

# Actual Wellpath Report

Yost 1H AWP Proj: 16326'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 01
Area	Monongalia County, WV	Well	Yost 1H
Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Atenjen
Scale	0.999941	Report Generated	21/Mar/2019 at 13:24
Convergence at slot	0.46° West	Database/Source file	WA_MPL_EASTERNUS_Defm/Yost_1H_AWP_Proj_16326_.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-33.80	-12.80	1766271.90	416630.30	39°38'29.939"N	80°13'05.281"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	Precision 228 (RKB) to Facility Vertical Datum	1514.50ft
Horizontal Reference Pt	Slot	Precision 228 (RKB) to Mean Sea Level	1514.50ft
Vertical Reference Pt	Precision 228 (RKB)	Precision 228 (RKB) to Ground Level at Slot (Slot 01)	22.50ft
MD Reference Pt	Precision 228 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	317.62°





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## WELLPATH DATA (244 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	185.580	0.00	0.00	0.00	0.00	1766271.90	416630.30	39°38'29.939"N	80°13'05.281"W	0.00	0.000	0.00	0.00	0.00
22.50	0.000	185.580	22.50	0.00	0.00	0.00	1766271.90	416630.30	39°38'29.939"N	80°13'05.281"W	0.00	0.000	0.00	0.00	0.00
149.50	0.200	185.580	149.50	-0.15	-0.22	-0.02	1766271.88	416630.08	39°38'29.936"N	80°13'05.281"W	0.22	185.580	0.16	0.16	-137.34
178.50	0.400	323.380	178.50	-0.08	-0.19	-0.09	1766271.81	416630.11	39°38'29.937"N	80°13'05.282"W	0.21	204.598	1.95	0.69	475.17
209.50	0.300	192.080	209.50	-0.02	-0.18	-0.17	1766271.73	416630.12	39°38'29.937"N	80°13'05.283"W	0.25	222.737	2.06	-0.32	-423.55
241.50	0.200	206.080	241.50	-0.09	-0.31	-0.21	1766271.69	416629.99	39°38'29.936"N	80°13'05.284"W	0.38	213.807	0.36	-0.31	43.75
272.50	0.300	181.680	272.50	-0.17	-0.44	-0.24	1766271.66	416629.86	39°38'29.934"N	80°13'05.284"W	0.50	208.054	0.46	0.32	-78.71
304.50	0.100	187.280	304.50	-0.25	-0.56	-0.24	1766271.66	416629.74	39°38'29.933"N	80°13'05.284"W	0.61	203.596	0.63	-0.62	17.50
337.50	0.000	200.280	337.50	-0.27	-0.60	-0.25	1766271.65	416629.72	39°38'29.933"N	80°13'05.284"W	0.63	202.864	0.30	-0.30	523.39
369.50	0.100	125.380	369.50	-0.29	-0.60	-0.22	1766271.68	416629.70	39°38'29.933"N	80°13'05.284"W	0.64	200.425	0.31	0.31	391.81
400.50	0.100	198.880	400.50	-0.33	-0.64	-0.21	1766271.69	416629.66	39°38'29.932"N	80°13'05.284"W	0.68	198.144	0.39	0.00	237.10
431.50	0.000	173.180	431.50	-0.35	-0.67	-0.22	1766271.68	416629.63	39°38'29.932"N	80°13'05.284"W	0.70	198.172	0.32	-0.32	519.74
462.50	0.100	266.480	462.50	-0.33	-0.67	-0.25	1766271.65	416629.63	39°38'29.932"N	80°13'05.284"W	0.71	200.194	0.32	0.32	-301.68
494.50	0.100	220.080	494.50	-0.31	-0.69	-0.29	1766271.61	416629.61	39°38'29.932"N	80°13'05.285"W	0.75	202.871	0.25	0.00	-145.00
525.50	0.000	286.580	525.50	-0.32	-0.71	-0.31	1766271.59	416629.59	39°38'29.932"N	80°13'05.285"W	0.78	203.461	0.32	-0.32	451.35
556.50	0.100	172.080	556.50	-0.34	-0.74	-0.31	1766271.59	416629.56	39°38'29.931"N	80°13'05.285"W	0.80	202.452	0.32	0.32	555.10
587.50	0.000	127.780	587.50	-0.36	-0.77	-0.30	1766271.60	416629.53	39°38'29.931"N	80°13'05.285"W	0.82	201.500	0.32	-0.32	-555.10
619.50	0.400	252.880	619.50	-0.31	-0.80	-0.41	1766271.49	416629.50	39°38'29.931"N	80°13'05.286"W	0.90	207.081	1.25	1.25	-334.75
650.50	0.000	260.280	650.50	-0.27	-0.83	-0.51	1766271.39	416629.47	39°38'29.930"N	80°13'05.287"W	0.98	211.641	1.29	-1.29	345.55
681.50	0.100	210.080	681.50	-0.28	-0.85	-0.53	1766271.37	416629.45	39°38'29.930"N	80°13'05.288"W	1.00	211.599	0.32	0.32	-483.61
713.50	0.100	126.980	713.50	-0.31	-0.90	-0.52	1766271.38	416629.40	39°38'29.930"N	80°13'05.287"W	1.03	210.017	0.41	0.00	-259.69
744.50	0.100	206.180	744.50	-0.35	-0.94	-0.51	1766271.39	416629.36	39°38'29.929"N	80°13'05.287"W	1.06	208.474	0.41	0.00	255.48
776.50	0.200	190.580	776.50	-0.39	-1.02	-0.53	1766271.37	416629.28	39°38'29.929"N	80°13'05.288"W	1.15	207.560	0.33	0.31	-48.75
807.50	0.300	175.980	807.50	-0.49	-1.15	-0.53	1766271.37	416629.15	39°38'29.927"N	80°13'05.288"W	1.27	204.924	0.38	0.32	-47.10
838.50	0.200	187.680	838.50	-0.59	-1.28	-0.54	1766271.36	416629.02	39°38'29.926"N	80°13'05.288"W	1.39	202.646	0.36	-0.32	37.74
870.50	0.300	159.180	870.50	-0.70	-1.42	-0.51	1766271.39	416628.88	39°38'29.925"N	80°13'05.287"W	1.51	199.908	0.49	0.31	-89.06
901.50	0.200	108.280	901.50	-0.82	-1.51	-0.43	1766271.47	416628.79	39°38'29.924"N	80°13'05.286"W	1.57	196.003	0.75	-0.32	-164.19
964.50	0.300	132.680	964.50	-1.08	-1.66	-0.21	1766271.69	416628.64	39°38'29.922"N	80°13'05.283"W	1.67	187.143	0.23	0.16	38.73
995.50	0.200	165.780	995.50	-1.21	-1.76	-0.13	1766271.77	416628.54	39°38'29.921"N	80°13'05.282"W	1.77	184.366	0.55	-0.32	106.77
1027.50	0.000	100.980	1027.50	-1.26	-1.82	-0.12	1766271.78	416628.48	39°38'29.921"N	80°13'05.282"W	1.82	183.807	0.62	-0.62	-518.06





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Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## WELLPATH DATA (244 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	VertSect [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]
1058.50	0.200	117.280	1058.50	-1.31	-1.84	-0.07	1766271.83	416628.46	39°38'29.920"N	80°13'05.282"W	1.85	182.265	0.65	0.65	378.32
1089.50	0.200	166.980	1089.50	-1.41	-1.92	-0.01	1766271.89	416628.38	39°38'29.920"N	80°13'05.281"W	1.92	180.377	0.54	0.00	160.32
1121.50	0.200	139.580	1121.50	-1.52	-2.02	0.04	1766271.94	416628.23	39°38'29.919"N	80°13'05.280"W	2.02	178.974	0.30	0.00	-85.63
1152.50	0.100	117.880	1152.49	-1.59	-2.07	0.10	1766272.00	416628.20	39°38'29.918"N	80°13'05.279"W	2.07	177.371	0.37	-0.32	-70.00
1183.50	0.200	177.680	1183.49	-1.66	-2.14	0.12	1766272.02	416628.16	39°38'29.918"N	80°13'05.279"W	2.14	176.755	0.56	0.32	192.90
1215.50	0.200	111.680	1215.49	-1.75	-2.22	0.18	1766272.08	416628.09	39°38'29.917"N	80°13'05.278"W	2.22	175.473	0.68	0.00	-206.25
1246.50	0.100	149.580	1246.49	-1.83	-2.26	0.24	1766272.14	416628.04	39°38'29.916"N	80°13'05.278"W	2.27	173.950	0.44	-0.32	122.26
1277.50	0.100	163.380	1277.49	-1.88	-2.31	0.26	1766272.16	416627.99	39°38'29.916"N	80°13'05.277"W	2.32	173.552	0.08	0.00	44.52
1308.50	0.500	95.580	1308.49	-2.01	-2.35	0.40	1766272.30	416627.95	39°38'29.915"N	80°13'05.276"W	2.38	170.252	1.52	1.29	-218.71
1340.50	0.200	155.880	1340.49	-2.16	-2.41	0.56	1766272.46	416627.89	39°38'29.915"N	80°13'05.273"W	2.48	166.814	1.37	-0.94	188.44
1371.50	0.200	120.480	1371.49	-2.27	-2.49	0.63	1766272.53	416627.81	39°38'29.914"N	80°13'05.273"W	2.57	165.711	0.39	0.00	-114.19
1402.50	0.200	164.380	1402.49	-2.37	-2.57	0.69	1766272.59	416627.73	39°38'29.913"N	80°13'05.272"W	2.66	164.857	0.48	0.00	141.61
1433.50	0.200	109.680	1433.49	-2.46	-2.64	0.76	1766272.66	416627.66	39°38'29.913"N	80°13'05.271"W	2.75	163.920	0.59	0.00	-176.45
1529.50	0.100	336.280	1529.49	-2.53	-2.62	0.88	1766272.78	416627.68	39°38'29.913"N	80°13'05.269"W	2.76	161.331	0.29	-0.10	-138.96
1560.50	0.100	248.280	1560.49	-2.49	-2.60	0.85	1766272.75	416627.70	39°38'29.913"N	80°13'05.270"W	2.74	161.946	0.45	0.00	-283.87
1591.50	0.000	274.380	1591.49	-2.49	-2.61	0.82	1766272.72	416627.69	39°38'29.913"N	80°13'05.270"W	2.74	162.511	0.32	-0.32	360.39
1623.50	0.100	46.380	1623.49	-2.48	-2.59	0.84	1766272.74	416627.71	39°38'29.913"N	80°13'05.270"W	2.73	161.984	0.31	0.31	144.94
1654.50	0.100	33.380	1654.49	-2.48	-2.55	0.88	1766272.78	416627.75	39°38'29.913"N	80°13'05.269"W	2.70	161.017	0.07	0.00	-41.94
1685.50	0.200	336.080	1685.49	-2.42	-2.48	0.87	1766272.77	416627.82	39°38'29.914"N	80°13'05.270"W	2.63	160.652	0.54	0.32	-184.84
1717.50	0.100	288.480	1717.49	-2.34	-2.42	0.82	1766272.72	416627.88	39°38'29.915"N	80°13'05.270"W	2.56	161.246	0.47	-0.31	-148.75
1748.50	0.100	274.980	1748.49	-2.30	-2.41	0.77	1766272.67	416627.89	39°38'29.915"N	80°13'05.271"W	2.53	162.295	0.08	0.00	-43.55
1779.50	0.000	288.280	1779.49	-2.28	-2.41	0.74	1766272.64	416627.89	39°38'29.915"N	80°13'05.271"W	2.52	162.863	0.32	-0.32	274.26
1811.50	0.000	143.280	1811.49	-2.28	-2.41	0.74	1766272.64	416627.89	39°38'29.915"N	80°13'05.271"W	2.52	162.863	0.00	0.00	0.00
1842.50	0.100	168.480	1842.49	-2.30	-2.43	0.75	1766272.65	416627.87	39°38'29.915"N	80°13'05.271"W	2.55	162.922	0.32	0.32	543.48
1873.50	0.000	155.980	1873.49	-2.32	-2.46	0.75	1766272.65	416627.84	39°38'29.914"N	80°13'05.271"W	2.57	162.981	0.32	-0.32	-543.48
1987.50	0.000	155.680	1987.49	-2.32	-2.46	0.75	1766272.65	416627.84	39°38'29.914"N	80°13'05.271"W	2.57	162.981	0.00	0.00	0.00
1999.50	0.200	141.180	1999.49	-2.38	-2.50	0.79	1766272.69	416627.80	39°38'29.914"N	80°13'05.271"W	2.62	162.528	0.62	0.62	441.19
2030.50	0.200	193.580	2030.49	-2.46	-2.60	0.81	1766272.71	416627.70	39°38'29.913"N	80°13'05.270"W	2.72	162.701	0.57	0.00	169.03
2061.50	0.400	149.380	2061.49	-2.60	-2.74	0.85	1766272.75	416627.56	39°38'29.912"N	80°13'05.270"W	2.87	162.758	0.94	0.65	-142.58
2092.50	0.200	128.480	2092.49	-2.76	-2.87	0.95	1766272.85	416627.43	39°38'29.910"N	80°13'05.268"W	3.02	161.706	0.73	-0.65	-67.42





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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]
2124.50	0.300	134.580	2124.49	-2.90	-2.96	1.05	1766272.95	416627.34	39°38'29.909"N	80°13'05.267"W	3.15	160.453	0.32	0.31	19.06
2155.50	0.500	147.380	2155.49	-3.11	-3.14	1.18	1766273.08	416627.16	39°38'29.908"N	80°13'05.265"W	3.35	159.324	0.70	0.65	41.29
2186.50	0.500	144.480	2186.49	-3.38	-3.36	1.33	1766273.23	416626.94	39°38'29.906"N	80°13'05.264"W	3.61	158.331	0.38	0.00	-9.35
2218.50	0.400	138.780	2218.49	-3.63	-3.56	1.49	1766273.39	416626.57	39°38'29.904"N	80°13'05.262"W	3.86	157.279	0.34	-0.31	-17.81
2249.50	0.500	135.380	2249.49	-3.87	-3.73	1.66	1766273.56	416626.57	39°38'29.902"N	80°13'05.259"W	4.09	156.090	0.33	0.32	-10.97
2280.50	0.500	147.180	2280.49	-4.14	-3.94	1.82	1766273.72	416626.36	39°38'29.900"N	80°13'05.257"W	4.35	155.183	0.33	0.00	38.06
2312.50	0.600	140.180	2312.48	-4.45	-4.19	2.01	1766273.91	416626.11	39°38'29.897"N	80°13'05.255"W	4.65	154.408	0.38	0.31	-21.87
2343.50	0.400	141.280	2343.48	-4.72	-4.40	2.18	1766274.08	416625.90	39°38'29.895"N	80°13'05.253"W	4.91	153.656	0.65	-0.65	3.55
2375.50	0.500	139.480	2375.48	-4.97	-4.59	2.34	1766274.24	416625.71	39°38'29.893"N	80°13'05.251"W	5.15	153.010	0.32	0.31	-5.63
2406.50	0.500	133.680	2406.48	-5.24	-4.79	2.53	1766274.42	416625.51	39°38'29.892"N	80°13'05.248"W	5.41	152.201	0.16	0.00	-18.71
2437.50	0.400	148.280	2437.48	-5.48	-4.97	2.68	1766274.58	416625.33	39°38'29.890"N	80°13'05.246"W	5.65	151.690	0.49	-0.32	47.10
2469.50	0.400	147.280	2469.48	-5.70	-5.16	2.80	1766274.70	416625.14	39°38'29.888"N	80°13'05.245"W	5.87	151.542	0.02	0.00	-3.13
2500.50	0.500	139.080	2500.48	-5.94	-5.36	2.95	1766274.85	416624.94	39°38'29.886"N	80°13'05.243"W	6.11	151.193	0.38	0.32	-26.45
2531.50	0.600	132.780	2531.48	-6.24	-5.57	3.15	1766275.05	416624.73	39°38'29.884"N	80°13'05.240"W	6.40	150.480	0.38	0.32	-20.32
2563.50	0.800	143.580	2563.47	-6.63	-5.86	3.41	1766275.31	416624.44	39°38'29.881"N	80°13'05.237"W	6.78	149.823	0.75	0.63	33.75
2574.50	0.500	138.680	2574.47	-6.75	-5.96	3.49	1766275.39	416624.34	39°38'29.880"N	80°13'05.236"W	6.91	149.677	2.77	-2.73	-44.55
2599.50	0.700	125.880	2599.47	-7.01	-6.13	3.68	1766275.58	416624.17	39°38'29.878"N	80°13'05.233"W	7.15	149.016	0.96	0.80	-51.20
2630.50	0.600	135.480	2630.47	-7.36	-6.36	3.95	1766275.85	416623.94	39°38'29.876"N	80°13'05.230"W	7.49	148.156	0.48	-0.32	30.97
2662.50	0.900	197.980	2662.47	-7.65	-6.72	3.99	1766275.89	416623.58	39°38'29.873"N	80°13'05.229"W	7.81	149.295	2.56	0.94	195.31
2693.50	1.600	190.980	2693.46	-8.03	-7.37	3.83	1766275.73	416622.93	39°38'29.866"N	80°13'05.231"W	8.31	152.542	2.31	2.26	-22.58
2724.50	2.500	202.480	2724.44	-8.58	-8.42	3.49	1766275.39	416621.88	39°38'29.856"N	80°13'05.235"W	9.12	157.490	3.18	2.90	37.10
2756.50	2.300	196.480	2756.41	-9.20	-9.68	3.04	1766274.94	416620.62	39°38'29.843"N	80°13'05.241"W	10.15	162.562	1.00	-0.63	-18.75
2787.50	2.400	195.780	2787.39	-9.87	-10.91	2.69	1766274.59	416619.49	39°38'29.831"N	80°13'05.245"W	11.23	166.149	0.34	0.32	-2.26
2818.50	2.200	193.580	2818.36	-10.54	-12.11	2.37	1766274.27	416618.19	39°38'29.819"N	80°13'05.249"W	12.34	168.913	0.71	-0.65	-7.10
2850.50	2.200	191.980	2850.34	-11.25	-13.31	2.10	1766274.00	416616.99	39°38'29.807"N	80°13'05.253"W	13.47	171.027	0.19	0.00	-5.00
2881.50	2.200	192.880	2881.32	-11.93	-14.47	1.84	1766273.74	416615.83	39°38'29.796"N	80°13'05.256"W	14.59	172.733	0.11	0.00	2.90
2912.50	2.300	193.080	2912.29	-12.62	-15.65	1.57	1766273.47	416614.65	39°38'29.784"N	80°13'05.259"W	15.73	174.268	0.32	0.32	0.65
2943.50	2.300	191.380	2943.27	-13.34	-16.87	1.31	1766273.21	416613.43	39°38'29.772"N	80°13'05.262"W	16.92	175.567	0.22	0.00	-5.48
2975.50	2.200	192.480	2975.24	-14.08	-18.10	1.05	1766272.95	416612.20	39°38'29.760"N	80°13'05.266"W	18.13	176.684	0.34	-0.31	3.44
3006.50	2.600	190.380	3006.21	-14.84	-19.37	0.79	1766272.69	416610.93	39°38'29.747"N	80°13'05.269"W	19.39	177.655	1.32	1.29	-6.77



# Actual Wellpath Report

Yost 1H AWP Proj: 16326'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 01
Area	Monongalia County, WV	Well	Yost 1H
Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## WELLPATH DATA (244 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]
3037.50	3.200	185.780	3037.17	-15.85	-20.92	0.58	1766272.48	416609.38	39°38'29.732"N	80°13'05.274"W	20.93	178.414	2.07	1.94	-14.84
3068.50	3.500	184.680	3068.12	-17.07	-22.73	0.42	1766272.32	416607.57	39°38'29.714"N	80°13'05.273"W	22.73	178.954	0.99	0.97	-3.55
3162.50	3.300	180.480	3161.96	-21.01	-28.29	0.16	1766272.00	416602.01	39°38'29.659"N	80°13'05.276"W	28.29	179.679	0.34	-0.21	-4.47
3256.50	4.300	186.180	3255.75	-25.32	-34.50	-0.24	1766271.66	416595.80	39°38'29.598"N	80°13'05.280"W	34.50	180.405	1.14	1.06	6.06
3350.50	4.300	182.580	3349.48	-30.15	-41.53	-0.78	1766271.12	416588.78	39°38'29.528"N	80°13'05.287"W	41.53	181.078	0.29	0.00	-3.83
3444.50	4.100	177.980	3443.23	-35.20	-48.41	-0.82	1766271.08	416581.90	39°38'29.460"N	80°13'05.286"W	48.41	180.973	0.42	-0.21	-4.89
3538.50	3.500	185.580	3537.03	-39.68	-54.62	-0.98	1766270.92	416575.68	39°38'29.399"N	80°13'05.288"W	54.63	181.031	0.83	-0.64	8.09
3632.50	4.500	203.380	3630.80	-43.12	-60.86	-2.72	1766269.18	416569.44	39°38'29.337"N	80°13'05.310"W	60.92	182.564	1.68	1.06	18.94
3726.50	4.800	199.980	3724.49	-46.46	-67.94	-5.53	1766266.37	416562.06	39°38'29.267"N	80°13'05.345"W	68.17	184.655	0.43	0.32	-3.62
3820.50	4.500	190.780	3818.18	-50.49	-75.26	-7.57	1766264.33	416555.04	39°38'29.194"N	80°13'05.370"W	75.64	185.741	0.85	-0.32	-9.79
3914.50	4.600	178.280	3911.89	-55.56	-82.65	-8.14	1766263.76	416547.65	39°38'29.121"N	80°13'05.377"W	83.05	185.626	1.06	0.11	-13.30
4008.50	4.300	176.180	4005.60	-61.18	-89.93	-7.79	1766264.11	416540.37	39°38'29.049"N	80°13'05.371"W	90.27	184.953	0.36	-0.32	-2.23
4099.50	4.300	175.380	4036.52	-63.01	-92.25	-7.62	1766264.28	416538.05	39°38'29.026"N	80°13'05.369"W	92.57	184.724	0.19	0.00	-2.58
4070.50	4.000	176.680	4067.44	-64.77	-94.49	-7.47	1766264.43	416535.82	39°38'29.004"N	80°13'05.367"W	94.78	184.518	1.01	-0.97	4.19
4102.50	3.500	184.680	4099.37	-66.30	-96.58	-7.48	1766264.42	416533.73	39°38'28.984"N	80°13'05.367"W	96.87	184.430	2.26	-1.56	25.00
4133.50	3.300	186.980	4130.31	-67.52	-98.41	-7.67	1766264.23	416531.90	39°38'28.966"N	80°13'05.369"W	98.70	184.455	0.78	-0.65	7.42
4164.50	3.300	187.280	4161.26	-68.68	-100.18	-7.89	1766264.01	416530.13	39°38'28.948"N	80°13'05.372"W	100.49	184.503	0.06	0.00	0.97
4195.50	3.400	186.580	4192.21	-69.86	-101.98	-8.11	1766263.79	416528.33	39°38'28.930"N	80°13'05.374"W	102.30	184.546	0.35	0.32	-2.26
4227.50	3.100	185.980	4224.16	-71.06	-103.78	-8.31	1766263.59	416526.53	39°38'28.912"N	80°13'05.376"W	104.11	184.576	0.94	-0.94	-1.88
4258.50	2.200	188.480	4255.12	-71.99	-105.20	-8.48	1766263.42	416525.11	39°38'28.898"N	80°13'05.379"W	105.54	184.609	2.93	-2.90	8.06
4289.50	1.200	190.980	4286.11	-72.56	-106.11	-8.63	1766263.27	416524.20	39°38'28.889"N	80°13'05.380"W	106.46	184.650	3.23	-3.23	8.06
4383.50	0.200	227.580	4380.10	-73.15	-107.18	-8.94	1766262.96	416523.12	39°38'28.879"N	80°13'05.384"W	107.56	184.768	1.11	-1.06	38.94
4477.50	0.200	210.080	4474.10	-73.20	-107.44	-9.14	1766262.76	416522.87	39°38'28.876"N	80°13'05.387"W	107.83	184.864	0.06	0.00	-18.62
4571.50	0.200	205.280	4568.10	-73.31	-107.73	-9.30	1766262.61	416522.58	39°38'28.873"N	80°13'05.389"W	108.13	184.932	0.02	0.00	-5.11
4665.50	0.300	198.680	4662.10	-73.49	-108.11	-9.44	1766262.46	416522.20	39°38'28.870"N	80°13'05.391"W	108.52	184.993	0.11	0.11	-7.02
4759.50	0.200	198.680	4756.10	-73.69	-108.50	-9.58	1766262.32	416521.81	39°38'28.866"N	80°13'05.392"W	108.92	185.044	0.11	-0.11	0.00
4853.50	0.200	213.680	4850.10	-73.81	-108.79	-9.72	1766262.18	416521.52	39°38'28.863"N	80°13'05.394"W	109.22	185.105	0.06	0.00	15.96
4947.50	0.300	218.280	4944.10	-73.89	-109.12	-9.96	1766261.94	416521.19	39°38'28.859"N	80°13'05.397"W	109.57	185.217	0.11	0.11	4.89
5041.50	0.300	217.380	5038.10	-73.97	-109.51	-10.26	1766261.64	416520.80	39°38'28.856"N	80°13'05.401"W	109.99	185.355	0.01	0.00	-0.96
5135.50	0.300	225.480	5132.09	-74.03	-109.88	-10.59	1766261.31	416520.43	39°38'28.852"N	80°13'05.405"W	110.39	185.505	0.05	0.00	8.62





# Actual Wellpath Report

Yost 1H AWP Proj: 16326'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 01
Area	Monongalia County, WV	Well	Yost 1H
Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## WELLPATH DATA (244 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]
5229.50	0.200	209.780	5226.09	-74.09	-110.19	-10.85	1766261.05	416520.12	39°38'28.849"N	80°13'05.408"W	110.72	185.622	0.13	-0.11	-16.70
5323.50	0.200	196.880	5320.09	-74.22	-110.49	-10.98	1766260.93	416519.82	39°38'28.846"N	80°13'05.410"W	111.03	185.673	0.05	0.00	-13.72
5416.50	0.200	181.380	5413.09	-74.42	-110.81	-11.03	1766260.87	416519.50	39°38'28.843"N	80°13'05.411"W	111.36	185.683	0.06	0.00	-16.67
5510.50	0.200	185.780	5507.09	-74.65	-111.14	-11.05	1766260.85	416519.17	39°38'28.839"N	80°13'05.411"W	111.68	185.677	0.02	0.00	4.68
5604.50	0.100	187.880	5601.09	-74.81	-111.38	-11.07	1766260.83	416518.93	39°38'28.837"N	80°13'05.411"W	111.93	185.678	0.11	-0.11	2.23
5698.50	0.200	194.280	5695.09	-74.95	-111.62	-11.13	1766260.77	416518.69	39°38'28.835"N	80°13'05.412"W	112.17	185.693	0.11	0.11	6.81
5792.50	0.200	172.980	5789.09	-75.18	-111.94	-11.15	1766260.75	416518.36	39°38'28.831"N	80°13'05.412"W	112.50	185.687	0.08	0.00	-22.66
5886.50	0.100	200.480	5883.09	-75.35	-112.18	-11.16	1766260.75	416518.13	39°38'28.829"N	80°13'05.412"W	112.73	185.679	0.13	-0.11	29.26
5980.50	0.200	201.480	5977.09	-75.46	-112.41	-11.24	1766260.66	416517.90	39°38'28.827"N	80°13'05.413"W	112.97	185.712	0.11	0.11	1.06
6074.50	0.300	180.680	6071.09	-75.71	-112.81	-11.31	1766260.59	416517.50	39°38'28.823"N	80°13'05.414"W	113.38	185.724	0.14	0.11	-22.13
6168.50	0.500	176.080	6165.09	-76.21	-113.47	-11.28	1766260.62	416516.84	39°38'28.816"N	80°13'05.414"W	114.02	185.678	0.22	0.21	-4.89
6261.50	0.900	172.880	6258.08	-77.13	-114.59	-11.16	1766260.74	416515.71	39°38'28.805"N	80°13'05.412"W	115.14	185.564	0.43	0.43	-3.44
6355.50	1.300	180.180	6352.06	-78.51	-116.39	-11.08	1766260.82	416513.91	39°38'28.788"N	80°13'05.411"W	116.92	185.436	0.45	0.43	7.77
6449.50	1.500	183.380	6446.03	-80.16	-118.69	-11.15	1766260.75	416511.62	39°38'28.765"N	80°13'05.411"W	119.21	185.368	0.23	0.21	3.40
6543.50	1.900	185.980	6539.99	-82.05	-121.47	-11.39	1766260.51	416508.84	39°38'28.737"N	80°13'05.414"W	122.00	185.355	0.43	0.43	2.77
6637.50	1.400	190.380	6633.95	-83.78	-124.15	-11.76	1766260.14	416506.16	39°38'28.711"N	80°13'05.418"W	124.70	185.409	0.55	-0.53	4.68
6731.50	0.900	184.280	6727.93	-84.98	-126.01	-12.02	1766259.88	416504.30	39°38'28.692"N	80°13'05.422"W	126.58	185.448	0.55	-0.53	-6.49
6825.50	0.700	178.080	6821.92	-85.93	-127.32	-12.05	1766259.85	416502.99	39°38'28.679"N	80°13'05.422"W	127.89	185.408	0.23	-0.21	-6.60
6920.50	0.700	178.880	6916.92	-86.16	-127.63	-12.05	1766259.86	416502.68	39°38'28.676"N	80°13'05.422"W	128.19	185.392	0.04	0.00	3.20
7014.00	0.650	181.940	7009.42	-86.32	-127.84	-12.05	1766259.85	416502.46	39°38'28.674"N	80°13'05.422"W	128.41	185.383	0.33	-0.27	16.54
7108.00	0.780	184.360	7102.42	-86.56	-128.19	-12.07	1766259.83	416502.11	39°38'28.671"N	80°13'05.422"W	128.76	185.377	0.48	0.46	8.64
7202.00	6.430	232.430	7196.42	-86.56	-131.96	-16.20	1766255.70	416498.35	39°38'28.633"N	80°13'05.475"W	132.95	186.999	6.45	6.14	52.25
7306.00	13.420	237.590	7090.92	-84.28	-140.84	-29.31	1766242.59	416489.47	39°38'28.545"N	80°13'05.641"W	143.85	191.758	7.65	7.60	5.61
7400.00	34.100	240.340	7184.92	-78.27	-155.90	-54.72	1766217.18	416474.41	39°38'28.394"N	80°13'05.964"W	165.22	199.342	11.65	11.61	2.99
7504.00	34.100	242.130	7278.92	-67.65	-177.30	-93.94	1766177.96	416453.01	39°38'28.179"N	80°13'06.464"W	200.65	207.917	10.91	10.87	1.95
7608.00	42.040	242.790	7372.92	-53.10	-203.49	-144.22	1766127.69	416426.83	39°38'27.916"N	80°13'07.104"W	249.41	215.327	8.64	8.63	0.72
7712.00	42.030	242.240	7466.92	-36.92	-232.53	-200.05	1766071.86	416397.78	39°38'27.625"N	80°13'07.814"W	306.75	220.706	0.39	-0.01	-0.59
7816.00	42.060	242.220	7560.92	-21.21	-261.55	-255.16	1766016.75	416368.76	39°38'27.334"N	80°13'08.516"W	365.40	224.292	0.04	0.03	-0.02
7920.00	39.710	242.990	7654.92	-5.65	-289.27	-308.62	1765963.30	416341.05	39°38'27.056"N	80°13'09.196"W	422.99	226.854	2.61	-2.55	0.84
8024.00	38.190	242.780	7748.92	9.57	-315.62	-360.10	1765911.82	416314.70	39°38'26.791"N	80°13'09.852"W	478.84	228.766	1.66	-1.65	-0.23





# Actual Wellpath Report

Yost 1H AWP Proj: 16326'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 01
Area	Monongalia County, WV	Well	Yost 1H
Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## WELLPATH DATA (244 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]
7821.00	37.540	240.090	7668.82	23.21	-342.90	-410.23	1765861.70	416287.42	39°38'26.517"N	80°13'10.490"W	534.67	230.108	1.91	-0.70	-2.89
7915.00	38.100	239.710	7743.08	35.47	-371.81	-460.09	1765811.84	416258.51	39°38'26.228"N	80°13'11.124"W	591.55	231.057	0.65	0.60	-0.40
8009.00	38.240	240.460	7816.98	48.01	-400.78	-510.44	1765761.49	416229.54	39°38'25.937"N	80°13'11.765"W	648.98	231.862	0.52	0.15	0.80
8103.00	39.900	244.470	7889.97	63.22	-428.12	-562.92	1765708.96	416202.20	39°38'25.663"N	80°13'12.433"W	707.27	232.748	3.22	1.77	4.27
8198.00	42.430	256.910	7961.60	87.77	-448.55	-621.79	1765650.15	416181.78	39°38'25.457"N	80°13'13.183"W	766.69	234.194	9.01	2.66	13.09
8292.00	45.850	269.900	8029.19	126.06	-455.81	-686.55	1765585.39	416174.52	39°38'25.380"N	80°13'14.010"W	824.08	236.419	10.27	3.64	13.82
8387.00	51.710	280.070	8091.85	178.67	-449.34	-757.51	1765514.44	416180.99	39°38'25.438"N	80°13'14.918"W	880.75	239.325	10.13	6.17	10.71
8482.00	58.270	289.790	8146.42	244.14	-429.08	-832.43	1765439.52	416201.24	39°38'25.632"N	80°13'15.878"W	936.51	242.731	10.85	6.91	10.23
8577.00	64.440	299.130	8192.01	320.71	-394.45	-908.08	1765363.88	416235.87	39°38'25.969"N	80°13'16.848"W	990.05	246.521	10.79	6.49	9.83
8672.00	69.760	308.680	8229.04	405.60	-345.61	-980.50	1765291.46	416284.71	39°38'26.445"N	80°13'17.779"W	1039.62	250.583	10.82	5.60	10.05
8767.00	76.010	318.330	8257.04	496.00	-283.13	-1046.14	1765225.83	416347.19	39°38'27.058"N	80°13'18.624"W	1083.77	254.856	11.72	6.58	10.16
8862.00	83.800	325.570	8273.70	589.12	-209.54	-1103.64	1765168.32	416420.77	39°38'27.780"N	80°13'19.367"W	1123.36	259.250	11.11	8.20	7.62
8957.00	85.870	325.070	8282.25	682.87	-131.74	-1157.48	1765114.50	416498.57	39°38'28.545"N	80°13'20.063"W	1164.95	263.507	2.24	2.18	-0.53
9052.00	86.670	327.640	8288.44	776.56	-52.83	-1209.99	1765061.98	416577.47	39°38'29.321"N	80°13'20.742"W	1211.15	267.500	2.83	0.84	2.71
9146.00	87.780	334.890	8292.99	867.74	29.44	-1255.10	1765016.88	416659.74	39°38'30.130"N	80°13'21.327"W	1255.44	271.344	7.79	1.18	7.71
9242.00	86.240	329.250	8298.00	960.54	114.11	-1299.98	1764972.00	416744.40	39°38'30.963"N	80°13'21.910"W	1304.98	275.016	6.08	-1.60	-5.88
9336.00	87.570	329.570	8303.08	1052.42	194.91	-1347.74	1764924.24	416825.20	39°38'31.758"N	80°13'22.529"W	1361.76	278.229	1.46	1.41	0.34
9430.00	88.550	325.250	8306.26	1144.97	274.04	-1398.33	1764873.65	416904.32	39°38'32.536"N	80°13'23.184"W	1424.93	281.088	4.71	1.04	-4.60
9524.00	88.310	322.480	8308.84	1238.37	349.92	-1453.74	1764818.25	416980.20	39°38'33.282"N	80°13'23.900"W	1495.26	283.534	2.96	-0.26	-2.95
9619.00	87.450	317.900	8312.36	1333.18	422.83	-1514.50	1764757.49	417053.10	39°38'33.997"N	80°13'24.684"W	1572.42	285.599	4.90	-0.91	-4.82
9713.00	87.440	315.800	8316.55	1427.07	491.34	-1578.72	1764693.27	417121.61	39°38'34.669"N	80°13'25.512"W	1653.41	287.287	2.23	-0.01	-2.23
9809.00	87.880	320.810	8320.47	1522.96	562.94	-1642.50	1764629.50	417193.20	39°38'35.372"N	80°13'26.334"W	1736.29	288.918	5.23	0.46	5.22
9903.00	88.550	322.770	8323.40	1616.66	636.76	-1700.62	1764571.39	417267.02	39°38'36.097"N	80°13'27.085"W	1815.92	290.527	2.20	0.71	2.09
9998.00	88.740	324.880	8325.64	1711.07	713.42	-1756.67	1764515.34	417343.67	39°38'36.850"N	80°13'27.800"W	1896.01	292.103	2.23	0.20	2.22
10092.00	88.280	330.990	8328.09	1803.47	793.01	-1806.53	1764465.48	417423.26	39°38'37.632"N	80°13'28.455"W	1972.92	293.700	6.52	-0.49	6.50
10184.00	88.340	329.810	8330.80	1893.15	872.97	-1851.96	1764420.06	417503.22	39°38'38.419"N	80°13'29.044"W	2047.39	295.238	1.28	0.07	-1.28
10276.00	88.280	324.520	8333.52	1983.81	950.21	-1901.80	1764370.22	417580.45	39°38'39.178"N	80°13'29.689"W	2125.97	296.548	5.75	-0.07	-5.75
10368.00	87.780	323.210	8336.68	2075.21	1024.47	-1956.02	1764316.00	417654.70	39°38'39.908"N	80°13'30.390"W	2208.06	297.643	1.52	-0.54	-1.42
10460.00	89.290	322.600	8339.03	2166.78	1097.82	-2011.49	1764260.54	417728.06	39°38'40.628"N	80°13'31.106"W	2291.57	298.625	1.77	1.64	-0.66
10552.00	89.540	322.530	8339.97	2258.44	1170.87	-2067.41	1764204.62	417801.10	39°38'41.346"N	80°13'31.829"W	2375.94	299.525	0.28	0.27	-0.08





# Actual Wellpath Report

Yost 1H AWP Proj: 16326'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 01
Area	Monongalia County, WV	Well	Yost 1H
Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## WELLPATH DATA (244 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]
10644.00	89.260	324.780	8340.94	2349.91	1244.96	-2121.92	1764150.11	417875.19	39°38'42.074"N	80°13'32.533"W	2460.18	300.401	2.46	-0.30	2.45
10736.00	89.170	323.640	8342.20	2441.30	1319.58	-2175.72	1764096.31	417949.80	39°38'42.807"N	80°13'33.229"W	2544.61	301.237	1.24	-0.10	-1.24
10830.00	89.540	324.750	8343.25	2534.67	1395.81	-2230.71	1764041.33	418026.03	39°38'43.556"N	80°13'33.939"W	2631.42	302.035	1.24	0.39	1.18
10922.00	89.480	326.890	8344.04	2625.72	1471.91	-2282.39	1763989.65	418102.12	39°38'44.304"N	80°13'34.608"W	2715.85	302.818	2.33	-0.07	2.33
11014.00	90.280	328.150	8344.23	2716.35	1549.52	-2331.79	1763940.25	418179.73	39°38'45.067"N	80°13'35.248"W	2799.69	303.605	1.62	0.87	1.37
11109.00	90.280	327.350	8343.77	2809.87	1629.86	-2382.49	1763889.56	418260.06	39°38'45.857"N	80°13'35.904"W	2886.64	304.376	0.84	0.00	-0.84
11201.00	90.220	323.790	8343.37	2900.97	1705.73	-2434.49	1763837.56	418335.93	39°38'46.602"N	80°13'36.577"W	2972.59	305.017	3.87	-0.07	-3.87
11293.00	89.970	323.010	8343.22	2992.50	1779.59	-2489.35	1763782.71	418409.78	39°38'47.328"N	80°13'37.285"W	3060.03	305.560	0.89	-0.27	-0.85
11385.00	89.750	328.970	8343.44	3083.48	1855.82	-2540.78	1763731.27	418486.01	39°38'48.077"N	80°13'37.951"W	3146.37	306.145	6.48	-0.24	6.48
11478.00	90.310	325.740	8343.39	3175.13	1934.12	-2590.94	1763681.12	418564.30	39°38'48.847"N	80°13'38.600"W	3233.23	306.741	3.52	0.60	-3.47
11570.00	90.310	325.920	8342.89	3266.18	2010.24	-2642.61	1763629.45	418640.41	39°38'49.595"N	80°13'39.269"W	3320.31	307.260	0.20	0.00	0.20
11662.00	90.580	330.150	8342.18	3356.64	2088.27	-2691.30	1763580.76	418718.44	39°38'50.362"N	80°13'39.899"W	3406.46	307.809	4.61	0.29	4.60
11754.00	90.000	328.780	8341.71	3446.68	2167.50	-2738.04	1763534.02	418797.67	39°38'51.141"N	80°13'40.505"W	3492.13	308.366	1.62	-0.63	-1.49
11847.00	89.940	327.460	8341.76	3538.12	2246.47	-2787.16	1763484.91	418876.64	39°38'51.918"N	80°13'41.141"W	3579.79	308.869	1.42	-0.06	-1.42
11939.00	90.520	324.940	8341.39	3629.08	2322.92	-2838.34	1763433.74	418953.07	39°38'52.669"N	80°13'41.803"W	3667.71	309.297	2.81	0.63	-2.74
12031.00	90.430	325.730	8340.63	3720.25	2398.58	-2890.66	1763381.42	419028.74	39°38'53.413"N	80°13'42.480"W	3756.21	309.685	0.86	-0.10	0.86
12124.00	90.430	319.700	8339.93	3812.83	2472.54	-2946.97	1763325.11	419102.69	39°38'54.139"N	80°13'43.207"W	3846.83	309.997	6.48	0.00	-6.48
12216.00	90.620	318.980	8339.09	3904.79	2542.33	-3006.91	1763265.17	419172.47	39°38'54.824"N	80°13'43.981"W	3937.63	310.214	0.81	0.21	-0.78
12308.00	90.800	316.880	8337.95	3996.77	2610.61	-3068.55	1763203.54	419240.75	39°38'55.494"N	80°13'44.776"W	4028.81	310.390	2.29	0.20	-2.28
12400.00	91.170	318.580	8336.37	4088.76	2678.68	-3130.42	1763141.67	419308.81	39°38'56.162"N	80°13'45.574"W	4120.05	310.553	1.89	0.40	1.85
12493.00	91.600	325.040	8334.12	4181.43	2751.71	-3187.87	1763084.23	419381.84	39°38'56.879"N	80°13'46.316"W	4211.23	310.800	6.96	0.46	6.95
12585.00	91.660	324.910	8331.50	4272.64	2827.02	-3240.65	1763031.45	419457.15	39°38'57.619"N	80°13'46.999"W	4300.45	311.100	0.16	0.07	-0.14
12677.00	91.850	331.360	8328.68	4363.00	2905.08	-3289.17	1762982.93	419535.20	39°38'58.386"N	80°13'47.627"W	4388.41	311.452	7.01	0.21	7.01
12769.00	92.120	328.010	8325.49	4452.90	2984.44	-3335.57	1762936.53	419614.56	39°38'59.167"N	80°13'48.228"W	4475.82	311.820	3.65	0.29	-3.64
12861.00	91.970	323.070	8322.21	4543.94	3060.22	-3387.58	1762884.53	419690.34	39°38'59.912"N	80°13'48.901"W	4565.16	312.094	5.37	-0.16	-5.37
12954.00	92.090	325.520	8318.91	4636.24	3135.69	-3441.82	1762830.29	419765.80	39°39'00.653"N	80°13'49.602"W	4656.03	312.335	2.64	0.13	2.63
13046.00	92.370	327.480	8315.33	4727.07	3212.34	-3492.56	1762779.56	419842.45	39°39'01.407"N	80°13'50.259"W	4745.22	312.607	2.15	0.30	2.13
13138.00	92.710	322.800	8311.25	4818.16	3287.74	-3545.07	1762727.04	419917.84	39°39'02.148"N	80°13'50.938"W	4834.95	312.843	5.10	0.37	-5.09
13231.00	92.830	321.960	8306.76	4910.73	3361.32	-3601.78	1762670.35	419991.41	39°39'02.870"N	80°13'51.671"W	4926.58	313.022	0.91	0.13	-0.90
13323.00	92.460	327.460	8302.51	5001.89	3436.30	-3654.85	1762617.28	420066.39	39°39'03.607"N	80°13'52.357"W	5016.58	313.235	5.99	-0.40	5.98





# Actual Wellpath Report

Yost 1H AWP Proj: 16326'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 01
Area	Monongalia County, WV	Well	Yost 1H
Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## WELLPATH DATA (244 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]
13415.00	92.250	330.490	8298.73	5092.01	3515.06	-3702.22	1762569.91	420145.15	39°39'04.381"N	80°13'52.971"W	5105.11	313.515	3.30	-0.23	3.29
13507.00	92.340	327.560	8295.04	5182.11	3593.87	-3749.53	1762522.80	420223.95	39°39'05.156"N	80°13'53.584"W	5193.73	313.786	3.18	0.10	-3.18
13600.00	92.340	326.140	8291.25	5273.82	3671.67	-3800.34	1762471.60	420301.74	39°39'05.921"N	80°13'54.242"W	5284.29	314.013	1.53	0.00	-1.53
13692.00	91.880	320.410	8287.86	5365.28	3745.33	-3855.29	1762416.84	420375.40	39°39'06.645"N	80°13'54.952"W	5375.01	314.171	6.24	-0.50	-6.23
13784.00	92.860	320.970	8284.05	5457.06	3816.45	-3913.52	1762358.62	420446.51	39°39'07.343"N	80°13'55.704"W	5466.35	314.281	1.23	1.07	0.61
13876.00	93.050	325.060	8279.31	5548.52	3889.82	-3968.79	1762303.36	420519.89	39°39'08.064"N	80°13'56.418"W	5557.16	314.424	4.44	0.21	4.45
13968.00	92.960	325.800	8274.48	5639.54	3965.48	-4020.92	1762251.23	420595.53	39°39'08.807"N	80°13'57.092"W	5647.37	314.602	0.81	-0.10	0.80
14061.00	92.520	323.800	8270.04	5731.70	4041.38	-4074.46	1762197.69	420671.43	39°39'09.553"N	80°13'57.785"W	5738.81	314.766	2.20	-0.47	-2.15
14153.00	92.680	323.530	8265.86	5823.09	4115.41	-4128.91	1762143.24	420745.46	39°39'10.280"N	80°13'58.489"W	5829.63	314.906	0.34	0.17	-0.29
14245.00	92.490	328.260	8261.71	5914.01	4191.49	-4180.43	1762091.72	420821.54	39°39'11.028"N	80°13'59.155"W	5919.85	315.076	5.14	-0.21	5.14
14337.00	92.220	328.240	8257.93	6004.36	4269.66	-4228.80	1762043.36	420899.70	39°39'11.796"N	80°13'59.782"W	6009.39	315.275	0.29	-0.29	-0.02
14430.00	91.910	327.020	8254.58	6095.88	4348.15	-4278.56	1761993.60	420978.19	39°39'12.568"N	80°14'00.426"W	6100.21	315.462	1.35	-0.33	-1.31
14522.00	91.540	329.800	8251.81	6186.21	4426.48	-4326.73	1761945.44	421056.51	39°39'13.338"N	80°14'01.050"W	6189.85	315.653	3.05	-0.40	3.02
14614.00	91.350	329.400	8249.49	6276.17	4505.80	-4373.27	1761898.90	421135.83	39°39'14.118"N	80°14'01.653"W	6279.15	315.855	0.48	-0.21	-0.43
14706.00	91.290	324.910	8247.37	6366.85	4583.06	-4423.14	1761849.03	421213.08	39°39'14.878"N	80°14'02.299"W	6369.35	316.017	4.88	-0.07	-4.88
14799.00	91.380	324.160	8245.20	6459.15	4658.78	-4477.08	1761795.09	421288.80	39°39'15.622"N	80°14'02.997"W	6461.31	316.139	0.81	0.10	-0.81
14891.00	91.230	316.370	8243.10	6550.96	4729.46	-4535.83	1761736.34	421359.47	39°39'16.316"N	80°14'03.755"W	6552.98	316.197	8.47	-0.16	-8.47
14983.00	91.080	316.050	8241.25	6642.91	4795.86	-4599.49	1761672.70	421425.86	39°39'16.967"N	80°14'04.576"W	6644.96	316.197	0.38	-0.16	-0.35
15075.00	90.950	323.600	8239.62	6734.76	4866.09	-4658.78	1761613.40	421496.09	39°39'17.656"N	80°14'05.341"W	6736.70	316.247	8.21	-0.14	8.21
15167.00	90.280	322.660	8238.63	6826.33	4939.68	-4713.98	1761558.21	421569.68	39°39'18.379"N	80°14'06.055"W	6828.04	316.339	1.25	-0.73	-1.02
15259.00	90.060	331.690	8238.36	6916.96	5016.91	-4763.80	1761508.39	421646.91	39°39'19.138"N	80°14'06.700"W	6918.32	316.482	9.82	-0.24	9.82
15352.00	89.880	334.860	8238.41	7006.50	5099.97	-4805.62	1761466.58	421729.96	39°39'19.955"N	80°14'07.243"W	7007.40	316.702	3.41	-0.19	3.41
15444.00	90.340	327.500	8238.23	7095.87	5180.52	-4849.94	1761422.26	421810.50	39°39'20.748"N	80°14'07.818"W	7096.45	316.888	8.02	0.50	-8.00
15536.00	90.400	323.240	8237.63	7187.01	5256.20	-4902.20	1761370.00	421886.18	39°39'21.492"N	80°14'08.494"W	7187.44	316.996	4.63	0.07	-4.63
15628.00	90.310	318.350	8237.06	7278.84	5327.47	-4960.34	1761311.87	421957.44	39°39'22.191"N	80°14'09.245"W	7279.21	317.044	5.32	-0.10	-5.32
15721.00	90.220	318.360	8236.63	7371.83	5396.96	-5022.14	1761250.07	422026.93	39°39'22.873"N	80°14'10.042"W	7372.18	317.060	0.10	-0.10	0.01
15812.00	89.940	323.690	8236.51	7462.64	5487.68	-5079.35	1761192.86	422097.65	39°39'23.567"N	80°14'10.781"W	7462.93	317.109	5.87	-0.31	5.86
15904.00	89.750	324.050	8236.76	7554.09	5541.99	-5133.60	1761138.62	422171.95	39°39'24.297"N	80°14'11.483"W	7554.30	317.191	0.44	-0.21	0.39
15997.00	89.720	322.030	8237.19	7646.67	5616.30	-5189.51	1761082.71	422246.25	39°39'25.027"N	80°14'12.205"W	7646.82	317.262	2.17	-0.03	-2.17
16089.00	89.600	320.090	8237.73	7738.50	5687.85	-5247.33	1761024.89	422317.80	39°39'25.729"N	80°14'12.952"W	7738.61	317.307	2.11	-0.13	-2.11



# Actual Wellpath Report

Yost 1H AWP Proj: 16326'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC		Slot	Slot 01
Area	Monongalia County, WV		Well	Yost 1H
Field	Monongalia		Wellbore	Yost 1H AWB
Facility	Yost Pad			

## WELLPATH DATA (244 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]
16781.00	89.780	323.970	8238.23	7830.20	5760.36	-5303.92	1760968.30	422390.31	39°39'26.441"N	80°14'13.683"W	7830.28	317.362	4.22	0.20	4.22
16273.00	89.600	331.080	8238.73	7920.77	5837.92	-5353.29	1760918.94	422467.87	39°39'27.204"N	80°14'14.322"W	7920.80	317.480	7.73	-0.20	7.73
16301.00	89.720	331.960	8238.89	7947.95	5862.53	-5366.64	1760905.59	422492.48	39°39'27.446"N	80°14'14.496"W	7947.96	317.529	3.17	0.43	3.14
16326.00	89.720	331.960	8239.02	7972.17	5884.60	-5378.39	1760893.84	422514.54	39°39'27.663"N	80°14'14.648"W	7972.18	317.573	0.00	0.00	0.00

## HOLE & CASING SECTIONS - Ref Wellbore: Yost 1H AWB Ref Wellpath: Yost 1H AWP Proj: 16326'

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	22.50	1481.50	1459.00	22.50	1481.49	0.00	0.00	-2.66	0.87
13.375in Casing Surface	22.50	1481.50	1459.00	22.50	1481.49	0.00	0.00	-2.66	0.87
12.25in Open Hole	1481.50	2600.50	1119.00	1481.49	2600.47	-2.66	0.87	-6.14	3.69
9.625in Casing Intermediate	22.50	2600.50	2578.00	22.50	2600.47	0.00	0.00	-6.14	3.69
8.75in Open Hole	2600.50	6900.00	4299.50	2600.47	6896.42	-6.14	3.69	-128.24	-12.07
8.5in Open Hole	6900.00	16326.00	9426.00	6896.42	8239.02	-128.24	-12.07	5884.60	-5378.39
5.5in Casing Production	22.50	16326.00	16303.50	22.50	8239.02	0.00	0.00	5884.60	-5378.39

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Yost 1H BHL Rev-2	8300.00	5889.59	-5373.94	1760898.29	422519.53	39°39'27.713"N	80°14'14.592"W	point
Yost 1H LP Rev-1	8300.00	-144.81	-1148.66	1765123.31	416485.50	39°38'28.417"N	80°13'19.949"W	point



## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 01
Area	Monongalia County, WV	Well	Yost 1H
Field	Monongalia	Wellbore	Yost 1H AWB
Facility	Yost Pad		

## WELLPATH COMPOSITION - Ref Wellbore: Yost 1H AWB Ref Wellpath: Yost 1H AWP Proj: 16326'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
22.50	1433.50	OWSG MWD rev2 + HRGM	01_Phoenix MWD <17 1/2"> (142'-1426')	Yost 1H AWB
1433.50	2599.50	OWSG MWD rev2 + HRGM	02_Phoenix MWD <12 1/4"> (1522'-2592')	Yost 1H AWB
2599.50	6850.50	OWSG MWD rev2 + HRGM	03_Phoenix MWD <8 3/4"> (2623'-6843')	Yost 1H AWB
6850.50	16301.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8 1/2"> (6869'-16301')	Yost 1H AWB
16301.00	16326.00	Blind Drilling (std)	Projection to bit	Yost 1H AWB





# Actual Wellpath Report

Yost 1H AWP Proj: 16326'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Area	Field	Facility	Slot	Well	Wellbore	Slot 01	Yost 1H	Yost 1H AWB
NORTHEAST NATURAL ENERGY, LLC	Monongalia County, WV	Monongalia	Yost Pad						

## COMMENTS

Wellpath general comments  
 API: 47-061-01799-0000  
 BH Job #: 109629579  
 Rig: Precision 228  
 Duration: 02/21/2019 - 03/04/2019