



# NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot 14  
 Well: ERP 14H  
 Wellbore: ERP 14H PWB



Scale 1 inch = 2500  
 Easting (ft)  
 -3750 -2500 -1250 0 1250 2500 3750 5000 6250 7500 8750 10000

API: 47-061-01880-0000  
 BH Job #: 110948065  
 Rig: Patterson 277  
 Duration: 9/21/21 - 9/24/21

03\_BH AT Curve <8-1/2">(8520')(8618'-21086') : 7949.39ft TVD, 988.22ft N, 2269.21ft E

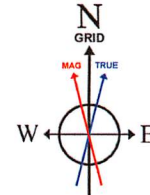
02\_Tally MWD <8-3/4">(2580')(2629'-8520') : 2628.80ft TVD, 8.18ft S, 20.24ft E  
 01\_Javins Inertial Gyro <12-1/4">(100'-2580') : 100.00ft TVD, 0.15ft S, 0.10ft W  
 Slot 14



01\_Javins Inertial Gyro <12-1/4">(100'-2580') : 0.28° Inc, 100.00ft MD, 100.00ft TVD, 0.07ft VS

Plot reference wellpath is ERP 14H PWB Rev-A.0	Grid System: NAD83 / Lambert West Virginia SP, Northern Zone (4201), US feet
True vertical depths are referenced to Patterson 277 (RKB)	North Reference: Grid north
Reference wellbath 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 Slot
Mean Sea Level to Ground level (At Slot 14): -1338 feet	Depths are in feet
Offset wellbath MDs are referenced to each path's default MD datum	Created by: Mhishop on 2021-09-27; Database: WA_WPI_EASTERNUS_Dwh

02\_Tally MWD <8-3/4">(2580')(2629'-8520') : 0.66° Inc, 2629.00ft MD, 2628.80ft TVD, 18.02ft VS



User specified (HDGM) Dip: 66.51° Field: 51976 nT  
 Magnetic North is 8.97 degrees West of True North (at 9/20/2021)  
 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 8.48 degrees

Projected MD at TD: 21111' : 8078.26ft TVD, 9294.46ft S, 9269.29ft E

Well Data			
Slot	Well	Wellbore	Wellpath
Slot 14	ERP 14H	ERP 14H AWB	ERP 14H AWP Proj: 21111'
Slot 14	ERP 14H	ERP 14H PWB	ERP 14H PWB Rev-A.0

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
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot 14	52.67	85.21	1750872.170	428490.740
Patterson 277 (RKB) to Ground level (At Slot: Slot 14)			28ft	
Mean Sea Level to Ground level (At Slot: Slot 14)			-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	8520.00	41.620	116.120	7879.67	1023.70	2210.35	6.83
Proj. to Bottom	8585.00	45.410	119.780	7926.81	1002.69	2249.84	7.00
End of 3D Arc	8021.56	85.578	134.748	8105.03	761.22	2553.21	9.68
Landing Pt.	9149.93	90.000	146.374	8110.00	662.34	2634.52	9.68
BHL	21115.43	90.000	146.374	8110.00	-8300.94	9260.70	0.00

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03\_BH AT Curve <8-1/2">(8520')(8618'-21086') : 47.75° Inc, 8618.00ft MD, 7949.39ft TVD, 433.93ft VS

Projected MD at TD: 21111' : 89.72° Inc, 21111.00ft MD, 8078.26ft TVD, 12872.45ft VS

True Vertical Depth (ft)

Northing (ft)

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

Scale 1 inch = 1750



# Actual Wellpath Report

ERP 14H AWP Proj: 21111'  
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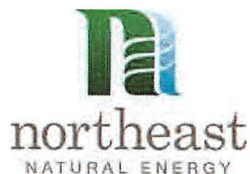


REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 14H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 14H AWB
Slot	Slot 14		

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	9/27/2021 at 8:29:03 AM
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	52.67	60.21	1750872.17	428490.74	39°40'25.8941"N	80°16'23.4464"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 14)	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°



# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

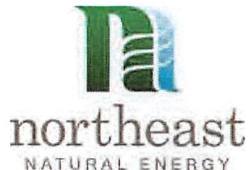
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 14H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 14H AWB
Slot	Slot 14		

WELLPATH DATA (225 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	214.000	0.00	0.00	0.00	0.00	1750872.17	428490.74	39°40'25.8941"N	80°16'23.4464"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	214.000	28.00	0.00	0.00	0.00	1750872.17	428490.74	39°40'25.8941"N	80°16'23.4464"W	0.00	0.000	0.00	0.00	0.00
100.00	0.280	214.000	100.00	0.07	-0.15	-0.10	1750872.07	428490.59	39°40'25.8927"N	80°16'23.4476"W	0.18	214.000	0.39	0.39	0.00
200.00	0.440	25.100	200.00	-0.04	0.00	-0.07	1750872.10	428490.74	39°40'25.8941"N	80°16'23.4473"W	0.07	269.435	0.72	0.16	171.10
300.00	0.420	64.600	300.00	-0.19	0.50	0.42	1750872.59	428491.24	39°40'25.8991"N	80°16'23.4410"W	0.66	39.916	0.29	-0.02	39.50
400.00	0.360	101.000	399.99	0.09	0.60	1.06	1750873.23	428491.34	39°40'25.9002"N	80°16'23.4328"W	1.22	60.458	0.25	-0.06	36.40
500.00	0.470	106.900	499.99	0.62	0.42	1.76	1750873.93	428491.16	39°40'25.8984"N	80°16'23.4239"W	1.81	76.523	0.12	0.11	5.90
600.00	0.430	136.000	599.99	1.31	0.03	2.42	1750874.59	428490.77	39°40'25.8947"N	80°16'23.4155"W	2.42	89.214	0.23	-0.04	29.10
700.00	0.500	134.100	699.99	2.11	-0.54	2.99	1750875.16	428490.20	39°40'25.8890"N	80°16'23.4081"W	3.04	100.248	0.07	0.07	-1.90
800.00	0.460	83.500	799.98	2.71	-0.80	3.70	1750875.87	428489.94	39°40'25.8865"N	80°16'23.3989"W	3.79	102.176	0.41	-0.04	-50.60
900.00	0.540	131.900	899.98	3.35	-1.07	4.45	1750876.62	428489.67	39°40'25.8839"N	80°16'23.3893"W	4.58	103.492	0.42	0.08	48.40
1000.00	0.540	186.100	999.97	4.17	-1.85	4.75	1750876.92	428488.89	39°40'25.8762"N	80°16'23.3854"W	5.10	111.285	0.49	0.00	54.20
1100.00	0.560	280.800	1099.97	4.19	-2.23	4.22	1750876.39	428488.51	39°40'25.8725"N	80°16'23.3921"W	4.77	117.825	0.81	0.02	94.70
1200.00	0.630	5.200	1199.97	3.42	-1.59	3.79	1750875.96	428489.15	39°40'25.8787"N	80°16'23.3977"W	4.11	112.740	0.80	0.07	84.40
1300.00	0.420	96.400	1299.97	3.23	-1.08	4.21	1750876.38	428489.66	39°40'25.8838"N	80°16'23.3925"W	4.34	104.434	0.76	-0.21	91.20
1400.00	0.380	104.900	1399.96	3.71	-1.21	4.89	1750877.06	428489.53	39°40'25.8826"N	80°16'23.3837"W	5.04	103.882	0.07	-0.04	8.50
1500.00	0.370	166.000	1499.96	4.27	-1.61	5.29	1750877.46	428489.13	39°40'25.8787"N	80°16'23.3785"W	5.53	106.903	0.38	-0.01	61.10
1600.00	0.530	169.600	1599.96	5.00	-2.38	5.45	1750877.62	428488.36	39°40'25.8711"N	80°16'23.3764"W	5.95	113.548	0.16	0.16	3.60
1700.00	1.090	96.800	1699.95	6.04	-2.94	6.48	1750878.65	428487.80	39°40'25.8656"N	80°16'23.3632"W	7.12	114.431	1.06	0.56	-72.80
1800.00	0.880	124.800	1799.94	7.37	-3.49	8.05	1750880.22	428487.25	39°40'25.8603"N	80°16'23.3430"W	8.78	113.452	0.52	-0.21	28.00
1900.00	0.670	157.800	1899.93	8.66	-4.47	8.90	1750881.07	428486.27	39°40'25.8507"N	80°16'23.3320"W	9.97	116.673	0.48	-0.21	33.00
2000.00	0.180	162.600	1999.92	9.38	-5.16	9.17	1750881.34	428485.58	39°40'25.8439"N	80°16'23.3285"W	10.53	119.381	0.49	-0.49	4.80
2100.00	1.040	72.200	2099.92	9.78	-5.04	10.08	1750882.25	428485.70	39°40'25.8452"N	80°16'23.3168"W	11.27	116.543	1.06	0.86	-90.40
2200.00	1.270	85.600	2199.90	10.57	-4.67	12.05	1750884.22	428486.07	39°40'25.8489"N	80°16'23.2917"W	12.93	111.198	0.35	0.23	13.40
2300.00	1.270	112.500	2299.87	12.03	-5.01	14.18	1750886.35	428485.73	39°40'25.8458"N	80°16'23.2644"W	15.04	109.470	0.59	0.00	26.90
2400.00	1.250	120.300	2399.85	13.93	-5.99	16.15	1750888.32	428484.75	39°40'25.8363"N	80°16'23.2392"W	17.22	110.347	0.17	-0.02	7.80
2500.00	1.220	120.500	2499.83	15.87	-7.08	18.01	1750890.18	428483.66	39°40'25.8257"N	80°16'23.2153"W	19.35	111.461	0.03	-0.03	0.20
2580.00	1.210	112.500	2579.81	17.33	-7.83	19.52	1750891.69	428482.91	39°40'25.8184"N	80°16'23.1959"W	21.03	111.867	0.21	-0.01	-10.00
2629.00	0.660	121.500	2628.80	18.02	-8.18	20.24	1750892.41	428482.56	39°40'25.8150"N	80°16'23.1866"W	21.83	112.006	1.16	-1.12	18.37
2727.00	1.260	6.100	2726.79	17.70	-7.40	20.83	1750893.00	428483.34	39°40'25.8227"N	80°16'23.1791"W	22.11	109.561	1.69	0.61	-117.76

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# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

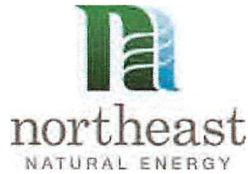
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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 14H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 14H AWB
Slot	Slot 14			

WELLPATH DATA (225 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]	
2821.00	1.440	354.940	2820.77	15.87	-5.20	20.84	1750893.01	428485.54	39°40'25.8445"N	80°16'23.1793"W	21.48	104.007	0.34	0.19	-11.87	
2915.00	1.620	358.240	2914.73	13.71	-2.69	20.70	1750892.86	428488.05	39°40'25.8693"N	80°16'23.1814"W	20.87	97.418	0.21	0.19	3.51	
3010.00	2.770	33.220	3009.67	11.66	0.57	21.91	1750894.08	428491.31	39°40'25.9016"N	80°16'23.1662"W	21.92	88.514	1.81	1.21	36.82	
3105.00	4.910	42.830	3104.45	9.81	5.47	25.93	1750898.10	428496.21	39°40'25.9504"N	80°16'23.1153"W	26.50	78.087	2.34	2.25	10.12	
3199.00	6.840	42.780	3197.95	7.55	12.53	32.47	1750904.64	428503.27	39°40'26.0207"N	80°16'23.0325"W	34.80	68.899	2.05	2.05	-0.05	
3294.00	7.240	52.470	3292.24	5.81	20.33	41.06	1750913.23	428511.07	39°40'26.0985"N	80°16'22.9235"W	45.82	63.660	1.32	0.42	10.20	
3388.00	8.200	54.250	3385.39	5.16	27.85	51.20	1750923.37	428518.59	39°40'26.1737"N	80°16'22.7947"W	58.29	61.452	1.05	1.02	1.89	
3483.00	9.870	60.430	3479.21	5.49	35.83	63.78	1750935.95	428526.57	39°40'26.2536"N	80°16'22.6346"W	73.16	60.673	2.03	1.76	6.51	
3578.00	11.960	58.440	3572.48	6.42	45.00	79.25	1750951.42	428535.74	39°40'26.3456"N	80°16'22.4378"W	91.14	60.410	2.24	2.20	-2.09	
3672.00	14.230	59.720	3664.03	7.45	55.93	97.53	1750969.69	428546.66	39°40'26.4551"N	80°16'22.2052"W	112.43	60.168	2.43	2.41	1.36	
3767.00	16.240	61.070	3755.69	9.22	68.24	119.24	1750991.40	428558.98	39°40'26.5787"N	80°16'21.9289"W	137.39	60.217	2.15	2.12	1.42	
3865.00	18.580	61.660	3849.19	11.78	82.28	144.98	1751017.14	428573.02	39°40'26.7196"N	80°16'21.6013"W	166.70	60.423	2.39	2.39	0.60	
3959.00	20.790	60.710	3937.69	14.42	97.56	172.71	1751044.87	428588.29	39°40'26.8729"N	80°16'21.2483"W	198.36	60.540	2.38	2.35	-1.01	
4054.00	23.070	62.970	4025.82	17.84	114.27	204.00	1751076.16	428605.00	39°40'27.0407"N	80°16'20.8500"W	233.82	60.746	2.56	2.40	2.38	
4149.00	25.260	61.840	4112.49	21.91	132.29	238.46	1751110.61	428623.03	39°40'27.2218"N	80°16'20.4114"W	272.70	60.979	2.36	2.31	-1.19	
4244.00	28.040	59.880	4197.39	25.21	153.07	275.65	1751147.80	428643.80	39°40'27.4303"N	80°16'19.9380"W	315.30	60.957	3.07	2.93	-2.06	
4339.00	30.220	59.410	4280.37	27.85	176.44	315.55	1751187.70	428667.17	39°40'27.6646"N	80°16'19.4303"W	361.53	60.788	2.31	2.29	-0.49	
4434.00	30.010	61.480	4362.55	31.23	199.95	357.01	1751229.15	428690.68	39°40'27.9005"N	80°16'18.9027"W	409.19	60.747	1.12	-0.22	2.18	
4528.00	30.120	63.510	4443.90	36.26	221.70	398.77	1751270.92	428712.42	39°40'28.1189"N	80°16'18.3710"W	456.25	60.928	1.09	0.12	2.16	
4624.00	29.990	59.910	4527.00	40.73	244.47	441.09	1751313.23	428735.20	39°40'28.3476"N	80°16'17.8323"W	504.31	61.003	1.88	-0.14	-3.75	
4718.00	29.310	61.110	4608.69	44.08	267.37	481.56	1751353.70	428758.09	39°40'28.5773"N	80°16'17.3172"W	550.81	60.961	0.96	-0.72	1.28	
4813.00	28.480	62.000	4691.86	48.23	289.24	521.92	1751394.06	428779.96	39°40'28.7968"N	80°16'16.8035"W	596.71	61.006	0.98	-0.87	0.94	
4908.00	29.180	62.020	4775.09	52.73	310.74	562.37	1751434.51	428801.46	39°40'29.0127"N	80°16'16.2885"W	642.51	61.078	0.74	0.74	0.02	
5004.00	30.380	61.820	4858.41	57.34	333.18	604.44	1751476.57	428823.90	39°40'29.2381"N	80°16'15.7530"W	690.19	61.136	1.25	1.25	-0.21	
5101.00	31.130	61.280	4941.77	61.82	356.81	648.05	1751520.18	428847.53	39°40'29.4754"N	80°16'15.1979"W	739.79	61.163	0.82	0.77	-0.56	
5195.00	30.250	57.090	5022.61	64.19	381.36	689.24	1751561.37	428872.07	39°40'29.7214"N	80°16'14.6738"W	787.71	61.044	2.46	-0.94	-4.46	
5290.00	30.290	57.150	5104.66	64.82	407.35	729.46	1751601.59	428898.07	39°40'29.9817"N	80°16'14.1623"W	835.49	60.820	0.05	0.04	0.06	
5385.00	29.520	59.500	5187.01	66.42	432.23	769.75	1751641.88	428922.94	39°40'30.2310"N	80°16'13.6497"W	882.80	60.685	1.48	-0.81	2.47	
5480.00	28.830	60.280	5269.96	69.26	455.46	809.81	1751681.93	428946.17	39°40'30.4640"N	80°16'13.1400"W	929.11	60.645	0.83	-0.73	0.82	
5575.00	28.590	61.090	5353.28	72.70	477.81	849.60	1751721.72	428968.52	39°40'30.6882"N	80°16'12.6336"W	974.74	60.647	0.48	-0.25	0.85	

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# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 14H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 14H AWB
Slot	Slot 14			

## WELLPATH DATA (225 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]
5669.00	29.220	61.080	5435.57	76.43	499.78	889.38	1751761.49	428990.49	39°40'30.9086"N	80°16'12.1273"W	1020.18	60.667	0.67	0.67	-0.01
5763.00	29.840	61.210	5517.36	80.29	522.13	929.95	1751802.07	429012.84	39°40'31.1330"N	80°16'11.6108"W	1066.51	60.687	0.66	0.66	0.14
5858.00	32.380	62.680	5598.69	85.08	545.20	973.28	1751845.39	429035.90	39°40'31.3646"N	80°16'11.0593"W	1115.57	60.744	2.79	2.67	1.55
5957.00	32.320	61.110	5682.33	90.18	570.15	1020.00	1751892.11	429060.85	39°40'31.6152"N	80°16'10.4645"W	1168.53	60.796	0.85	-0.06	-1.59
6052.00	31.580	57.810	5762.94	92.90	595.67	1063.29	1751935.40	429086.38	39°40'31.8711"N	80°16'9.9137"W	1218.77	60.742	2.00	-0.78	-3.47
6146.00	30.250	59.770	5843.59	94.93	620.71	1104.58	1751976.68	429111.41	39°40'32.1220"N	80°16'9.3884"W	1267.03	60.667	1.77	-1.41	2.09
6241.00	29.390	63.800	5926.01	99.36	643.05	1146.18	1752018.28	429133.75	39°40'32.3463"N	80°16'8.8588"W	1314.24	60.706	2.30	-0.91	4.24
6336.00	28.740	62.620	6009.05	104.86	663.85	1187.37	1752059.47	429154.54	39°40'32.5553"N	80°16'8.3343"W	1360.35	60.791	0.91	-0.68	-1.24
6430.00	29.480	61.400	6091.18	109.35	685.31	1227.75	1752099.85	429176.01	39°40'32.7708"N	80°16'7.8202"W	1406.07	60.830	1.01	0.79	-1.30
6526.00	29.040	61.150	6174.93	113.36	707.86	1268.90	1752140.99	429198.56	39°40'32.9972"N	80°16'7.2965"W	1452.99	60.845	0.48	-0.46	-0.26
6620.00	29.320	64.310	6257.00	118.44	728.85	1309.62	1752181.71	429219.54	39°40'33.2080"N	80°16'6.7779"W	1498.78	60.903	1.67	0.30	3.36
6715.00	29.840	63.930	6339.62	124.77	749.32	1351.82	1752223.90	429240.01	39°40'33.4139"N	80°16'6.2406"W	1545.60	61.000	0.58	0.55	-0.40
6810.00	31.280	59.640	6421.43	129.28	772.17	1394.33	1752266.42	429262.87	39°40'33.6434"N	80°16'5.6993"W	1593.87	61.023	2.75	1.52	-4.52
6906.00	29.520	56.070	6504.24	130.58	797.98	1435.47	1752307.55	429288.67	39°40'33.9018"N	80°16'5.1761"W	1642.36	60.930	2.63	-1.83	-3.72
7001.00	28.310	54.420	6587.40	129.69	824.15	1473.21	1752345.29	429314.84	39°40'34.1637"N	80°16'4.6962"W	1688.07	60.776	1.53	-1.27	-1.74
7095.00	27.860	58.160	6670.33	129.62	848.71	1510.00	1752382.08	429339.40	39°40'34.4095"N	80°16'4.2284"W	1732.17	60.662	1.93	-0.48	3.98
7190.00	27.200	64.830	6754.60	133.51	869.66	1548.52	1752420.59	429360.34	39°40'34.6198"N	80°16'3.7381"W	1776.01	60.681	3.32	-0.69	7.02
7285.00	28.520	65.410	6838.58	140.27	888.33	1588.79	1752460.87	429379.02	39°40'34.8077"N	80°16'3.2251"W	1820.27	60.789	1.42	1.39	0.61
7384.00	30.790	66.300	6924.61	148.35	908.35	1633.49	1752505.56	429399.04	39°40'35.0093"N	80°16'2.6556"W	1869.06	60.922	2.34	2.29	0.90
7479.00	31.590	68.210	7005.88	157.65	927.36	1678.86	1752550.93	429418.05	39°40'35.2010"N	80°16'2.0774"W	1917.96	61.085	1.34	0.84	2.01
7574.00	33.470	67.400	7085.97	167.77	946.67	1726.16	1752598.22	429437.35	39°40'35.3958"N	80°16'1.4747"W	1968.70	61.259	2.03	1.98	-0.85
7668.00	33.030	67.660	7164.58	177.74	966.37	1773.78	1752645.85	429457.05	39°40'35.5945"N	80°16'0.8678"W	2019.94	61.418	0.49	-0.47	0.28
7763.00	32.090	66.720	7244.65	187.35	986.18	1820.91	1752692.97	429476.86	39°40'35.7943"N	80°16'0.2672"W	2070.82	61.561	1.12	-0.99	-0.99
7858.00	30.370	62.870	7325.89	194.60	1007.11	1865.47	1752737.53	429497.79	39°40'36.0049"N	80°15'59.6996"W	2119.97	61.637	2.77	-1.81	-4.05
7954.00	28.390	68.090	7409.55	201.98	1026.70	1908.26	1752780.31	429517.38	39°40'36.2021"N	80°15'59.1546"W	2166.92	61.718	3.37	-2.06	5.44
8049.00	28.770	71.180	7492.98	212.42	1042.50	1950.85	1752822.90	429533.18	39°40'36.3618"N	80°15'58.6115"W	2211.93	61.881	1.61	0.40	3.25
8142.00	31.190	79.150	7573.57	227.47	1054.26	1995.71	1752867.76	429544.94	39°40'36.4818"N	80°15'58.0391"W	2257.06	62.154	5.01	2.60	8.57
8236.00	33.160	87.610	7653.17	250.24	1059.92	2045.33	1752917.38	429550.59	39°40'36.5419"N	80°15'57.4051"W	2303.65	62.606	5.23	2.10	9.00
8331.00	36.340	95.590	7731.26	281.54	1058.26	2099.35	1752971.39	429548.93	39°40'36.5301"N	80°15'56.7141"W	2350.99	63.248	5.84	3.35	8.40
8426.00	37.640	108.210	7807.24	322.20	1046.43	2155.00	1753027.04	429537.11	39°40'36.4179"N	80°15'56.0011"W	2395.63	64.100	8.10	1.37	13.28

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# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

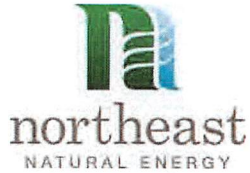
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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 14H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 14H AWB
Slot	Slot 14			

## WELLPATH DATA (225 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]
8520.00	41.620	116.120	7879.67	371.79	1023.70	2210.35	1753082.39	429514.37	39°40'36.1979"N	80°15'55.2907"W	2435.90	65.149	6.83	4.23	8.41
8618.00	47.750	125.530	7949.39	433.93	988.22	2269.21	1753141.24	429478.90	39°40'35.8522"N	80°15'54.5341"W	2475.05	66.467	9.19	6.26	9.60
8714.00	58.420	127.620	8006.98	506.07	942.47	2330.70	1753202.73	429433.16	39°40'35.4053"N	80°15'53.7428"W	2514.04	67.983	11.25	11.11	2.18
8809.00	67.820	127.660	8049.88	586.23	890.78	2397.72	1753269.95	429381.47	39°40'34.9001"N	80°15'52.8800"W	2557.84	69.619	9.89	9.89	0.04
8903.00	77.440	130.700	8077.91	671.84	834.13	2467.13	1753339.15	429324.82	39°40'34.3461"N	80°15'51.9861"W	2604.33	71.320	10.69	10.23	3.23
8997.00	83.770	133.110	8093.25	761.59	772.21	2536.10	1753408.12	429262.91	39°40'33.7400"N	80°15'51.0973"W	2651.06	73.065	7.19	6.73	2.56
9093.00	89.480	142.080	8098.91	856.17	701.54	2600.62	1753472.63	429192.24	39°40'33.0470"N	80°15'50.2645"W	2693.58	74.903	11.06	5.95	9.34
9187.00	91.320	144.260	8098.26	950.01	626.31	2656.96	1753528.97	429117.01	39°40'32.3082"N	80°15'49.5358"W	2729.78	76.736	3.03	1.96	2.32
9282.00	91.540	146.470	8095.89	1044.96	548.17	2710.93	1753582.94	429038.88	39°40'31.5406"N	80°15'48.8371"W	2765.80	78.568	2.34	0.23	2.33
9376.00	90.890	145.960	8093.89	1138.94	470.06	2763.19	1753635.19	428960.78	39°40'30.7731"N	80°15'48.1602"W	2802.89	80.345	0.88	-0.69	-0.54
9470.00	90.920	145.560	8092.41	1232.92	392.37	2816.08	1753688.07	428883.08	39°40'30.0097"N	80°15'47.4755"W	2843.28	82.068	0.43	0.03	-0.43
9564.00	91.200	146.550	8090.67	1326.91	314.40	2868.56	1753740.55	428805.12	39°40'29.2436"N	80°15'46.7959"W	2885.73	83.745	1.09	0.30	1.05
9658.00	90.980	145.620	8088.88	1420.89	236.41	2920.99	1753792.99	428727.13	39°40'28.4772"N	80°15'46.1168"W	2930.54	85.373	1.02	-0.23	-0.99
9753.00	90.890	145.290	8087.33	1515.86	158.17	2974.86	1753846.85	428648.90	39°40'27.7085"N	80°15'45.4195"W	2979.06	86.957	0.36	-0.09	-0.35
9848.00	90.920	145.580	8085.83	1610.84	79.95	3028.75	1753900.73	428570.68	39°40'26.9400"N	80°15'44.7218"W	3029.80	88.488	0.31	0.03	0.31
9943.00	90.920	145.960	8084.31	1705.82	1.41	3082.18	1753954.16	428492.15	39°40'26.1684"N	80°15'44.0299"W	3082.18	89.974	0.40	0.00	0.40
10038.00	90.890	145.920	8082.81	1800.80	-77.28	3135.38	1754007.36	428413.46	39°40'25.3952"N	80°15'43.3411"W	3136.33	91.412	0.05	-0.03	-0.04
10133.00	91.020	147.220	8081.22	1895.79	-156.55	3187.71	1754059.68	428334.20	39°40'24.6162"N	80°15'42.6633"W	3191.55	92.812	1.38	0.14	1.37
10226.00	91.080	146.890	8079.52	1988.77	-234.58	3238.27	1754110.25	428256.17	39°40'23.8492"N	80°15'42.0081"W	3246.76	94.143	0.36	0.06	-0.35
10322.00	90.890	147.150	8077.87	2084.75	-315.10	3290.52	1754162.49	428175.66	39°40'23.0579"N	80°15'41.3312"W	3305.58	95.470	0.34	-0.20	0.27
10415.00	90.950	146.980	8076.37	2177.73	-393.14	3341.08	1754213.05	428097.62	39°40'22.2909"N	80°15'40.6762"W	3364.13	96.711	0.19	0.06	-0.18
10511.00	91.020	147.090	8074.72	2273.71	-473.68	3393.31	1754265.27	428017.09	39°40'21.4994"N	80°15'39.9996"W	3426.21	97.947	0.14	0.07	0.11
10605.00	91.260	147.040	8072.85	2367.68	-552.55	3444.41	1754316.37	427938.22	39°40'20.7241"N	80°15'39.3376"W	3488.44	99.114	0.26	0.26	-0.05
10700.00	90.370	146.800	8071.50	2462.67	-632.15	3496.25	1754368.21	427858.63	39°40'19.9419"N	80°15'38.6659"W	3552.94	100.249	0.97	-0.94	-0.25
10795.00	90.280	144.710	8070.96	2557.65	-710.67	3549.71	1754421.66	427780.11	39°40'19.1703"N	80°15'37.9738"W	3620.15	101.321	2.20	-0.09	-2.20
10889.00	90.090	145.660	8070.66	2651.63	-787.84	3603.37	1754475.32	427702.94	39°40'18.4122"N	80°15'37.2792"W	3688.50	102.333	1.03	-0.20	1.01
10983.00	90.030	146.590	8070.56	2745.63	-865.89	3655.77	1754527.71	427624.91	39°40'17.6453"N	80°15'36.6007"W	3756.91	103.325	0.99	-0.06	0.99
11078.00	90.250	146.040	8070.33	2840.63	-944.94	3708.46	1754580.40	427545.86	39°40'16.8685"N	80°15'35.9184"W	3826.95	104.295	0.62	0.23	-0.58
11172.00	90.460	146.660	8069.75	2934.63	-1023.18	3760.54	1754632.48	427467.62	39°40'16.0996"N	80°15'35.2438"W	3897.25	105.221	0.70	0.22	0.66
11266.00	90.740	147.210	8068.76	3028.62	-1101.96	3811.82	1754683.76	427388.85	39°40'15.3254"N	80°15'34.5795"W	3967.91	106.124	0.66	0.30	0.59



# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 14H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 14H AWB
Slot	Slot 14			

WELLPATH DATA (225 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]	
11361.00	90.180	146.830	8068.00	3123.61	-1181.64	3863.54	1754735.47	427309.17	39°40'14.5422"N	80°15'33.9096"W	4040.20	107.006	0.71	-0.59	-0.40	
11455.00	90.060	147.410	8067.80	3217.60	-1260.59	3914.57	1754786.50	427230.23	39°40'13.7663"N	80°15'33.2485"W	4112.53	107.850	0.63	-0.13	0.62	
11549.00	89.940	146.930	8067.80	3311.59	-1339.57	3965.53	1754837.46	427151.25	39°40'12.9900"N	80°15'32.5883"W	4185.67	108.665	0.53	-0.13	-0.51	
11643.00	90.060	147.130	8067.80	3405.58	-1418.43	4016.68	1754888.61	427072.39	39°40'12.2149"N	80°15'31.9256"W	4259.78	109.450	0.25	0.13	0.21	
11738.00	90.180	147.420	8067.60	3500.57	-1498.35	4068.04	1754939.96	426992.48	39°40'11.4294"N	80°15'31.2602"W	4335.21	110.220	0.33	0.13	0.31	
11832.00	90.120	146.790	8067.36	3594.56	-1577.28	4119.09	1754991.01	426913.55	39°40'10.6536"N	80°15'30.5989"W	4410.75	110.953	0.67	-0.06	-0.67	
11927.00	89.820	146.840	8067.41	3689.56	-1656.79	4171.09	1755043.00	426834.05	39°40'9.8722"N	80°15'29.9253"W	4488.09	111.663	0.32	-0.32	0.05	
12021.00	90.090	146.750	8067.48	3783.56	-1735.44	4222.57	1755094.48	426755.41	39°40'9.0992"N	80°15'29.2586"W	4565.28	112.342	0.30	0.29	-0.10	
12115.00	89.970	146.740	8067.43	3877.55	-1814.05	4274.11	1755146.02	426676.80	39°40'8.3267"N	80°15'28.5909"W	4643.15	112.998	0.13	-0.13	-0.01	
12209.00	90.220	146.940	8067.28	3971.55	-1892.74	4325.53	1755197.44	426598.12	39°40'7.5533"N	80°15'27.9250"W	4721.51	113.633	0.34	0.27	0.21	
12304.00	90.030	146.820	8067.07	4066.55	-1972.30	4377.44	1755249.34	426518.56	39°40'6.7713"N	80°15'27.2526"W	4801.24	114.254	0.24	-0.20	-0.13	
12399.00	90.220	146.670	8066.86	4161.54	-2051.75	4429.53	1755301.43	426439.12	39°40'5.9906"N	80°15'26.5779"W	4881.64	114.853	0.25	0.20	-0.16	
12494.00	90.280	146.780	8066.45	4256.54	-2131.17	4481.65	1755353.55	426359.70	39°40'5.2100"N	80°15'25.9028"W	4962.57	115.433	0.13	0.06	0.12	
12588.00	90.400	147.020	8065.89	4350.54	-2209.91	4532.99	1755404.88	426280.96	39°40'4.4361"N	80°15'25.2379"W	5042.98	115.990	0.29	0.13	0.26	
12682.00	90.090	146.590	8065.49	4444.53	-2288.57	4584.45	1755456.34	426202.31	39°40'3.6630"N	80°15'24.5713"W	5123.94	116.529	0.56	-0.33	-0.46	
12777.00	90.400	146.720	8065.08	4539.53	-2367.93	4636.67	1755508.56	426122.95	39°40'2.8831"N	80°15'23.8951"W	5206.32	117.053	0.35	0.33	0.14	
12872.00	90.650	145.730	8064.21	4634.52	-2446.89	4689.48	1755561.36	426043.99	39°40'2.1072"N	80°15'23.2112"W	5289.47	117.555	1.07	0.26	-1.04	
12967.00	90.830	145.940	8062.98	4729.51	-2525.49	4742.82	1755614.71	425965.40	39°40'1.3348"N	80°15'22.5206"W	5373.31	118.035	0.29	0.19	0.22	
13062.00	90.800	145.850	8061.63	4824.50	-2604.15	4796.09	1755667.96	425886.75	39°40'0.5620"N	80°15'21.8311"W	5457.47	118.501	0.10	-0.03	-0.09	
13157.00	90.060	145.710	8060.92	4919.49	-2682.70	4849.51	1755721.38	425808.21	39°39'59.7901"N	80°15'21.1395"W	5542.08	118.951	0.79	-0.78	-0.15	
13251.00	90.000	145.850	8060.87	5013.49	-2760.42	4902.37	1755774.24	425730.48	39°39'59.0264"N	80°15'20.4552"W	5626.12	119.383	0.16	-0.06	0.15	
13346.00	90.000	145.410	8060.87	5108.48	-2838.84	4956.00	1755827.87	425652.07	39°39'58.2559"N	80°15'19.7610"W	5711.48	119.804	0.46	0.00	-0.46	
13440.00	90.220	145.500	8060.69	5202.47	-2916.26	5009.31	1755881.17	425574.65	39°39'57.4952"N	80°15'19.0710"W	5796.36	120.207	0.25	0.23	0.10	
13535.00	90.220	146.130	8060.33	5297.46	-2994.85	5062.68	1755934.54	425496.07	39°39'56.7230"N	80°15'18.3801"W	5882.17	120.607	0.66	0.00	0.66	
13630.00	90.280	146.110	8059.91	5392.46	-3073.72	5115.64	1755987.50	425417.21	39°39'55.9480"N	80°15'17.6944"W	5968.04	120.999	0.07	0.06	-0.02	
13725.00	90.060	145.880	8059.63	5487.46	-3152.47	5168.77	1756040.63	425338.46	39°39'55.1741"N	80°15'17.0066"W	6054.28	121.379	0.34	-0.23	-0.24	
13820.00	90.120	146.150	8059.48	5582.45	-3231.24	5221.87	1756093.72	425259.69	39°39'54.4000"N	80°15'16.3191"W	6140.76	121.749	0.29	0.06	0.28	
13914.00	90.000	145.530	8059.38	5676.45	-3309.03	5274.65	1756146.50	425181.91	39°39'53.6357"N	80°15'15.6358"W	6226.69	122.102	0.67	-0.13	-0.66	
14009.00	90.090	145.870	8059.31	5771.44	-3387.51	5328.19	1756200.03	425103.44	39°39'52.8646"N	80°15'14.9429"W	6313.86	122.447	0.37	0.09	0.36	
14104.00	89.690	145.580	8059.49	5866.44	-3466.01	5381.69	1756253.53	425024.94	39°39'52.0932"N	80°15'14.2503"W	6401.23	122.783	0.52	-0.42	-0.31	

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# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 14H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 14H AWB
Slot	Slot 14			

WELLPATH DATA (225 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]	
14198.00	89.350	145.100	8060.28	5960.42	-3543.32	5435.15	1756306.98	424947.63	39°39'51.3336"N	80°15'13.5585"W	6488.14	123.101	0.63	-0.36	-0.51	
14292.00	89.320	145.940	8061.37	6054.40	-3620.80	5488.36	1756360.19	424870.16	39°39'50.5723"N	80°15'12.8698"W	6575.13	123.414	0.89	-0.03	0.89	
14386.00	89.140	145.760	8062.63	6148.39	-3698.59	5541.12	1756412.95	424792.38	39°39'49.8080"N	80°15'12.1868"W	6662.10	123.722	0.27	-0.19	-0.19	
14480.00	89.450	145.880	8063.79	6242.37	-3776.35	5593.92	1756465.75	424714.62	39°39'49.0439"N	80°15'11.5033"W	6749.28	124.023	0.35	0.33	0.13	
14575.00	89.290	146.340	8064.83	6337.37	-3855.20	5646.89	1756518.72	424635.77	39°39'48.2690"N	80°15'10.8175"W	6837.40	124.322	0.51	-0.17	0.48	
14669.00	89.820	145.650	8065.56	6431.36	-3933.12	5699.46	1756571.28	424557.86	39°39'47.5033"N	80°15'10.1370"W	6924.83	124.609	0.93	0.56	-0.73	
14764.00	89.750	146.700	8065.92	6526.36	-4012.04	5752.34	1756624.16	424478.94	39°39'46.7277"N	80°15'9.4524"W	7013.27	124.894	1.11	-0.07	1.11	
14859.00	89.750	146.770	8066.33	6621.36	-4091.48	5804.45	1756676.27	424399.51	39°39'45.9470"N	80°15'8.7776"W	7101.54	125.179	0.07	0.00	0.07	
14954.00	89.820	147.070	8066.69	6716.35	-4171.08	5856.30	1756728.12	424319.92	39°39'45.1647"N	80°15'8.1060"W	7189.87	125.460	0.32	0.07	0.32	
15049.00	89.690	147.060	8067.10	6811.34	-4250.81	5907.95	1756779.76	424240.19	39°39'44.3810"N	80°15'7.4371"W	7278.27	125.735	0.14	-0.14	-0.01	
15143.00	89.600	146.870	8067.68	6905.34	-4329.61	5959.20	1756831.00	424161.39	39°39'43.6065"N	80°15'6.7734"W	7365.97	126.000	0.22	-0.10	-0.20	
15238.00	89.690	146.940	8068.27	7000.33	-4409.20	6011.07	1756882.87	424081.81	39°39'42.8242"N	80°15'6.1017"W	7454.79	126.261	0.12	0.09	0.07	
15333.00	89.540	146.830	8068.91	7095.32	-4488.76	6062.97	1756934.77	424002.25	39°39'42.0422"N	80°15'5.4296"W	7543.78	126.515	0.20	-0.16	-0.12	
15428.00	89.910	146.850	8069.36	7190.32	-4568.29	6114.93	1756986.73	423922.73	39°39'41.2606"N	80°15'4.7566"W	7632.93	126.762	0.39	0.39	0.02	
15523.00	89.970	146.890	8069.46	7285.32	-4647.85	6166.85	1757038.65	423843.17	39°39'40.4786"N	80°15'4.0843"W	7722.21	127.005	0.08	0.06	0.04	
15617.00	89.970	145.920	8069.51	7379.32	-4726.15	6218.86	1757090.65	423764.88	39°39'39.7091"N	80°15'3.4109"W	7810.94	127.234	1.03	0.00	-1.03	
15713.00	89.910	146.670	8069.61	7475.31	-4806.01	6272.13	1757143.92	423685.02	39°39'38.9243"N	80°15'2.7212"W	7901.73	127.461	0.78	-0.06	0.78	
15807.00	90.150	147.210	8069.56	7569.31	-4884.79	6323.41	1757195.20	423606.25	39°39'38.1500"N	80°15'2.0571"W	7990.41	127.686	0.63	0.26	0.57	
15901.00	90.000	146.650	8069.44	7663.30	-4963.56	6374.70	1757246.49	423527.48	39°39'37.3757"N	80°15'1.3929"W	8079.22	127.906	0.62	-0.16	-0.60	
15996.00	89.970	146.870	8069.46	7758.30	-5043.02	6426.78	1757298.56	423448.03	39°39'36.5948"N	80°15'0.7186"W	8169.18	128.121	0.23	-0.03	0.23	
16091.00	90.120	146.890	8069.39	7853.30	-5122.58	6478.69	1757350.46	423368.47	39°39'35.8128"N	80°15'0.0464"W	8259.19	128.333	0.16	0.16	0.02	
16186.00	90.280	147.040	8069.06	7948.29	-5202.22	6530.47	1757402.25	423288.83	39°39'35.0300"N	80°14'59.3757"W	8349.27	128.541	0.23	0.17	0.16	
16281.00	89.880	147.150	8068.92	8043.28	-5281.98	6582.08	1757453.85	423209.08	39°39'34.2460"N	80°14'58.7073"W	8439.38	128.746	0.44	-0.42	0.12	
16375.00	89.320	146.660	8069.58	8137.28	-5360.73	6633.41	1757505.17	423130.33	39°39'33.4720"N	80°14'58.0427"W	8528.75	128.943	0.79	-0.60	-0.52	
16470.00	89.320	146.900	8070.71	8232.27	-5440.20	6685.45	1757557.21	423050.87	39°39'32.6910"N	80°14'57.3688"W	8619.22	129.137	0.25	0.00	0.25	
16565.00	89.480	147.040	8071.70	8327.26	-5519.84	6737.23	1757608.99	422971.23	39°39'31.9082"N	80°14'56.6983"W	8709.70	129.328	0.22	0.17	0.15	
16659.00	89.290	146.840	8072.71	8421.25	-5598.62	6788.51	1757660.26	422892.46	39°39'31.1339"N	80°14'56.0343"W	8799.34	129.513	0.29	-0.20	-0.21	
16753.00	89.080	146.530	8074.05	8515.24	-5677.16	6840.13	1757711.88	422813.92	39°39'30.3619"N	80°14'55.3659"W	8889.18	129.692	0.40	-0.22	-0.33	
16848.00	88.830	146.850	8075.78	8610.22	-5756.54	6892.29	1757764.04	422734.55	39°39'29.5817"N	80°14'54.6905"W	8980.06	129.869	0.43	-0.26	0.34	
16942.00	88.650	147.040	8077.85	8704.19	-5835.31	6943.55	1757815.30	422655.79	39°39'28.8075"N	80°14'54.0267"W	9069.94	130.043	0.28	-0.19	0.20	

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# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

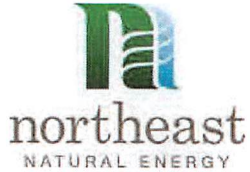
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 14H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 14H AWB
Slot	Slot 14		

## WELLPATH DATA (225 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]
17036.00	88.490	147.130	8080.19	8798.16	-5914.20	6994.61	1757866.36	422576.90	39°39'28.0321"N	80°14'53.3654"W	9159.82	130.216	0.20	-0.17	0.10
17131.00	88.520	146.850	8082.67	8893.12	-5993.83	7046.35	1757918.09	422497.27	39°39'27.2494"N	80°14'52.6955"W	9250.79	130.385	0.30	0.03	-0.29
17226.00	88.920	147.280	8084.79	8988.09	-6073.55	7097.99	1757969.73	422417.56	39°39'26.4659"N	80°14'52.0268"W	9341.81	130.553	0.62	0.42	0.45
17321.00	88.520	144.960	8086.92	9083.05	-6152.39	7150.93	1758022.66	422338.72	39°39'25.6910"N	80°14'51.3415"W	9433.33	130.707	2.48	-0.42	-2.44
17416.00	89.080	146.450	8088.91	9178.02	-6230.85	7204.44	1758076.17	422260.27	39°39'24.9200"N	80°14'50.6490"W	9525.10	130.855	1.68	0.59	1.57
17510.00	89.350	145.570	8090.19	9272.01	-6308.78	7256.99	1758128.72	422182.34	39°39'24.1542"N	80°14'49.9689"W	9615.85	131.002	0.98	0.29	-0.94
17605.00	89.420	145.590	8091.21	9367.00	-6387.15	7310.68	1758182.41	422103.98	39°39'23.3842"N	80°14'49.2740"W	9707.82	131.143	0.08	0.07	0.02
17700.00	89.910	146.010	8091.77	9461.99	-6465.72	7364.08	1758235.80	422025.42	39°39'22.6121"N	80°14'48.5830"W	9799.76	131.283	0.68	0.52	0.44
17794.00	90.090	146.280	8091.77	9555.99	-6543.78	7416.45	1758288.17	421947.36	39°39'21.8449"N	80°14'47.9051"W	9890.64	131.423	0.35	0.19	0.29
17889.00	89.290	144.900	8092.28	9650.98	-6622.15	7470.13	1758341.85	421868.99	39°39'21.0748"N	80°14'47.2105"W	9982.77	131.556	1.68	-0.84	-1.45
17983.00	90.680	146.980	8092.31	9744.97	-6700.02	7522.77	1758394.48	421791.13	39°39'20.3096"N	80°14'46.5292"W	10073.85	131.689	2.66	1.48	2.21
18078.00	90.340	145.690	8091.46	9839.96	-6779.08	7575.43	1758447.14	421712.07	39°39'19.5326"N	80°14'45.8475"W	10165.78	131.825	1.40	-0.36	-1.36
18173.00	90.490	145.360	8090.77	9934.95	-6857.40	7629.20	1758500.91	421633.76	39°39'18.7630"N	80°14'45.1517"W	10258.10	131.950	0.38	0.16	-0.35
18268.00	90.370	145.660	8090.06	10029.93	-6935.70	7683.00	1758554.70	421555.47	39°39'17.9937"N	80°14'44.4556"W	10350.48	132.074	0.34	-0.13	0.32
18362.00	90.650	146.350	8089.23	10123.93	-7013.63	7735.55	1758607.25	421477.54	39°39'17.2278"N	80°14'43.7754"W	10441.73	132.198	0.79	0.30	0.73
18458.00	90.340	145.810	8088.40	10219.92	-7093.29	7789.12	1758660.82	421397.89	39°39'16.4450"N	80°14'43.0821"W	10534.95	132.323	0.65	-0.32	-0.56
18553.00	89.970	145.600	8088.14	10314.92	-7171.77	7842.65	1758714.34	421319.41	39°39'15.6737"N	80°14'42.3894"W	10627.39	132.442	0.45	-0.39	-0.22
18648.00	88.920	145.710	8089.06	10409.90	-7250.20	7896.24	1758767.93	421240.98	39°39'14.9030"N	80°14'41.6959"W	10719.89	132.558	1.11	-1.11	0.12
18743.00	88.920	145.950	8090.85	10504.88	-7328.79	7949.59	1758821.28	421162.40	39°39'14.1307"N	80°14'41.0056"W	10812.36	132.673	0.25	0.00	0.25
18838.00	89.540	144.530	8092.13	10599.85	-7406.83	8003.75	1758875.43	421084.36	39°39'13.3640"N	80°14'40.3049"W	10905.09	132.782	1.63	0.65	-1.49
18933.00	88.650	146.000	8093.63	10694.82	-7484.88	8057.87	1758929.55	421006.31	39°39'12.5970"N	80°14'39.6047"W	10997.85	132.889	1.81	-0.94	1.55
19028.00	88.180	145.530	8096.25	10789.78	-7563.39	8111.29	1758982.97	420927.81	39°39'11.8255"N	80°14'38.9134"W	11090.45	132.998	0.70	-0.49	-0.49
19123.00	89.540	146.130	8098.14	10884.75	-7641.98	8164.64	1759036.31	420849.23	39°39'11.0533"N	80°14'38.2231"W	11183.07	133.106	1.56	1.43	0.63
19216.00	90.120	146.330	8098.42	10977.75	-7719.28	8216.33	1759088.00	420771.93	39°39'10.2935"N	80°14'37.5540"W	11273.66	133.213	0.66	0.62	0.22
19311.00	91.480	146.130	8097.09	11072.74	-7798.25	8269.13	1759140.80	420692.97	39°39'9.5175"N	80°14'36.8706"W	11366.23	133.321	1.45	1.43	-0.21
19406.00	92.340	146.260	8093.93	11167.68	-7877.14	8321.96	1759193.62	420614.08	39°39'8.7421"N	80°14'36.1869"W	11458.81	133.427	0.92	0.91	0.14
19500.00	92.250	146.010	8090.16	11261.61	-7955.13	8374.30	1759245.96	420536.09	39°39'7.9756"N	80°14'35.5095"W	11550.45	133.530	0.28	-0.10	-0.27
19595.00	92.250	145.980	8086.43	11356.53	-8033.82	8427.38	1759299.04	420457.40	39°39'7.2023"N	80°14'34.8225"W	11643.16	133.630	0.03	0.00	-0.03
19688.00	90.280	145.940	8084.38	11449.50	-8110.87	8479.43	1759351.08	420380.37	39°39'6.4452"N	80°14'34.1490"W	11734.00	133.727	2.12	-2.12	-0.04
19782.00	90.430	145.920	8083.80	11543.50	-8188.73	8532.09	1759403.74	420302.51	39°39'5.6800"N	80°14'33.4675"W	11825.90	133.824	0.16	0.16	-0.02



# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 14H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 14H AWB
Slot	Slot 14			

**WELLPATH DATA (225 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]
19876.00	90.370	145.760	8083.14	11637.49	-8266.51	8584.87	1759456.51	420224.73	39°39'4.9156"N	80°14'32.7845"W	11917.85	133.918	0.18	-0.06	-0.17
19970.00	90.310	146.160	8082.58	11731.49	-8344.40	8637.48	1759509.13	420146.85	39°39'4.1501"N	80°14'32.1036"W	12009.79	134.011	0.43	-0.06	0.43
20065.00	90.250	146.210	8082.12	11826.49	-8423.33	8690.35	1759561.99	420067.92	39°39'3.3744"N	80°14'31.4194"W	12102.67	134.106	0.08	-0.06	0.05
20159.00	90.090	146.290	8081.84	11920.49	-8501.49	8742.58	1759614.21	419989.77	39°39'2.6063"N	80°14'30.7435"W	12194.59	134.199	0.19	-0.17	0.09
20254.00	89.970	146.000	8081.79	12015.48	-8580.38	8795.50	1759667.13	419910.88	39°39'1.8309"N	80°14'30.0586"W	12287.54	134.291	0.33	-0.13	-0.31
20349.00	90.000	146.230	8081.82	12110.48	-8659.25	8848.46	1759720.10	419832.02	39°39'1.0559"N	80°14'29.3732"W	12380.54	134.381	0.24	0.03	0.24
20443.00	90.220	146.240	8081.64	12204.48	-8737.39	8900.71	1759772.34	419753.88	39°39'0.2879"N	80°14'28.6970"W	12472.55	134.469	0.23	0.23	0.01
20538.00	90.770	146.190	8080.82	12299.48	-8816.34	8953.53	1759825.16	419674.93	39°38'59.5119"N	80°14'28.0134"W	12565.58	134.558	0.58	0.58	-0.05
20633.00	90.680	146.000	8079.61	12394.47	-8895.18	9006.52	1759878.14	419596.10	39°38'58.7371"N	80°14'27.3276"W	12658.66	134.644	0.22	-0.09	-0.20
20727.00	90.770	146.840	8078.42	12488.46	-8973.49	9058.51	1759930.13	419517.80	39°38'57.9675"N	80°14'26.6548"W	12750.69	134.730	0.90	0.10	0.89
20822.00	90.220	146.620	8077.60	12583.46	-9052.92	9110.62	1759982.24	419438.38	39°38'57.1868"N	80°14'25.9802"W	12843.63	134.818	0.62	-0.58	-0.23
20916.00	90.120	146.660	8077.32	12677.45	-9131.43	9162.31	1760033.92	419359.87	39°38'56.4151"N	80°14'25.3111"W	12935.65	134.903	0.11	-0.11	0.04
21010.00	89.510	146.810	8077.63	12771.45	-9210.02	9213.87	1760085.48	419281.28	39°38'55.6425"N	80°14'24.6437"W	13027.66	134.988	0.67	-0.65	0.16
21086.00	89.720	146.670	8078.14	12847.45	-9273.57	9255.55	1760127.16	419217.73	39°38'55.0179"N	80°14'24.1041"W	13102.08	135.056	0.33	0.28	-0.18
21111.00‡	89.720	146.670	8078.26	12872.45	-9294.46	9269.29	1760140.89	419196.85	39°38'54.8126"N	80°14'23.9263"W	13126.57	135.078	0.00	0.00	0.00

**HOLE & CASING SECTIONS - Ref Wellbore: ERP 14H AWB Ref Wellpath: ERP 14H AWP Proj: 21111'**

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	1367.96	0.00	0.00	-1.16	4.68
13.375in Casing Surface	28.00	1368.00	1340.00	28.00	1367.96	0.00	0.00	-1.16	4.68
12.25in Open Hole	1368.00	2658.00	1290.00	1367.96	2657.80	-1.16	4.68	-8.23	20.49
9.625in Casing Intermediate	28.00	2658.00	2630.00	28.00	2657.80	0.00	0.00	-8.23	20.49
8.75in Open Hole	2658.00	8585.00	5927.00	2657.80	7926.75	-8.23	20.49	1001.67	2249.33
8.5in Open Hole	8585.00	21111.00	12526.00	7926.75	8078.26	1001.67	2249.33	-9294.46	9269.29
5.5in Casing Production	28.00	21111.00	21083.00	28.00	8078.26	0.00	0.00	-9294.46	9269.29

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# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 14H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 14H AWB
Slot	Slot 14		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
ERP 14H BHL Rev-4	8110.00	-9300.94	9260.70	1760132.31	419190.37	39°38'54.7479"N	80°14'24.0355"W	point
ERP 14H LP Rev-8	8110.00	662.34	2634.52	1753506.53	429153.04	39°40'32.6624"N	80°15'49.8267"W	point
ERP Pad Hardline #1 (6.8.21)	8523.00	2685.52	1439.50	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	2548.96	1514.14	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	1214.04	698.67	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	-4915.62	25.66	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	-10493.45	6367.85	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 14H AWP Proj: 21111'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 14H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 14H AWB
Slot	Slot 14		

WELLPATH COMPOSITION - Ref Wellbore: ERP 14H AWB Ref Wellpath: ERP 14H AWP Proj: 21111'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
28.00	2580.00	BH Generic gyro - northseeking (Standard)	01_Javins Inertial Gyro <12-1/4">(100'-2580')	ERP 14H AWB	9/20/2021
2580.00	8520.00	OWSG MWD rev2 + HRGM	02_Tally MWD <8-3/4">(2580')(2629'-8520')	ERP 14H AWB	9/20/2021
8520.00	21111.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	03_BH AT Curve <8-1/2">(8520')(8618'-21086')	ERP 14H AWB	9/20/2021



# Actual Wellpath Report

ERP 14H AWP Proj: 21111'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 14H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 14H AWB
Slot	Slot 14		

COMMENTS
<p><b>Wellpath general comments</b> API: 47-061-01880-0000 BH Job #: 110948065 Rig: Patterson 277 Duration: 9/21/21 - 9/24/21</p> <p>01_Javins Inertial Gyro &lt;12-1/4"&gt;(100'-2580') 02_Tally MWD &lt;8-3/4"&gt;(2580')(2629'-8520') 03_BH AT Curve &lt;8-1/2"&gt;(8520')(8618'-21086') Projected MD at TD: 21111'</p>

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