

Actual Wellpath Report

ERP 10H AWP Proj: 20853'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

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	9/13/2021 at 12:41:27 PM
Convergence at slot	0.49° West	Database	WA_MPL_EASTERNUS_Defn

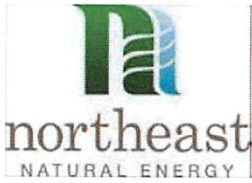
WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	39.51	45.16	1750857.12	428477.58	39°40'25.7628"N	80°16'23.6374"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 10)	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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WELLPATH DATA (222 stations) † = interpolated, ‡ = extrapolated station															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	169.700	0.00	0.00	0.00	0.00	1750857.12	428477.58	39°40'25.7628"N	80°16'23.6374"W	0.00	0.000	0.00	0.00	0.00
28.00	0.000	169.700	28.00	0.00	0.00	0.00	1750857.12	428477.58	39°40'25.7628"N	80°16'23.6374"W	0.00	0.000	0.00	0.00	0.00
100.00	0.730	169.700	100.00	0.42	-0.45	0.08	1750857.20	428477.13	39°40'25.7583"N	80°16'23.6363"W	0.46	169.700	1.01	1.01	0.00
200.00	0.610	132.600	199.99	1.52	-1.44	0.59	1750857.71	428476.14	39°40'25.7486"N	80°16'23.6297"W	1.55	157.774	0.44	-0.12	-37.10
300.00	0.520	204.400	299.99	2.28	-2.21	0.79	1750857.91	428475.37	39°40'25.7410"N	80°16'23.6270"W	2.35	160.297	0.67	-0.09	-71.80
400.00	0.470	289.200	399.99	2.19	-2.49	0.22	1750857.34	428475.09	39°40'25.7382"N	80°16'23.6343"W	2.50	175.012	0.67	-0.05	84.80
500.00	0.550	6.700	499.98	1.50	-1.88	-0.11	1750857.01	428475.70	39°40'25.7442"N	80°16'23.6386"W	1.88	183.473	0.64	0.08	77.50
600.00	0.530	65.600	599.98	1.21	-1.21	0.36	1750857.48	428476.37	39°40'25.7508"N	80°16'23.6326"W	1.26	163.305	0.53	-0.02	58.90
700.00	0.610	163.400	699.98	1.79	-1.53	0.94	1750858.06	428476.05	39°40'25.7477"N	80°16'23.6252"W	1.79	148.531	0.86	0.08	97.80
800.00	0.570	208.300	799.97	2.54	-2.48	0.85	1750857.97	428475.10	39°40'25.7384"N	80°16'23.6262"W	2.62	161.012	0.45	-0.04	44.90
900.00	0.480	341.800	899.97	2.37	-2.52	0.49	1750857.61	428475.06	39°40'25.7379"N	80°16'23.6309"W	2.56	169.075	0.97	-0.09	133.50
1000.00	0.570	124.400	999.97	2.42	-2.40	0.77	1750857.89	428475.18	39°40'25.7391"N	80°16'23.6273"W	2.52	162.315	0.99	0.09	142.60
1100.00	0.500	319.000	1099.97	2.45	-2.35	0.89	1750858.01	428475.23	39°40'25.7396"N	80°16'23.6257"W	2.52	159.285	1.06	-0.07	-165.40
1200.00	0.550	128.200	1199.96	2.48	-2.32	0.98	1750858.10	428475.26	39°40'25.7399"N	80°16'23.6246"W	2.52	157.089	1.05	0.05	169.20
1300.00	0.480	342.200	1299.96	2.53	-2.22	1.23	1750858.35	428475.36	39°40'25.7410"N	80°16'23.6214"W	2.54	150.997	0.99	-0.07	-146.00
1400.00	0.590	193.100	1399.96	2.48	-2.32	0.99	1750858.11	428475.26	39°40'25.7399"N	80°16'23.6245"W	2.52	157.002	1.03	0.11	-149.10
1500.00	0.350	353.100	1499.96	2.56	-2.52	0.83	1750857.95	428475.06	39°40'25.7379"N	80°16'23.6265"W	2.65	161.730	0.93	-0.24	160.00
1600.00	0.850	133.900	1599.96	3.01	-2.73	1.33	1750858.45	428474.85	39°40'25.7359"N	80°16'23.6201"W	3.04	154.037	1.14	0.50	140.80
1700.00	1.030	149.300	1699.94	4.63	-4.02	2.32	1750859.44	428473.56	39°40'25.7233"N	80°16'23.6072"W	4.64	149.965	0.31	0.18	15.40
1800.00	0.130	175.700	1799.94	5.63	-4.90	2.79	1750859.91	428472.68	39°40'25.7146"N	80°16'23.6012"W	5.64	150.359	0.92	-0.90	26.40
1900.00	0.670	83.200	1899.93	5.99	-4.95	3.38	1750860.50	428472.63	39°40'25.7142"N	80°16'23.5936"W	5.99	145.665	0.69	0.54	-92.50
2000.00	0.570	198.500	1999.93	6.56	-5.35	3.80	1750860.92	428472.23	39°40'25.7102"N	80°16'23.5882"W	6.56	144.600	1.05	-0.10	115.30
2100.00	0.770	82.900	2099.93	7.17	-5.74	4.31	1750861.43	428471.84	39°40'25.7064"N	80°16'23.5816"W	7.18	143.085	1.14	0.20	-115.60
2200.00	0.850	160.700	2199.92	8.18	-6.36	5.22	1750862.34	428471.22	39°40'25.7004"N	80°16'23.5699"W	8.23	140.587	1.02	0.08	77.80
2300.00	0.240	50.300	2299.92	8.88	-6.92	5.63	1750862.75	428470.66	39°40'25.6948"N	80°16'23.5646"W	8.92	140.880	0.96	-0.61	-110.40
2400.00	0.680	72.600	2399.91	9.02	-6.61	6.36	1750863.48	428470.97	39°40'25.6980"N	80°16'23.5554"W	9.17	136.122	0.47	0.44	22.30
2500.00	0.670	173.600	2499.91	9.71	-7.01	6.99	1750864.11	428470.57	39°40'25.6941"N	80°16'23.5472"W	9.90	135.107	1.04	-0.01	101.00
2600.00	0.970	144.200	2599.90	11.08	-8.28	7.55	1750864.67	428469.30	39°40'25.6816"N	80°16'23.5399"W	11.21	137.653	0.51	0.30	-29.40
2726.00	0.790	124.850	2725.88	12.95	-9.64	8.89	1750866.00	428467.94	39°40'25.6682"N	80°16'23.5227"W	13.11	137.343	0.27	-0.14	-15.36
2821.00	2.590	117.620	2820.84	15.44	-11.01	11.32	1750868.44	428466.57	39°40'25.6549"N	80°16'23.4913"W	15.80	134.200	1.90	1.89	-7.61



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Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

WELLPATH DATA (222 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2915.00	4.090	103.200	2914.68	19.75	-12.76	16.47	1750873.59	428464.82	39°40'25.6380"N	80°16'23.4253"W	20.84	127.772	1.82	1.60	-15.34
3010.00	4.660	102.070	3009.40	24.98	-14.34	23.54	1750880.66	428463.24	39°40'25.6230"N	80°16'23.3347"W	27.57	121.352	0.61	0.60	-1.19
3105.00	5.100	102.250	3104.06	30.77	-16.05	31.44	1750888.56	428461.53	39°40'25.6069"N	80°16'23.2335"W	35.30	117.037	0.46	0.46	0.19
3199.00	6.100	101.270	3197.61	37.30	-17.91	40.42	1750897.54	428459.67	39°40'25.5892"N	80°16'23.1184"W	44.21	113.895	1.07	1.06	-1.04
3293.00	7.220	102.490	3290.97	45.08	-20.16	51.09	1750908.21	428457.42	39°40'25.5679"N	80°16'22.9818"W	54.92	111.537	1.20	1.19	-1.30
3388.00	7.650	94.150	3385.18	53.26	-21.91	63.23	1750920.34	428455.67	39°40'25.5516"N	80°16'22.8264"W	66.91	109.114	1.22	0.45	-8.78
3482.00	7.780	76.150	3478.34	59.25	-20.84	75.64	1750932.76	428456.74	39°40'25.5632"N	80°16'22.6677"W	78.46	105.404	2.56	0.14	-19.15
3577.00	8.020	61.610	3572.45	62.03	-16.15	87.72	1750944.83	428461.43	39°40'25.6106"N	80°16'22.5138"W	89.19	100.432	2.11	0.25	-15.31
3672.00	8.720	56.550	3666.43	62.66	-9.03	99.56	1750956.67	428468.55	39°40'25.6820"N	80°16'22.3632"W	99.97	95.182	1.07	0.74	-5.33
3767.00	9.300	55.700	3760.26	62.59	-0.73	111.91	1750969.02	428476.85	39°40'25.7650"N	80°16'22.2062"W	111.91	90.376	0.63	0.61	-0.89
3862.00	10.660	56.430	3853.82	62.51	8.45	125.57	1750982.68	428486.03	39°40'25.8570"N	80°16'22.0324"W	125.85	86.150	1.44	1.43	0.77
3956.00	12.230	57.950	3945.95	62.79	18.54	141.25	1750998.37	428496.12	39°40'25.9580"N	80°16'21.8330"W	142.47	82.522	1.70	1.67	1.62
4050.00	13.820	60.740	4037.53	63.92	29.31	159.49	1751016.60	428506.89	39°40'26.0660"N	80°16'21.6010"W	162.16	79.586	1.82	1.69	2.97
4145.00	15.290	60.090	4129.48	65.60	41.11	180.25	1751037.36	428518.68	39°40'26.1843"N	80°16'21.3368"W	184.87	77.153	1.56	1.55	-0.68
4240.00	16.770	59.910	4220.78	67.26	54.22	202.96	1751060.07	428531.80	39°40'26.3159"N	80°16'21.0477"W	210.08	75.042	1.56	1.56	-0.19
4335.00	17.670	60.880	4311.52	69.24	68.11	227.42	1751084.52	428545.69	39°40'26.4552"N	80°16'20.7365"W	237.40	73.327	0.99	0.95	1.02
4430.00	19.030	61.290	4401.69	71.70	82.57	253.60	1751110.70	428560.14	39°40'26.6003"N	80°16'20.4033"W	266.70	71.965	1.44	1.43	0.43
4525.00	19.200	57.980	4491.46	73.47	98.29	280.43	1751137.53	428575.87	39°40'26.7580"N	80°16'20.0619"W	297.16	70.684	1.15	0.18	-3.48
4623.00	18.300	57.830	4584.25	74.31	115.03	307.12	1751164.22	428592.60	39°40'26.9256"N	80°16'19.7225"W	327.95	69.467	0.92	-0.92	-0.15
4718.00	17.980	57.870	4674.53	75.08	130.77	332.16	1751189.26	428608.34	39°40'27.0833"N	80°16'19.4040"W	356.97	68.511	0.34	-0.34	0.04
4813.00	19.400	58.450	4764.52	76.03	146.82	358.02	1751215.12	428624.39	39°40'27.2442"N	80°16'19.0750"W	386.96	67.702	1.51	1.49	0.61
4908.00	20.160	58.460	4853.91	77.20	163.64	385.42	1751242.52	428641.21	39°40'27.4127"N	80°16'18.7264"W	418.72	66.995	0.80	0.80	0.01
5003.00	19.530	56.870	4943.27	77.94	180.88	412.67	1751269.76	428658.45	39°40'27.5854"N	80°16'18.3798"W	450.57	66.331	0.87	-0.66	-1.67
5098.00	19.740	56.850	5032.75	78.21	198.34	439.40	1751296.49	428675.90	39°40'27.7602"N	80°16'18.0399"W	482.09	65.707	0.22	0.22	-0.02
5196.00	19.530	58.810	5125.05	79.05	215.87	467.27	1751324.36	428693.44	39°40'27.9358"N	80°16'17.6854"W	514.72	65.204	0.71	-0.21	2.00
5290.00	19.060	61.430	5213.77	81.07	231.35	494.19	1751351.28	428708.91	39°40'28.0910"N	80°16'17.3428"W	545.66	64.914	1.05	-0.50	2.79
5384.00	19.610	60.880	5302.47	83.66	246.36	521.45	1751378.54	428723.93	39°40'28.2418"N	80°16'16.9959"W	576.72	64.711	0.62	0.59	-0.59
5479.00	20.380	60.840	5391.74	86.21	262.18	549.82	1751406.91	428739.74	39°40'28.4005"N	80°16'16.6348"W	609.13	64.506	0.81	0.81	-0.04
5574.00	20.500	59.630	5480.76	88.44	278.65	578.62	1751435.70	428756.21	39°40'28.5657"N	80°16'16.2683"W	642.22	64.286	0.46	0.13	-1.27
5669.00	19.600	55.840	5570.01	89.24	296.01	606.16	1751463.24	428773.57	39°40'28.7396"N	80°16'15.9180"W	674.57	63.972	1.66	-0.95	-3.99



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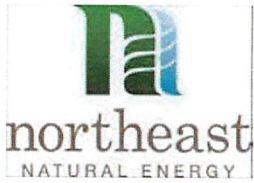


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Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

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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]
5763.00	20.000	57.380	5658.45	89.38	313.53	632.74	1751489.83	428791.09	39°40'28.9150"N	80°16'15.5799"W	706.16	63.641	0.70	0.43	1.64
5861.00	19.850	58.720	5750.59	90.36	331.20	661.08	1751518.16	428808.76	39°40'29.0920"N	80°16'15.2195"W	739.41	63.389	0.49	-0.15	1.37
5956.00	20.070	55.530	5839.88	90.78	348.80	688.30	1751545.38	428826.36	39°40'29.2683"N	80°16'14.8733"W	771.64	63.126	1.17	0.23	-3.36
6051.00	20.180	54.960	5929.08	90.14	367.44	715.16	1751572.23	428844.99	39°40'29.4547"N	80°16'14.5319"W	804.03	62.807	0.24	0.12	-0.60
6146.00	20.120	57.010	6018.27	89.92	385.74	742.28	1751599.35	428863.30	39°40'29.6379"N	80°16'14.1870"W	836.53	62.540	0.75	-0.06	2.16
6240.00	19.780	55.590	6106.63	89.88	403.53	768.96	1751626.04	428881.09	39°40'29.8160"N	80°16'13.8477"W	868.41	62.311	0.63	-0.36	-1.51
6335.00	18.560	54.840	6196.36	89.26	421.32	794.59	1751651.66	428898.88	39°40'29.9940"N	80°16'13.5220"W	899.38	62.066	1.31	-1.28	-0.79
6430.00	17.900	54.360	6286.59	88.34	438.54	818.81	1751675.88	428916.09	39°40'30.1661"N	80°16'13.2141"W	928.85	61.828	0.71	-0.69	-0.51
6525.00	16.910	57.000	6377.24	87.98	454.57	842.26	1751699.33	428932.12	39°40'30.3266"N	80°16'12.9159"W	957.10	61.644	1.33	-1.04	2.78
6620.00	16.360	54.660	6468.26	87.73	469.83	864.77	1751721.83	428947.38	39°40'30.4793"N	80°16'12.6298"W	984.16	61.484	0.91	-0.58	-2.46
6714.00	16.870	54.200	6558.34	86.82	485.47	886.63	1751743.69	428963.02	39°40'30.6357"N	80°16'12.3519"W	1010.84	61.297	0.56	0.54	-0.49
6813.00	17.680	56.550	6652.87	86.33	502.16	910.82	1751767.89	428979.71	39°40'30.8027"N	80°16'12.0443"W	1040.08	61.131	1.08	0.82	2.37
6908.00	18.310	55.620	6743.23	86.18	518.54	935.18	1751792.24	428996.09	39°40'30.9666"N	80°16'11.7347"W	1069.31	60.992	0.73	0.66	-0.98
7004.00	18.320	55.690	6834.36	85.80	535.56	960.08	1751817.14	429013.10	39°40'31.1369"N	80°16'11.4180"W	1099.35	60.846	0.03	0.01	0.07
7099.00	20.180	58.900	6924.05	86.35	552.44	986.45	1751843.51	429029.98	39°40'31.3060"N	80°16'11.0827"W	1130.61	60.750	2.25	1.96	3.38
7193.00	20.670	63.730	7012.15	89.19	568.16	1015.21	1751872.27	429045.70	39°40'31.4638"N	80°16'10.7166"W	1163.38	60.767	1.87	0.52	5.14
7287.00	20.410	65.210	7100.17	93.83	582.37	1044.97	1751902.03	429059.92	39°40'31.6068"N	80°16'10.3376"W	1196.29	60.869	0.62	-0.28	1.57
7382.00	22.120	59.940	7188.71	97.49	598.28	1075.49	1751932.55	429075.82	39°40'31.7665"N	80°16'9.9489"W	1230.70	60.913	2.70	1.80	-5.55
7477.00	20.200	60.490	7277.30	99.78	615.32	1105.25	1751962.30	429092.86	39°40'31.9375"N	80°16'9.5703"W	1264.99	60.894	2.03	-2.02	0.58
7573.00	20.670	60.370	7367.26	102.16	631.86	1134.40	1751991.45	429109.40	39°40'32.1034"N	80°16'9.1992"W	1298.51	60.882	0.49	0.49	-0.12
7668.00	19.710	65.130	7456.42	105.77	646.89	1163.51	1752020.56	429124.43	39°40'32.2544"N	80°16'8.8286"W	1331.25	60.927	2.00	-1.01	5.01
7762.00	18.850	79.560	7545.20	114.16	656.31	1192.85	1752049.89	429133.85	39°40'32.3500"N	80°16'8.4545"W	1361.48	61.180	5.14	-0.91	15.35
7810.00	19.260	84.470	7590.58	120.95	658.48	1208.35	1752065.40	429136.02	39°40'32.3727"N	80°16'8.2564"W	1376.12	61.412	3.45	0.85	10.23
7862.00	19.440	89.000	7639.64	129.65	659.46	1225.54	1752082.59	429137.00	39°40'32.3838"N	80°16'8.0367"W	1391.70	61.716	2.91	0.35	8.71
7957.00	26.880	111.530	7727.09	155.89	651.83	1261.45	1752118.49	429129.37	39°40'32.3115"N	80°16'7.5767"W	1419.90	62.673	12.05	7.83	23.72
8052.00	35.090	118.960	7808.50	197.84	630.68	1305.41	1752162.45	429108.22	39°40'32.1062"N	80°16'7.0122"W	1449.77	64.213	9.52	8.64	7.82
8148.00	40.350	122.340	7884.41	250.77	600.67	1355.85	1752212.88	429078.21	39°40'31.8139"N	80°16'6.3638"W	1482.95	66.106	5.89	5.48	3.52
8243.00	49.210	125.000	7951.79	312.48	563.51	1411.41	1752268.44	429041.06	39°40'31.4514"N	80°16'5.6492"W	1519.74	68.235	9.53	9.33	2.80
8336.00	57.490	129.250	8007.27	382.88	518.42	1470.73	1752327.76	428995.97	39°40'31.0107"N	80°16'4.8856"W	1559.43	70.583	9.63	8.90	4.57
8430.00	66.590	131.390	8051.30	462.60	464.71	1533.92	1752390.95	428942.26	39°40'30.4853"N	80°16'4.0716"W	1602.77	73.146	9.89	9.68	2.28



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Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

WELLPATH DATA (222 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
8525.00	72.880	134.220	8084.19	549.19	404.15	1599.23	1752456.26	428881.71	39°40'29.8924"N	80°16'3.2297"W	1649.51	75.817	7.19	6.62	2.98
8620.00	79.700	138.750	8106.71	640.04	337.25	1662.69	1752519.71	428814.81	39°40'29.2365"N	80°16'2.4109"W	1696.55	78.534	8.54	7.18	4.77
8714.00	86.460	143.640	8118.03	732.89	264.57	1721.09	1752578.11	428742.14	39°40'28.5233"N	80°16'1.6561"W	1741.31	81.261	8.85	7.19	5.20
8810.00	90.310	143.540	8120.74	828.73	187.36	1778.04	1752635.05	428664.93	39°40'27.7650"N	80°16'0.9193"W	1787.88	83.985	4.01	4.01	-0.10
8905.00	90.250	146.060	8120.27	923.68	109.74	1832.80	1752689.80	428587.31	39°40'27.0025"N	80°16'0.2106"W	1836.08	86.574	2.65	-0.06	2.65
8999.00	90.580	145.970	8119.59	1017.68	31.80	1885.34	1752742.34	428430.67	39°40'26.2367"N	80°15'59.5302"W	1885.61	89.034	0.36	0.35	-0.10
9094.00	91.020	145.950	8118.26	1112.66	-46.92	1938.51	1752795.51	428430.67	39°40'25.4633"N	80°15'58.8416"W	1939.08	91.386	0.46	0.46	-0.02
9189.00	91.080	146.100	8116.52	1207.65	-125.68	1991.59	1752848.59	428351.90	39°40'24.6893"N	80°15'58.1542"W	1995.55	93.611	0.17	0.06	0.16
9283.00	91.630	146.120	8114.30	1301.62	-203.69	2043.99	1752900.99	428273.90	39°40'23.9228"N	80°15'57.4755"W	2054.11	95.691	0.59	0.59	0.02
9378.00	91.480	146.130	8111.72	1396.58	-282.54	2096.92	1752953.91	428195.06	39°40'23.1481"N	80°15'56.7900"W	2115.87	97.674	0.16	-0.16	0.01
9472.00	91.020	146.000	8109.67	1490.56	-360.51	2149.39	1753006.37	428117.09	39°40'22.3820"N	80°15'56.1106"W	2179.41	99.521	0.51	-0.49	-0.14
9566.00	90.950	146.150	8108.06	1584.54	-438.50	2201.84	1753058.83	428039.11	39°40'21.6157"N	80°15'55.4313"W	2245.08	101.263	0.18	-0.07	0.16
9660.00	91.170	145.870	8106.32	1678.53	-516.42	2254.38	1753111.36	427961.19	39°40'20.8500"N	80°15'54.7509"W	2312.77	102.902	0.38	0.23	-0.30
9755.00	90.950	145.740	8104.56	1773.51	-594.98	2307.76	1753164.74	427882.63	39°40'20.0781"N	80°15'54.0597"W	2383.23	104.457	0.27	-0.23	-0.14
9849.00	90.400	145.710	8103.45	1867.49	-672.65	2360.70	1753217.67	427804.97	39°40'19.3150"N	80°15'53.3743"W	2454.66	105.904	0.59	-0.59	-0.03
9944.00	90.460	145.940	8102.74	1962.49	-751.25	2414.06	1753271.03	427726.38	39°40'18.5427"N	80°15'52.6833"W	2528.25	107.286	0.25	0.06	0.24
10040.00	90.770	147.150	8101.71	2058.48	-831.34	2466.98	1753323.95	427646.29	39°40'17.7557"N	80°15'51.9979"W	2603.29	108.623	1.30	0.32	1.26
10134.00	91.110	146.940	8100.17	2152.46	-910.20	2518.11	1753375.07	427567.43	39°40'16.9806"N	80°15'51.3355"W	2677.56	109.873	0.43	0.36	-0.22
10229.00	91.290	146.770	8098.18	2247.43	-989.73	2570.04	1753427.00	427487.91	39°40'16.1991"N	80°15'50.6627"W	2754.02	111.062	0.26	0.19	-0.18
10323.00	91.140	146.810	8096.18	2341.41	-1068.36	2621.51	1753478.47	427409.29	39°40'15.4264"N	80°15'49.9960"W	2830.85	112.173	0.17	-0.16	0.04
10418.00	90.980	146.520	8094.43	2436.39	-1147.71	2673.71	1753530.66	427329.94	39°40'14.6465"N	80°15'49.3198"W	2909.63	113.232	0.35	-0.17	-0.31
10512.00	90.860	146.560	8092.92	2530.38	-1226.12	2725.53	1753582.48	427251.53	39°40'13.8760"N	80°15'48.6486"W	2988.62	114.221	0.13	-0.13	0.04
10607.00	90.890	146.920	8091.47	2625.37	-1305.55	2777.62	1753634.57	427172.11	39°40'13.0954"N	80°15'47.9738"W	3069.14	115.175	0.38	0.03	0.38
10701.00	90.460	147.290	8090.36	2719.35	-1384.47	2828.67	1753685.62	427093.19	39°40'12.3197"N	80°15'47.3124"W	3149.31	116.079	0.60	-0.46	0.39
10796.00	90.460	146.750	8089.60	2814.34	-1464.16	2880.38	1753737.33	427013.51	39°40'11.5365"N	80°15'46.6425"W	3231.16	116.945	0.57	0.00	-0.57
10891.00	90.280	147.050	8088.98	2909.34	-1543.75	2932.26	1753789.20	426933.93	39°40'10.7544"N	80°15'45.9705"W	3313.80	117.765	0.37	-0.19	0.32
10985.00	90.400	146.460	8088.43	3003.33	-1622.36	2983.79	1753840.73	426855.32	39°40'9.9818"N	80°15'45.3030"W	3396.33	118.534	0.64	0.13	-0.63
11079.00	90.490	146.410	8087.70	3097.33	-1700.68	3035.76	1753892.70	426777.00	39°40'9.2122"N	80°15'44.6299"W	3479.68	119.258	0.11	0.10	-0.05
11174.00	90.460	146.580	8086.91	3192.33	-1779.89	3088.20	1753945.13	426697.79	39°40'8.4337"N	80°15'43.9507"W	3564.41	119.957	0.18	-0.03	0.18
11268.00	90.710	146.600	8085.95	3286.32	-1858.36	3139.96	1753996.88	426619.34	39°40'7.6627"N	80°15'43.2804"W	3648.67	120.619	0.27	0.27	0.02



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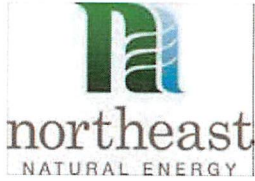
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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 10H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 10H AWB
Slot	Slot 10			

WELLPATH DATA (222 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
11362.00	90.680	147.340	8084.81	3380.31	-1937.16	3191.19	1754048.11	426540.54	39°40'6.8882"N	80°15'42.6167"W	3733.13	121.259	0.79	-0.03	0.79
11458.00	90.740	146.770	8083.62	3476.29	-2017.71	3243.39	1754100.31	426459.99	39°40'6.0965"N	80°15'41.9404"W	3819.79	121.886	0.60	0.06	-0.59
11551.00	90.800	146.990	8082.37	3569.28	-2095.60	3294.20	1754151.12	426382.11	39°40'5.3311"N	80°15'41.2822"W	3904.27	122.462	0.25	0.06	0.24
11645.00	90.580	146.540	8081.24	3663.27	-2174.22	3345.72	1754202.63	426303.50	39°40'4.5584"N	80°15'40.6149"W	3990.12	123.018	0.53	-0.23	-0.48
11739.00	90.580	146.310	8080.29	3757.27	-2252.53	3397.70	1754254.61	426225.19	39°40'3.7888"N	80°15'39.9417"W	4076.55	123.543	0.24	0.00	-0.24
11834.00	90.740	146.570	8079.19	3852.26	-2331.69	3450.21	1754307.12	426146.03	39°40'2.2389"N	80°15'38.5934"W	4164.22	124.051	0.32	0.17	0.27
11928.00	90.710	146.840	8078.00	3946.25	-2410.25	3501.81	1754358.72	426067.47	39°40'3.0109"N	80°15'37.9244"W	4251.12	124.539	0.29	-0.03	0.29
12023.00	90.770	147.300	8076.77	4041.24	-2489.98	3553.45	1754410.35	425987.75	39°40'1.4552"N	80°15'37.9244"W	4339.01	125.020	0.49	0.06	0.48
12117.00	90.680	146.910	8075.59	4135.22	-2568.90	3604.50	1754461.40	425908.83	39°40'0.6796"N	80°15'37.2631"W	4426.25	125.477	0.43	-0.10	-0.41
12211.00	90.250	147.060	8074.82	4229.21	-2647.72	3655.71	1754512.61	425830.02	39°39'59.9049"N	80°15'36.5997"W	4513.83	125.915	0.48	-0.46	0.16
12306.00	90.090	146.690	8074.54	4324.21	-2727.28	3707.62	1754564.52	425750.46	39°39'59.1230"N	80°15'35.9272"W	4602.67	126.338	0.42	-0.17	-0.39
12400.00	89.940	147.120	8074.52	4418.20	-2806.03	3758.95	1754615.84	425671.72	39°39'58.3490"N	80°15'35.2624"W	4690.79	126.741	0.48	-0.16	0.46
12495.00	89.970	146.740	8074.59	4513.20	-2885.64	3810.79	1754667.68	425592.11	39°39'57.5666"N	80°15'34.5909"W	4780.07	127.134	0.40	0.03	-0.40
12590.00	89.880	146.640	8074.71	4608.20	-2965.04	3862.96	1754719.85	425512.72	39°39'56.7864"N	80°15'33.9152"W	4869.69	127.508	0.14	-0.09	-0.11
12684.00	89.720	147.290	8075.04	4702.19	-3043.84	3914.20	1754771.09	425433.93	39°39'56.0119"N	80°15'33.2515"W	4958.42	127.870	0.71	-0.17	0.69
12778.00	90.030	146.460	8075.25	4796.19	-3122.56	3965.57	1754824.45	425355.21	39°39'55.2382"N	80°15'32.5861"W	5047.39	128.218	0.94	0.33	-0.88
12873.00	90.400	146.800	8074.89	4891.18	-3201.90	4017.82	1754874.70	425275.88	39°39'54.4585"N	80°15'31.9094"W	5137.61	128.552	0.53	0.39	0.36
12968.00	89.940	146.690	8074.61	4986.18	-3281.34	4069.92	1754926.79	425196.44	39°39'53.6778"N	80°15'31.2347"W	5227.95	128.877	0.50	-0.48	-0.12
13063.00	90.000	146.950	8074.66	5081.18	-3360.85	4121.91	1754978.78	425116.93	39°39'52.8963"N	80°15'30.5613"W	5318.41	129.193	0.28	0.06	0.27
13158.00	90.060	146.850	8074.61	5176.17	-3440.43	4173.79	1755030.66	425037.36	39°39'52.1142"N	80°15'29.8893"W	5408.98	129.499	0.12	0.06	-0.11
13253.00	90.400	147.030	8074.23	5271.17	-3520.05	4225.61	1755082.48	424957.74	39°39'51.3317"N	80°15'29.2181"W	5499.69	129.795	0.40	0.36	0.19
13348.00	90.150	147.070	8073.77	5366.16	-3599.77	4277.28	1755134.14	424878.03	39°39'50.5482"N	80°15'28.5488"W	5590.48	130.084	0.27	-0.26	0.04
13442.00	90.310	147.280	8073.40	5460.15	-3678.76	4328.24	1755185.09	424799.04	39°39'49.7718"N	80°15'27.8887"W	5680.40	130.363	0.28	0.17	0.22
13536.00	90.430	146.760	8072.79	5554.14	-3757.61	4379.41	1755236.26	424720.20	39°39'48.9968"N	80°15'27.2259"W	5770.52	130.630	0.57	0.13	-0.55
13631.00	90.280	147.180	8072.20	5649.13	-3837.26	4431.19	1755288.04	424640.56	39°39'48.2140"N	80°15'26.5553"W	5861.74	130.891	0.47	-0.16	0.44
13726.00	90.710	146.760	8071.38	5744.13	-3916.90	4482.97	1755339.81	424560.92	39°39'47.4313"N	80°15'25.8846"W	5953.08	131.145	0.63	0.45	-0.44
13821.00	90.400	147.160	8070.46	5839.12	-3996.53	4534.76	1755391.60	424481.29	39°39'46.6486"N	80°15'25.2137"W	6044.53	131.390	0.53	-0.33	0.42
13916.00	90.400	147.250	8069.80	5934.10	-4076.39	4586.22	1755443.06	424401.44	39°39'45.8637"N	80°15'24.5472"W	6135.99	131.632	0.09	0.00	0.09
14010.00	90.620	146.590	8068.96	6028.09	-4155.15	4637.52	1755494.36	424322.68	39°39'45.0896"N	80°15'23.8827"W	6226.70	131.860	0.74	0.23	-0.70
14105.00	90.060	145.450	8068.39	6123.09	-4233.92	4690.61	1755547.45	424243.91	39°39'44.3155"N	80°15'23.1954"W	6318.86	132.071	1.34	-0.59	-1.20



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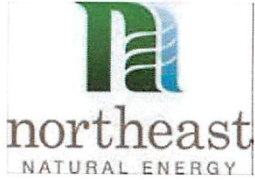
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

WELLPATH DATA (222 stations)															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
14200.00	90.030	145.640	8068.32	6218.08	-4312.26	4744.36	1755601.19	424165.58	39°39'43.5459"N	80°15'22.4997"W	6411.28	132.268	0.20	-0.03	0.20
14294.00	89.940	146.180	8068.34	6312.08	-4390.11	4797.05	1755653.87	424087.74	39°39'42.7809"N	80°15'21.8177"W	6502.67	132.464	0.58	-0.10	0.57
14388.00	89.820	145.870	8068.54	6406.07	-4468.06	4849.58	1755706.40	424009.79	39°39'42.0149"N	80°15'21.1376"W	6594.08	132.655	0.35	-0.13	-0.33
14482.00	89.720	145.380	8068.92	6500.06	-4545.64	4902.65	1755759.47	423932.22	39°39'41.2526"N	80°15'20.4507"W	6685.72	132.836	0.53	-0.11	-0.52
14577.00	89.720	145.400	8069.38	6595.05	-4623.83	4956.61	1755813.42	423854.03	39°39'40.4844"N	80°15'19.7523"W	6778.48	133.011	0.02	0.00	0.02
14671.00	89.200	144.940	8070.27	6689.02	-4700.98	5010.29	1755867.11	423776.88	39°39'39.7264"N	80°15'19.0576"W	6870.39	133.176	0.74	-0.55	-0.49
14765.00	89.780	145.530	8071.11	6783.00	-4778.20	5063.89	1755920.70	423699.67	39°39'38.9677"N	80°15'18.3640"W	6962.34	133.337	0.88	0.62	0.63
14860.00	89.350	146.020	8071.83	6877.99	-4856.75	5117.32	1755974.13	423621.13	39°39'38.1959"N	80°15'17.6724"W	7055.14	133.503	0.69	-0.45	0.52
14955.00	88.920	145.730	8073.26	6972.98	-4935.38	5170.61	1756027.41	423542.50	39°39'37.4233"N	80°15'16.9826"W	7147.95	133.667	0.55	-0.45	-0.31
15050.00	89.570	146.010	8074.51	7067.97	-5014.01	5223.90	1756080.71	423463.87	39°39'36.6506"N	80°15'16.2927"W	7240.82	133.826	0.74	0.68	0.29
15145.00	89.880	146.030	8074.97	7162.96	-5092.79	5277.00	1756133.80	423385.10	39°39'35.8765"N	80°15'15.6054"W	7333.70	133.982	0.33	0.33	0.02
15239.00	90.280	145.820	8074.84	7256.96	-5170.65	5329.67	1756186.46	423307.25	39°39'35.1114"N	80°15'14.9236"W	7425.69	134.132	0.48	0.43	-0.22
15334.00	90.180	146.440	8074.46	7351.96	-5249.53	5382.61	1756239.40	423228.37	39°39'34.3363"N	80°15'14.2382"W	7518.64	134.283	0.66	-0.11	0.65
15429.00	89.940	145.200	8074.36	7446.95	-5328.12	5435.98	1756292.77	423149.79	39°39'33.5641"N	80°15'13.5474"W	7611.75	134.426	1.33	-0.25	-1.31
15524.00	89.600	145.900	8074.74	7541.94	-5406.45	5489.72	1756346.50	423071.46	39°39'32.7943"N	80°15'12.8519"W	7704.98	134.562	0.82	-0.36	0.74
15619.00	89.820	145.160	8075.22	7636.93	-5484.77	5543.48	1756400.27	422993.14	39°39'32.0248"N	80°15'12.1561"W	7798.27	134.695	0.81	0.23	-0.78
15714.00	89.780	145.620	8075.55	7731.91	-5562.96	5597.44	1756454.22	422914.96	39°39'31.2566"N	80°15'11.4578"W	7891.63	134.823	0.49	-0.04	0.48
15809.00	89.720	144.640	8075.97	7826.89	-5640.90	5651.75	1756508.53	422837.02	39°39'30.4908"N	80°15'10.7550"W	7985.12	134.945	1.03	-0.06	-1.03
15903.00	89.690	145.650	8076.45	7920.86	-5718.04	5705.47	1756562.25	422759.89	39°39'29.7330"N	80°15'10.0599"W	8077.65	135.063	1.07	-0.03	1.07
15998.00	89.780	146.130	8076.89	8015.86	-5796.69	5758.75	1756615.52	422681.24	39°39'28.9601"N	80°15'9.3703"W	8170.97	135.188	0.51	0.09	0.51
16093.00	89.660	145.610	8077.35	8110.85	-5875.33	5812.05	1756668.82	422602.61	39°39'28.1874"N	80°15'8.6804"W	8264.34	135.310	0.56	-0.13	-0.55
16187.00	89.690	145.510	8077.89	8204.84	-5952.85	5865.21	1756721.97	422525.09	39°39'27.4256"N	80°15'7.9924"W	8356.86	135.425	0.11	0.03	-0.11
16282.00	89.880	145.850	8078.24	8299.84	-6031.31	5918.77	1756775.53	422446.64	39°39'26.6547"N	80°15'7.2992"W	8450.36	135.540	0.41	0.20	0.36
16377.00	90.000	146.290	8078.34	8394.83	-6110.13	5971.80	1756828.55	422367.82	39°39'25.8801"N	80°15'6.6128"W	8543.78	135.656	0.48	0.13	0.46
16472.00	89.910	145.910	8078.42	8489.83	-6188.98	6024.78	1756881.54	422288.97	39°39'25.1052"N	80°15'5.9269"W	8637.22	135.770	0.41	-0.09	-0.40
16566.00	90.430	145.860	8078.14	8583.83	-6266.81	6077.50	1756934.25	422211.15	39°39'24.3405"N	80°15'5.2446"W	8729.77	135.879	0.56	0.55	-0.05
16661.00	90.120	145.980	8077.68	8678.83	-6345.49	6130.74	1756987.48	422132.48	39°39'23.5673"N	80°15'4.5555"W	8823.33	135.986	0.35	-0.33	0.13
16755.00	90.220	145.870	8077.40	8772.82	-6423.35	6183.40	1757040.15	422054.62	39°39'22.8022"N	80°15'3.8739"W	8915.93	136.090	0.16	0.11	-0.12
16849.00	89.350	145.870	8077.76	8866.82	-6501.16	6236.14	1757092.88	421976.82	39°39'22.0376"N	80°15'3.1913"W	9008.58	136.192	0.93	-0.93	0.00
16944.00	89.540	145.720	8078.68	8961.81	-6579.72	6289.54	1757146.28	421898.26	39°39'21.2656"N	80°15'2.5001"W	9102.26	136.292	0.25	0.20	-0.16



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REFERENCE WELLPATH IDENTIFICATION				
Operator	NORTHEAST NATURAL ENERGY, LLC		Well	ERP 10H
Field	Monongalia		API/Legal	
Facility	ERP Pad		Wellbore	ERP 10H AWB
Slot	Slot 10			

WELLPATH DATA (222 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
17038.00	89.450	144.090	8079.50	9055.77	-6656.63	6343.58	1757200.32	421821.36	39°39'20.5100"N	80°15'1.8010"W	9195.20	136.379	1.74	-0.10	-1.73
17132.00	89.480	145.850	8080.38	9149.73	-6733.59	6397.54	1757254.27	421744.40	39°39'19.7539"N	80°15'1.1030"W	9288.15	136.466	1.87	0.03	1.87
17227.00	89.140	145.490	8081.53	9244.72	-6812.04	6451.11	1757307.84	421665.96	39°39'18.9830"N	80°15'0.4097"W	9381.93	136.559	0.52	-0.36	-0.38
17322.00	89.230	146.060	8082.88	9339.70	-6890.58	6504.54	1757361.26	421587.42	39°39'18.2113"N	80°14'59.7182"W	9475.71	136.651	0.61	0.09	0.60
17417.00	89.260	146.780	8084.13	9434.70	-6969.72	6557.07	1757413.80	421508.29	39°39'17.4335"N	80°14'59.0380"W	9569.34	136.747	0.76	0.03	0.76
17512.00	89.170	147.170	8085.43	9529.68	-7049.36	6608.85	1757465.56	421428.65	39°39'17.4335"N	80°14'59.0380"W	9662.83	136.847	0.42	-0.09	0.41
17606.00	89.170	147.160	8086.79	9623.66	-7128.34	6659.81	1757516.52	421349.68	39°39'15.8744"N	80°14'57.7077"W	9755.32	136.946	0.01	0.00	-0.01
17702.00	89.170	146.940	8088.18	9719.65	-7208.89	6712.02	1757568.73	421269.13	39°39'15.0827"N	80°14'57.0316"W	9849.83	137.044	0.23	0.00	-0.23
17796.00	89.630	147.570	8089.17	9813.63	-7287.94	6762.86	1757619.57	421190.08	39°39'14.3056"N	80°14'56.3732"W	9942.35	137.140	0.83	0.49	0.67
17890.00	89.820	147.180	8089.62	9907.61	-7367.11	6813.54	1757670.24	421110.92	39°39'13.5274"N	80°14'55.7168"W	10034.87	137.236	0.46	0.20	-0.41
17985.00	89.690	146.710	8090.02	10002.61	-7446.73	6865.35	1757722.06	421031.30	39°39'12.7448"N	80°14'55.0458"W	10128.52	137.326	0.51	-0.14	-0.49
18080.00	90.120	147.820	8090.18	10097.59	-7526.64	6916.73	1757773.42	420951.39	39°39'11.9593"N	80°14'54.3806"W	10222.11	137.418	1.25	0.45	1.17
18174.00	90.090	147.460	8090.01	10191.57	-7606.05	6967.04	1757823.73	420872.00	39°39'11.1787"N	80°14'53.7289"W	10314.63	137.511	0.38	-0.03	-0.38
18269.00	90.370	146.860	8089.63	10286.56	-7685.86	7018.55	1757875.25	420792.19	39°39'10.3942"N	80°14'53.0618"W	10408.29	137.598	0.70	0.29	-0.63
18364.00	90.150	147.060	8089.20	10381.55	-7765.50	7070.35	1757927.04	420712.55	39°39'9.6114"N	80°14'52.3911"W	10502.04	137.683	0.31	-0.23	0.21
18459.00	90.280	146.580	8088.84	10476.55	-7845.01	7122.34	1757979.03	420633.05	39°39'8.8300"N	80°14'51.7179"W	10595.84	137.764	0.52	0.14	-0.51
18554.00	90.220	146.990	8088.43	10571.55	-7924.49	7174.38	1758031.06	420553.58	39°39'8.0488"N	80°14'51.0442"W	10689.68	137.844	0.44	-0.06	0.43
18650.00	90.310	147.090	8087.98	10667.54	-8005.04	7226.61	1758083.29	420473.03	39°39'7.2571"N	80°14'50.3679"W	10784.45	137.926	0.14	0.09	0.10
18744.00	90.180	146.930	8087.58	10761.53	-8083.88	7277.79	1758134.47	420394.19	39°39'6.4821"N	80°14'49.7052"W	10877.28	138.004	0.22	-0.14	-0.17
18839.00	90.250	147.200	8087.22	10856.52	-8163.61	7329.44	1758186.11	420314.47	39°39'5.6984"N	80°14'49.0364"W	10971.11	138.082	0.29	0.07	0.28
18934.00	90.310	147.310	8086.76	10951.51	-8243.51	7380.82	1758237.50	420234.57	39°39'4.9130"N	80°14'48.3710"W	11064.90	138.160	0.13	0.06	0.12
19029.00	89.970	146.580	8086.53	11046.51	-8323.14	7432.64	1758289.31	420154.95	39°39'4.1303"N	80°14'47.7001"W	11158.80	138.235	0.85	-0.36	-0.77
19124.00	90.000	147.250	8086.55	11141.50	-8402.73	7484.50	1758341.16	420075.36	39°39'3.3480"N	80°14'47.0286"W	11252.72	138.308	0.71	0.03	0.71
19219.00	89.820	147.510	8086.70	11236.49	-8482.75	7535.71	1758392.37	419995.35	39°39'2.5614"N	80°14'46.3654"W	11346.54	138.383	0.33	-0.19	0.27
19312.00	89.910	146.970	8086.92	11329.47	-8560.95	7586.03	1758442.69	419917.15	39°39'1.7927"N	80°14'45.7138"W	11438.44	138.455	0.59	0.10	-0.58
19407.00	89.880	147.180	8087.10	11424.47	-8640.70	7637.67	1758494.33	419837.41	39°39'1.0089"N	80°14'45.0452"W	11532.37	138.526	0.22	-0.03	0.22
19502.00	90.090	147.070	8087.12	11519.46	-8720.48	7689.24	1758545.89	419757.63	39°39'0.2246"N	80°14'44.3775"W	11626.31	138.596	0.25	0.22	-0.12
19596.00	89.910	147.150	8087.12	11613.45	-8799.41	7740.28	1758596.93	419678.70	39°38'59.4487"N	80°14'43.7165"W	11719.29	138.664	0.21	-0.19	0.09
19691.00	90.250	146.940	8086.99	11708.44	-8879.13	7791.96	1758648.61	419598.99	39°38'58.6652"N	80°14'43.0474"W	11813.28	138.731	0.42	0.36	-0.22
19784.00	90.430	147.230	8086.44	11801.43	-8957.20	7842.49	1758699.14	419520.93	39°38'57.8978"N	80°14'42.3931"W	11905.30	138.796	0.37	0.19	0.31



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

WELLPATH DATA (222 stations) † = interpolated, ‡ = extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
19879.00	90.370	146.900	8085.77	11896.43	-9036.93	7894.14	1758750.78	419441.20	39°38'57.1141"N	80°14'41.7244"W	11999.32	138.861	0.35	-0.06	-0.35
19972.00	90.430	147.300	8085.12	11989.42	-9115.01	7944.66	1758801.29	419363.12	39°38'56.3466"N	80°14'41.0703"W	12091.36	138.925	0.43	0.06	0.43
20066.00	90.400	146.920	8084.44	12083.40	-9193.94	7995.70	1758852.33	419284.20	39°38'55.5707"N	80°14'40.4094"W	12184.41	138.987	0.41	-0.03	-0.40
20161.00	90.310	147.110	8083.85	12178.40	-9273.63	8047.42	1758904.05	419204.52	39°38'54.7874"N	80°14'39.7398"W	12278.48	139.049	0.22	-0.09	0.20
20255.00	90.250	147.240	8083.39	12272.39	-9352.62	8098.37	1758955.00	419125.53	39°38'54.0110"N	80°14'39.0801"W	12371.55	139.111	0.15	-0.06	0.14
20350.00	90.430	146.960	8082.83	12367.38	-9432.38	8149.97	1759006.60	419045.77	39°38'53.2269"N	80°14'38.4120"W	12465.63	139.172	0.35	0.19	-0.29
20445.00	90.280	147.160	8082.24	12462.37	-9512.11	8201.63	1759058.25	418966.05	39°38'52.4433"N	80°14'37.7432"W	12559.73	139.231	0.26	-0.16	0.21
20539.00	90.430	146.930	8081.66	12556.36	-9590.98	8252.76	1759109.38	418887.18	39°38'51.6680"N	80°14'37.0811"W	12652.87	139.289	0.29	0.16	-0.24
20634.00	90.430	147.810	8080.95	12651.34	-9670.98	8303.99	1759160.60	418807.19	39°38'50.8815"N	80°14'36.4179"W	12746.93	139.349	0.93	0.00	0.93
20729.00	90.370	146.630	8080.28	12746.33	-9750.85	8355.42	1759212.03	418727.32	39°38'50.0964"N	80°14'35.7519"W	12841.03	139.407	1.24	-0.06	-1.24
20828.00	90.310	146.940	8079.70	12845.32	-9833.68	8409.65	1759266.26	418644.50	39°38'49.2823"N	80°14'35.0499"W	12939.22	139.463	0.32	-0.06	0.31
20853.00‡	90.310	146.940	8079.56	12870.32	-9854.63	8423.29	1759279.89	418623.55	39°38'49.0764"N	80°14'34.8733"W	12964.01	139.478	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: ERP 10H AWB Ref Wellpath: ERP 10H AWP Proj: 20853'

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	-2.09	1.06
13.375in Casing Surface	28.00	1368.00	1340.00	28.00	1367.96	0.00	0.00	-2.09	1.06
12.25in Open Hole	1368.00	2628.00	1260.00	1367.96	2627.90	-2.09	1.06	-8.65	7.83
9.625in Casing Intermediate	28.00	2628.00	2600.00	28.00	2627.90	0.00	0.00	-8.65	7.83
8.75in Open Hole	2628.00	7876.00	5248.00	2627.90	7652.81	-8.65	7.83	659.36	1230.30
8.5in Open Hole	7876.00	20853.00	12977.00	7652.81	8079.56	659.36	1230.30	-9854.63	8423.29
5.5in Casing Production	28.00	20853.00	20825.00	28.00	8079.56	0.00	0.00	-9854.63	8423.29

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ERP 10H AWP Proj: 20853'

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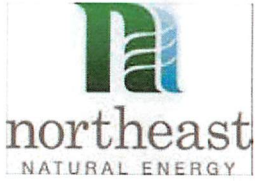


REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
ERP 10H BHL Rev-2	8115.00	-9841.58	8443.04	1759299.64	418636.59	39°38'49.2069"N	80°14'34.6222"W	point
ERP 10H LP Rev-5	8115.00	193.26	1769.18	1752626.19	428670.83	39°40'27.8226"N	80°16'1.0333"W	point
ERP Pad Hardline #1 (6.8.21)	8523.00	2698.68	1454.55	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	2562.12	1529.19	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	1227.20	713.72	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	-4902.46	40.72	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	-10480.29	6382.90	1757239.64	417997.93	39°38'42.7257"N	80°15'0.8900"W	polygon
2D Polygon: dimensions not calculated								



Actual Wellpath Report

ERP 10H AWP Proj: 20853'

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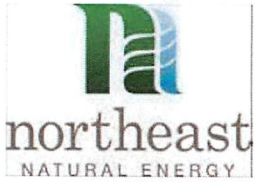
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Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

WELLPATH COMPOSITION - Ref Wellbore: ERP 10H AWB Ref Wellpath: ERP 10H AWP Proj: 20853'

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 10H AWB	9/6/2021
2600.00	7810.00	OWSG MWD rev2 + HRGM	02_Tally MWD <8-3/4">(2600')(2726'-7810')	ERP 10H AWB	9/6/2021
7810.00	20853.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	03_BH AT Curve <8-1/2">(7810')(7862'-20828')	ERP 10H AWB	9/6/2021

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Actual Wellpath Report

ERP 10H AWP Proj: 20853'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Well	ERP 10H
Field	Monongalia	API/Legal	
Facility	ERP Pad	Wellbore	ERP 10H AWB
Slot	Slot 10		

COMMENTS

Wellpath general comments

API: 47-061-01881-0000

BH Job #: 110948060

Rig: Patterson 277

Duration: 9/6/21 - 9/11/21

01_Javins Inertial Gyro <12-1/4">(100'-2600')

02_Tally MWD <8-3/4">(2600')(2726'-7810')

03_BH AT Curve <8-1/2">(7810')(7862'-20828')

Projected MD at TD: 20853'

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