.93	-10.42	-9.00	5.31	1766301.61	416638.80	39°38'30.025"N	80°13'04.902"W	10.45	149.438	0.42	0.42	-2.71
2608.00	1.740	130.640	2607.88	-13.18	-10.77	7.60	1766303.90	416637.03	39°38'30.008"N	80°13'04.873"W	13.18	144.802	0.23	0.16	5.90
2708.00	1.700	134.600	2707.84	-16.11	-12.80	9.81	1766306.11	416635.00	39°38'29.988"N	80°13'04.844"W	16.13	142.548	0.13	-0.04	3.96
2808.00	1.750	134.220	2807.79	-19.07	-14.91	11.96	1766308.26	416632.89	39°38'29.967"N	80°13'04.816"W	19.11	141.270	0.05	0.05	-0.38

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REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 05
NORTHEAST NATURAL ENERGY, LLC	Well	Yost 5H
Area	Wellbore	Yost 5H AWB
Field		
Facility		

WELLPATH DATA (222 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]
2908.00	1.560	135.510	2907.75	-21.91	-16.94	14.00	1766310.30	416630.86	39°38'29.947"N	80°13'04.790"W	21.98	140.426	0.19	-0.19	1.29
3008.00	1.380	141.260	3007.72	-24.46	-18.85	15.71	1766312.01	416628.95	39°38'29.928"N	80°13'04.768"W	24.54	140.194	0.23	-0.18	5.75
3108.00	1.650	141.860	3107.68	-27.10	-20.93	17.35	1766313.65	416626.88	39°38'29.908"N	80°13'04.747"W	27.19	140.330	0.27	0.27	0.60
3208.00	1.300	139.200	3207.65	-29.66	-22.92	18.99	1766315.28	416624.88	39°38'29.889"N	80°13'04.726"W	29.76	140.361	0.36	-0.35	-2.66
3308.00	1.350	137.270	3307.62	-31.96	-24.64	20.53	1766316.82	416623.16	39°38'29.872"N	80°13'04.706"W	32.07	140.206	0.07	0.05	-1.93
3408.00	1.360	142.280	3407.60	-34.31	-26.44	22.05	1766318.35	416621.36	39°38'29.854"N	80°13'04.686"W	34.43	140.177	0.12	0.01	5.01
3508.00	1.070	144.870	3507.57	-36.43	-28.15	23.31	1766319.61	416619.65	39°38'29.837"N	80°13'04.670"W	36.55	140.365	0.30	-0.29	2.59
3608.00	1.030	138.820	3607.56	-38.26	-29.59	24.44	1766320.74	416618.21	39°38'29.823"N	80°13'04.655"W	38.38	140.438	0.12	-0.04	-6.05
3708.00	1.090	141.690	3707.54	-40.10	-31.01	25.62	1766321.92	416616.79	39°38'29.809"N	80°13'04.640"W	40.23	140.432	0.08	0.06	2.87
3808.00	0.920	146.510	3807.52	-41.85	-32.43	26.66	1766322.96	416615.38	39°38'29.795"N	80°13'04.627"W	41.98	140.576	0.19	-0.17	4.82
3908.00	0.940	153.270	3907.51	-43.47	-33.83	27.47	1766323.77	416613.97	39°38'29.781"N	80°13'04.616"W	43.58	140.923	0.11	0.02	6.76
4008.00	0.640	151.530	4007.50	-44.83	-35.05	28.10	1766324.40	416612.75	39°38'29.769"N	80°13'04.608"W	44.93	141.277	0.30	-0.30	-1.74
4108.00	0.880	147.650	4107.49	-46.15	-36.19	28.78	1766325.08	416611.61	39°38'29.758"N	80°13'04.599"W	46.24	141.506	0.25	0.24	-3.88
4208.00	0.700	151.530	4207.48	-47.53	-37.38	29.48	1766325.78	416610.43	39°38'29.746"N	80°13'04.590"W	47.61	141.733	0.19	-0.18	3.88
4308.00	0.850	153.050	4307.47	-48.87	-38.58	30.11	1766326.41	416609.23	39°38'29.735"N	80°13'04.582"W	48.94	142.025	0.15	0.15	1.52
4408.00	0.900	165.990	4407.46	-50.34	-40.00	30.64	1766326.94	416607.80	39°38'29.721"N	80°13'04.575"W	50.38	142.549	0.20	0.05	12.94
4508.00	0.880	174.830	4507.45	-51.74	-41.53	30.90	1766327.19	416606.28	39°38'29.706"N	80°13'04.572"W	51.76	143.349	0.14	-0.02	8.84
4608.00	0.900	175.920	4607.44	-53.08	-43.07	31.02	1766327.32	416604.73	39°38'29.690"N	80°13'04.570"W	53.08	144.238	0.03	0.02	1.09
4708.00	0.930	179.910	4707.43	-54.42	-44.67	31.08	1766327.38	416603.13	39°38'29.675"N	80°13'04.569"W	54.42	145.171	0.07	0.03	3.99
4808.00	0.930	187.110	4807.41	-55.68	-46.29	30.98	1766327.28	416601.52	39°38'29.659"N	80°13'04.570"W	55.70	146.205	0.12	0.00	7.20
4908.00	0.890	183.290	4907.40	-56.90	-47.87	30.83	1766327.13	416599.94	39°38'29.643"N	80°13'04.572"W	56.94	147.211	0.07	-0.04	-3.82
5008.00	1.080	186.240	5007.39	-58.21	-49.58	30.69	1766326.99	416598.22	39°38'29.626"N	80°13'04.573"W	58.31	148.243	0.20	0.19	2.95
5108.00	1.100	194.620	5107.37	-59.54	-51.44	30.34	1766326.64	416596.36	39°38'29.608"N	80°13'04.578"W	59.73	149.467	0.16	0.02	8.38
5208.00	1.080	192.330	5207.35	-60.80	-53.29	29.90	1766326.20	416594.51	39°38'29.589"N	80°13'04.583"W	61.11	150.706	0.05	-0.02	-2.29
5308.00	1.040	193.870	5307.33	-62.04	-55.09	29.48	1766325.78	416592.71	39°38'29.571"N	80°13'04.588"W	62.49	151.849	0.05	-0.04	1.54
5408.00	1.000	191.810	5407.32	-63.23	-56.83	29.08	1766325.38	416590.97	39°38'29.554"N	80°13'04.593"W	63.84	152.898	0.05	-0.04	-2.06
5508.00	0.890	186.590	5507.30	-64.41	-58.46	28.82	1766325.12	416589.35	39°38'29.538"N	80°13'04.598"W	65.17	153.758	0.14	-0.11	-5.22
5608.00	0.900	184.240	5607.29	-65.60	-60.01	28.67	1766324.97	416587.79	39°38'29.523"N	80°13'04.598"W	66.51	154.464	0.04	0.01	-2.35
5708.00	0.910	184.430	5707.28	-66.82	-61.59	28.55	1766324.85	416586.22	39°38'29.507"N	80°13'04.600"W	67.88	155.128	0.01	0.01	0.19
5808.00	0.920	180.090	5807.27	-68.09	-63.18	28.49	1766324.79	416584.62	39°38'29.491"N	80°13'04.600"W	69.31	155.730	0.07	0.01	-4.34

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Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH DATA (222 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]
5908.00	0.920	173.670	5907.25	-69.46	-64.78	28.57	1766324.87	416583.02	39°38'29.476"N	80°13'04.599"W	70.80	156.198	0.10	0.00	-6.42
6008.00	0.860	172.140	6007.24	-70.83	-66.32	28.77	1766325.06	416581.48	39°38'29.460"N	80°13'04.596"W	72.29	156.552	0.06	-0.06	-1.53
6108.00	0.870	177.500	6107.23	-72.14	-67.82	28.90	1766325.20	416579.98	39°38'29.446"N	80°13'04.594"W	73.73	156.920	0.08	0.01	5.36
6208.00	0.770	169.780	6207.22	-73.39	-69.24	29.05	1766325.35	416578.56	39°38'29.432"N	80°13'04.592"W	75.09	157.237	0.15	-0.10	-7.72
6308.00	0.850	158.500	6307.21	-74.72	-70.60	29.45	1766325.74	416577.21	39°38'29.418"N	80°13'04.587"W	76.49	157.359	0.18	0.08	-11.28
6368.00	0.920	153.920	6367.20	-75.63	-71.44	29.82	1766326.12	416576.36	39°38'29.410"N	80°13'04.582"W	77.42	157.344	0.17	0.12	-7.63
6507.00	1.890	112.190	6506.16	-78.65	-73.31	32.43	1766328.73	416574.49	39°38'29.392"N	80°13'04.549"W	80.16	156.135	0.97	0.70	-30.02
6571.00	6.420	95.250	6569.98	-81.86	-74.04	36.98	1766333.27	416573.77	39°38'29.385"N	80°13'04.491"W	82.76	153.461	7.26	7.08	-26.47
6634.00	10.830	92.630	6632.25	-87.75	-74.63	46.40	1766342.70	416573.17	39°38'29.380"N	80°13'04.370"W	87.88	148.129	7.03	7.00	-4.16
6697.00	14.920	94.870	6693.65	-96.56	-75.59	60.40	1766356.70	416572.21	39°38'29.371"N	80°13'04.191"W	96.76	141.374	6.54	6.49	3.56
6760.00	19.690	98.840	6753.79	-109.12	-77.91	78.98	1766375.27	416569.89	39°38'29.350"N	80°13'03.953"W	110.94	134.610	7.80	7.57	6.30
6824.00	22.050	96.040	6813.59	-124.48	-80.83	101.58	1766397.88	416566.97	39°38'29.323"N	80°13'03.664"W	129.82	128.510	4.00	3.69	-4.37
6887.00	24.780	92.000	6871.40	-140.20	-82.54	126.54	1766422.84	416565.27	39°38'29.308"N	80°13'03.345"W	151.08	123.114	5.02	4.33	-6.41
6950.00	27.620	95.900	6927.92	-157.71	-84.50	154.27	1766450.56	416563.30	39°38'29.291"N	80°13'02.990"W	175.90	118.711	5.27	4.51	6.19
7013.00	31.490	102.530	6982.73	-179.42	-89.58	184.88	1766481.17	416558.23	39°38'29.243"N	80°13'02.598"W	205.44	115.850	8.03	6.14	10.52
7077.00	36.380	103.550	7035.81	-205.99	-97.65	219.67	1766515.96	416550.15	39°38'29.166"N	80°13'02.153"W	240.40	113.967	7.69	7.64	1.59
7138.00	40.620	100.580	7083.54	-233.75	-105.54	256.80	1766553.08	416542.26	39°38'29.091"N	80°13'01.677"W	277.64	112.342	7.58	6.95	-4.87
7202.00	39.090	97.810	7132.68	-262.34	-112.11	297.27	1766593.56	416535.70	39°38'29.029"N	80°13'01.159"W	317.71	110.663	3.66	-2.39	-4.33
7265.00	34.980	101.540	7182.96	-288.97	-118.43	334.67	1766630.95	416529.38	39°38'28.970"N	80°13'00.681"W	355.00	109.487	7.43	-6.52	5.92
7328.00	34.000	104.910	7234.89	-315.55	-126.57	369.38	1766665.66	416521.24	39°38'28.892"N	80°13'00.236"W	390.47	108.914	3.40	-1.56	5.35
7391.00	38.440	103.620	7285.71	-343.74	-135.72	405.46	1766701.73	416512.09	39°38'28.804"N	80°12'59.774"W	427.57	108.507	7.15	7.05	-2.05
7454.00	42.810	101.830	7333.51	-374.06	-144.72	445.46	1766741.74	416503.08	39°38'28.718"N	80°12'59.262"W	468.38	107.998	7.18	6.94	-2.84
7517.00	44.780	101.560	7378.99	-405.78	-153.56	488.16	1766784.43	416494.25	39°38'28.634"N	80°12'58.715"W	511.74	107.462	3.14	3.13	-0.43
7580.00	44.800	101.690	7423.70	-438.05	-162.50	531.63	1766827.90	416485.31	39°38'28.550"N	80°12'58.159"W	555.91	106.997	0.15	0.03	0.21
7644.00	38.980	101.910	7471.32	-469.18	-171.23	573.44	1766869.71	416476.58	39°38'28.467"N	80°12'57.623"W	598.46	106.626	9.10	-9.09	0.34
7707.00	33.180	100.590	7522.22	-495.99	-178.50	609.81	1766906.07	416469.31	39°38'28.398"N	80°12'57.158"W	635.40	106.315	9.29	-9.21	-2.10
7770.00	29.330	92.210	7576.09	-517.65	-182.26	642.20	1766938.46	416465.55	39°38'28.363"N	80°12'56.743"W	667.56	105.845	9.21	-6.11	-13.30
7833.00	29.820	79.010	7630.94	-533.38	-179.87	673.03	1766969.29	416467.94	39°38'28.389"N	80°12'56.349"W	696.65	104.963	10.35	0.78	-20.95
7897.00	29.760	68.190	7686.52	-543.48	-170.93	703.42	1766999.68	416476.88	39°38'28.480"N	80°12'55.962"W	723.89	103.658	8.39	-0.09	-16.91
7960.00	29.810	60.010	7741.22	-548.42	-157.29	731.51	1767027.77	416490.52	39°38'28.617"N	80°12'55.604"W	748.23	102.135	6.45	0.08	-12.98

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Actual Wellpath Report

Yost 5H AWP Proj: 16223'

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REFERENCE WELLPATH IDENTIFICATION

Operator	Northeast Natural Energy, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH DATA (222 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]
8024.00	28.030	45.740	7797.31	-547.39	-138.82	756.09	1767052.34	416508.99	39°38'28.801"N	80°12'55.292"W	768.73	100.404	11.11	-2.78	-22.30
8087.00	30.850	31.890	7852.23	-538.65	-114.74	775.25	1767071.50	416533.07	39°38'29.041"N	80°12'55.049"W	783.70	98.419	11.67	4.48	-21.98
8149.00	35.400	23.210	7904.17	-522.94	-84.70	790.74	1767086.99	416563.10	39°38'29.339"N	80°12'54.854"W	795.27	96.114	10.59	7.34	-14.00
8212.00	39.010	13.190	7954.39	-500.08	-48.58	802.47	1767098.72	416599.22	39°38'29.697"N	80°12'54.708"W	803.94	93.465	11.18	5.73	-15.90
8276.00	40.240	2.400	8003.74	-470.19	-8.27	807.94	1767104.19	416639.53	39°38'30.096"N	80°12'54.642"W	807.98	90.586	10.91	1.92	-16.86
8339.00	40.490	356.200	8051.76	-436.52	32.49	807.44	1767103.69	416680.29	39°38'30.498"N	80°12'54.653"W	808.09	87.696	6.38	0.40	-9.84
8402.00	46.350	351.820	8097.51	-398.64	75.50	802.84	1767099.09	416723.30	39°38'30.923"N	80°12'54.716"W	806.38	84.627	10.45	9.30	-6.95
8465.00	51.830	347.050	8138.76	-355.30	122.25	794.03	1767090.28	416770.04	39°38'31.384"N	80°12'54.833"W	803.39	81.247	10.41	8.70	-7.57
8528.00	58.550	342.890	8174.72	-306.70	172.14	780.56	1767076.81	416819.93	39°38'31.876"N	80°12'55.011"W	799.31	77.563	11.96	10.67	-6.60
8591.00	65.630	339.530	8204.20	-253.27	224.78	762.59	1767058.84	416872.57	39°38'32.395"N	80°12'55.246"W	795.03	73.576	12.18	11.24	-5.33
8654.00	70.990	335.810	8227.48	-196.18	278.89	740.33	1767036.58	416926.67	39°38'32.928"N	80°12'55.536"W	791.12	69.358	10.12	8.51	-5.90
8718.00	74.260	331.720	8246.60	-135.84	333.65	713.32	1767009.58	416981.43	39°38'33.467"N	80°12'55.887"W	787.49	64.933	7.96	5.11	-6.39
8781.00	78.320	326.780	8261.53	-74.83	386.21	682.03	1766978.28	417033.98	39°38'33.984"N	80°12'56.292"W	783.78	60.479	9.98	6.44	-7.84
8845.00	85.130	323.030	8270.74	-11.55	437.98	645.63	1766941.89	417085.75	39°38'34.493"N	80°12'56.763"W	780.16	55.848	12.12	10.64	-5.86
8908.00	85.470	322.360	8275.90	51.19	487.92	607.57	1766903.84	417135.69	39°38'34.983"N	80°12'57.254"W	779.24	51.233	1.19	0.54	-1.06
8972.00	90.800	324.190	8277.99	115.10	539.17	569.34	1766865.60	417186.93	39°38'35.487"N	80°12'57.748"W	784.12	46.559	8.80	8.33	2.86
9035.00	90.000	327.490	8277.55	178.08	591.29	533.97	1766830.24	417239.05	39°38'35.999"N	80°12'58.205"W	796.71	42.084	5.39	-1.27	5.24
9098.00	86.860	327.380	8279.27	240.99	644.36	500.08	1766796.35	417292.12	39°38'36.521"N	80°12'58.644"W	815.64	37.815	4.99	-4.98	-0.17
9162.00	89.970	326.600	8281.04	304.92	698.00	465.23	1766761.50	417345.76	39°38'37.048"N	80°12'59.095"W	838.83	33.684	5.01	4.86	-1.22
9225.00	89.450	327.510	8281.36	367.88	750.87	430.97	1766727.24	417398.62	39°38'37.568"N	80°12'59.538"W	865.76	29.854	1.66	-0.83	1.44
9288.00	89.940	325.040	8281.70	430.86	803.26	395.99	1766692.27	417451.01	39°38'38.083"N	80°12'59.991"W	895.57	26.243	4.00	0.78	-3.92
9350.00	89.880	323.930	8281.79	492.86	853.72	359.98	1766656.26	417501.47	39°38'38.579"N	80°13'00.456"W	926.51	22.863	1.79	-0.10	-1.79
9417.00	89.510	322.780	8282.13	556.83	905.07	321.78	1766618.06	417552.82	39°38'39.083"N	80°13'00.950"W	960.57	19.572	1.89	-0.58	-1.80
9477.00	89.080	321.110	8282.91	619.73	954.68	282.95	1766579.23	417602.42	39°38'39.571"N	80°13'01.451"W	995.72	16.509	2.74	-0.68	-2.65
9540.00	89.260	319.140	8283.82	682.49	1003.02	242.57	1766538.85	417650.76	39°38'40.045"N	80°13'01.972"W	1031.93	13.595	3.14	0.29	-3.13
9603.00	89.140	319.450	8284.70	745.17	1050.77	201.48	1766497.77	417698.51	39°38'40.514"N	80°13'02.503"W	1069.91	10.855	0.53	-0.19	0.49
9666.00	88.860	319.140	8285.80	807.85	1098.52	160.40	1766456.69	417746.26	39°38'40.982"N	80°13'03.033"W	1110.17	8.307	0.66	-0.44	-0.49
9729.00	88.890	320.460	8287.04	870.58	1146.63	119.75	1766416.04	417794.36	39°38'41.455"N	80°13'03.557"W	1152.87	5.962	2.10	0.05	2.10
9792.00	88.490	323.030	8288.48	933.46	1196.09	80.75	1766377.05	417843.81	39°38'41.940"N	80°13'04.061"W	1198.81	3.863	4.13	-0.63	4.08
9855.00	86.740	324.060	8291.10	996.38	1246.71	43.36	1766339.65	417894.44	39°38'42.438"N	80°13'04.544"W	1247.46	1.992	3.22	-2.78	1.63



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WV GEOLOGICAL SURVEY
MORGANTOWN, WV



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH DATA (222 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]
9919.00	88.340	327.240	8293.85	1060.31	1299.49	7.28	1766303.58	417947.21	39°38'42.957"N	80°13'05.010"W	1299.51	0.321	5.56	2.50	4.97
9982.00	89.510	329.010	8295.03	1123.20	1352.98	-25.98	1766270.32	418000.70	39°38'43.482"N	80°13'05.441"W	1353.23	358.900	3.37	1.86	2.81
10045.00	89.510	331.080	8295.57	1185.95	1407.56	-57.43	1766238.87	418055.27	39°38'44.019"N	80°13'05.849"W	1408.73	357.664	3.29	0.00	3.29
10109.00	89.320	326.570	8296.22	1249.78	1462.30	-90.55	1766205.75	418110.01	39°38'44.558"N	80°13'06.278"W	1465.10	356.457	7.05	-0.30	-7.05
10171.00	89.690	327.640	8296.76	1311.74	1514.36	-124.22	1766172.09	418162.06	39°38'45.070"N	80°13'06.713"W	1519.44	355.311	1.83	0.60	1.73
10233.00	89.080	330.160	8297.42	1373.59	1567.44	-156.24	1766140.07	418215.14	39°38'45.592"N	80°13'07.128"W	1575.21	354.308	4.18	-0.98	4.06
10296.00	88.430	328.010	8298.79	1436.41	1621.47	-188.60	1766107.71	418269.17	39°38'46.123"N	80°13'07.547"W	1632.40	353.366	3.56	-1.03	-3.41
10360.00	87.940	325.830	8300.82	1500.34	1675.07	-223.51	1766072.80	418322.77	39°38'46.650"N	80°13'07.999"W	1689.91	352.400	3.49	-0.77	-3.41
10422.00	88.740	328.440	8302.62	1562.26	1727.12	-257.14	1766039.18	418374.81	39°38'47.162"N	80°13'08.434"W	1746.16	351.532	4.40	1.29	4.21
10485.00	88.490	329.700	8304.14	1625.08	1781.14	-289.51	1766006.81	418428.83	39°38'47.693"N	80°13'08.854"W	1804.52	350.768	2.04	-0.40	2.00
10547.00	88.060	327.870	8306.01	1686.92	1834.14	-321.63	1765974.69	418481.83	39°38'48.214"N	80°13'09.270"W	1862.13	350.054	3.03	-0.69	-2.95
10611.00	88.580	328.470	8307.88	1750.79	1888.49	-355.36	1765940.96	418536.18	39°38'48.749"N	80°13'09.707"W	1921.64	349.343	1.24	0.81	0.94
10674.00	88.060	328.720	8309.73	1813.64	1942.24	-388.18	1765908.15	418589.92	39°38'49.277"N	80°13'10.132"W	1980.65	348.698	0.92	-0.83	0.40
10737.00	88.150	329.310	8311.81	1876.45	1996.22	-420.59	1765875.73	418643.90	39°38'49.808"N	80°13'10.551"W	2040.05	348.102	0.95	0.14	0.94
10800.00	88.000	325.670	8313.93	1939.34	2049.31	-454.43	1765841.90	418696.98	39°38'50.330"N	80°13'10.989"W	2099.09	347.497	5.78	-0.24	-5.78
10863.00	88.000	325.510	8316.13	2002.30	2101.25	-490.01	1765806.32	418748.92	39°38'50.841"N	80°13'11.450"W	2157.63	346.873	0.25	0.00	-0.25
10926.00	88.120	326.760	8318.26	2065.25	2153.53	-525.09	1765771.24	418801.20	39°38'51.355"N	80°13'11.903"W	2216.63	346.297	1.99	0.19	1.98
10989.00	87.440	325.200	8320.70	2128.19	2205.71	-560.31	1765736.02	418853.38	39°38'51.867"N	80°13'12.359"W	2275.77	345.747	2.70	-1.08	-2.48
11051.00	87.290	320.180	8323.55	2190.06	2254.96	-597.84	1765698.50	418902.62	39°38'52.351"N	80°13'12.844"W	2332.86	345.151	8.09	-0.24	-8.10
11114.00	87.790	314.910	8326.26	2252.45	2301.38	-640.31	1765656.03	418949.04	39°38'52.806"N	80°13'13.392"W	2388.79	344.452	8.39	0.79	-8.37
11177.00	88.180	316.770	8328.47	2314.60	2346.54	-684.17	1765612.17	418994.20	39°38'53.249"N	80°13'13.957"W	2444.25	343.745	3.01	0.62	2.95
11241.00	88.460	317.790	8330.35	2377.99	2393.54	-727.57	1765568.77	419041.20	39°38'53.710"N	80°13'14.517"W	2501.68	343.092	1.65	0.44	1.59
11304.00	88.370	316.410	8332.09	2440.37	2439.67	-770.44	1765525.91	419087.32	39°38'54.163"N	80°13'15.069"W	2558.43	342.474	2.19	-0.14	-2.19
11367.00	88.400	315.280	8333.87	2502.34	2484.85	-814.31	1765482.04	419132.50	39°38'54.606"N	80°13'15.635"W	2614.88	341.856	1.79	0.05	-1.79
11430.00	88.370	316.370	8335.64	2564.71	2530.02	-858.19	1765438.16	419177.67	39°38'55.049"N	80°13'16.200"W	2671.61	341.263	1.73	-0.05	1.73
11494.00	88.490	319.130	8337.40	2628.17	2577.37	-901.20	1765395.12	419225.01	39°38'55.513"N	80°13'16.755"W	2730.39	340.727	4.31	0.19	4.31
11557.00	88.460	322.140	8339.08	2690.96	2626.06	-941.14	1765355.22	419273.69	39°38'55.991"N	80°13'17.271"W	2789.61	340.283	4.78	-0.05	4.78
11620.00	88.580	325.250	8340.70	2753.91	2676.80	-978.43	1765317.93	419324.44	39°38'56.490"N	80°13'17.753"W	2850.02	339.922	4.94	0.19	4.94
11683.00	89.020	328.430	8342.02	2816.86	2729.52	-1012.87	1765283.49	419377.16	39°38'57.008"N	80°13'18.198"W	2911.39	339.641	5.09	0.70	5.05
11747.00	88.460	328.600	8343.43	2880.72	2784.09	-1046.29	1765250.07	419431.72	39°38'57.545"N	80°13'18.631"W	2974.20	339.403	0.91	-0.87	0.27

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WV GEOLOGICAL SURVEY MORGANTOWN, WV



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH DATA (222 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]
11810.00	88.650	328.100	8345.02	2943.59	2837.70	-1079.34	1765217.03	419485.33	39°38'58.072"N	80°13'19.059"W	3036.04	339.175	0.85	0.30	-0.79
11873.00	88.520	329.620	8346.57	3006.43	2891.61	-1111.91	1765184.46	419539.23	39°38'58.602"N	80°13'19.481"W	3098.02	338.967	2.42	-0.21	2.41
11935.00	88.980	329.110	8347.93	3068.23	2944.94	-1143.49	1765152.88	419592.56	39°38'59.127"N	80°13'19.890"W	3159.15	338.779	1.11	0.74	-0.82
11998.00	88.860	330.190	8349.11	3131.01	2999.29	-1175.32	1765121.05	419646.91	39°38'59.661"N	80°13'20.303"W	3221.36	338.602	1.72	-0.19	1.71
12062.00	89.050	330.920	8350.28	3194.70	3055.02	-1206.78	1765089.60	419702.63	39°39'00.209"N	80°13'20.711"W	3284.73	338.445	1.18	0.30	1.14
12125.00	90.250	331.820	8350.67	3257.31	3110.31	-1236.96	1765059.42	419757.92	39°39'00.754"N	80°13'21.102"W	3347.26	338.312	2.38	1.90	1.43
12189.00	90.830	330.950	8350.06	3320.91	3166.49	-1267.61	1765028.77	419814.10	39°39'01.306"N	80°13'21.500"W	3410.79	338.183	1.63	0.91	-1.36
12252.00	90.220	327.740	8349.49	3383.72	3220.68	-1299.73	1764996.65	419868.28	39°39'01.839"N	80°13'21.916"W	3473.05	338.023	5.19	-0.97	-5.10
12315.00	90.280	325.720	8349.21	3446.69	3273.35	-1334.28	1764962.10	419920.95	39°39'02.357"N	80°13'22.363"W	3534.85	337.823	3.21	0.10	-3.21
12378.00	90.280	324.170	8348.90	3509.68	3324.92	-1370.47	1764925.92	419972.52	39°39'02.864"N	80°13'22.831"W	3596.29	337.599	2.46	0.00	-2.46
12441.00	90.220	324.890	8348.63	3572.68	3376.23	-1407.02	1764889.36	420023.82	39°39'03.368"N	80°13'23.304"W	3657.68	337.376	1.15	-0.10	1.14
12504.00	90.340	323.470	8348.32	3635.68	3427.49	-1443.64	1764852.74	420075.08	39°39'03.872"N	80°13'23.777"W	3719.11	337.159	1.38	0.19	-1.37
12567.00	90.280	323.470	8347.98	3698.66	3478.29	-1480.90	1764815.49	420125.88	39°39'04.371"N	80°13'24.259"W	3780.42	336.938	0.89	-0.10	-0.89
12631.00	90.180	322.400	8347.72	3762.62	3529.36	-1519.47	1764776.92	420176.95	39°39'04.872"N	80°13'24.757"W	3842.55	336.707	1.68	-0.16	-1.67
12694.00	90.370	320.980	8347.42	3825.51	3578.79	-1558.52	1764737.87	420226.38	39°39'05.358"N	80°13'25.261"W	3903.43	336.467	2.27	0.30	-2.25
12757.00	90.180	321.390	8347.12	3888.37	3627.88	-1598.01	1764698.39	420275.46	39°39'05.840"N	80°13'25.771"W	3964.24	336.227	0.72	-0.30	0.65
12821.00	90.030	323.470	8347.00	3952.30	3678.61	-1637.03	1764659.37	420326.18	39°39'06.338"N	80°13'26.275"W	4026.41	336.010	3.26	-0.23	3.25
12883.00	90.460	324.500	8346.74	4014.29	3728.75	-1673.49	1764622.92	420376.33	39°39'06.831"N	80°13'26.747"W	4087.07	335.829	1.80	0.69	1.66
12946.00	90.400	326.600	8346.26	4077.28	3780.70	-1709.12	1764587.28	420428.27	39°39'07.341"N	80°13'27.207"W	4149.07	335.674	3.33	-0.10	3.33
13009.00	90.920	327.230	8345.54	4140.24	3833.48	-1743.51	1764552.90	420481.05	39°39'07.860"N	80°13'27.653"W	4211.34	335.543	1.30	0.83	1.00
13071.00	90.800	325.720	8344.61	4202.21	3885.16	-1777.75	1764518.66	420532.72	39°39'08.368"N	80°13'28.096"W	4272.57	335.412	2.44	-0.19	-2.44
13135.00	90.800	324.020	8343.71	4266.20	3937.50	-1814.57	1764481.84	420585.06	39°39'08.882"N	80°13'28.572"W	4335.50	335.258	2.66	0.00	-2.66
13198.00	90.800	322.070	8342.83	4329.16	3987.83	-1852.44	1764443.97	420635.39	39°39'09.377"N	80°13'29.061"W	4397.08	335.084	3.09	0.00	-3.10
13261.00	90.920	323.140	8341.89	4392.09	4037.88	-1890.69	1764405.72	420685.43	39°39'09.868"N	80°13'29.555"W	4458.61	334.909	1.71	0.19	1.70
13323.00	90.800	326.490	8340.96	4454.08	4088.54	-1926.41	1764370.01	420736.09	39°39'10.366"N	80°13'30.017"W	4519.65	334.771	5.41	-0.19	5.40
13386.00	91.230	325.040	8339.84	4517.06	4140.61	-1961.85	1764334.57	420788.16	39°39'10.878"N	80°13'30.476"W	4581.87	334.648	2.40	0.68	-2.30
13449.00	91.170	325.010	8338.52	4580.05	4192.22	-1997.95	1764298.47	420839.77	39°39'11.385"N	80°13'30.943"W	4643.98	334.518	0.11	-0.10	-0.05
13512.00	91.200	323.720	8337.22	4643.03	4243.41	-2034.65	1764261.78	420890.95	39°39'11.888"N	80°13'31.417"W	4705.99	334.383	2.05	0.05	-2.05
13574.00	91.420	325.650	8335.80	4705.01	4293.99	-2070.48	1764225.95	420941.53	39°39'12.385"N	80°13'31.880"W	4767.10	334.258	3.13	0.35	3.11
13638.00	91.080	327.680	8334.40	4768.96	4347.44	-2105.64	1764190.79	420994.98	39°39'12.910"N	80°13'32.355"W	4830.53	334.157	3.22	-0.53	3.17

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Actual Wellpath Report

Yost 5H AWP Proj: 16223'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH DATA (222 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]
13701.00	91.510	324.120	8332.98	4831.93	4399.59	-2140.94	1764155.49	421047.12	39°39'13.423"N	80°13'32.792"W	4892.85	334.051	5.69	0.68	-5.65
13764.00	91.080	320.750	8331.56	4894.84	4449.51	-2179.34	1764117.10	421097.04	39°39'13.913"N	80°13'33.288"W	4954.56	333.905	5.39	-0.68	-5.35
13828.00	91.230	320.420	8330.27	4958.64	4498.94	-2219.96	1764076.47	421146.47	39°39'14.398"N	80°13'33.813"W	5016.84	333.736	0.57	0.23	-0.52
13891.00	91.290	322.880	8328.88	5021.51	4548.33	-2259.04	1764037.40	421195.85	39°39'14.883"N	80°13'34.317"W	5078.44	333.588	3.90	0.10	3.90
13953.00	91.320	327.590	8327.47	5083.47	4599.24	-2294.37	1764002.07	421246.76	39°39'15.384"N	80°13'34.774"W	5139.76	333.487	7.59	0.05	7.60
14016.00	91.420	330.790	8325.96	5146.28	4653.32	-2326.63	1763969.81	421300.84	39°39'15.916"N	80°13'35.192"W	5202.56	333.435	5.08	0.16	5.08
14080.00	90.830	332.450	8324.70	5209.84	4709.62	-2357.04	1763939.40	421357.13	39°39'16.470"N	80°13'35.587"W	5266.51	333.413	2.75	-0.92	2.59
14143.00	91.200	328.390	8323.59	5272.53	4764.39	-2388.13	1763908.32	421411.90	39°39'17.008"N	80°13'35.990"W	5329.41	333.378	6.47	0.59	-6.44
14269.00	91.420	328.340	8322.15	5335.41	4818.01	-2421.17	1763875.28	421465.52	39°39'17.536"N	80°13'36.418"W	5392.15	333.319	0.36	0.35	-0.08
14269.00	91.750	329.080	8320.41	5398.25	4871.83	-2453.87	1763842.58	421519.33	39°39'18.065"N	80°13'36.842"W	5454.92	333.266	1.29	0.52	1.17
14332.00	91.630	325.470	8318.55	5461.16	4924.80	-2487.91	1763808.54	421572.30	39°39'18.586"N	80°13'37.282"W	5517.55	333.198	5.73	-0.19	-5.73
14395.00	91.600	322.890	8316.77	5524.13	4975.86	-2524.76	1763771.69	421623.35	39°39'19.087"N	80°13'37.759"W	5579.75	333.097	4.09	-0.05	-4.10
14458.00	92.220	324.410	8314.67	5587.07	5026.57	-2562.08	1763734.37	421674.06	39°39'19.585"N	80°13'38.241"W	5641.87	332.992	2.60	0.98	2.41
14522.00	92.190	324.810	8312.21	5651.02	5078.70	-2599.12	1763697.34	421726.19	39°39'20.098"N	80°13'38.720"W	5705.14	332.898	0.63	-0.05	0.62
14585.00	92.220	323.400	8309.78	5713.97	5129.70	-2636.03	1763660.43	421777.19	39°39'20.599"N	80°13'39.197"W	5767.36	332.802	2.24	0.05	-2.24
14648.00	92.460	321.760	8307.21	5776.86	5179.69	-2674.28	1763622.19	421827.17	39°39'21.090"N	80°13'39.691"W	5829.32	332.693	2.63	0.38	-2.60
14712.00	92.620	321.980	8304.38	5840.70	5229.98	-2713.76	1763582.71	421877.46	39°39'21.584"N	80°13'40.201"W	5892.13	332.576	0.42	0.25	0.34
14774.00	92.650	321.830	8301.53	5902.54	5278.73	-2751.97	1763544.50	421926.20	39°39'22.062"N	80°13'40.695"W	5953.01	332.466	0.25	0.05	-0.24
14838.00	92.920	323.880	8298.42	5966.42	5329.68	-2790.56	1763505.91	421977.15	39°39'22.563"N	80°13'41.194"W	6016.04	332.364	3.23	0.42	3.20
14901.00	91.850	324.370	8295.79	6029.36	5380.68	-2827.45	1763469.02	422028.15	39°39'23.064"N	80°13'41.671"W	6078.34	332.279	1.87	-1.70	0.78
14964.00	93.340	322.680	8292.94	6092.27	5431.29	-2864.86	1763431.61	422078.75	39°39'23.561"N	80°13'42.154"W	6140.55	332.190	3.57	2.37	-2.68
15027.00	92.980	327.540	8289.47	6155.15	5482.87	-2900.83	1763395.65	422130.33	39°39'24.068"N	80°13'42.619"W	6202.96	332.118	7.72	-0.57	7.71
15090.00	92.980	328.470	8286.19	6217.98	5536.23	-2934.17	1763362.31	422183.69	39°39'24.592"N	80°13'43.051"W	6265.71	332.077	1.47	0.00	1.48
15153.00	92.770	326.980	8283.03	6280.83	5589.42	-2967.76	1763328.72	422236.88	39°39'25.115"N	80°13'43.486"W	6328.45	332.033	2.39	-0.33	-2.37
15216.00	92.900	328.990	8279.91	6343.66	5642.77	-3001.12	1763295.36	422290.23	39°39'25.640"N	80°13'43.918"W	6391.21	331.994	3.19	0.21	3.19
15279.00	91.820	328.830	8277.32	6406.46	5696.68	-3033.62	1763262.86	422344.13	39°39'26.170"N	80°13'44.339"W	6454.07	331.964	1.73	-1.71	-0.25
15342.00	92.280	329.430	8275.07	6469.26	5750.72	-3065.93	1763230.56	422398.17	39°39'26.702"N	80°13'44.758"W	6516.95	331.936	1.20	0.73	0.95
15405.00	91.630	330.910	8272.92	6531.96	5805.34	-3097.25	1763199.24	422452.78	39°39'27.239"N	80°13'45.164"W	6579.88	331.919	2.56	-1.03	2.35
15468.00	91.230	328.200	8271.34	6594.74	5859.63	-3129.16	1763167.33	422507.07	39°39'27.773"N	80°13'45.578"W	6642.81	331.897	4.55	-0.63	-4.30
15530.00	91.880	326.350	8269.66	6656.66	5911.77	-3162.66	1763133.83	422559.20	39°39'28.285"N	80°13'46.012"W	6704.58	331.854	3.16	1.05	-2.98



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MORGANTOWN, WV



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH DATA (222 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]
1594.00	91.850	324.040	8267.58	6720.62	5964.28	-3199.17	1763097.33	422611.72	39°39'28.801"N	80°13'46.484"W	6768.11	331.791	3.61	-0.05	-3.61
1568.00	91.510	320.220	8265.70	6784.50	6014.77	-3238.43	1763058.07	422662.21	39°39'29.297"N	80°13'46.991"W	6831.18	331.701	5.99	-0.53	-5.97
1572.00	91.690	319.400	8263.94	6847.22	6062.88	-3279.07	1763017.43	422710.31	39°39'29.769"N	80°13'47.516"W	6892.81	331.594	1.33	0.29	-1.30
15784.00	91.690	319.580	8262.09	6909.90	6110.76	-3319.98	1762976.53	422758.19	39°39'30.239"N	80°13'48.044"W	6954.40	331.485	0.29	0.00	0.29
15847.00	91.910	322.910	8260.11	6972.73	6159.86	-3359.39	1762937.12	422807.28	39°39'30.721"N	80°13'48.553"W	7016.36	331.393	5.29	0.35	5.29
15910.00	91.760	323.880	8258.09	7035.67	6210.41	-3396.94	1762899.57	422857.82	39°39'31.218"N	80°13'49.038"W	7078.72	331.322	1.56	-0.24	1.54
15973.00	91.480	321.650	8256.31	7098.59	6260.54	-3435.04	1762861.47	422907.96	39°39'31.710"N	80°13'49.530"W	7141.00	331.247	3.57	-0.44	-3.54
16036.00	91.320	322.190	8254.77	7161.48	6310.12	-3473.88	1762822.63	422957.53	39°39'32.197"N	80°13'50.032"W	7203.15	331.166	0.89	-0.25	0.86
16099.00	91.320	323.040	8253.32	7224.41	6360.16	-3512.12	1762784.39	423007.57	39°39'32.689"N	80°13'50.526"W	7265.44	331.092	1.35	0.00	1.35
16162.00	90.490	323.730	8252.32	7287.38	6410.72	-3549.70	1762746.82	423058.13	39°39'33.185"N	80°13'51.012"W	7327.87	331.026	1.71	-1.32	1.10
16208.00	90.680	320.030	8251.85	7333.30	6446.90	-3578.08	1762718.43	423094.31	39°39'33.540"N	80°13'51.379"W	7373.28	330.969	8.05	0.41	-8.04
16233.00	90.680	320.030	8251.55	7358.20	6466.06	-3594.14	1762702.38	423113.46	39°39'33.729"N	80°13'51.586"W	7397.82	330.933	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Yost 5H AWB Ref Wellpath: Yost 5H AWP Proj: 16223'

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]
13.375in Casing	18.00	1331.00	1313.00	18.00	1331.00	0.00	0.00	-1.96	-0.75
9.625in Casing	18.00	2609.00	2591.00	18.00	2608.88	0.00	0.00	-10.79	7.62

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Yost 5H LP Rev-1		8256.00	442.33	631.74	1766928.00	417090.10	39°38'34.535"N	80°12'56.941"W	point
Yost 5H PBHL Rev-1		8256.00	6470.10	-3588.92	1762707.60	423117.50	39°39'33.769"N	80°13'51.520"W	point
Unit Boundary-1		8500.00	380.79	1547.47	1767843.68	417028.57	39°38'33.999"N	80°12'45.229"W	point
Unit Boundary-10		8500.00	1477.52	1348.38	1767644.60	418125.23	39°38'44.821"N	80°12'47.885"W	point
Unit Boundary-11		8500.00	6447.48	-4054.57	1762241.98	423094.89	39°39'33.508"N	80°13'57.471"W	point
Unit Boundary-12		8500.00	6492.18	-3754.63	1762541.90	423139.58	39°39'33.974"N	80°13'53.641"W	point
Unit Boundary-13		8500.00	6518.33	-3496.14	1762800.37	423165.73	39°39'34.253"N	80°13'50.338"W	point
Unit Boundary-14		8500.00	6525.78	-3248.00	1763048.50	423173.18	39°39'34.347"N	80°13'47.166"W	point
Unit Boundary-2		8500.00	303.96	1251.76	1767547.98	416951.74	39°38'33.216"N	80°12'49.001"W	point
Unit Boundary-3		8500.00	603.03	1212.18	1767508.41	417250.79	39°38'36.168"N	80°12'49.537"W	point
Unit Boundary-4		8500.00	591.82	1011.05	1767307.29	417239.58	39°38'36.042"N	80°12'52.107"W	point

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Unit Boundary-5		8500.00	960.79	944.65	1767240.89	417608.53	39°38'39.683"N	80°12'52.993"W	point

Unit Boundary-6	8500.00	959.69	898.46	1767194.70	417607.43	39°38'39.669"N	80°12'53.584"W	point
Unit Boundary-7	8500.00	1221.25	827.78	1767124.03	417868.98	39°38'42.248"N	80°12'54.514"W	point
Unit Boundary-8	8500.00	1312.11	1126.57	1767422.80	417959.83	39°38'43.169"N	80°12'50.704"W	point
Unit Boundary-9	8500.00	1476.54	1173.34	1767469.57	418124.25	39°38'44.798"N	80°12'50.122"W	point

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MORGANTOWN, WV



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Yost 5H
Field	Monongalia	Wellbore	Yost 5H AWB
Facility	Yost Pad		

WELLPATH COMPOSITION - Ref Wellbore: Yost 5H AWB Ref Wellpath: Yost 5H AWP Proj: 16223'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	6368.00	Generic gyro - northseeking (Standard)	01 VES Gyro (100'-6360')	Yost 5H AWB
6368.00	16208.00	Navitrak (AT Curve Short Spaced)	02 BHL ATC <8-1/2"> (6368')(6507'-16208')	Yost 5H AWB
16208.00	16233.00	Blind Drilling (std)	Projection to bit	Yost 5H AWB