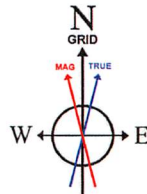
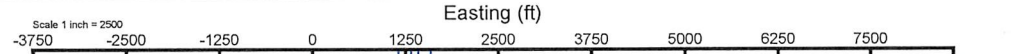




# NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot 02  
 Well: ERP 2H  
 Wellbore: ERP 2H PWB



User specified (HDGM) Dip: 66.52° Field: 51990 nT  
 Magnetic North is 8.96 degrees West of True North (at 7/30/2021)  
 Grid North is 0.49 degrees West of True North  
 To correct azimuth from True to Grid add 0.49 degrees  
 To correct azimuth from Magnetic to Grid subtract 8.47 degrees



Javins Inertial Gyro <12-1/4">(100'-2600') : 0.26° Inc, 100.00ft MD, 100.00ft TVD, 0.06ft VS

Plot reference wellpath is ERP 2H PWP Rev-B.0	Grid System: NAD83 (Lambert West Virginia SP, Northern Zone (4701), US feet)
True vertical depths are referenced to Patterson 277 (RKB)	North Reference: Grid north
Reference wellpath measured depths are referenced to Patterson 277 (RKB)	Scale: True distance
Patterson 277 (RKB) to Mean Sea Level: 1366 feet	Coordinates are in feet referenced to Skit
Mean Sea Level to Ground level (At Skit: Slot 02): -1338 feet	Depths are in feet
Offset wellbore MDs are referenced to well path's default MD datum	Created by: rdhmp on 20210804; Database: WVA_MPL_EASTERNUS_04b

### Well Data

Slot	Well	Wellbore	Wellpath
Slot 02	ERP 2H	ERP 2H AWB	ERP 2H AWP Proj. 21018
Slot 02	ERP 2H	ERP 2H PWB	ERP 2H PWP Rev-B.0

Tally MWD <8-3/4">(2600')(2727'-7379') : 0.89° Inc, 2727.00ft MD, 2726.90ft TVD, 12.16ft VS

**API: 47-061-01877-0000**  
**BH Job #: 110948038**  
**Rig: Patterson 277**  
**Duration: 7/30/21 - 8/3/21**

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
ERP Pad	1750811.960	428438.070	39°40'25.3685"N	80°16'24.2106"W
Skit	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot 02	0.00	0.00	1750811.960	428438.070
			39°40'25.3685"N	80°16'24.2106"W
Patterson 277 (RKB) to Ground level (At Slot: Slot 02)	28ft			
Mean Sea Level to Ground level (At Skit: Slot 02)	-1338ft			
Patterson 277 (RKB) to Mean Sea Level	1366ft			

Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	7379.00	27.820	285.350	7118.79	29.93	-1096.52	0.48
Proj. to Bottom	7443.00	27.820	285.350	7175.50	27.53	-1126.09	0.00
End of 3D Arc	7495.55	31.279	289.604	7221.27	26.44	-1151.89	8.01
Landing Pt.	8824.89	90.000	146.373	8040.00	-774.67	-1118.76	8.01
BHL	21016.35	90.000	146.373	8040.00	-10526.06	5632.61	0.00

BH AT Curve <8-1/2">(7285')(7482'-20993') : 29.88° Inc, 7482.00ft MD, 7209.09ft TVD, -657.37ft VS

Projected MD at TD: 21018' : 89.88° Inc, 21018.00ft MD, 8071.31ft TVD, 12215.93ft VS

Projected MD at TD: 21018' : 8071.31ft TVD, 10921.19ft S, 5638.23ft E

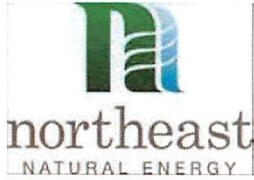
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Vertical Section (ft)  
 Azimuth 146.37° with reference 0.00 N, 0.00 E

Scale 1 inch = 1750



# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

## REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Hilpthop
Scale	0.999941	Report Generated	8/4/2021 at 10:33:06 PM
Convergence at slot	0.49° West	Database	WA_MPL_EASTERNUS_Defn

## WELLPATH LOCATION

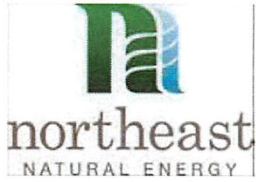
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1750811.96	428438.07	39°40'25.3685"N	80°16'24.2106"W
Facility Reference Pt			1750811.96	428438.07	39°40'25.3685"N	80°16'24.2106"W
Field Reference Pt			1777685.71	440640.65	39°42'28.1140"N	80°10'41.6900"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Patterson 277 (RKB) to Facility Vertical Datum	1366.00ft
Horizontal Reference Pt	Slot	Patterson 277 (RKB) to Mean Sea Level	1366.00ft
Vertical Reference Pt	Patterson 277 (RKB)	Patterson 277 (RKB) to Ground Level at Slot (Slot 02)	28.00ft
MD Reference Pt	Patterson 277 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	146.37°

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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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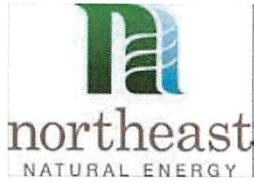


REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

## WELLPATH DATA (223 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	76.400	0.00	0.00	0.00	0.00	1750811.96	428438.07	39°40'25.3685"N	80°16'24.2106"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	76.400	28.00	0.00	0.00	0.00	1750811.96	428438.07	39°40'25.3685"N	80°16'24.2106"W	0.00	0.000	0.00	0.00	0.00
100.00	0.260	76.400	100.00	0.06	0.04	0.16	1750812.12	428438.11	39°40'25.3688"N	80°16'24.2086"W	0.16	76.400	0.36	0.36	0.00
200.00	0.300	233.600	200.00	0.15	-0.06	0.17	1750812.13	428438.01	39°40'25.3678"N	80°16'24.2084"W	0.18	110.666	0.55	0.04	157.20
300.00	0.270	141.000	300.00	0.39	-0.40	0.11	1750812.07	428437.67	39°40'25.3645"N	80°16'24.2092"W	0.42	165.210	0.41	-0.03	-92.60
400.00	0.240	293.800	400.00	0.45	-0.50	0.06	1750812.02	428437.57	39°40'25.3635"N	80°16'24.2097"W	0.50	172.850	0.50	-0.03	152.80
500.00	0.400	292.600	500.00	-0.02	-0.28	-0.45	1750811.51	428437.79	39°40'25.3656"N	80°16'24.2163"W	0.53	237.989	0.16	0.16	-1.20
600.00	0.490	249.100	599.99	-0.40	-0.30	-1.17	1750810.79	428437.77	39°40'25.3654"N	80°16'24.2256"W	1.21	255.634	0.34	0.09	-43.50
700.00	0.360	135.200	699.99	-0.19	-0.68	-1.35	1750810.61	428437.39	39°40'25.3617"N	80°16'24.2278"W	1.51	243.422	0.72	-0.13	-113.90
800.00	0.300	203.900	799.99	0.26	-1.14	-1.24	1750810.72	428436.93	39°40'25.3571"N	80°16'24.2263"W	1.68	227.352	0.38	-0.06	68.70
900.00	0.150	344.900	899.99	0.28	-1.25	-1.38	1750810.58	428436.82	39°40'25.3560"N	80°16'24.2281"W	1.86	227.718	0.43	-0.15	141.00
1000.00	0.370	166.400	999.99	0.46	-1.44	-1.33	1750810.63	428436.63	39°40'25.3541"N	80°16'24.2275"W	1.96	222.840	0.52	0.22	-178.50
1100.00	0.150	350.000	1099.99	0.64	-1.62	-1.28	1750810.68	428436.45	39°40'25.3523"N	80°16'24.2268"W	2.07	218.270	0.52	-0.22	-176.40
1200.00	0.380	123.900	1199.99	0.83	-1.68	-1.03	1750810.93	428436.39	39°40'25.3518"N	80°16'24.2236"W	1.97	211.476	0.50	0.23	133.90
1300.00	0.290	175.500	1299.99	1.36	-2.12	-0.73	1750811.23	428435.95	39°40'25.3475"N	80°16'24.2197"W	2.24	199.104	0.30	-0.09	51.60
1400.00	0.640	115.500	1399.98	2.06	-2.61	-0.21	1750811.75	428435.46	39°40'25.3426"N	80°16'24.2130"W	2.62	184.584	0.56	0.35	-60.00
1500.00	0.710	115.500	1499.98	3.07	-3.12	0.85	1750812.81	428434.95	39°40'25.3377"N	80°16'24.1993"W	3.23	164.675	0.07	0.07	0.00
1600.00	0.700	118.400	1599.97	4.14	-3.67	1.95	1750813.91	428434.40	39°40'25.3323"N	80°16'24.1852"W	4.16	152.034	0.04	-0.01	2.90
1700.00	0.880	128.700	1699.96	5.41	-4.44	3.09	1750815.05	428433.63	39°40'25.3248"N	80°16'24.1706"W	5.41	145.215	0.23	0.18	10.30
1800.00	0.590	133.900	1799.95	6.64	-5.28	4.06	1750816.02	428432.79	39°40'25.3166"N	80°16'24.1581"W	6.66	142.467	0.30	-0.29	5.20
1900.00	0.290	156.200	1899.95	7.40	-5.87	4.53	1750816.49	428432.20	39°40'25.3108"N	80°16'24.1520"W	7.42	142.339	0.34	-0.30	22.30
2000.00	0.610	112.400	1999.95	8.09	-6.30	5.12	1750817.08	428431.77	39°40'25.3066"N	80°16'24.1444"W	8.12	140.893	0.45	0.32	-43.80
2100.00	0.710	103.300	2099.94	8.98	-6.65	6.22	1750818.18	428431.42	39°40'25.3033"N	80°16'24.1303"W	9.11	136.914	0.14	0.10	-9.10
2200.00	0.690	56.300	2199.93	9.43	-6.46	7.32	1750819.28	428431.61	39°40'25.3052"N	80°16'24.1162"W	9.76	131.407	0.56	-0.02	-47.00
2300.00	0.400	72.100	2299.93	9.53	-6.02	8.16	1750820.12	428432.05	39°40'25.3097"N	80°16'24.1056"W	10.14	126.415	0.32	-0.29	15.80
2400.00	0.780	106.700	2399.92	10.15	-6.11	9.14	1750821.10	428431.96	39°40'25.3089"N	80°16'24.0930"W	10.99	123.739	0.50	0.38	34.60
2500.00	0.640	74.600	2499.92	10.84	-6.15	10.33	1750822.29	428431.92	39°40'25.3085"N	80°16'24.0778"W	12.02	120.775	0.42	-0.14	-32.10
2600.00	0.650	80.200	2599.91	11.25	-5.91	11.43	1750823.39	428432.16	39°40'25.3110"N	80°16'24.0638"W	12.87	117.335	0.06	0.01	5.60
2727.00	0.890	95.560	2726.90	12.16	-5.88	13.12	1750825.08	428432.19	39°40'25.3114"N	80°16'24.0422"W	14.38	114.143	0.25	0.19	12.09
2822.00	0.170	221.470	2821.89	12.67	-6.06	13.76	1750825.72	428432.01	39°40'25.3098"N	80°16'24.0339"W	15.04	113.759	1.05	-0.76	132.54





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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

## WELLPATH DATA (223 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]
2916.00	0.160	22.190	2915.89	12.63	-6.04	13.72	1750825.68	428432.03	39°40'25.3099"N	80°16'24.0345"W	14.99	113.766	0.35	-0.01	170.98
3011.00	0.300	81.060	3010.89	12.66	-5.88	14.01	1750825.97	428432.19	39°40'25.3115"N	80°16'24.0307"W	15.20	112.759	0.27	0.15	61.97
3105.00	0.910	255.470	3104.89	12.52	-6.03	13.54	1750825.49	428432.04	39°40'25.3100"N	80°16'24.0368"W	14.82	114.008	1.29	0.65	185.54
3200.00	0.790	260.810	3199.88	12.00	-6.32	12.16	1750824.12	428431.75	39°40'25.3070"N	80°16'24.0544"W	13.70	117.474	0.15	-0.13	5.62
3294.00	0.670	236.770	3293.87	11.73	-6.73	11.06	1750823.02	428431.34	39°40'25.3029"N	80°16'24.0684"W	12.94	121.312	0.35	-0.13	-25.57
3389.00	1.820	249.930	3388.85	11.37	-7.55	9.18	1750821.14	428430.52	39°40'25.2946"N	80°16'24.0924"W	11.88	129.440	1.24	1.21	13.85
3484.00	1.670	247.160	3483.80	10.76	-8.60	6.48	1750818.44	428429.47	39°40'25.2840"N	80°16'24.1267"W	10.77	142.996	0.18	-0.16	-2.92
3578.00	1.340	247.010	3577.77	10.30	-9.57	4.21	1750816.17	428428.51	39°40'25.2743"N	80°16'24.1557"W	10.45	156.242	0.35	-0.35	-0.16
3673.00	1.380	244.890	3672.75	9.92	-10.48	2.15	1750814.11	428427.59	39°40'25.2650"N	80°16'24.1819"W	10.70	168.401	0.07	0.04	-2.23
3767.00	1.310	236.280	3766.72	9.76	-11.56	0.23	1750812.19	428426.51	39°40'25.2542"N	80°16'24.2063"W	11.56	178.844	0.23	-0.07	-9.16
3862.00	0.980	275.550	3861.70	9.24	-12.09	-1.48	1750810.48	428425.99	39°40'25.2489"N	80°16'24.2282"W	12.18	186.975	0.87	-0.35	41.34
3957.00	1.000	273.660	3956.69	8.23	-11.95	-3.11	1750808.85	428426.12	39°40'25.2501"N	80°16'24.2491"W	12.35	194.603	0.04	0.02	-1.99
4051.00	1.020	268.050	4050.67	7.29	-11.93	-4.77	1750807.19	428426.14	39°40'25.2501"N	80°16'24.2703"W	12.85	201.790	0.11	0.02	-5.97
4149.00	1.110	256.440	4148.66	6.51	-12.18	-6.56	1750805.40	428425.89	39°40'25.2475"N	80°16'24.2932"W	13.84	208.316	0.24	0.09	-11.85
4244.00	1.030	252.590	4243.64	5.95	-12.65	-8.27	1750803.69	428425.42	39°40'25.2427"N	80°16'24.3150"W	15.12	213.177	0.11	-0.08	-4.05
4339.00	1.150	257.370	4338.62	5.37	-13.12	-10.02	1750801.94	428424.95	39°40'25.2380"N	80°16'24.3373"W	16.51	217.370	0.16	0.13	5.03
4434.00	1.400	307.330	4433.60	3.94	-12.62	-11.87	1750800.09	428425.45	39°40'25.2427"N	80°16'24.3610"W	17.33	223.244	1.16	0.26	52.59
4528.00	2.910	306.910	4527.53	0.60	-10.49	-14.69	1750797.27	428427.58	39°40'25.2635"N	80°16'24.3973"W	18.05	234.467	1.61	1.61	-0.45
4624.00	3.670	296.070	4623.37	-4.35	-7.68	-19.40	1750792.56	428430.39	39°40'25.2909"N	80°16'24.4579"W	20.87	248.406	1.02	0.79	-11.29
4718.00	4.430	287.550	4717.14	-9.78	-5.26	-25.56	1750786.40	428432.81	39°40'25.3143"N	80°16'24.5370"W	26.10	258.369	1.03	0.81	-9.06
4813.00	5.510	285.770	4811.78	-16.10	-2.92	-33.45	1750778.51	428435.15	39°40'25.3368"N	80°16'24.6381"W	33.58	265.018	1.15	1.14	-1.87
4908.00	6.730	283.020	4906.24	-23.61	-0.42	-43.27	1750768.70	428437.65	39°40'25.3606"N	80°16'24.7638"W	43.27	269.441	1.32	1.28	-2.89
5003.00	8.940	279.850	5000.35	-32.74	2.09	-55.96	1750756.00	428440.16	39°40'25.3844"N	80°16'24.9265"W	56.00	272.144	2.37	2.33	-3.34
5098.00	11.710	277.380	5093.80	-44.15	4.60	-72.80	1750739.16	428442.67	39°40'25.4077"N	80°16'25.1421"W	72.94	273.613	2.95	2.92	-2.60
5197.00	13.790	270.800	5190.36	-57.41	6.05	-94.56	1750717.40	428444.12	39°40'25.4202"N	80°16'25.4206"W	94.76	273.662	2.56	2.10	-6.65
5291.00	15.280	267.800	5281.35	-70.21	5.73	-118.15	1750693.82	428443.80	39°40'25.4151"N	80°16'25.7221"W	118.28	272.778	1.78	1.59	-3.19
5385.00	17.450	269.050	5371.53	-84.28	5.02	-144.62	1750667.35	428443.09	39°40'25.4058"N	80°16'26.0606"W	144.70	271.989	2.34	2.31	1.33
5479.00	20.870	269.360	5460.31	-101.01	4.60	-175.46	1750636.51	428442.67	39°40'25.3990"N	80°16'26.4550"W	175.52	271.503	3.64	3.64	0.33
5574.00	22.910	271.010	5548.46	-120.73	4.74	-210.87	1750601.10	428442.81	39°40'25.3973"N	80°16'26.9079"W	210.93	271.288	2.24	2.15	1.74
5669.00	25.530	272.920	5635.09	-143.44	6.11	-249.82	1750562.16	428444.18	39°40'25.4076"N	80°16'27.4060"W	249.89	271.401	2.88	2.76	2.01





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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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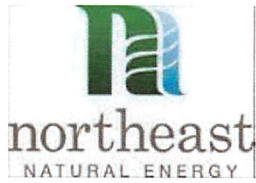
WV Department of  
Environmental Protection

REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 2H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 2H AWB
Slot	Slot 02			

## WELLPATH DATA (223 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]
5764.00	27.600	270.730	5720.06	-168.06	7.43	-292.27	1750519.71	428445.50	39°40'25.4170"N	80°16'27.9491"W	292.37	271.457	2.41	2.18	-2.31
5858.00	29.130	268.790	5802.77	-192.61	7.23	-336.92	1750475.06	428445.30	39°40'25.4112"N	80°16'28.5201"W	337.00	271.229	1.90	1.63	-2.06
5953.00	30.620	268.210	5885.15	-217.77	5.98	-384.22	1750427.76	428444.05	39°40'25.3949"N	80°16'29.1249"W	384.27	270.892	1.60	1.57	-0.61
6048.00	31.690	269.080	5966.45	-244.02	4.83	-433.36	1750378.63	428442.90	39°40'25.3792"N	80°16'29.7531"W	433.38	270.638	1.22	1.13	0.92
6143.00	31.130	270.840	6047.53	-271.41	4.79	-482.86	1750329.13	428442.85	39°40'25.3746"N	80°16'30.3862"W	482.89	270.568	1.13	-0.59	1.85
6238.00	29.120	271.800	6129.69	-298.71	5.87	-530.53	1750281.47	428443.94	39°40'25.3813"N	80°16'30.9959"W	530.56	270.634	2.18	-2.12	1.01
6332.00	29.990	268.910	6211.46	-324.61	6.14	-576.88	1750235.12	428444.21	39°40'25.3800"N	80°16'31.5887"W	576.91	270.610	1.78	0.93	-3.07
6431.00	30.560	268.660	6296.96	-351.36	5.08	-626.78	1750185.22	428443.15	39°40'25.3653"N	80°16'32.2267"W	626.80	270.465	0.59	0.58	-0.25
6525.00	30.210	269.220	6378.05	-376.95	4.20	-674.31	1750137.69	428442.27	39°40'25.3525"N	80°16'32.8345"W	674.33	270.357	0.48	-0.37	0.60
6620.00	30.700	269.880	6459.94	-403.31	3.83	-722.46	1750089.54	428441.90	39°40'25.3447"N	80°16'33.4503"W	722.47	270.303	0.62	0.52	0.69
6715.00	30.960	275.690	6541.54	-432.19	6.20	-771.04	1750040.97	428444.27	39°40'25.3640"N	80°16'34.0717"W	771.07	270.461	3.15	0.27	6.12
6810.00	31.960	279.470	6622.58	-464.85	12.76	-820.16	1749991.85	428450.83	39°40'25.4246"N	80°16'34.7007"W	820.26	270.891	2.33	1.05	3.98
6905.00	32.030	278.180	6703.15	-498.83	20.48	-869.90	1749942.11	428458.55	39°40'25.4967"N	80°16'35.3376"W	870.14	271.349	0.72	0.07	-1.36
7000.00	30.150	277.490	6784.50	-531.32	27.18	-918.49	1749893.52	428465.24	39°40'25.5587"N	80°16'35.9598"W	918.90	271.695	2.01	-1.98	-0.73
7096.00	28.120	275.090	6868.35	-561.33	32.33	-964.94	1749847.08	428470.39	39°40'25.6056"N	80°16'36.5543"W	965.48	271.919	2.44	-2.11	-2.50
7190.00	28.030	270.420	6951.30	-587.55	34.45	-1009.09	1749802.93	428472.52	39°40'25.6229"N	80°16'37.1192"W	1009.68	271.956	2.34	-0.10	-4.97
7285.00	27.390	266.150	7035.41	-610.91	33.15	-1053.22	1749758.80	428471.22	39°40'25.6062"N	80°16'37.6834"W	1053.75	271.803	2.20	-0.67	-4.49
7379.00	27.620	265.350	7118.79	-632.20	29.93	-1096.52	1749715.51	428468.00	39°40'25.5707"N	80°16'38.2367"W	1096.92	271.564	0.46	0.24	-0.85
7482.00	29.880	268.360	7209.09	-657.37	27.26	-1145.97	1749666.06	428465.33	39°40'25.5401"N	80°16'38.8688"W	1146.29	271.363	2.61	2.19	2.92
7578.00	27.950	251.160	7293.27	-675.81	19.30	-1191.25	1749620.79	428457.37	39°40'25.4575"N	80°16'39.4470"W	1191.40	270.928	8.86	-2.01	-17.92
7673.00	28.100	238.080	7377.21	-682.17	0.26	-1231.34	1749580.69	428438.33	39°40'25.2660"N	80°16'39.9577"W	1231.34	270.012	6.46	0.16	-13.77
7768.00	28.160	224.560	7461.07	-678.25	-27.57	-1266.10	1749545.94	428410.50	39°40'24.9880"N	80°16'40.3991"W	1266.40	268.753	6.70	0.06	-14.23
7862.00	28.850	211.090	7543.76	-664.01	-62.83	-1293.40	1749518.64	428375.24	39°40'24.6371"N	80°16'40.7443"W	1294.93	267.219	6.87	0.73	-14.33
7957.00	31.330	197.560	7626.05	-638.71	-106.06	-1312.71	1749499.33	428332.01	39°40'24.2082"N	80°16'40.9865"W	1316.99	265.381	7.59	2.61	-14.24
8052.00	38.800	185.150	7703.85	-599.92	-159.40	-1322.87	1749489.18	428278.68	39°40'23.6803"N	80°16'41.1104"W	1332.43	263.129	10.84	7.86	-13.06
8147.00	42.090	176.870	7776.19	-549.23	-220.90	-1323.80	1749488.24	428217.19	39°40'23.0725"N	80°16'41.1155"W	1342.10	260.527	6.62	3.46	-8.72
8242.00	48.680	168.920	7842.93	-488.74	-287.82	-1315.19	1749496.85	428150.26	39°40'22.4118"N	80°16'40.9980"W	1346.32	257.656	9.13	6.94	-8.37
8337.00	53.930	165.680	7902.31	-419.50	-360.10	-1298.82	1749513.22	428077.99	39°40'21.6990"N	80°16'40.7807"W	1347.82	254.504	6.13	5.53	-3.41
8430.00	60.820	161.150	7952.44	-344.65	-435.05	-1276.37	1749535.66	428003.04	39°40'20.9601"N	80°16'40.4853"W	1348.48	251.178	8.47	7.41	-4.87
8525.00	67.020	158.330	7994.19	-261.68	-515.03	-1246.79	1749565.24	427923.07	39°40'20.1723"N	80°16'40.0982"W	1348.98	247.555	7.05	6.53	-2.97





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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

## WELLPATH DATA (223 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]
8620.00	72.880	155.610	8026.75	-174.00	-597.10	-1211.86	1749600.17	427841.00	39°40'19.3642"N	80°16'39.6424"W	1350.98	243.770	6.73	6.17	-2.86
8714.00	79.260	152.640	8049.37	-83.65	-679.12	-1172.04	1749639.99	427758.99	39°40'18.5570"N	80°16'39.1241"W	1354.58	239.910	7.45	6.79	-3.16
8810.00	83.120	149.970	8064.08	10.84	-762.31	-1126.50	1749685.53	427675.80	39°40'17.7388"N	80°16'38.5324"W	1360.19	235.913	4.87	4.02	-2.78
8905.00	85.840	145.400	8073.22	105.34	-842.19	-1075.96	1749736.07	427595.93	39°40'16.9537"N	80°16'37.8773"W	1366.37	231.948	5.58	2.86	-4.81
9000.00	87.510	145.520	8078.73	200.17	-920.31	-1022.19	1749789.84	427517.81	39°40'16.1863"N	80°16'37.1810"W	1375.44	228.002	1.76	1.76	0.13
9094.00	87.780	145.290	8082.59	294.07	-997.63	-968.86	1749843.16	427440.50	39°40'15.4268"N	80°16'36.4906"W	1390.67	224.162	0.38	0.29	-0.24
9189.00	88.520	145.630	8085.66	389.01	-1075.84	-915.03	1749896.99	427362.30	39°40'14.6584"N	80°16'35.7935"W	1412.34	220.382	0.86	0.78	0.36
9284.00	88.280	145.640	8088.31	483.97	-1154.23	-861.42	1749950.59	427283.91	39°40'13.8884"N	80°16'35.0993"W	1440.24	216.735	0.25	-0.25	0.01
9378.00	88.550	145.530	8090.91	577.92	-1231.74	-808.32	1750003.69	427206.40	39°40'13.1268"N	80°16'34.4117"W	1473.29	213.274	0.31	0.29	-0.12
9472.00	88.860	145.730	8093.04	671.89	-1309.31	-755.26	1750056.74	427128.84	39°40'12.3648"N	80°16'33.7247"W	1511.53	209.978	0.39	0.33	0.21
9566.00	88.920	145.380	8094.86	765.86	-1386.82	-702.11	1750109.90	427051.34	39°40'11.6034"N	80°16'33.0363"W	1554.42	206.852	0.38	0.06	-0.37
9661.00	88.800	145.650	8096.75	860.83	-1465.11	-648.33	1750163.67	426973.05	39°40'10.8343"N	80°16'32.3400"W	1602.15	203.870	0.31	-0.13	0.28
9754.00	88.830	145.030	8098.67	953.80	-1541.59	-595.45	1750216.54	426896.58	39°40'10.0830"N	80°16'31.6554"W	1652.59	201.119	0.67	0.03	-0.67
9849.00	88.710	144.370	8100.71	1048.73	-1619.10	-540.57	1750271.42	426819.07	39°40'9.3216"N	80°16'30.9450"W	1706.96	198.463	0.71	-0.13	-0.69
9944.00	88.830	145.240	8102.75	1143.68	-1696.72	-485.83	1750326.16	426741.46	39°40'8.5592"N	80°16'30.2364"W	1764.90	195.978	0.92	0.13	0.92
10039.00	88.740	144.810	8104.76	1238.63	-1774.54	-431.38	1750380.60	426663.64	39°40'7.7948"N	80°16'29.5316"W	1826.22	193.663	0.46	-0.09	-0.45
10134.00	88.430	144.950	8107.11	1333.57	-1852.22	-376.75	1750435.24	426585.96	39°40'7.0317"N	80°16'28.8244"W	1890.15	191.497	0.36	-0.33	0.15
10229.00	88.400	146.190	8109.74	1428.52	-1930.55	-323.06	1750488.92	426507.64	39°40'6.2623"N	80°16'28.1292"W	1957.39	189.500	1.31	-0.03	1.31
10323.00	88.740	146.260	8112.08	1522.49	-2008.66	-270.81	1750541.16	426429.53	39°40'5.4948"N	80°16'27.4525"W	2026.83	187.679	0.37	0.36	0.07
10418.00	88.580	145.690	8114.30	1617.46	-2087.37	-217.67	1750594.30	426350.82	39°40'4.7214"N	80°16'26.7643"W	2098.69	185.953	0.62	-0.17	-0.60
10512.00	88.680	147.420	8116.55	1711.43	-2165.78	-165.88	1750646.09	426272.42	39°40'3.9509"N	80°16'26.0934"W	2172.13	184.380	1.84	0.11	1.84
10607.00	88.580	146.540	8118.82	1806.40	-2245.42	-114.13	1750697.84	426192.79	39°40'3.1684"N	80°16'25.4228"W	2248.31	182.910	0.93	-0.11	-0.93
10701.00	89.570	148.050	8120.34	1900.37	-2324.50	-63.35	1750748.62	426113.71	39°40'2.3911"N	80°16'24.7648"W	2325.36	181.561	1.92	1.05	1.61
10797.00	88.830	147.840	8121.68	1996.32	-2405.86	-12.40	1750799.56	426032.36	39°40'1.5915"N	80°16'24.1044"W	2405.89	180.295	0.80	-0.77	-0.22
10891.00	89.200	148.810	8123.30	2090.25	-2485.84	36.95	1750848.91	425952.38	39°40'0.8052"N	80°16'23.4645"W	2486.11	179.148	1.10	0.39	1.03
10986.00	89.020	148.040	8124.77	2185.18	-2566.77	86.69	1750898.64	425871.46	39°40'0.0097"N	80°16'22.8196"W	2568.23	178.066	0.83	-0.19	-0.81
11080.00	89.080	146.830	8126.33	2279.15	-2645.97	137.27	1750949.22	425792.26	39°39'59.2312"N	80°16'22.1640"W	2649.53	177.030	1.29	0.06	-1.29
11174.00	89.600	146.790	8127.41	2373.14	-2724.63	188.73	1751000.68	425713.60	39°39'58.4583"N	80°16'21.4974"W	2731.16	176.038	0.55	0.55	-0.04
11269.00	89.570	146.990	8128.10	2468.13	-2804.21	240.62	1751052.56	425634.03	39°39'57.6763"N	80°16'20.8251"W	2814.51	175.096	0.21	-0.03	0.21
11362.00	90.310	147.070	8128.20	2561.12	-2882.23	291.23	1751103.17	425556.02	39°39'56.9095"N	80°16'20.1693"W	2896.90	174.230	0.80	0.80	0.09





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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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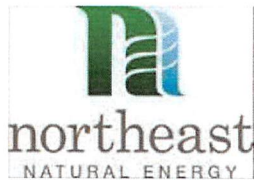


REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 2H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 2H AWB
Slot	Slot 02			

## WELLPATH DATA (223 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]
11458.00	90.060	147.420	8127.89	2657.11	-2962.96	343.17	1751155.11	425475.29	39°39'56.1161"N	80°16'19.4963"W	2982.77	173.393	0.45	-0.26	0.36
11552.00	89.820	146.370	8127.99	2751.11	-3041.70	394.51	1751206.45	425396.55	39°39'55.3423"N	80°16'18.8312"W	3067.18	172.610	1.15	-0.26	-1.12
11646.00	90.150	146.890	8128.01	2845.11	-3120.21	446.21	1751258.15	425318.06	39°39'54.5709"N	80°16'18.1614"W	3151.95	171.861	0.66	0.35	0.55
11740.00	90.120	146.670	8127.79	2939.10	-3198.84	497.71	1751309.64	425239.42	39°39'53.7981"N	80°16'17.4943"W	3237.33	171.156	0.24	-0.03	-0.23
11834.00	89.940	146.880	8127.74	3033.10	-3277.48	549.22	1751361.14	425160.79	39°39'53.0254"N	80°16'16.8271"W	3323.17	170.487	0.29	-0.19	0.22
11929.00	90.460	146.580	8127.41	3128.10	-3356.90	601.33	1751413.25	425081.37	39°39'52.2449"N	80°16'16.1520"W	3410.34	169.844	0.63	0.55	-0.32
12024.00	90.650	146.680	8126.49	3223.09	-3436.24	653.58	1751465.50	425002.04	39°39'51.4653"N	80°16'15.4751"W	3497.84	169.231	0.23	0.20	0.11
12118.00	91.080	146.560	8125.07	3317.08	-3514.72	705.29	1751517.21	424923.56	39°39'50.6940"N	80°16'14.8053"W	3584.79	168.653	0.47	0.46	-0.13
12212.00	91.480	146.590	8122.97	3411.06	-3593.16	757.06	1751568.98	424845.13	39°39'49.9233"N	80°16'14.1348"W	3672.04	168.102	0.43	0.43	0.03
12306.00	91.510	146.520	8120.52	3505.02	-3671.56	808.85	1751620.76	424766.73	39°39'49.1528"N	80°16'13.4639"W	3759.60	167.576	0.08	0.03	-0.07
12401.00	91.140	146.680	8118.32	3600.00	-3750.85	861.13	1751673.04	424687.44	39°39'48.3737"N	80°16'12.7867"W	3848.44	167.070	0.42	-0.39	0.17
12496.00	90.000	146.840	8117.38	3694.99	-3830.30	913.20	1751725.11	424608.00	39°39'47.5929"N	80°16'12.1122"W	3937.66	166.590	1.21	-1.20	0.17
12591.00	90.090	146.100	8117.30	3789.99	-3909.50	965.68	1751777.58	424528.81	39°39'46.8147"N	80°16'11.4326"W	4027.00	166.125	0.78	0.09	-0.78
12685.00	90.220	146.750	8117.05	3883.99	-3987.81	1017.66	1751829.56	424450.50	39°39'46.0452"N	80°16'10.7593"W	4115.61	165.684	0.71	0.14	0.69
12779.00	90.490	146.450	8116.47	3977.98	-4066.29	1069.41	1751881.30	424372.03	39°39'45.2740"N	80°16'10.0891"W	4204.56	165.265	0.43	0.29	-0.32
12874.00	91.080	146.690	8115.16	4072.97	-4145.56	1121.74	1751933.63	424292.76	39°39'44.4950"N	80°16'9.4113"W	4294.65	164.859	0.67	0.62	0.25
12969.00	91.050	146.640	8113.40	4167.96	-4224.92	1173.93	1751985.82	424213.41	39°39'43.7152"N	80°16'8.7352"W	4384.98	164.472	0.06	-0.03	-0.05
13064.00	91.600	146.630	8111.20	4262.93	-4304.24	1226.17	1752038.05	424134.09	39°39'42.9357"N	80°16'8.0586"W	4475.48	164.099	0.58	0.58	-0.01
13158.00	91.200	146.760	8108.90	4356.90	-4382.78	1277.77	1752089.65	424055.56	39°39'42.1639"N	80°16'7.3903"W	4565.24	163.746	0.45	-0.43	0.14
13253.00	91.050	146.620	8107.04	4451.88	-4462.15	1329.93	1752141.81	423976.19	39°39'41.3839"N	80°16'6.7146"W	4656.13	163.404	0.22	-0.16	-0.15
13348.00	90.920	146.600	8105.41	4546.87	-4541.46	1382.20	1752194.08	423896.88	39°39'40.6045"N	80°16'6.0376"W	4747.14	163.072	0.14	-0.14	-0.02
13443.00	91.510	146.450	8103.39	4641.84	-4620.69	1434.59	1752246.46	423817.67	39°39'39.8260"N	80°16'5.3591"W	4838.26	162.752	0.64	0.62	-0.16
13536.00	91.320	146.940	8101.10	4734.81	-4698.39	1485.64	1752297.51	423739.97	39°39'39.0625"N	80°16'4.6978"W	4927.67	162.453	0.56	-0.20	0.53
13632.00	92.120	146.540	8098.21	4830.77	-4778.62	1538.27	1752350.13	423659.74	39°39'38.2740"N	80°16'4.0162"W	5020.11	162.156	0.93	0.83	-0.42
13726.00	92.060	146.860	8094.79	4924.70	-4857.14	1589.84	1752401.70	423581.23	39°39'37.5024"N	80°16'3.3482"W	5110.71	161.876	0.35	-0.06	0.34
13822.00	91.790	146.690	8091.56	5020.65	-4937.40	1642.41	1752454.27	423500.97	39°39'36.7137"N	80°16'2.6672"W	5203.40	161.600	0.33	-0.28	-0.18
13916.00	91.750	146.620	8088.66	5114.60	-5015.89	1694.06	1752505.91	423422.49	39°39'35.9424"N	80°16'1.9983"W	5294.24	161.338	0.09	-0.04	-0.07
14011.00	91.810	146.550	8085.71	5209.55	-5095.15	1746.35	1752558.20	423343.23	39°39'35.1635"N	80°16'1.3211"W	5386.12	161.081	0.10	0.06	-0.07
14105.00	91.510	146.500	8082.98	5303.51	-5173.52	1798.17	1752610.02	423264.86	39°39'34.3933"N	80°16'0.6499"W	5477.11	160.834	0.32	-0.32	-0.05
14200.00	91.510	146.680	8080.48	5398.48	-5252.79	1850.46	1752662.31	423185.60	39°39'33.6143"N	80°15'59.9726"W	5569.21	160.594	0.19	0.00	0.19





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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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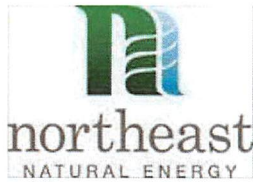


REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 2H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 2H AWB
Slot	Slot 02			

## WELLPATH DATA (223 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]
14295.00	91.320	146.640	8078.13	5493.45	-5332.14	1902.66	1752714.51	423106.26	39°39'32.8346"N	80°15'59.2966"W	5661.43	160.362	0.20	-0.20	-0.04
14389.00	91.020	146.510	8076.22	5587.43	-5410.57	1954.43	1752766.27	423027.83	39°39'32.0638"N	80°15'58.6261"W	5752.75	160.139	0.35	-0.32	-0.14
14482.00	91.260	146.570	8074.36	5680.41	-5488.14	2005.70	1752817.53	422950.26	39°39'31.3015"N	80°15'57.9622"W	5843.16	159.925	0.27	0.26	0.06
14577.00	91.260	146.570	8072.28	5775.39	-5567.41	2058.02	1752869.85	422871.00	39°39'30.5226"N	80°15'57.2846"W	5935.61	159.713	0.00	0.00	0.00
14672.00	91.320	146.720	8070.14	5870.36	-5646.74	2110.24	1752922.07	422791.67	39°39'29.7430"N	80°15'56.6083"W	6028.17	159.509	0.17	0.06	0.16
14766.00	90.740	145.840	8068.45	5964.34	-5724.91	2162.41	1752974.24	422713.51	39°39'28.9749"N	80°15'55.9327"W	6119.69	159.307	1.12	-0.62	-0.94
14861.00	90.580	146.240	8067.35	6059.34	-5803.70	2215.48	1753027.30	422634.72	39°39'28.2007"N	80°15'55.2456"W	6212.19	159.106	0.45	-0.17	0.42
14956.00	90.860	146.820	8066.16	6154.33	-5882.94	2267.87	1753079.69	422555.49	39°39'27.4220"N	80°15'54.5672"W	6304.94	158.918	0.68	0.29	0.61
15050.00	90.770	146.640	8064.82	6248.32	-5961.53	2319.43	1753131.25	422476.91	39°39'26.6497"N	80°15'53.8994"W	6396.84	158.741	0.21	-0.10	-0.19
15145.00	90.710	146.560	8063.60	6343.31	-6040.83	2371.72	1753183.54	422397.61	39°39'25.8704"N	80°15'53.2222"W	6489.74	158.564	0.11	-0.06	-0.08
15240.00	90.860	146.690	8062.29	6438.30	-6120.16	2423.98	1753235.79	422318.29	39°39'25.0909"N	80°15'52.5454"W	6582.70	158.393	0.21	0.16	0.14
15335.00	90.770	146.600	8060.94	6533.29	-6199.50	2476.20	1753288.01	422238.95	39°39'24.3111"N	80°15'51.8690"W	6675.73	158.227	0.13	-0.09	-0.09
15430.00	90.830	146.380	8059.62	6628.28	-6278.70	2528.65	1753340.45	422159.75	39°39'23.5328"N	80°15'51.1899"W	6768.76	158.064	0.24	0.06	-0.23
15524.00	90.830	146.790	8058.25	6722.27	-6357.16	2580.41	1753392.21	422081.30	39°39'22.7619"N	80°15'50.5196"W	6860.90	157.907	0.44	0.00	0.44
15619.00	90.090	146.460	8057.49	6817.26	-6436.49	2632.67	1753444.47	422001.98	39°39'21.9823"N	80°15'49.8428"W	6954.08	157.754	0.85	-0.78	-0.35
15714.00	89.570	146.290	8057.77	6912.26	-6515.59	2685.27	1753497.07	421922.88	39°39'21.2049"N	80°15'49.1617"W	7047.24	157.602	0.58	-0.55	-0.18
15809.00	89.660	146.840	8058.41	7007.26	-6594.87	2737.61	1753549.41	421843.61	39°39'20.4259"N	80°15'48.4838"W	7140.50	157.456	0.59	0.09	0.58
15904.00	89.480	146.870	8059.13	7102.25	-6674.41	2789.56	1753601.35	421764.07	39°39'19.6442"N	80°15'47.8111"W	7233.90	157.318	0.19	-0.19	0.03
15998.00	89.540	146.830	8059.93	7196.25	-6753.10	2840.96	1753652.74	421685.38	39°39'18.8708"N	80°15'47.1454"W	7326.35	157.184	0.08	0.06	-0.04
16093.00	90.000	146.510	8060.31	7291.24	-6832.48	2893.15	1753704.94	421606.01	39°39'18.0907"N	80°15'46.4694"W	7419.78	157.050	0.59	0.48	-0.34
16187.00	89.850	146.260	8060.43	7385.24	-6910.76	2945.19	1753756.97	421527.73	39°39'17.3215"N	80°15'45.7956"W	7512.17	156.918	0.31	-0.16	-0.27
16282.00	90.920	146.490	8059.79	7480.24	-6989.86	2997.80	1753809.58	421448.64	39°39'16.5442"N	80°15'45.1145"W	7605.59	156.787	1.15	1.13	0.24
16377.00	90.460	145.670	8058.65	7575.23	-7068.69	3050.81	1753862.58	421369.81	39°39'15.7696"N	80°15'44.4282"W	7698.94	156.655	0.99	-0.48	-0.86
16472.00	91.020	146.480	8057.42	7670.22	-7147.51	3103.82	1753915.59	421291.00	39°39'14.9951"N	80°15'43.7419"W	7792.34	156.527	1.04	0.59	0.85
16567.00	90.490	146.310	8056.17	7765.21	-7226.62	3156.40	1753968.16	421211.89	39°39'14.2177"N	80°15'43.0611"W	7885.87	156.406	0.59	-0.56	-0.18
16662.00	90.430	146.550	8055.41	7860.21	-7305.77	3208.93	1754020.69	421132.74	39°39'13.4398"N	80°15'42.3810"W	7979.44	156.287	0.26	-0.06	0.25
16756.00	90.280	146.360	8054.83	7954.21	-7384.12	3260.87	1754072.63	421054.40	39°39'12.6699"N	80°15'41.7084"W	8072.08	156.173	0.26	-0.16	-0.20
16850.00	90.030	146.140	8054.57	8048.21	-7462.28	3313.09	1754124.85	420976.25	39°39'11.9019"N	80°15'41.0323"W	8164.69	156.060	0.35	-0.27	-0.23
16944.00	89.660	146.420	8054.83	8142.20	-7540.46	3365.27	1754177.03	420898.07	39°39'11.1336"N	80°15'40.3566"W	8257.34	155.949	0.49	-0.39	0.30
17038.00	89.350	146.610	8055.64	8236.20	-7618.86	3417.13	1754228.88	420819.68	39°39'10.3632"N	80°15'39.6851"W	8350.08	155.843	0.39	-0.33	0.20





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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 2H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 2H AWB
Slot	Slot 02			

## WELLPATH DATA (223 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]
17133.00	89.480	146.740	8056.61	8331.19	-7698.23	3469.32	1754281.07	420740.31	39°39'9.5832"N	80°15'39.0093"W	8443.87	155.741	0.19	0.14	0.14
17228.00	89.970	146.670	8057.07	8426.19	-7777.64	3521.47	1754333.22	420660.91	39°39'8.8028"N	80°15'38.3340"W	8537.70	155.640	0.52	0.52	-0.07
17323.00	90.310	146.650	8056.83	8521.19	-7857.00	3573.68	1754385.43	420581.55	39°39'8.0228"N	80°15'37.6579"W	8631.55	155.542	0.36	0.36	-0.02
17417.00	90.180	146.580	8056.43	8615.19	-7935.49	3625.41	1754437.15	420503.06	39°39'7.2515"N	80°15'36.9882"W	8724.42	155.446	0.16	-0.14	-0.07
17513.00	90.310	146.730	8056.02	8711.19	-8015.68	3678.18	1754489.91	420422.87	39°39'6.4634"N	80°15'36.3049"W	8819.31	155.351	0.21	0.14	0.16
17607.00	90.310	146.640	8055.51	8805.18	-8094.24	3729.80	1754541.54	420344.33	39°39'5.6914"N	80°15'35.6363"W	8912.24	155.260	0.10	0.00	-0.10
17702.00	89.510	146.590	8055.66	8900.18	-8173.56	3782.08	1754593.81	420265.01	39°39'4.9119"N	80°15'34.9595"W	9006.18	155.169	0.84	-0.84	-0.05
17796.00	89.450	146.540	8056.51	8994.18	-8252.00	3833.87	1754645.60	420186.57	39°39'4.1410"N	80°15'34.2889"W	9099.12	155.080	0.08	-0.06	-0.05
17891.00	89.510	146.620	8057.38	9089.17	-8331.29	3886.19	1754697.91	420107.29	39°39'3.3618"N	80°15'33.6114"W	9193.09	154.993	0.11	0.06	0.08
17986.00	89.420	146.610	8058.26	9184.17	-8410.61	3938.46	1754750.18	420027.97	39°39'2.5822"N	80°15'32.9346"W	9287.08	154.908	0.10	-0.09	-0.01
18080.00	89.350	146.580	8059.27	9278.16	-8489.08	3990.21	1754801.93	419949.51	39°39'1.8111"N	80°15'32.2645"W	9380.10	154.825	0.08	-0.07	-0.03
18174.00	89.110	146.520	8060.54	9372.15	-8567.50	4042.02	1754853.74	419871.09	39°39'1.0404"N	80°15'31.5937"W	9473.12	154.743	0.26	-0.26	-0.06
18269.00	89.260	146.500	8061.89	9467.14	-8646.72	4094.44	1754906.15	419791.88	39°39'0.2619"N	80°15'30.9151"W	9567.14	154.661	0.16	0.16	-0.02
18364.00	89.320	146.320	8063.06	9562.13	-8725.85	4146.99	1754958.70	419712.75	39°38'59.4843"N	80°15'30.2347"W	9661.16	154.580	0.20	0.06	-0.19
18459.00	89.320	145.740	8064.19	9657.13	-8804.63	4200.07	1755011.77	419633.98	39°38'58.7101"N	80°15'29.5476"W	9755.11	154.497	0.61	0.00	-0.61
18554.00	89.480	146.160	8065.19	9752.12	-8883.34	4253.26	1755064.96	419555.27	39°38'57.9367"N	80°15'28.8591"W	9849.06	154.415	0.47	0.17	0.44
18650.00	89.570	145.890	8065.98	9848.11	-8962.95	4306.90	1755118.60	419475.67	39°38'57.1545"N	80°15'28.1648"W	9944.04	154.335	0.30	0.09	-0.28
18744.00	89.510	145.290	8066.74	9942.10	-9040.50	4360.02	1755171.72	419398.13	39°38'56.3925"N	80°15'27.4773"W	10036.95	154.253	0.64	-0.06	-0.64
18840.00	89.570	145.640	8067.51	10038.09	-9119.58	4414.44	1755226.13	419319.05	39°38'55.6155"N	80°15'26.7731"W	10131.83	154.170	0.37	0.06	0.36
18935.00	89.940	145.610	8067.91	10133.08	-9197.98	4468.08	1755279.77	419240.65	39°38'54.8451"N	80°15'26.0789"W	10225.78	154.091	0.39	0.39	-0.03
19029.00	89.970	145.520	8067.99	10227.07	-9275.51	4521.24	1755332.92	419163.12	39°38'54.0834"N	80°15'25.3911"W	10318.75	154.014	0.10	0.03	-0.10
19125.00	90.000	145.660	8068.01	10323.06	-9354.71	4575.49	1755387.17	419083.93	39°38'53.3052"N	80°15'24.6890"W	10413.73	153.936	0.15	0.03	0.15
19219.00	89.750	145.710	8068.22	10417.05	-9432.35	4628.48	1755440.16	419006.29	39°38'52.5423"N	80°15'24.0032"W	10506.76	153.863	0.27	-0.27	0.05
19313.00	89.820	145.500	8068.57	10511.04	-9509.92	4681.58	1755493.25	418928.73	39°38'51.7802"N	80°15'23.3160"W	10599.80	153.790	0.24	0.07	-0.22
19408.00	89.850	145.600	8068.84	10606.03	-9588.26	4735.32	1755546.99	418850.40	39°38'51.0105"N	80°15'22.6206"W	10693.82	153.717	0.11	0.03	0.11
19503.00	89.910	145.590	8069.04	10701.02	-9666.64	4789.00	1755600.66	418772.02	39°38'50.2404"N	80°15'21.9260"W	10787.88	153.646	0.06	0.06	-0.01
19597.00	90.000	145.500	8069.12	10795.01	-9744.15	4842.18	1755653.84	418694.52	39°38'49.4788"N	80°15'21.2378"W	10880.95	153.576	0.14	0.10	-0.10
19692.00	89.850	145.460	8069.24	10890.00	-9822.42	4896.01	1755707.67	418616.25	39°38'48.7097"N	80°15'20.5411"W	10975.01	153.506	0.16	-0.16	-0.04
19785.00	89.910	145.840	8069.44	10982.99	-9899.20	4948.49	1755760.15	418539.47	39°38'47.9553"N	80°15'19.8621"W	11067.15	153.440	0.41	0.06	0.41
19879.00	90.030	145.530	8069.49	11076.99	-9976.84	5001.48	1755813.13	418461.84	39°38'47.1924"N	80°15'19.1763"W	11160.29	153.375	0.35	0.13	-0.33





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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

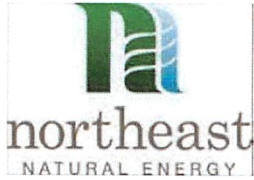
## WELLPATH DATA (223 stations) † = interpolated, ‡ = extrapolated station

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]
19973.00	89.970	145.810	8069.49	11170.98	-10054.47	5054.49	1755866.14	418384.22	39°38'46.4297"N	80°15'18.4903"W	11253.45	153.311	0.30	-0.06	0.30
20067.00	89.820	145.310	8069.66	11264.97	-10131.99	5107.65	1755919.30	418306.70	39°38'45.6680"N	80°15'17.8024"W	11346.60	153.247	0.56	-0.16	-0.53
20161.00	89.940	145.780	8069.85	11358.96	-10209.50	5160.83	1755972.48	418229.19	39°38'44.9064"N	80°15'17.1142"W	11439.76	153.184	0.52	0.13	0.50
20255.00	89.940	145.800	8069.95	11452.96	-10287.23	5213.68	1756025.33	418151.46	39°38'44.1425"N	80°15'16.4303"W	11532.98	153.124	0.02	0.00	0.02
20350.00	90.030	145.590	8069.98	11547.95	-10365.71	5267.22	1756078.86	418072.99	39°38'43.3715"N	80°15'15.7374"W	11627.19	153.063	0.24	0.09	-0.22
20445.00	89.720	145.810	8070.19	11642.94	-10444.19	5320.76	1756132.40	417994.52	39°38'42.6003"N	80°15'15.0446"W	11721.41	153.004	0.40	-0.33	0.23
20540.00	89.880	145.820	8070.52	11737.94	-10522.77	5374.14	1756185.77	417915.94	39°38'41.8281"N	80°15'14.3539"W	11815.67	152.946	0.17	0.17	0.01
20634.00	89.970	146.640	8070.64	11831.94	-10600.91	5426.39	1756238.02	417837.80	39°38'41.0602"N	80°15'13.6776"W	11909.03	152.893	0.88	0.10	0.87
20729.00	90.000	146.660	8070.66	11926.93	-10680.27	5478.61	1756290.24	417758.45	39°38'40.2803"N	80°15'13.0014"W	12003.47	152.844	0.04	0.03	0.02
20824.00	89.910	146.590	8070.74	12021.93	-10759.60	5530.87	1756342.50	417679.12	39°38'39.5006"N	80°15'12.3249"W	12097.92	152.795	0.12	-0.09	-0.07
20919.00	89.750	146.360	8071.02	12116.93	-10838.80	5583.34	1756394.96	417599.93	39°38'38.7223"N	80°15'11.6457"W	12192.34	152.746	0.29	-0.17	-0.24
20993.00	89.880	146.310	8071.26	12190.93	-10900.39	5624.36	1756435.98	417538.35	39°38'38.1171"N	80°15'11.1147"W	12265.88	152.707	0.19	0.18	-0.07
21018.00‡	89.880	146.310	8071.31	12215.93	-10921.19	5638.23	1756449.85	417517.55	39°38'37.9126"N	80°15'10.9352"W	12290.73	152.694	0.00	0.00	0.00

## HOLE & CASING SECTIONS - Ref Wellbore: ERP 2H AWB Ref Wellpath: ERP 2H AWP Proj: 21018'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
17.5in Open Hole	28.00	1368.00	1340.00	28.00	1367.99	0.00	0.00	-2.45	-0.48
13.375in Casing Surface	28.00	1336.00	1308.00	28.00	1335.99	0.00	0.00	-2.30	-0.66
12.25in Open Hole	1368.00	2658.00	1290.00	1367.99	2657.91	-2.45	-0.48	-5.84	12.13
9.625in Casing Intermediate	28.00	2628.00	2600.00	28.00	2627.91	0.00	0.00	-5.86	11.76
8.75in Open Hole	2658.00	7443.00	4785.00	2657.91	7175.13	-5.84	12.13	27.99	-1126.81
8.5in Open Hole	7443.00	21018.00	13575.00	7175.13	8071.31	27.99	-1126.81	-10921.19	5638.23
5.5in Casing Production	28.00	21018.00	20990.00	28.00	8071.31	0.00	0.00	-10921.19	5638.23





# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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## REFERENCE WELLPATH IDENTIFICATION

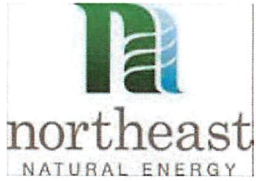
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
ERP 2H BHL Rev-1	8040.00	-10926.06	5632.61	1756444.23	417512.68	39°38'37.8641"N	80°15'11.0065"W	point
ERP 2H LP Rev-1	8040.00	-774.67	-1118.76	1749693.27	427663.45	39°40'17.6174"N	80°16'38.4321"W	point
ERP Pad Hardline #1 (6.8.21)	8523.00	2738.20	1499.72	1752311.58	431176.10	39°40'52.5559"N	80°16'5.3309"W	polygon
2D Polygon: dimensions not calculated								
ERP Pad Hardline #2 (6.8.21)	8523.00	2601.63	1574.36	1752386.22	431039.54	39°40'51.2126"N	80°16'4.3613"W	polygon
2D Polygon: dimensions not calculated								
ERP Pad Hardline #3 (6.8.21)	8523.00	1266.71	758.88	1751570.79	429704.71	39°40'37.9512"N	80°16'14.6447"W	polygon
2D Polygon: dimensions not calculated								
ERP Pad Hardline #4 (6.8.21)	8523.00	-4862.95	85.88	1750897.83	423575.42	39°39'37.3176"N	80°16'22.5773"W	polygon
2D Polygon: dimensions not calculated								
ERP Pad Hardline #5 (6.8.21)	8523.00	-10440.78	6428.07	1757239.64	417997.93	39°38'42.7257"N	80°15'0.8900"W	polygon
2D Polygon: dimensions not calculated								

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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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## REFERENCE WELLPATH IDENTIFICATION

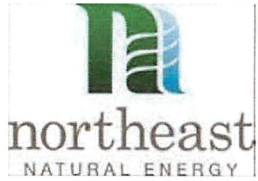
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

## WELLPATH COMPOSITION - Ref Wellbore: ERP 2H AWB Ref Wellpath: ERP 2H AWP Proj: 21018'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	2600.00	BH Generic gyro - northseeking (Standard)	01_Javins Inertial Gyro <12-1/4">(100'-2600')	ERP 2H AWB	7/29/2021
2600.00	7379.00	OWSG MWD rev2 + HRGM	02_Tally MWD <8-3/4">(2600')(2727'-7379')	ERP 2H AWB	7/29/2021
7379.00	21018.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	03_BH AT Curve <8-1/2">(7285')(7482'-20993')	ERP 2H AWB	7/29/2021

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# Actual Wellpath Report

ERP 2H AWP Proj: 21018'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 2H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 2H AWB
Slot	Slot 02		

COMMENTS
<p><b>Wellpath general comments</b> API: 47-061-01877-0000 BH Job #: 110948038 Rig: Patterson 277 Duration: 7/30/21 - 8/3/21</p> <p>Javins Inertial Gyro &lt;12-1/4"&gt;(100'-2600') Tally MWD &lt;8-3/4"&gt;(2600')(2727'-7379') BH AT Curve &lt;8-1/2"&gt;(7285')(7482'-20993') Projected MD at TD: 21018'</p>

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