

Planned Wellpath Report

Yost 11H PWP Rev-A.0

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 11
Area	Monongalia County, WV	Well	Yost 11H
Field	Monongalia	Wellbore	Yost 11H PWB
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	3/4/2019 at 12:37:35 PM
Convergence at slot	0.46° West	Database/Source file	WA_MPL_EASTERNUS_Defm/Yost_11H_PWP_Rev-A.0.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-17.50	-24.40	1766260.30	416646.60	39°38'30.099"N	80°13'05.431"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 11)	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	325.00°



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NORTHEAST NATURAL ENERGY, LLC	Well	Yost 11H
Area	Monongalia County, WV	Yost 11H PWB
Field	Monongalia	
Facility	Yost Pad	

WELLPATH DATA (290 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	208.780	0.00	0.00	0.00	0.00	1766260.30	416646.60	39°38'30.099"N	80°13'05.431"W	0.00	0.000	0.00	0.00	0.00
22.50	0.000	208.780	22.50	0.00	0.00	0.00	1766260.30	416646.60	39°38'30.099"N	80°13'05.431"W	0.00	0.000	0.00	0.00	0.00
150.50	0.100	208.780	150.50	-0.05	-0.10	-0.05	1766260.25	416646.50	39°38'30.098"N	80°13'05.432"W	0.11	208.780	0.08	0.08	-118.14
178.50	0.100	204.080	178.50	-0.07	-0.14	-0.07	1766260.22	416646.46	39°38'30.097"N	80°13'05.432"W	0.16	208.065	0.03	0.00	-16.79
212.50	0.100	130.580	212.50	-0.12	-0.19	-0.07	1766260.23	416646.41	39°38'30.097"N	80°13'05.432"W	0.20	199.094	0.35	0.00	-216.18
243.50	0.000	203.180	243.50	-0.14	-0.21	-0.04	1766260.26	416646.39	39°38'30.097"N	80°13'05.431"W	0.21	192.222	0.32	-0.32	-421.23
274.50	0.200	233.380	274.50	-0.14	-0.24	-0.09	1766260.21	416646.36	39°38'30.096"N	80°13'05.432"W	0.25	200.292	0.65	0.65	-408.45
306.50	0.200	185.780	306.50	-0.19	-0.33	-0.14	1766260.16	416646.27	39°38'30.096"N	80°13'05.433"W	0.35	202.956	0.50	0.00	-148.75
339.50	0.200	19.380	339.50	-0.24	-0.42	-0.18	1766260.12	416646.18	39°38'30.095"N	80°13'05.433"W	0.46	202.871	0.37	0.00	108.39
399.50	0.000	33.980	399.50	-0.27	-0.51	-0.25	1766260.05	416646.09	39°38'30.094"N	80°13'05.434"W	0.56	206.002	0.32	-0.32	226.81
431.50	0.100	242.880	431.50	-0.27	-0.52	-0.27	1766260.03	416646.08	39°38'30.094"N	80°13'05.434"W	0.59	207.642	0.31	0.31	-366.00
462.50	0.000	351.280	462.50	-0.27	-0.53	-0.30	1766260.00	416646.07	39°38'30.094"N	80°13'05.435"W	0.61	209.113	0.32	-0.32	377.81
494.50	0.200	215.480	494.50	-0.28	-0.58	-0.33	1766259.97	416646.02	39°38'30.093"N	80°13'05.435"W	0.66	209.648	0.62	0.62	-451.62
525.50	0.200	187.780	525.50	-0.34	-0.67	-0.37	1766259.93	416645.93	39°38'30.092"N	80°13'05.435"W	0.77	208.554	0.31	0.00	-89.35
556.50	0.300	206.980	556.50	-0.42	-0.80	-0.41	1766259.89	416645.80	39°38'30.091"N	80°13'05.436"W	0.90	207.190	0.42	0.32	61.94
588.50	0.100	167.480	588.50	-0.48	-0.90	-0.44	1766259.86	416645.70	39°38'30.090"N	80°13'05.436"W	1.01	206.155	0.72	-0.63	-123.44
619.50	0.000	206.880	619.50	-0.51	-0.93	-0.44	1766259.86	416645.67	39°38'30.090"N	80°13'05.436"W	1.03	205.211	0.32	-0.32	-540.26
651.50	0.200	217.880	651.50	-0.53	-0.97	-0.47	1766259.83	416645.63	39°38'30.089"N	80°13'05.437"W	1.08	205.860	0.62	0.62	-444.12
682.50	0.100	159.680	682.50	-0.57	-1.04	-0.50	1766259.80	416645.56	39°38'30.089"N	80°13'05.437"W	1.15	205.450	0.55	-0.32	-187.74
713.50	0.200	166.080	713.50	-0.65	-1.12	-0.47	1766259.83	416645.48	39°38'30.088"N	80°13'05.437"W	1.21	202.916	0.33	0.32	20.65
745.50	0.300	47.880	745.50	-0.69	-1.12	-0.40	1766259.90	416645.48	39°38'30.088"N	80°13'05.436"W	1.19	199.586	1.35	0.31	-369.38
776.50	0.200	134.280	776.50	-0.73	-1.10	-0.30	1766260.00	416645.50	39°38'30.088"N	80°13'05.435"W	1.14	195.176	1.13	-0.32	278.71
809.50	0.100	131.180	809.50	-0.81	-1.16	-0.24	1766260.06	416645.44	39°38'30.087"N	80°13'05.434"W	1.18	191.698	0.32	-0.32	-10.00
839.50	0.000	124.180	839.50	-0.84	-1.17	-0.22	1766260.08	416645.43	39°38'30.087"N	80°13'05.434"W	1.19	190.531	0.31	-0.31	-409.94
870.50	0.300	191.280	870.50	-0.89	-1.25	-0.23	1766260.07	416645.35	39°38'30.086"N	80°13'05.434"W	1.28	190.579	0.97	0.97	-544.26
901.50	0.000	234.280	901.50	-0.95	-1.33	-0.25	1766260.05	416645.27	39°38'30.086"N	80°13'05.434"W	1.36	190.621	0.97	-0.97	544.26
964.50	0.300	147.780	964.50	-1.11	-1.47	-0.16	1766260.14	416645.13	39°38'30.084"N	80°13'05.433"W	1.48	186.280	0.48	0.48	234.57
995.50	0.100	189.380	995.50	-1.21	-1.57	-0.12	1766260.18	416645.03	39°38'30.083"N	80°13'05.432"W	1.57	184.492	0.76	-0.65	134.19
1027.50	0.100	188.880	1027.50	-1.25	-1.62	-0.13	1766260.17	416644.98	39°38'30.083"N	80°13'05.432"W	1.63	184.651	0.00	0.00	-1.56
1058.50	0.000	351.280	1058.50	-1.27	-1.65	-0.14	1766260.16	416644.95	39°38'30.083"N	80°13'05.432"W	1.66	184.720	0.32	-0.32	552.00
1090.50	0.100	185.480	1090.50	-1.29	-1.68	-0.14	1766260.16	416644.92	39°38'30.082"N	80°13'05.432"W	1.68	184.733	0.31	0.31	-545.37
1121.50	0.000	200.380	1121.50	-1.32	-1.70	-0.14	1766260.16	416644.90	39°38'30.082"N	80°13'05.432"W	1.71	184.745	0.32	-0.32	562.97

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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]
1152.50	0.100	64.780	1152.50	-1.32	-1.69	-0.12	1766260.18	416644.91	39°38'30.082"N	80°13'05.432"W	1.70	183.953	0.32	0.32	208.97
1184.50	0.000	302.580	1184.50	-1.32	-1.68	-0.09	1766260.21	416644.92	39°38'30.082"N	80°13'05.432"W	1.68	183.124	0.31	-0.31	-202.44
1215.50	0.000	85.080	1215.50	-1.32	-1.68	-0.09	1766260.21	416644.92	39°38'30.082"N	80°13'05.432"W	1.68	183.124	0.00	0.00	0.00
1246.50	0.100	237.580	1246.50	-1.32	-1.70	-0.11	1766260.19	416644.90	39°38'30.082"N	80°13'05.432"W	1.70	183.866	0.32	0.32	-394.90
1277.50	0.100	234.880	1277.50	-1.32	-1.73	-0.16	1766260.14	416644.87	39°38'30.082"N	80°13'05.433"W	1.73	185.282	0.02	0.00	-8.71
1340.50	0.200	238.380	1340.50	-1.32	-1.81	-0.30	1766260.00	416644.79	39°38'30.081"N	80°13'05.434"W	1.84	189.328	0.16	0.16	5.56
1372.50	0.100	137.280	1372.50	-1.34	-1.86	-0.33	1766259.97	416644.74	39°38'30.080"N	80°13'05.435"W	1.89	189.939	0.75	-0.31	-315.94
1403.50	0.100	151.780	1403.50	-1.39	-1.91	-0.30	1766260.00	416644.69	39°38'30.080"N	80°13'05.434"W	1.93	188.805	0.08	0.00	46.77
1425.50	0.100	231.680	1425.50	-1.41	-1.94	-0.30	1766260.00	416644.66	39°38'30.080"N	80°13'05.435"W	1.96	188.849	0.58	0.00	363.18
1497.50	0.100	194.880	1497.50	-1.46	-2.04	-0.37	1766259.93	416644.56	39°38'30.079"N	80°13'05.435"W	2.07	190.214	0.09	0.00	-51.11
1528.50	0.100	234.380	1528.50	-1.48	-2.08	-0.40	1766259.90	416644.52	39°38'30.078"N	80°13'05.436"W	2.12	190.784	0.22	0.00	127.42
1590.50	0.000	162.080	1590.50	-1.48	-2.11	-0.44	1766259.86	416644.49	39°38'30.078"N	80°13'05.436"W	2.16	191.775	0.16	-0.16	202.61
1622.50	0.100	233.280	1622.50	-1.48	-2.13	-0.46	1766259.84	416644.47	39°38'30.078"N	80°13'05.437"W	2.18	192.263	0.31	0.31	-396.00



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REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 11
Area	Well	Yost 11H
Field	Wellbore	Yost 11H PWB
Facility	Yost Pad	

WELLPATH DATA (290 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]
1653.50	0.200	240.280	1653.50	-1.47	-2.17	-0.53	1766259.77	416644.43	39°38'30.077"N	80°13'05.437"W	2.23	193.749	0.33	0.32	22.58
1716.50	0.300	234.680	1716.50	-1.46	-2.32	-0.76	1766259.54	416644.28	39°38'30.076"N	80°13'05.440"W	2.44	198.162	0.16	0.16	-8.89
1747.50	0.100	229.780	1747.50	-1.47	-2.38	-0.85	1766259.45	416644.22	39°38'30.075"N	80°13'05.441"W	2.53	199.577	0.65	-0.65	-15.81
1779.50	0.200	236.580	1779.50	-1.47	-2.43	-0.92	1766259.38	416644.17	39°38'30.074"N	80°13'05.442"W	2.60	200.627	0.32	0.31	21.25
1810.50	0.200	218.080	1810.49	-1.48	-2.51	-0.99	1766259.31	416644.09	39°38'30.074"N	80°13'05.443"W	2.70	201.647	0.21	0.00	-59.68
1841.50	0.200	247.880	1841.49	-1.49	-2.57	-1.08	1766259.22	416644.03	39°38'30.073"N	80°13'05.444"W	2.79	202.766	0.33	0.00	96.13
1873.50	0.200	233.280	1873.49	-1.47	-2.62	-1.17	1766259.13	416643.98	39°38'30.073"N	80°13'05.446"W	2.87	204.120	0.16	0.00	-45.63
1904.50	0.200	207.480	1904.49	-1.50	-2.70	-1.24	1766259.06	416643.90	39°38'30.072"N	80°13'05.446"W	2.98	204.689	0.29	0.00	-83.23
1935.50	0.300	211.980	1935.49	-1.56	-2.82	-1.31	1766258.99	416643.78	39°38'30.071"N	80°13'05.447"W	3.11	204.927	0.33	0.32	14.52
1967.50	0.200	194.980	1967.49	-1.63	-2.95	-1.37	1766258.93	416643.66	39°38'30.070"N	80°13'05.448"W	3.25	204.939	0.39	-0.31	-53.12
1998.50	0.300	227.980	1998.49	-1.67	-3.05	-1.44	1766258.86	416643.55	39°38'30.069"N	80°13'05.449"W	3.38	205.319	0.55	0.32	106.45
2029.50	0.000	223.780	2029.49	-1.68	-3.11	-1.50	1766258.80	416643.49	39°38'30.068"N	80°13'05.450"W	3.45	205.838	0.97	-0.97	425.87
2061.50	0.200	155.480	2061.49	-1.74	-3.16	-1.48	1766258.82	416643.44	39°38'30.068"N	80°13'05.449"W	3.49	205.131	0.62	0.62	485.87
2092.50	0.100	48.780	2092.49	-1.79	-3.19	-1.44	1766258.86	416643.41	39°38'30.067"N	80°13'05.449"W	3.50	204.278	0.80	-0.32	-344.19
2123.50	0.000	50.780	2123.49	-1.78	-3.17	-1.42	1766258.88	416643.43	39°38'30.067"N	80°13'05.449"W	3.47	204.093	0.32	-0.32	-157.35
2155.50	0.000	38.680	2155.49	-1.78	-3.17	-1.42	1766258.88	416643.43	39°38'30.067"N	80°13'05.449"W	3.47	204.093	0.00	0.00	0.00
2186.50	0.000	30.080	2186.49	-1.78	-3.17	-1.42	1766258.88	416643.43	39°38'30.067"N	80°13'05.449"W	3.47	204.093	0.00	0.00	0.00
2217.50	0.000	218.080	2217.49	-1.78	-3.17	-1.42	1766258.88	416643.43	39°38'30.067"N	80°13'05.449"W	3.47	204.093	0.00	0.00	0.00
2249.50	0.000	180.580	2249.49	-1.78	-3.17	-1.42	1766258.88	416643.43	39°38'30.067"N	80°13'05.449"W	3.47	204.093	0.00	0.00	0.00
2280.50	0.000	54.380	2280.49	-1.78	-3.17	-1.42	1766258.88	416643.43	39°38'30.067"N	80°13'05.449"W	3.47	204.093	0.00	0.00	0.00
2311.50	0.100	157.780	2311.49	-1.81	-3.20	-1.41	1766258.89	416643.40	39°38'30.067"N	80°13'05.449"W	3.49	203.772	0.32	0.32	508.97
2342.50	0.100	92.380	2342.49	-1.85	-3.22	-1.37	1766258.93	416643.38	39°38'30.067"N	80°13'05.448"W	3.50	203.041	0.35	0.00	-210.97
2374.50	0.000	97.080	2374.49	-1.87	-3.22	-1.34	1766258.96	416643.38	39°38'30.067"N	80°13'05.448"W	3.49	202.612	0.31	-0.31	-288.69
2405.50	0.200	144.580	2405.49	-1.92	-3.27	-1.31	1766258.99	416643.33	39°38'30.066"N	80°13'05.447"W	3.52	201.965	0.65	0.65	466.39
2436.50	0.200	148.080	2436.49	-2.03	-3.36	-1.25	1766259.05	416643.24	39°38'30.066"N	80°13'05.447"W	3.58	200.439	0.04	0.00	11.29
2468.50	0.200	155.180	2468.49	-2.14	-3.46	-1.20	1766259.10	416643.15	39°38'30.065"N	80°13'05.446"W	3.66	199.124	0.08	0.00	22.19
2499.50	0.000	181.680	2499.49	-2.20	-3.50	-1.18	1766259.12	416643.10	39°38'30.064"N	80°13'05.446"W	3.70	198.542	0.65	-0.65	-500.58
2530.50	0.200	101.080	2530.49	-2.24	-3.51	-1.12	1766259.18	416643.09	39°38'30.064"N	80°13'05.445"W	3.69	197.709	0.65	0.65	326.06
2561.50	0.200	162.880	2561.49	-2.33	-3.58	-1.05	1766259.25	416643.02	39°38'30.063"N	80°13'05.444"W	3.73	196.408	0.66	0.00	199.35
2575.50	0.200	142.280	2575.49	-2.37	-3.62	-1.03	1766259.27	416643.98	39°38'30.063"N	80°13'05.444"W	3.76	195.901	0.51	0.00	-147.14
2631.50	0.300	140.280	2631.49	-2.62	-3.81	-0.88	1766259.42	416642.79	39°38'30.061"N	80°13'05.442"W	3.91	192.973	0.18	0.18	-3.57
2662.50	0.500	169.080	2662.49	-2.82	-4.00	-0.80	1766259.50	416642.60	39°38'30.059"N	80°13'05.441"W	4.08	191.299	0.90	0.65	92.90

WELLPATH DATA (290 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]
2693.50	0.900	222.080	2693.49	-3.00	-4.32	-0.94	1766259.36	416642.28	39°38'30.056"N	80°13'05.442"W	4.42	192.251	2.32	1.29	170.97
2725.50	1.500	220.580	2725.48	-3.16	-4.82	-1.38	1766258.92	416641.78	39°38'30.051"N	80°13'05.448"W	5.02	195.952	1.88	1.87	-4.69
2756.50	1.800	222.280	2756.47	-3.37	-5.49	-1.97	1766258.33	416641.11	39°38'30.044"N	80°13'05.455"W	5.83	199.736	0.98	0.97	5.48
2787.50	1.800	236.180	2787.45	-3.47	-6.12	-2.70	1766257.60	416640.48	39°38'30.038"N	80°13'05.465"W	6.69	203.814	1.40	0.00	44.84
2818.50	1.900	222.680	2818.44	-3.56	-6.77	-3.45	1766256.85	416639.83	39°38'30.032"N	80°13'05.474"W	7.60	207.032	1.44	0.32	-43.55
2850.50	2.000	228.780	2850.42	-3.74	-7.53	-4.23	1766256.07	416639.07	39°38'30.024"N	80°13'05.484"W	8.64	209.354	0.72	0.31	19.06
2881.50	1.500	230.080	2881.40	-3.83	-8.15	-4.95	1766255.35	416638.45	39°38'30.018"N	80°13'05.493"W	9.53	211.299	1.62	-1.61	4.19
2912.50	1.600	233.780	2912.39	-3.88	-8.66	-5.61	1766254.69	416637.94	39°38'30.013"N	80°13'05.502"W	10.32	212.943	0.46	0.32	11.94
2943.50	1.600	215.580	2943.38	-4.03	-9.27	-6.21	1766254.09	416637.33	39°38'30.007"N	80°13'05.509"W	11.16	213.836	1.63	0.00	-58.71
2975.50	1.700	216.480	2975.37	-4.33	-10.01	-6.76	1766253.54	416636.59	39°38'29.999"N	80°13'05.516"W	12.08	214.004	0.32	0.31	2.81
3006.50	2.200	224.080	3006.35	-4.59	-10.81	-7.44	1766252.86	416635.79	39°38'29.991"N	80°13'05.525"W	13.13	214.545	1.81	1.61	24.52
3037.50	2.600	236.780	3037.32	-4.68	-11.62	-8.45	1766251.85	416634.98	39°38'29.983"N	80°13'05.538"W	14.37	215.999	2.14	1.29	40.97
3068.50	3.500	234.180	3068.28	-4.67	-12.56	-9.80	1766250.50	416634.04	39°38'29.974"N	80°13'05.555"W	15.93	217.958	2.94	2.90	-8.39



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 11
Area	Monongalia County, WV	Well	Yost 11H
Field	Monongalia	Wellbore	Yost 11H PWB
Facility	Yost Pad		

WELLPATH DATA (290 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]
3100.50	4.800	242.880	3100.19	-4.50	-13.75	-11.78	1766248.52	416632.86	39°38'29.962"N	80°13'05.580"W	18.11	220.608	4.50	4.06	27.19
3131.50	4.900	244.880	3131.08	-4.10	-14.90	-14.14	1766246.16	416631.70	39°38'29.950"N	80°13'05.610"W	20.54	223.499	0.63	0.32	6.45
3162.50	5.000	238.680	3161.97	-3.78	-16.16	-16.49	1766243.81	416630.44	39°38'29.938"N	80°13'05.640"W	23.09	225.575	1.75	0.32	-20.00
3193.50	5.100	236.380	3192.85	-3.66	-17.63	-18.79	1766241.51	416628.97	39°38'29.923"N	80°13'05.669"W	25.77	226.830	0.73	0.32	-7.42
3224.50	5.300	222.080	3223.72	-3.95	-19.45	-20.90	1766239.40	416627.15	39°38'29.905"N	80°13'05.696"W	28.55	227.051	4.22	0.65	-46.13
3255.50	5.400	224.380	3254.59	-4.54	-21.56	-22.88	1766237.42	416625.04	39°38'29.884"N	80°13'05.721"W	31.44	226.701	0.76	0.32	7.42
3287.50	5.200	221.680	3286.45	-5.15	-23.72	-24.90	1766235.41	416622.88	39°38'29.862"N	80°13'05.747"W	34.39	226.388	1.00	-0.62	-8.44
3318.50	5.500	217.580	3317.31	-5.92	-25.94	-26.74	1766233.57	416620.66	39°38'29.840"N	80°13'05.770"W	37.26	225.861	1.57	0.97	-13.23
3349.50	5.500	220.780	3348.17	-6.73	-28.25	-28.61	1766231.69	416618.35	39°38'29.817"N	80°13'05.794"W	40.21	225.368	0.99	0.00	10.32
3380.50	4.800	221.480	3379.05	-7.40	-30.34	-30.44	1766229.86	416616.26	39°38'29.797"N	80°13'05.817"W	42.98	225.093	2.27	-2.26	2.26
3412.50	4.500	225.180	3410.94	-7.92	-32.23	-32.22	1766228.08	416614.37	39°38'29.778"N	80°13'05.839"W	45.57	224.989	1.33	-0.94	11.56
3443.50	3.400	231.480	3441.84	-8.19	-33.66	-33.80	1766226.50	416612.94	39°38'29.763"N	80°13'05.859"W	47.70	225.119	3.81	-3.55	20.32
3505.50	3.300	243.980	3503.76	-8.02	-35.59	-36.84	1766223.46	416611.01	39°38'29.744"N	80°13'05.898"W	51.23	225.992	1.19	-0.16	20.16
3568.50	3.700	231.080	3566.65	-7.88	-37.66	-40.05	1766220.25	416608.94	39°38'29.723"N	80°13'05.939"W	54.98	226.763	1.40	0.63	-20.48
3599.50	4.500	236.780	3597.57	-7.91	-38.96	-41.85	1766218.45	416607.65	39°38'29.711"N	80°13'05.962"W	57.18	227.051	2.89	2.58	18.39
3631.50	4.400	226.280	3629.47	-8.05	-40.49	-43.79	1766216.52	416606.11	39°38'29.695"N	80°13'05.986"W	59.64	227.239	2.56	-0.31	-32.81
3662.50	4.200	223.980	3660.38	-8.45	-42.13	-45.44	1766214.87	416604.47	39°38'29.679"N	80°13'06.007"W	61.96	227.161	0.85	-0.65	-7.42
3693.50	3.700	232.580	3691.31	-8.71	-43.56	-47.02	1766213.28	416603.05	39°38'29.665"N	80°13'06.027"W	64.09	227.189	2.50	-1.61	27.74
3725.50	2.400	233.580	3723.26	-8.77	-44.58	-48.38	1766211.93	416602.02	39°38'29.654"N	80°13'06.045"W	65.79	227.338	4.07	-4.06	3.12
3756.50	1.000	225.380	3754.25	-8.83	-45.16	-49.09	1766211.21	416601.45	39°38'29.649"N	80°13'06.054"W	66.70	227.391	4.57	-4.52	-26.45
3787.50	0.200	251.380	3785.25	-8.86	-45.36	-49.34	1766210.97	416601.24	39°38'29.647"N	80°13'06.057"W	67.02	227.402	2.66	-2.58	83.87
3818.50	0.300	221.880	3816.25	-8.87	-45.44	-49.44	1766210.86	416601.16	39°38'29.646"N	80°13'06.058"W	67.15	227.414	0.52	0.32	-95.16
3881.50	0.400	274.280	3879.25	-8.76	-45.55	-49.77	1766210.53	416601.05	39°38'29.645"N	80°13'06.062"W	67.47	227.537	0.51	0.16	83.17
3975.50	0.600	337.980	3973.24	-8.08	-45.07	-50.29	1766210.02	416601.53	39°38'29.649"N	80°13'06.069"W	67.53	228.132	0.59	0.21	67.13
4069.50	0.800	27.980	4067.24	-7.30	-44.04	-50.17	1766210.13	416602.57	39°38'29.660"N	80°13'06.068"W	66.75	228.725	0.66	0.21	53.83
4162.50	0.700	29.580	4160.23	-6.76	-42.97	-49.58	1766210.72	416603.63	39°38'29.670"N	80°13'06.060"W	65.61	229.089	0.11	-0.11	1.72
4256.50	0.200	238.180	4254.23	-6.50	-42.56	-49.44	1766210.86	416604.05	39°38'29.674"N	80°13'06.058"W	65.23	229.280	0.94	-0.53	-161.06
4349.50	0.300	27.380	4347.23	-6.38	-42.42	-49.47	1766210.84	416604.18	39°38'29.676"N	80°13'06.059"W	65.17	229.382	0.52	0.11	160.43
4443.50	0.200	66.980	4441.23	-6.30	-42.14	-49.20	1766211.10	416604.46	39°38'29.678"N	80°13'06.055"W	64.78	229.419	0.21	-0.11	42.13
4537.50	0.400	217.380	4535.23	-6.43	-42.34	-49.25	1766211.05	416604.26	39°38'29.677"N	80°13'06.056"W	64.95	229.315	0.62	0.21	160.00
4630.50	0.500	214.280	4628.22	-6.68	-42.93	-49.68	1766210.63	416603.67	39°38'29.671"N	80°13'06.061"W	65.66	229.165	0.11	0.11	-3.33
4724.50	1.000	174.680	4722.21	-7.53	-44.09	-49.83	1766210.47	416602.52	39°38'29.659"N	80°13'06.063"W	66.53	228.499	0.74	0.53	-42.13

WELLPATH DATA (290 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]
4818.50	1.000	205.080	4816.20	-8.65	-45.65	-50.10	1766210.20	416600.96	39°38'29.644"N	80°13'06.067"W	67.78	227.664	0.56	0.00	32.34
4911.50	0.200	203.280	4909.20	-9.14	-46.53	-50.51	1766209.79	416600.07	39°38'29.635"N	80°13'06.072"W	68.68	227.348	0.86	-0.86	-1.94
5005.50	0.200	31.580	5003.19	-9.17	-46.54	-50.49	1766209.81	416600.06	39°38'29.635"N	80°13'06.071"W	68.67	227.329	0.42	0.00	-182.66
5099.50	0.600	300.880	5097.19	-8.65	-46.15	-50.83	1766209.48	416600.45	39°38'29.639"N	80°13'06.076"W	68.65	227.760	0.68	0.43	-96.49
5193.50	0.500	257.180	5191.19	-8.05	-45.99	-51.65	1766208.66	416600.61	39°38'29.640"N	80°13'06.086"W	69.16	228.318	0.45	-0.11	-46.49
5287.50	0.500	332.180	5285.19	-7.49	-45.72	-52.24	1766208.06	416600.89	39°38'29.643"N	80°13'06.094"W	69.42	228.810	0.65	0.00	79.79
5381.50	1.500	37.980	5379.17	-6.72	-44.38	-51.67	1766208.63	416602.22	39°38'29.656"N	80°13'06.087"W	68.12	229.340	1.46	1.06	70.00
5475.50	1.300	36.980	5473.14	-6.03	-42.56	-50.27	1766210.03	416604.04	39°38'29.674"N	80°13'06.069"W	65.87	229.749	0.21	-0.21	-1.06
5569.50	1.100	4.380	5567.13	-5.00	-40.81	-49.56	1766210.74	416605.79	39°38'29.692"N	80°13'06.060"W	64.20	230.532	0.75	-0.21	-34.68
5663.50	0.900	6.780	5661.11	-3.75	-39.18	-49.41	1766210.89	416607.42	39°38'29.708"N	80°13'06.058"W	63.06	231.588	0.22	-0.21	2.55
5757.50	0.400	261.480	5755.11	-3.06	-38.49	-49.65	1766210.66	416608.11	39°38'29.714"N	80°13'06.062"W	62.82	232.211	1.15	-0.53	-112.02
5851.50	0.100	100.880	5849.11	-2.97	-38.56	-49.89	1766210.41	416608.04	39°38'29.714"N	80°13'06.065"W	63.05	232.301	0.53	-0.32	-170.85
5944.50	0.400	133.080	5942.11	-3.34	-38.79	-49.57	1766210.73	416607.81	39°38'29.712"N	80°13'06.061"W	62.95	231.954	0.34	0.32	34.62



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 11
Area	Monongalia County, WV	Well	Yost 11H
Field	Monongalia	Wellbore	Yost 11H PWB
Facility	Yost Pad		

WELLPATH DATA (290 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]
6038.50	0.100	131.680	6036.10	-3.75	-39.07	-49.27	1766211.03	416607.53	39°38'29.709"N	80°13'06.057"W	62.88	231.585	0.32	-0.32	-1.49
6132.50	0.100	253.880	6130.10	-3.80	-39.15	-49.29	1766211.01	416607.45	39°38'29.708"N	80°13'06.057"W	62.95	231.540	0.19	0.00	130.00
6226.50	0.700	240.880	6224.10	-3.71	-39.45	-49.87	1766210.43	416607.15	39°38'29.705"N	80°13'06.064"W	63.59	231.652	0.64	0.64	-13.83
6250.50	0.300	206.080	6248.10	-3.73	-39.58	-50.03	1766210.28	416607.02	39°38'29.704"N	80°13'06.066"W	63.79	231.649	2.02	-1.67	-145.00
6327.50	0.300	206.080	6325.10	-3.92	-39.94	-50.20	1766210.10	416606.66	39°38'29.700"N	80°13'06.069"W	64.15	231.493	0.00	0.00	0.00
6350.50†	2.570	230.599	6348.09	-3.99	-40.32	-50.63	1766209.68	416606.28	39°38'29.696"N	80°13'06.074"W	64.72	231.463	10.00	9.87	106.61
6450.50†	12.567	233.076	6447.09	-4.53	-48.30	-61.08	1766199.22	416598.30	39°38'29.617"N	80°13'06.207"W	77.87	231.664	10.00	10.00	2.48
6550.50†	22.566	233.365	6542.31	-5.45	-66.33	-85.24	1766175.07	416580.27	39°38'29.437"N	80°13'06.514"W	108.01	232.110	10.00	10.00	0.29
6650.50†	32.566	233.482	6630.85	-6.71	-93.87	-122.36	1766137.95	416552.74	39°38'29.161"N	80°13'06.985"W	154.22	232.506	10.00	10.00	0.12
6750.50†	42.566	233.549	6710.01	-8.28	-130.07	-171.32	1766088.99	416516.54	39°38'28.800"N	80°13'07.607"W	215.10	232.793	10.00	10.00	0.07
6850.50†	52.566	233.594	6777.40	-10.12	-173.84	-230.63	1766029.69	416472.77	39°38'28.363"N	80°13'08.361"W	288.81	232.992	10.00	10.00	0.04
6887.83	56.299	233.607	6799.11	-10.86	-191.86	-255.07	1766005.25	416454.76	39°38'28.183"N	80°13'08.672"W	319.17	233.050	10.00	10.00	0.04
6950.50†	56.299	233.607	6833.88	-12.13	-222.79	-297.04	1765963.28	416423.82	39°38'27.874"N	80°13'09.205"W	371.30	233.128	0.00	0.00	0.00
7050.50†	56.299	233.607	6889.37	-14.15	-272.15	-364.00	1765896.32	416374.47	39°38'27.380"N	80°13'10.056"W	454.49	233.216	0.00	0.00	0.00
7150.50†	56.299	233.607	6944.85	-16.17	-321.51	-430.97	1765829.35	416325.11	39°38'26.887"N	80°13'10.907"W	537.69	233.277	0.00	0.00	0.00
7250.50†	56.299	233.607	7000.34	-18.19	-370.87	-497.94	1765762.39	416275.75	39°38'26.394"N	80°13'11.758"W	620.88	233.321	0.00	0.00	0.00
7350.50†	56.299	233.607	7055.83	-20.21	-420.23	-564.91	1765695.42	416226.39	39°38'25.901"N	80°13'12.609"W	704.07	233.355	0.00	0.00	0.00
7450.50†	56.299	233.607	7111.31	-22.24	-469.59	-631.88	1765628.46	416177.04	39°38'25.408"N	80°13'13.460"W	787.27	233.381	0.00	0.00	0.00
7550.50†	56.299	233.607	7166.80	-24.26	-518.95	-698.85	1765561.49	416127.68	39°38'24.915"N	80°13'14.311"W	870.46	233.403	0.00	0.00	0.00
7650.50†	56.299	233.607	7222.28	-26.28	-568.31	-765.82	1765494.53	416078.32	39°38'24.422"N	80°13'15.162"W	953.65	233.421	0.00	0.00	0.00
7750.50†	56.299	233.607	7277.77	-28.30	-617.67	-832.79	1765427.56	416028.96	39°38'23.929"N	80°13'16.013"W	1036.85	233.436	0.00	0.00	0.00
7850.50†	56.299	233.607	7333.26	-30.32	-667.03	-899.76	1765360.60	415979.61	39°38'23.436"N	80°13'16.864"W	1120.04	233.449	0.00	0.00	0.00
7950.50†	56.299	233.607	7388.74	-32.35	-716.40	-966.72	1765293.63	415930.25	39°38'22.942"N	80°13'17.715"W	1203.24	233.460	0.00	0.00	0.00
8050.50†	56.299	233.607	7444.23	-34.37	-765.76	-1033.69	1765226.67	415880.89	39°38'22.449"N	80°13'18.566"W	1286.43	233.469	0.00	0.00	0.00
8150.50†	56.299	233.607	7499.71	-36.39	-815.12	-1100.66	1765159.70	415831.53	39°38'21.956"N	80°13'19.417"W	1369.63	233.478	0.00	0.00	0.00
8250.50†	56.299	233.607	7555.20	-38.41	-864.48	-1167.63	1765092.74	415782.18	39°38'21.463"N	80°13'20.267"W	1452.82	233.485	0.00	0.00	0.00
8350.50†	56.299	233.607	7610.69	-40.43	-913.84	-1234.60	1765025.77	415732.82	39°38'20.970"N	80°13'21.118"W	1536.01	233.492	0.00	0.00	0.00
8450.50†	56.299	233.607	7666.17	-42.46	-963.20	-1301.57	1764958.81	415683.46	39°38'20.477"N	80°13'21.969"W	1619.21	233.498	0.00	0.00	0.00
8550.50†	56.299	233.607	7721.66	-44.48	-1012.56	-1368.54	1764891.85	415634.10	39°38'19.984"N	80°13'22.820"W	1702.40	233.503	0.00	0.00	0.00
8650.50†	56.299	233.607	7777.14	-46.50	-1061.92	-1435.51	1764824.88	415584.75	39°38'19.490"N	80°13'23.671"W	1785.60	233.508	0.00	0.00	0.00
8750.50†	56.299	233.607	7832.63	-48.52	-1111.28	-1502.48	1764757.92	415535.39	39°38'18.997"N	80°13'24.522"W	1868.79	233.512	0.00	0.00	0.00
8850.50†	56.299	233.607	7888.12	-50.54	-1160.64	-1569.45	1764690.95	415486.03	39°38'18.504"N	80°13'25.373"W	1951.98	233.516	0.00	0.00	0.00

WELLPATH DATA (290 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]
8950.50†	56.299	233.607	7943.60	-52.57	-1210.00	-1636.41	1764623.99	415436.67	39°38'18.011"N	80°13'26.224"W	2035.18	233.520	0.00	0.00	0.00
8954.10	56.299	233.607	7945.60	-52.64	-1211.78	-1638.82	1764621.58	415434.90	39°38'17.993"N	80°13'26.255"W	2038.17	233.520	0.00	0.00	0.00
9050.50†	56.708	245.163	7998.93	-46.49	-1252.59	-1707.83	1764552.57	415394.09	39°38'17.584"N	80°13'27.132"W	2117.94	233.742	10.00	0.42	11.99
9150.50†	58.241	256.890	8052.83	-23.20	-1279.86	-1787.37	1764473.04	415366.82	39°38'17.309"N	80°13'28.146"W	2198.34	234.395	10.00	1.53	11.73
9250.50†	60.804	268.112	8103.66	16.59	-1290.96	-1872.61	1764387.80	415355.72	39°38'17.192"N	80°13'29.235"W	2274.48	235.418	10.00	2.56	11.22
9350.50†	64.251	278.699	8149.89	71.69	-1285.58	-1960.98	1764299.44	415361.10	39°38'17.298"N	80°13'30.365"W	2344.81	236.752	10.00	3.45	10.59
9450.50†	68.416	288.630	8190.11	140.41	-1263.86	-2049.78	1764210.65	415382.82	39°38'17.446"N	80°13'31.502"W	2408.10	238.343	10.00	4.17	9.93
9550.50†	73.135	297.972	8223.09	220.68	-1226.47	-2136.32	1764124.12	415420.21	39°38'17.808"N	80°13'32.612"W	2463.34	240.140	10.00	4.72	9.34
9650.50†	78.255	306.841	8247.84	310.04	-1174.54	-2217.96	1764042.48	415472.13	39°38'18.315"N	80°13'33.661"W	2509.76	242.096	10.00	5.12	8.87
9750.50†	83.638	315.379	8263.60	405.80	-1109.65	-2292.23	1763968.21	415537.02	39°38'18.950"N	80°13'34.617"W	2546.69	244.169	10.00	5.38	8.54
9850.50†	89.158	323.737	8269.89	505.02	-1033.78	-2356.87	1763903.57	415612.88	39°38'19.695"N	80°13'35.451"W	2573.62	246.317	10.00	5.52	8.36
9865.68	90.000	325.000	8270.00†	520.20	-1021.44	-2365.71	1763894.73	415625.22	39°38'19.816"N	80°13'35.565"W	2576.81	246.647	10.00	5.55	8.32
9950.50†	90.000	325.000	8270.00	605.02	-951.96	-2414.37	1763846.08	415694.70	39°38'20.499"N	80°13'36.194"W	2595.26	248.481	0.00	0.00	0.00



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION	
Operator	NORTHEAST NATURAL ENERGY, LLC
Area	Monongalia County, WV
Field	Monongalia
Facility	Yost Pad
Slot	Slot 11
Well	Yost 11H
Wellbore	Yost 11H PWB

WELLPATH DATA (290 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]
10050.50†	90.000	325.000	8270.00	705.02	-870.05	-2471.72	1763788.73	415776.61	39°38'21.304"N	80°13'36.936"W	2620.38	250.608	0.00	0.00	0.00
10150.50†	90.000	325.000	8270.00	805.02	-788.13	-2529.08	1763731.37	415858.52	39°38'22.109"N	80°13'37.878"W	2649.04	252.692	0.00	0.00	0.00
10250.50†	90.000	325.000	8270.00	905.02	-706.22	-2586.44	1763674.02	415940.43	39°38'22.914"N	80°13'38.419"W	2681.12	254.728	0.00	0.00	0.00
10350.50†	90.000	325.000	8270.00	1005.02	-624.30	-2643.80	1763616.66	416022.34	39°38'23.719"N	80°13'39.161"W	2716.51	256.714	0.00	0.00	0.00
10450.50†	90.000	325.000	8270.00	1105.02	-542.39	-2701.16	1763559.31	416104.24	39°38'24.524"N	80°13'39.903"W	2755.07	258.646	0.00	0.00	0.00
10550.50†	90.000	325.000	8270.00	1205.02	-460.47	-2758.51	1763501.95	416186.15	39°38'25.329"N	80°13'40.644"W	2796.68	260.523	0.00	0.00	0.00
10650.50†	90.000	325.000	8270.00	1305.02	-378.56	-2815.87	1763444.60	416268.06	39°38'26.134"N	80°13'41.386"W	2841.21	262.343	0.00	0.00	0.00
10750.50†	90.000	325.000	8270.00	1405.02	-296.64	-2873.23	1763387.24	416349.97	39°38'26.939"N	80°13'42.128"W	2888.50	264.105	0.00	0.00	0.00
10850.50†	90.000	325.000	8270.00	1505.02	-214.73	-2930.59	1763329.89	416431.88	39°38'27.744"N	80°13'42.869"W	2938.45	265.809	0.00	0.00	0.00
10950.50†	90.000	325.000	8270.00	1605.02	-132.81	-2987.95	1763272.53	416513.79	39°38'28.548"N	80°13'43.611"W	2990.90	267.455	0.00	0.00	0.00
11050.50†	90.000	325.000	8270.00	1705.02	-50.90	-3045.31	1763215.18	416595.70	39°38'29.353"N	80°13'44.353"W	3045.73	269.042	0.00	0.00	0.00
11150.50†	90.000	325.000	8270.00	1805.02	31.01	-3102.66	1763157.83	416677.61	39°38'30.158"N	80°13'45.094"W	3102.82	270.573	0.00	0.00	0.00
11250.50†	90.000	325.000	8270.00	1905.02	112.93	-3160.02	1763100.47	416759.52	39°38'30.963"N	80°13'45.836"W	3162.04	272.047	0.00	0.00	0.00
11350.50†	90.000	325.000	8270.00	2005.02	194.84	-3217.38	1763043.12	416841.43	39°38'31.768"N	80°13'46.578"W	3223.28	273.466	0.00	0.00	0.00
11450.50†	90.000	325.000	8270.00	2105.02	276.76	-3274.74	1762985.76	416923.34	39°38'32.573"N	80°13'47.319"W	3286.41	274.831	0.00	0.00	0.00
11550.50†	90.000	325.000	8270.00	2205.02	358.67	-3332.10	1762928.41	417005.25	39°38'33.378"N	80°13'48.061"W	3351.35	276.144	0.00	0.00	0.00
11650.50†	90.000	325.000	8270.00	2305.02	440.59	-3389.46	1762871.05	417087.16	39°38'34.183"N	80°13'48.803"W	3417.97	277.406	0.00	0.00	0.00
11750.50†	90.000	325.000	8270.00	2405.02	522.50	-3446.81	1762813.70	417169.07	39°38'34.988"N	80°13'49.545"W	3486.19	278.620	0.00	0.00	0.00
11850.50†	90.000	325.000	8270.00	2505.02	604.42	-3504.17	1762756.34	417250.98	39°38'35.793"N	80°13'50.286"W	3555.92	279.786	0.00	0.00	0.00
11950.50†	90.000	325.000	8270.00	2605.02	686.33	-3561.53	1762698.99	417332.89	39°38'36.598"N	80°13'51.028"W	3627.06	280.908	0.00	0.00	0.00
12050.50†	90.000	325.000	8270.00	2705.02	768.25	-3618.89	1762641.63	417414.80	39°38'37.403"N	80°13'51.770"W	3699.54	281.985	0.00	0.00	0.00
12150.50†	90.000	325.000	8270.00	2805.02	850.16	-3676.25	1762584.28	417496.71	39°38'38.208"N	80°13'52.512"W	3773.27	283.021	0.00	0.00	0.00
12250.50†	90.000	325.000	8270.00	2905.02	932.08	-3733.61	1762526.92	417578.62	39°38'39.012"N	80°13'53.253"W	3848.19	284.017	0.00	0.00	0.00
12350.50†	90.000	325.000	8270.00	3005.02	1013.99	-3790.96	1762469.57	417660.53	39°38'39.817"N	80°13'53.995"W	3924.23	284.975	0.00	0.00	0.00
12450.50†	90.000	325.000	8270.00	3105.02	1095.92	-3848.32	1762412.21	417742.44	39°38'40.622"N	80°13'54.737"W	4001.32	285.896	0.00	0.00	0.00
12550.50†	90.000	325.000	8270.00	3205.02	1177.82	-3905.68	1762354.86	417824.35	39°38'41.427"N	80°13'55.479"W	4079.41	286.782	0.00	0.00	0.00
12650.50†	90.000	325.000	8270.00	3305.02	1259.74	-3963.04	1762297.50	417906.26	39°38'42.232"N	80°13'56.220"W	4158.44	287.634	0.00	0.00	0.00
12750.50†	90.000	325.000	8270.00	3405.02	1341.65	-4020.40	1762240.15	417988.17	39°38'43.037"N	80°13'56.962"W	4238.35	288.454	0.00	0.00	0.00
12850.50†	90.000	325.000	8270.00	3505.02	1423.57	-4077.76	1762182.79	418070.08	39°38'43.842"N	80°13'57.704"W	4319.10	289.244	0.00	0.00	0.00
12950.50†	90.000	325.000	8270.00	3605.02	1505.48	-4135.11	1762125.44	418151.99	39°38'44.647"N	80°13'58.446"W	4400.64	290.005	0.00	0.00	0.00
13050.50†	90.000	325.000	8270.00	3705.02	1587.39	-4192.47	1762068.08	418233.90	39°38'45.452"N	80°13'59.187"W	4482.93	290.738	0.00	0.00	0.00
13150.50†	90.000	325.000	8270.00	3805.02	1669.31	-4249.83	1762010.73	418315.81	39°38'46.257"N	80°13'59.929"W	4565.92	291.445	0.00	0.00	0.00

WELLPATH DATA (290 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]
13250.50†	90.000	325.000	8270.00	3905.02	1751.22	-4307.19	1761953.37	418397.72	39°38'47.062"N	80°14'00.671"W	4649.59	292.126	0.00	0.00	0.00
13350.50†	90.000	325.000	8270.00	4005.02	1833.14	-4364.55	1761896.02	418479.63	39°38'47.866"N	80°14'01.413"W	4733.89	292.783	0.00	0.00	0.00
13450.50†	90.000	325.000	8270.00	4105.02	1915.05	-4421.91	1761838.66	418561.54	39°38'48.671"N	80°14'02.155"W	4818.78	293.417	0.00	0.00	0.00
13550.50†	90.000	325.000	8270.00	4205.02	1996.97	-4479.26	1761781.31	418643.45	39°38'49.476"N	80°14'02.896"W	4904.25	294.029	0.00	0.00	0.00
13650.50†	90.000	325.000	8270.00	4305.02	2078.88	-4536.62	1761723.95	418725.36	39°38'50.281"N	80°14'03.638"W	4990.26	294.619	0.00	0.00	0.00
13750.50†	90.000	325.000	8270.00	4405.02	2160.80	-4593.98	1761666.60	418807.27	39°38'51.086"N	80°14'04.380"W	5076.78	295.190	0.00	0.00	0.00
13850.50†	90.000	325.000	8270.00	4505.02	2242.71	-4651.34	1761609.25	418889.18	39°38'51.891"N	80°14'05.122"W	5163.79	295.742	0.00	0.00	0.00
13950.50†	90.000	325.000	8270.00	4605.02	2324.63	-4708.70	1761551.89	418971.08	39°38'52.696"N	80°14'05.864"W	5251.26	296.275	0.00	0.00	0.00
14050.50†	90.000	325.000	8270.00	4705.02	2406.54	-4766.06	1761494.54	419052.99	39°38'53.501"N	80°14'06.605"W	5339.17	296.791	0.00	0.00	0.00
14150.50†	90.000	325.000	8270.00	4805.02	2488.46	-4823.41	1761437.18	419134.90	39°38'54.306"N	80°14'07.347"W	5427.50	297.290	0.00	0.00	0.00
14250.50†	90.000	325.000	8270.00	4905.02	2570.37	-4880.77	1761379.83	419216.81	39°38'55.111"N	80°14'08.089"W	5516.23	297.773	0.00	0.00	0.00
14350.50†	90.000	325.000	8270.00	5005.02	2652.29	-4938.13	1761322.47	419298.72	39°38'55.915"N	80°14'08.831"W	5605.33	298.240	0.00	0.00	0.00
14450.50†	90.000	325.000	8270.00	5105.02	2734.20	-4995.49	1761265.12	419380.63	39°38'56.720"N	80°14'09.573"W	5694.80	298.693	0.00	0.00	0.00



Planned Wellpath Report

Yost 11H PWP Rev-A.0

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REFERENCE WELLPATH IDENTIFICATION	
Operator	NORTHEAST NATURAL ENERGY, LLC
Area	Monongalia County, WV
Field	Monongalia
Facility	Yost Pad
Slot	Slot 11
Well	Yost 11H
Wellbore	Yost 11H PWB

WELLPATH DATA (290 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]
14550.50†	90.000	325.000	8270.00	5205.02	2816.12	-5052.85	1761207.76	419482.54	39°38'57.525"N	80°14'10.315"W	5784.62	299.132	0.00	0.00	0.00
14650.50†	90.000	325.000	8270.00	5305.02	2898.03	-5110.21	1761150.41	419544.45	39°38'58.330"N	80°14'11.056"W	5874.76	299.558	0.00	0.00	0.00
14750.50†	90.000	325.000	8270.00	5405.02	2979.94	-5167.56	1761093.05	419626.36	39°38'59.135"N	80°14'11.798"W	5965.22	299.970	0.00	0.00	0.00
14850.50†	90.000	325.000	8270.00	5505.02	3061.86	-5224.92	1761035.70	419708.27	39°38'59.940"N	80°14'12.540"W	6055.97	300.371	0.00	0.00	0.00
14950.50†	90.000	325.000	8270.00	5605.02	3143.77	-5282.28	1760978.34	419790.18	39°39'00.745"N	80°14'13.282"W	6147.02	300.759	0.00	0.00	0.00
15050.50†	90.000	325.000	8270.00	5705.02	3225.69	-5339.64	1760920.99	419872.09	39°39'01.550"N	80°14'14.024"W	6238.33	301.136	0.00	0.00	0.00
15150.50†	90.000	325.000	8270.00	5805.02	3307.60	-5397.00	1760863.63	419954.00	39°39'02.354"N	80°14'14.766"W	6329.92	301.502	0.00	0.00	0.00
15250.50†	90.000	325.000	8270.00	5905.02	3389.52	-5454.36	1760806.28	420035.91	39°39'03.159"N	80°14'15.508"W	6421.75	301.858	0.00	0.00	0.00
15350.50†	90.000	325.000	8270.00	6005.02	3471.43	-5511.71	1760748.92	420117.82	39°39'03.964"N	80°14'16.250"W	6513.82	302.204	0.00	0.00	0.00
15450.50†	90.000	325.000	8270.00	6105.02	3553.35	-5569.07	1760691.57	420199.73	39°39'04.769"N	80°14'16.991"W	6606.12	302.540	0.00	0.00	0.00
15550.50†	90.000	325.000	8270.00	6205.02	3635.26	-5626.43	1760634.21	420281.64	39°39'05.574"N	80°14'17.733"W	6698.65	302.867	0.00	0.00	0.00
15650.50†	90.000	325.000	8270.00	6305.02	3717.18	-5683.79	1760576.86	420363.55	39°39'06.379"N	80°14'18.475"W	6791.38	303.185	0.00	0.00	0.00
15750.50†	90.000	325.000	8270.00	6405.02	3799.09	-5741.15	1760519.50	420445.46	39°39'07.184"N	80°14'19.217"W	6884.32	303.494	0.00	0.00	0.00
15850.50†	90.000	325.000	8270.00	6505.02	3881.01	-5798.51	1760462.15	420527.37	39°39'07.989"N	80°14'19.959"W	6977.46	303.795	0.00	0.00	0.00
15950.50†	90.000	325.000	8270.00	6605.02	3962.92	-5855.86	1760404.79	420609.28	39°39'08.793"N	80°14'20.701"W	7070.78	304.088	0.00	0.00	0.00
16050.50†	90.000	325.000	8270.00	6705.02	4044.84	-5913.22	1760347.44	420691.19	39°39'09.598"N	80°14'21.443"W	7164.28	304.373	0.00	0.00	0.00
16150.50†	90.000	325.000	8270.00	6805.02	4126.75	-5970.58	1760290.08	420773.10	39°39'10.403"N	80°14'22.185"W	7257.96	304.651	0.00	0.00	0.00
16250.50†	90.000	325.000	8270.00	6905.02	4208.67	-6027.94	1760232.73	420855.01	39°39'11.208"N	80°14'22.927"W	7351.80	304.922	0.00	0.00	0.00
16350.50†	90.000	325.000	8270.00	7005.02	4290.58	-6085.30	1760175.37	420936.92	39°39'12.013"N	80°14'23.669"W	7445.80	305.187	0.00	0.00	0.00
16450.50†	90.000	325.000	8270.00	7105.02	4372.50	-6142.66	1760118.02	421018.83	39°39'12.818"N	80°14'24.411"W	7539.96	305.444	0.00	0.00	0.00
16550.50†	90.000	325.000	8270.00	7205.02	4454.41	-6200.01	1760060.67	421100.74	39°39'13.623"N	80°14'25.153"W	7634.26	305.695	0.00	0.00	0.00
16650.50†	90.000	325.000	8270.00	7305.02	4536.32	-6257.37	1760003.31	421182.65	39°39'14.427"N	80°14'25.895"W	7728.71	305.940	0.00	0.00	0.00
16750.50†	90.000	325.000	8270.00	7405.02	4618.24	-6314.73	1759945.96	421264.56	39°39'15.232"N	80°14'26.637"W	7823.30	306.180	0.00	0.00	0.00
16850.50†	90.000	325.000	8270.00	7505.02	4700.15	-6372.09	1759888.60	421346.47	39°39'16.037"N	80°14'27.379"W	7918.02	306.413	0.00	0.00	0.00
16950.50†	90.000	325.000	8270.00	7605.02	4782.07	-6429.45	1759831.25	421428.38	39°39'16.842"N	80°14'28.120"W	8012.86	306.641	0.00	0.00	0.00
17050.50†	90.000	325.000	8270.00	7705.02	4863.98	-6486.81	1759773.89	421510.29	39°39'17.647"N	80°14'28.862"W	8107.84	306.864	0.00	0.00	0.00
17150.50†	90.000	325.000	8270.00	7805.02	4945.90	-6544.16	1759716.54	421592.20	39°39'18.452"N	80°14'29.604"W	8202.93	307.081	0.00	0.00	0.00
17250.50†	90.000	325.000	8270.00	7905.02	5027.81	-6601.52	1759659.18	421674.11	39°39'19.257"N	80°14'30.346"W	8298.13	307.293	0.00	0.00	0.00
17350.50†	90.000	325.000	8270.00	8005.02	5109.73	-6658.88	1759601.83	421756.02	39°39'20.061"N	80°14'31.088"W	8393.45	307.501	0.00	0.00	0.00
17450.50†	90.000	325.000	8270.00	8105.02	5191.64	-6716.24	1759544.47	421837.92	39°39'20.866"N	80°14'31.830"W	8488.88	307.704	0.00	0.00	0.00
17550.50†	90.000	325.000	8270.00	8205.02	5273.56	-6773.60	1759487.12	421919.83	39°39'21.671"N	80°14'32.572"W	8584.41	307.902	0.00	0.00	0.00
17650.50†	90.000	325.000	8270.00	8305.02	5355.47	-6830.96	1759429.76	422001.74	39°39'22.476"N	80°14'33.314"W	8680.04	308.096	0.00	0.00	0.00

WELLPATH DATA (290 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]
17750.50†	90.000	325.000	8270.00	8405.02	5437.39	-6888.31	1759372.41	422083.65	39°39'23.281"N	80°14'34.056"W	8775.76	308.286	0.00	0.00	0.00
17850.50†	90.000	325.000	8270.00	8505.02	5519.30	-6945.67	1759315.05	422165.56	39°39'24.086"N	80°14'34.798"W	8871.59	308.472	0.00	0.00	0.00
17950.50†	90.000	325.000	8270.00	8605.02	5601.22	-7003.03	1759257.70	422247.47	39°39'24.890"N	80°14'35.540"W	8967.50	308.654	0.00	0.00	0.00
18050.50†	90.000	325.000	8270.00	8705.02	5683.13	-7060.39	1759200.34	422329.38	39°39'25.695"N	80°14'36.282"W	9063.50	308.832	0.00	0.00	0.00
18150.50†	90.000	325.000	8270.00	8805.02	5765.05	-7117.75	1759142.99	422411.29	39°39'26.500"N	80°14'37.024"W	9159.59	309.006	0.00	0.00	0.00
18250.50†	90.000	325.000	8270.00	8905.02	5846.96	-7175.11	1759085.63	422493.20	39°39'27.305"N	80°14'37.766"W	9255.76	309.176	0.00	0.00	0.00
18350.50†	90.000	325.000	8270.00	9005.02	5928.88	-7232.46	1759028.28	422575.11	39°39'28.110"N	80°14'38.508"W	9352.01	309.343	0.00	0.00	0.00
18450.50†	90.000	325.000	8270.00	9105.02	6010.79	-7289.82	1758970.92	422657.02	39°39'28.915"N	80°14'39.251"W	9448.34	309.507	0.00	0.00	0.00
18550.50†	90.000	325.000	8270.00	9205.02	6092.70	-7347.18	1758913.57	422738.93	39°39'29.719"N	80°14'39.993"W	9544.74	309.667	0.00	0.00	0.00
18650.50†	90.000	325.000	8270.00	9305.02	6174.62	-7404.54	1758856.21	422820.84	39°39'30.524"N	80°14'40.735"W	9641.22	309.825	0.00	0.00	0.00
18750.50†	90.000	325.000	8270.00	9405.02	6256.53	-7461.90	1758798.86	422902.75	39°39'31.329"N	80°14'41.477"W	9737.77	309.979	0.00	0.00	0.00
18850.50†	90.000	325.000	8270.00	9505.02	6338.45	-7519.26	1758741.50	422984.66	39°39'32.134"N	80°14'42.219"W	9834.39	310.130	0.00	0.00	0.00
18950.50†	90.000	325.000	8270.00	9605.02	6420.36	-7576.61	1758684.15	423066.57	39°39'32.939"N	80°14'42.961"W	9931.07	310.278	0.00	0.00	0.00



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REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 11
NORTHEAST NATURAL ENERGY, LLC	Well	Yost 11H
Monongalia County, WV	Wellbore	Yost 11H PWB
Monongalia		
Yost Pad		

WELLPATH DATA (290 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]
19050.50†	90.000	325.000	8270.00	9705.02	6502.28	-7633.97	1758626.79	423148.48	39°39'33.744"N	80°14'43.703"W	10027.82	310.423	0.00	0.00	0.00
19150.50†	90.000	325.000	8270.00	9805.02	6584.19	-7691.33	1758569.44	423230.39	39°39'34.548"N	80°14'44.445"W	10124.63	310.565	0.00	0.00	0.00
19250.50†	90.000	325.000	8270.00	9905.02	6666.11	-7748.69	1758512.09	423312.30	39°39'35.353"N	80°14'45.187"W	10221.51	310.705	0.00	0.00	0.00
19350.50†	90.000	325.000	8270.00	10005.02	6748.02	-7806.05	1758454.73	423394.21	39°39'36.158"N	80°14'45.929"W	10318.44	310.842	0.00	0.00	0.00
19450.50†	90.000	325.000	8270.00	10105.02	6829.94	-7863.41	1758397.38	423476.12	39°39'36.963"N	80°14'46.671"W	10415.43	310.977	0.00	0.00	0.00
19550.50†	90.000	325.000	8270.00	10205.02	6911.85	-7920.76	1758340.02	423558.03	39°39'37.768"N	80°14'47.413"W	10512.48	311.109	0.00	0.00	0.00
19650.50†	90.000	325.000	8270.00	10305.02	6993.77	-7978.12	1758282.67	423639.94	39°39'38.573"N	80°14'48.155"W	10609.58	311.238	0.00	0.00	0.00
19750.50†	90.000	325.000	8270.00	10405.02	7075.68	-8035.48	1758225.31	423721.85	39°39'39.377"N	80°14'48.897"W	10706.74	311.366	0.00	0.00	0.00
19850.50†	90.000	325.000	8270.00	10505.02	7157.60	-8092.84	1758167.96	423803.76	39°39'40.182"N	80°14'49.640"W	10803.94	311.491	0.00	0.00	0.00
19950.50†	90.000	325.000	8270.00	10605.02	7239.51	-8150.20	1758110.60	423885.67	39°39'40.987"N	80°14'50.382"W	10901.20	311.613	0.00	0.00	0.00
20050.50†	90.000	325.000	8270.00	10705.02	7321.43	-8207.56	1758053.25	423967.58	39°39'41.792"N	80°14'51.124"W	10998.51	311.734	0.00	0.00	0.00
20150.50†	90.000	325.000	8270.00	10805.02	7403.34	-8264.91	1757995.89	424049.49	39°39'42.597"N	80°14'51.866"W	11095.87	311.853	0.00	0.00	0.00
20250.50†	90.000	325.000	8270.00	10905.02	7485.26	-8322.27	1757938.54	424131.40	39°39'43.401"N	80°14'52.608"W	11193.27	311.969	0.00	0.00	0.00
20350.50†	90.000	325.000	8270.00	11005.02	7567.17	-8379.63	1757881.18	424213.31	39°39'44.206"N	80°14'53.350"W	11290.72	312.083	0.00	0.00	0.00
20450.50†	90.000	325.000	8270.00	11105.02	7649.08	-8436.99	1757823.83	424295.22	39°39'45.011"N	80°14'54.092"W	11388.21	312.196	0.00	0.00	0.00
20550.50†	90.000	325.000	8270.00	11205.02	7731.00	-8494.35	1757766.47	424377.13	39°39'45.816"N	80°14'54.834"W	11485.74	312.306	0.00	0.00	0.00
20650.50†	90.000	325.000	8270.00	11305.02	7812.91	-8551.71	1757709.12	424459.04	39°39'46.621"N	80°14'55.577"W	11583.32	312.415	0.00	0.00	0.00
20750.50†	90.000	325.000	8270.00	11405.02	7894.83	-8609.06	1757651.76	424540.95	39°39'47.425"N	80°14'56.319"W	11680.94	312.522	0.00	0.00	0.00
20850.50†	90.000	325.000	8270.00	11505.02	7976.74	-8666.42	1757594.41	424622.86	39°39'48.230"N	80°14'57.061"W	11778.60	312.627	0.00	0.00	0.00
20904.70	90.000	325.000	8270.00	11559.22	8021.14	-8697.51	1757563.32	424667.25	39°39'48.666"N	80°14'57.463"W	11831.54	312.683	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Yost 11H PWB Ref Wellpath: Yost 11H PWP Rev-A.0

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	1462.50	1440.00	22.50	1462.50	0.00	0.00	-1.98	-0.34
13.375in Casing Surface	22.50	1462.50	1440.00	22.50	1462.50	0.00	0.00	-1.98	-0.34
12.25in Open Hole	1462.50	2592.50	1130.00	1462.50	2592.49	-1.98	-0.34	-3.67	-0.99
9.625in Casing Intermediate	22.50	2592.50	2570.00	22.50	2592.49	0.00	0.00	-3.67	-0.99
8.75in Open Hole	2592.50	6250.50	3658.00	2592.49	6248.10	-3.67	-0.99	-39.58	-50.03
8.5in Open Hole	6250.50	20904.70	14654.20	6248.10	8270.00	-39.58	-50.03	8021.14	-8697.51

HOLE & CASING SECTIONS - Ref Wellbore: Yost 11H PWB Ref Wellpath: Yost 11H PWP Rev-A.0

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]
5.5in Casing Production	22.50	20904.70	20882.20	22.50	8270.00	0.00	0.00	8021.14	-8697.51

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
2) Yost 11H BHL Rev-4	20904.70	8270.00	8021.14	-8697.51	1757563.32	424667.25	39°39'48.666"N	80°14'57.463"W	point
1) Yost 11H LP Rev-2	9865.68	8270.00	-1021.44	-2365.71	1763894.73	415625.22	39°38'19.816"N	80°13'35.565"W	point

Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 11
Area	Monongalia County, WV	Well	Yost 11H
Field	Monongalia	Wellbore	Yost 11H PWB
Facility	Yost Pad		

SURVEY PROGRAM - Ref Wellbore: Yost 11H PWB Ref Wellpath: Yost 11H PWP Rev-A.0

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
22.50	1425.50	OWSG MWD rev2 + HRGM	01_Phoenix MWD <17 1/2"> (113'-1418')	Yost 11H AWB
1425.50	2575.50	OWSG MWD rev2 + HRGM	02_Phoenix MWD <12 1/4"> (1490'-2568')	Yost 11H AWB
2575.50	6250.50	OWSG MWD rev2 + HRGM	03_Phoenix MWD <8 3/4"> (2624'-6243')	Yost 11H AWB
6250.50	21000.00	BHI NaviTrak (Standard)		Yost 11H PWB