

NORTHEAST NATURAL ENERGY, LLC

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

Slot: Slot #18
 Well: Jenkins 18H
 Wellbore: Jenkins 18H PWB

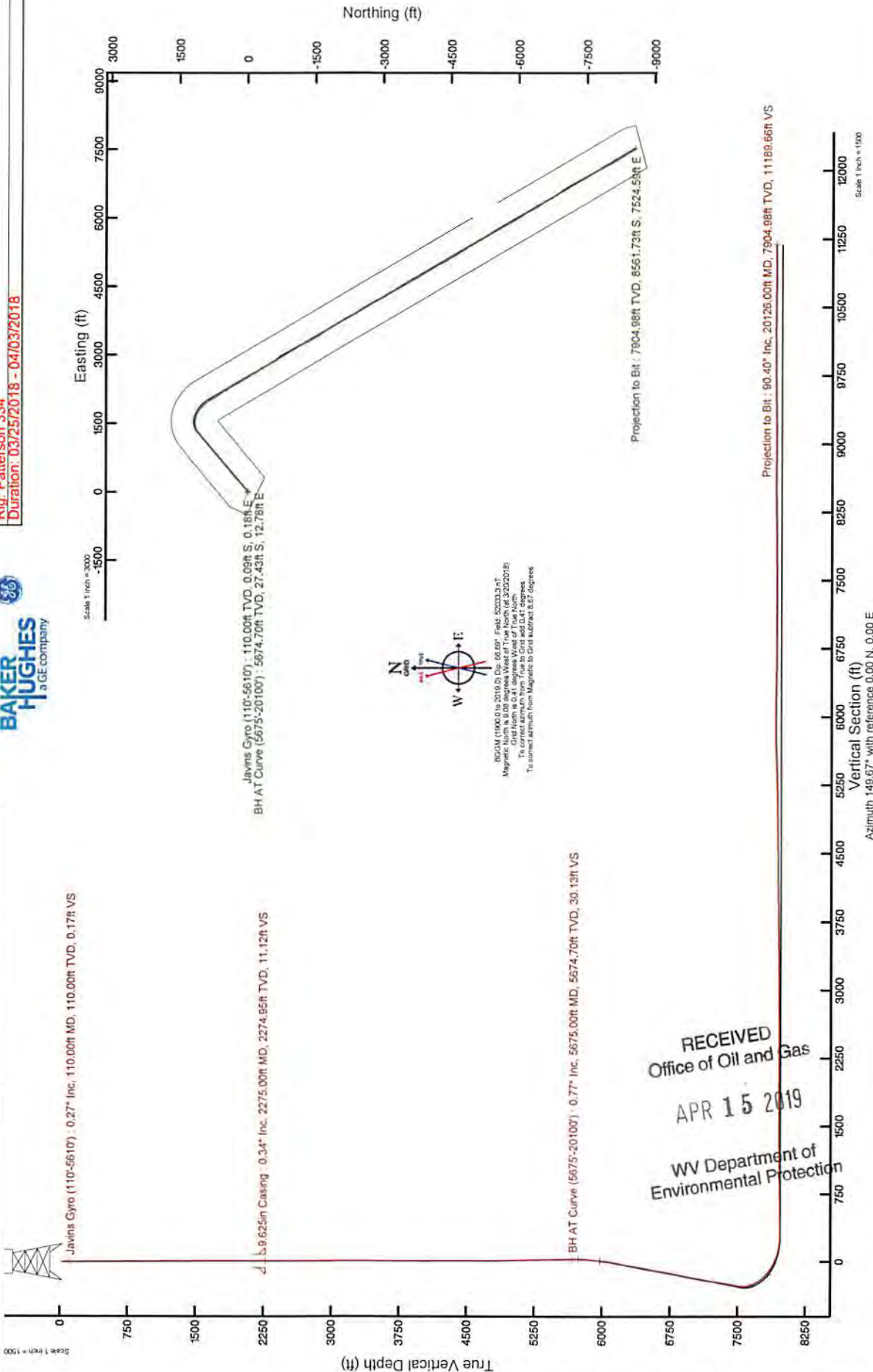
Well reference system is Jenkins 18H PWB RvwA.S	Grid System: NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet
True vertical depths are referenced to Patterson 334 (RKB)	* * * Wellbore was transferred from a different geoidetic datum
Measured depths are referenced to Patterson 334 (RKB)	North Reference: Grid north
Patterson 334 (RKB) to Mean Sea Level: 1139 ft	Scale: True distance
Mean Sea Level to Ground level (At Slot Slot #18): -1114 ft	Depth are in feet
Coordinates are in feet referenced to Slot	Created by: Formatics on 20180428
	Database: WV_Permon/Arctica



Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Jenkins Pad	1789480.777	441086.188	80°03'23.000"W
Local E (ft)	1789480.777	441086.188	80°03'23.000"W
Local N (ft)	1789480.777	441086.188	80°03'23.000"W
Slot #18	1788615.270	441052.450	80°03'21.876"W
Comment	Jenkins 18H		
Patterson 334 (RKB) to Ground level (At Slot Slot #18)			25ft
Mean Sea Level to Ground level (At Slot Slot #18)			-1114ft
Patterson 334 (RKB) to Mean Sea Level			1139ft

Comments

API: 47-061-01769-0000
 Job #: 9047034
 Rig: Patterson 334
 Duration: 03/25/2018 - 04/03/2018



RECEIVED
 Office of Oil and Gas
 APR 15 2019
 WV Department of
 Environmental Protection

REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Thomsuzc
Scale	0.999942	Report Generated	4/5/2018 at 9:00:59 AM
Convergence at slot	0.41° West	Database/Source file	WA_Pennsylvania/Jenkins_18H_AWP_Proj_20126_MD.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-33.74	134.50	1788615.27	441052.45	39°42'32.976"N	80°08'21.876"W
Facility Reference Pt			1788480.78	441086.19	39°42'33.300"N	80°08'23.600"W
Field Reference Pt			1777685.71	440640.65	39°42'28.114"N	80°10'41.690"W

WELLPATH DATUM

Calculation method	Minimum curvature	Patterson 334 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 334 (RKB) to Mean Sea Level	1139.00ft
Vertical Reference Pt	Patterson 334 (RKB)	Patterson 334 (RKB) to Ground Level at Slot (Slot #18)	25.00ft
MD Reference Pt	Patterson 334 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	149.67°



Actual Wellpath Report

Jenkins 18H AWP Proj: 20126MD
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WELLPATH DATA (215 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]
0.00H	0.000	116.610	0.00	0.00	0.00	0.00	1788615.27	441052.45	39°42'32.976"W	80°08'21.876"W	0.00	0.000	0.00	0.00	0.00
25.00	0.000	116.610	25.00	0.00	0.00	0.00	1788615.27	441052.45	39°42'32.976"W	80°08'21.876"W	0.00	0.000	0.00	0.00	0.00
110.00	0.270	116.610	110.00	0.17	-0.09	0.18	1788615.45	441052.36	39°42'32.975"W	80°08'21.874"W	0.20	116.610	0.32	0.32	137.19
210.00	0.630	112.910	210.00	0.81	-0.41	0.90	1788616.17	441052.04	39°42'32.972"W	80°08'21.864"W	0.99	114.546	0.36	0.36	-3.70
310.00	0.510	113.610	309.99	1.61	-0.80	1.81	1788617.08	441051.65	39°42'32.968"W	80°08'21.853"W	1.98	113.881	0.12	-0.12	0.70
410.00	0.380	127.710	409.99	2.27	-1.18	2.48	1788617.75	441051.27	39°42'32.965"W	80°08'21.844"W	2.75	115.490	0.17	-0.13	14.10
510.00	0.380	125.910	509.99	2.88	-1.58	3.01	1788618.28	441050.87	39°42'32.961"W	80°08'21.837"W	3.40	117.684	0.01	0.00	-1.80
610.00	0.340	126.610	609.98	3.46	-1.95	3.52	1788618.79	441050.50	39°42'32.957"W	80°08'21.831"W	4.02	119.015	0.04	-0.04	0.70
710.00	0.450	130.510	709.98	4.10	-2.38	4.05	1788619.32	441050.07	39°42'32.953"W	80°08'21.824"W	4.70	120.446	0.11	0.11	3.90
810.00	0.330	124.910	809.98	4.74	-2.80	4.59	1788619.86	441049.65	39°42'32.949"W	80°08'21.817"W	5.38	121.416	0.13	-0.12	-5.60
910.00	0.280	136.310	909.98	5.24	-3.14	4.99	1788620.26	441049.31	39°42'32.945"W	80°08'21.812"W	5.90	122.196	0.08	-0.05	11.40
1010.00	0.410	133.210	1009.98	5.82	-3.57	5.42	1788620.69	441048.88	39°42'32.941"W	80°08'21.806"W	6.49	123.326	0.13	0.13	-3.10
1110.00	0.450	131.010	1109.97	6.53	-4.07	5.98	1788621.25	441048.38	39°42'32.936"W	80°08'21.799"W	7.23	124.228	0.04	0.04	-2.20
1210.00	0.610	122.710	1209.97	7.38	-4.61	6.73	1788622.00	441047.84	39°42'32.931"W	80°08'21.789"W	8.16	124.455	0.18	0.16	-8.30
1310.00	0.460	125.510	1309.96	8.22	-5.14	7.50	1788622.77	441047.32	39°42'32.926"W	80°08'21.780"W	9.09	124.399	0.15	-0.15	2.80
1410.00	0.240	127.910	1409.96	8.78	-5.50	7.99	1788623.26	441046.95	39°42'32.922"W	80°08'21.773"W	9.70	124.521	0.22	-0.22	2.40
1510.00	0.440	134.010	1509.96	9.34	-5.89	8.43	1788623.70	441046.56	39°42'32.918"W	80°08'21.768"W	10.29	124.942	0.20	0.20	6.10
1610.00	0.280	92.910	1609.96	9.85	-6.17	8.95	1788624.22	441046.28	39°42'32.916"W	80°08'21.761"W	10.87	124.578	0.29	-0.16	-41.10
1710.00	0.310	88.710	1709.96	10.11	-6.18	9.47	1788624.74	441046.27	39°42'32.916"W	80°08'21.754"W	11.31	123.125	0.04	0.03	-4.20
1810.00	0.180	109.410	1809.96	10.36	-6.22	9.89	1788625.16	441046.23	39°42'32.915"W	80°08'21.749"W	11.68	122.192	0.16	-0.13	20.70
1910.00	0.380	110.810	1909.96	10.74	-6.39	10.34	1788625.61	441046.06	39°42'32.914"W	80°08'21.743"W	12.16	121.720	0.20	0.20	1.40
2010.00	0.200	63.910	2009.95	11.01	-6.44	10.81	1788626.08	441046.02	39°42'32.913"W	80°08'21.737"W	12.58	120.762	0.28	-0.18	-46.90
2110.00	0.200	66.210	2109.95	11.05	-6.29	11.13	1788626.40	441046.16	39°42'32.915"W	80°08'21.733"W	12.78	119.469	0.01	0.00	2.30
2210.00	0.160	63.510	2209.95	11.08	-6.16	11.41	1788626.68	441046.29	39°42'32.916"W	80°08'21.729"W	12.97	118.340	0.04	-0.04	-2.70
2310.00	0.440	71.410	2309.95	11.16	-5.97	11.90	1788627.17	441046.48	39°42'32.918"W	80°08'21.723"W	13.32	116.642	0.28	0.28	7.90
2410.00	0.320	59.610	2409.95	11.24	-5.71	12.51	1788627.78	441046.74	39°42'32.921"W	80°08'21.715"W	13.75	114.528	0.14	-0.12	-11.80
2510.00	0.170	32.210	2509.95	11.17	-5.44	12.83	1788628.10	441047.01	39°42'32.923"W	80°08'21.711"W	13.93	112.984	0.19	-0.15	-27.40
2610.00	0.120	111.010	2609.95	11.19	-5.35	13.00	1788628.27	441047.10	39°42'32.924"W	80°08'21.709"W	14.06	112.373	0.19	-0.05	78.80
2710.00	0.330	59.810	2709.95	11.27	-5.24	13.35	1788628.62	441047.21	39°42'32.925"W	80°08'21.705"W	14.34	111.449	0.27	0.21	-51.50
2810.00	0.220	7.610	2809.95	11.12	-4.91	13.62	1788628.89	441047.54	39°42'32.928"W	80°08'21.701"W	14.48	109.818	0.26	-0.11	-52.90

03/2019

Actual Wellpath Report

Jenkins 18H AWP Proj: 20126/MD

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH DATA (215 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)
2910.00	0.250	97.210	2909.95	11.10	-4.75	13.87	1788629.14	441047.70	39°42'32.930"N	80°08'21.698"W	14.66	108.898	0.33	0.03	89.60
3010.00	0.330	102.210	3009.94	11.43	-4.84	14.36	1788629.63	441047.62	39°42'32.929"N	80°08'21.692"W	15.16	108.604	0.08	0.08	5.00
3110.00	0.410	95.110	3109.94	11.83	-4.93	15.00	1788630.27	441047.52	39°42'32.928"N	80°08'21.684"W	15.79	108.185	0.09	0.08	-7.10
3210.00	0.380	115.210	3209.94	12.31	-5.10	15.66	1788630.93	441047.35	39°42'32.927"N	80°08'21.675"W	16.47	108.045	0.14	-0.03	20.10
3310.00	0.530	214.710	3309.94	12.78	-5.62	15.69	1788630.96	441046.83	39°42'32.922"N	80°08'21.675"W	16.67	109.710	0.70	0.15	99.50
3410.00	0.630	223.810	3409.93	13.12	-6.40	15.05	1788630.32	441046.05	39°42'32.914"N	80°08'21.683"W	16.36	113.035	0.14	0.10	9.10
3510.00	0.670	303.610	3509.93	12.75	-6.47	14.18	1788629.45	441045.98	39°42'32.913"N	80°08'21.694"W	15.59	114.530	0.83	0.04	79.80
3610.00	0.180	170.810	3609.93	12.37	-6.30	13.72	1788628.99	441046.15	39°42'32.915"N	80°08'21.700"W	15.10	114.675	0.80	-0.49	-132.80
3710.00	0.600	211.010	3709.92	12.77	-6.91	13.48	1788628.75	441045.54	39°42'32.909"N	80°08'21.703"W	15.14	117.138	0.48	0.42	40.20
3810.00	0.420	318.110	3809.92	12.66	-7.08	12.96	1788628.23	441045.37	39°42'32.907"N	80°08'21.709"W	14.77	118.656	0.83	-0.18	107.10
3910.00	0.680	290.610	3909.92	11.84	-6.60	12.16	1788627.43	441045.85	39°42'32.912"N	80°08'21.720"W	13.84	118.494	0.36	0.26	-27.50
4010.00	0.820	247.910	4009.91	11.28	-6.66	10.94	1788626.21	441045.79	39°42'32.911"N	80°08'21.735"W	12.81	121.332	0.56	0.14	-42.70
4110.00	0.480	205.810	4109.90	11.41	-7.31	10.10	1788625.37	441045.14	39°42'32.905"N	80°08'21.746"W	12.47	125.894	0.56	-0.34	-42.10
4210.00	0.610	230.010	4209.90	11.73	-8.03	9.51	1788624.78	441044.42	39°42'32.897"N	80°08'21.754"W	12.44	130.174	0.26	0.13	24.20
4310.00	0.610	214.810	4309.89	12.04	-8.81	8.80	1788624.07	441043.64	39°42'32.890"N	80°08'21.763"W	12.45	135.033	0.16	0.00	-15.20
4410.00	0.390	200.210	4409.89	12.48	-9.56	8.38	1788623.64	441042.89	39°42'32.882"N	80°08'21.768"W	12.71	138.790	0.25	-0.22	-14.60
4510.00	0.730	263.610	4509.89	12.44	-9.95	7.62	1788622.89	441042.50	39°42'32.878"N	80°08'21.777"W	12.54	142.548	0.66	0.34	63.40
4610.00	0.130	169.710	4609.88	12.29	-10.14	7.01	1788622.28	441042.31	39°42'32.876"N	80°08'21.785"W	12.32	145.327	0.75	-0.60	-93.90
4710.00	0.540	207.310	4709.88	12.65	-10.67	6.82	1788622.09	441041.78	39°42'32.871"N	80°08'21.788"W	12.66	147.422	0.44	0.41	37.60
4810.00	0.710	186.110	4809.88	13.40	-11.70	6.53	1788621.80	441040.75	39°42'32.861"N	80°08'21.791"W	13.40	150.823	0.28	0.17	-21.20
4910.00	1.180	161.810	4909.86	14.90	-13.30	6.79	1788622.06	441039.16	39°42'32.845"N	80°08'21.788"W	14.93	152.950	0.61	0.47	-24.30
5010.00	1.640	169.910	5009.83	17.25	-15.68	7.36	1788622.63	441036.77	39°42'32.822"N	80°08'21.780"W	17.32	154.855	0.50	0.46	8.10
5110.00	1.410	151.410	5109.80	19.83	-18.17	8.20	1788623.47	441034.28	39°42'32.797"N	80°08'21.769"W	19.94	155.711	0.54	-0.23	-18.50
5210.00	1.120	164.410	5209.77	22.00	-20.19	9.05	1788624.32	441032.26	39°42'32.777"N	80°08'21.758"W	22.13	155.855	0.41	-0.29	13.00
5310.00	0.940	164.110	5309.76	23.74	-21.92	9.54	1788624.81	441030.53	39°42'32.760"N	80°08'21.752"W	23.91	156.486	0.18	-0.18	-0.30
5410.00	1.110	162.710	5409.74	25.48	-23.64	10.05	1788625.32	441028.81	39°42'32.743"N	80°08'21.745"W	25.69	156.963	0.17	0.17	-1.40
5510.00	0.980	127.810	5509.72	27.22	-25.09	11.02	1788626.28	441027.36	39°42'32.729"N	80°08'21.733"W	27.40	156.294	0.64	-0.13	-34.90
5610.00	1.180	152.110	5609.71	29.04	-26.52	12.17	1788627.44	441025.93	39°42'32.715"N	80°08'21.718"W	29.18	155.346	0.49	0.20	24.30
5675.00	0.770	136.850	5674.70	30.13	-27.43	12.78	1788628.05	441025.02	39°42'32.706"N	80°08'21.710"W	30.26	155.012	0.74	-0.63	-23.90
5745.00	4.700	31.980	5744.62	29.26	-25.34	14.63	1788629.90	441027.11	39°42'32.727"N	80°08'21.687"W	29.26	150.007	7.08	5.61	-149.00



Actual Wellpath Report

Jenkins 18H AWP Proj: 20126' MD
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5777.00	8.550	32.720	5776.40	27.57	-22.23	16.61	1788631.88	441030.23	39°42'32.758"N	80°08'21.661"W	27.74	143.233	12.03	12.03	2.31
5807.00	10.410	33.530	5805.99	25.36	-18.09	19.31	1788634.58	441034.36	39°42'32.799"N	80°08'21.627"W	26.46	133.132	6.22	6.20	2.70
5852.00	14.590	43.540	5849.92	22.00	-10.59	25.46	1788640.73	441041.86	39°42'32.873"N	80°08'21.549"W	27.58	112.579	10.43	9.29	22.24
5902.00	19.150	49.690	5897.76	18.82	-0.71	36.06	1788651.33	441051.74	39°42'32.972"N	80°08'21.414"W	36.07	91.131	9.78	9.12	12.30
5996.00	27.100	44.040	5984.15	10.37	24.70	62.75	1788678.01	441077.15	39°42'33.225"N	80°08'21.075"W	67.43	68.516	8.77	8.46	-6.01
6091.00	36.590	46.970	6064.76	-1.71	59.66	98.57	1788713.84	441112.10	39°42'33.573"N	80°08'20.620"W	115.22	58.818	10.12	9.99	3.08
6187.00	45.950	50.630	6136.84	-13.45	101.16	146.27	1788761.53	441153.61	39°42'33.986"N	80°08'20.014"W	177.85	55.332	10.07	9.75	3.81
6282.00	48.290	48.590	6201.49	-25.63	146.28	199.27	1788814.53	441198.72	39°42'34.436"N	80°08'19.340"W	247.20	53.718	2.92	2.46	-2.15
6377.00	48.280	48.100	6264.70	-39.56	193.41	252.25	1788867.51	441245.85	39°42'34.905"N	80°08'18.666"W	317.87	52.521	0.39	-0.01	-0.52
6472.00	48.230	48.750	6327.96	-53.38	240.45	305.28	1788920.53	441292.89	39°42'35.374"N	80°08'17.992"W	388.60	51.774	0.51	-0.05	0.68
6567.00	48.270	49.470	6391.22	-66.37	286.84	358.86	1788974.10	441339.28	39°42'35.836"N	80°08'17.310"W	459.41	51.364	0.57	0.04	0.76
6662.00	48.210	50.270	6454.49	-78.43	332.52	413.04	1789028.28	441384.95	39°42'36.291"N	80°08'16.621"W	530.25	51.164	0.63	-0.06	0.84
6757.00	48.290	51.320	6517.75	-89.37	377.32	467.96	1789083.20	441429.74	39°42'36.738"N	80°08'15.923"W	601.12	51.120	0.83	0.08	1.11
6852.00	48.290	51.130	6580.96	-99.78	421.73	523.25	1789138.48	441474.16	39°42'37.181"N	80°08'15.219"W	672.04	51.132	0.15	0.00	-0.20
6947.00	48.290	50.260	6644.17	-110.84	466.65	578.12	1789193.36	441519.08	39°42'37.628"N	80°08'14.521"W	742.96	51.090	0.68	0.00	-0.92
7042.00	48.320	50.480	6707.36	-122.31	511.90	632.75	1789247.99	441564.32	39°42'38.079"N	80°08'13.826"W	813.89	51.027	0.18	0.03	0.23
7137.00	48.290	49.320	6770.55	-134.34	557.59	687.01	1789302.24	441610.01	39°42'38.535"N	80°08'13.136"W	884.81	50.937	0.91	-0.03	-1.22
7232.00	48.240	47.930	6833.79	-147.93	604.45	740.21	1789355.43	441656.86	39°42'39.001"N	80°08'12.460"W	955.65	50.765	1.09	-0.05	-1.46
7326.00	47.790	47.500	6896.67	-162.40	651.46	791.90	1789407.12	441703.87	39°42'39.470"N	80°08'11.803"W	1025.43	50.558	0.59	-0.48	-0.46
7421.00	47.720	48.620	6960.54	-176.55	698.46	844.21	1789459.43	441750.86	39°42'39.938"N	80°08'11.137"W	1095.69	50.397	0.88	-0.07	1.18
7516.00	47.760	49.760	7024.43	-189.34	744.41	897.43	1789512.64	441796.81	39°42'40.396"N	80°08'10.461"W	1165.98	50.325	0.89	0.04	1.20
7610.00	47.760	51.010	7087.62	-200.57	788.78	951.03	1789566.25	441841.18	39°42'40.838"N	80°08'09.779"W	1235.57	50.328	0.98	0.00	1.33
7706.00	47.790	51.640	7152.14	-210.88	833.20	1006.33	1789621.74	441885.60	39°42'41.281"N	80°08'09.073"W	1306.65	50.382	0.49	0.03	0.66
7801.00	47.770	51.540	7215.97	-220.77	876.91	1061.66	1789676.87	441929.31	39°42'41.717"N	80°08'08.371"W	1376.99	50.444	0.08	-0.02	-0.11
7896.00	47.770	50.770	7279.83	-231.19	921.03	1116.45	1789731.65	441973.43	39°42'42.156"N	80°08'07.674"W	1447.32	50.478	0.60	0.00	-0.81
7991.00	47.750	49.360	7343.69	-242.92	966.18	1170.37	1789785.57	442018.57	39°42'42.606"N	80°08'06.988"W	1517.65	50.459	1.10	-0.02	-1.48
8086.00	47.670	49.640	7407.61	-255.33	1011.82	1223.81	1789839.01	442064.21	39°42'43.061"N	80°08'06.309"W	1587.92	50.417	0.23	-0.08	0.29
8181.00	47.780	49.900	7471.52	-267.42	1057.22	1277.48	1789892.67	442109.60	39°42'43.514"N	80°08'05.626"W	1658.21	50.389	0.23	0.12	0.27
8276.00	47.180	54.690	7535.74	-276.41	1100.03	1332.83	1789948.02	442152.41	39°42'43.941"N	80°08'04.922"W	1728.15	50.466	3.77	-0.63	5.44
8371.00	46.790	70.330	7600.77	-273.02	1131.92	1394.07	1790009.25	442184.30	39°42'44.260"N	80°08'04.141"W	1795.74	50.925	12.03	-0.41	16.83

05/03/2019



Actual Wellpath Report

Jenkins 18H AWP Proj: 20126'MD

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH DATA (215 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]
8467.00	49.460	79.270	7664.92	-254.29	1150.51	1462.94	1790078.12	442202.90	39°42'44.449"N	80°08'03.261"W	1861.15	51.817	7.47	2.78	9.31
8562.00	51.370	91.200	7725.58	-222.71	1156.47	1535.67	1790150.85	442208.85	39°42'44.513"N	80°08'02.331"W	1922.42	53.018	9.88	2.01	12.56
8656.00	54.440	101.110	7782.36	-178.12	1148.32	1610.03	1790225.20	442200.70	39°42'44.437"N	80°08'01.379"W	1977.58	54.502	9.01	3.27	10.54
8752.00	58.430	109.980	7835.50	-120.70	1126.78	1686.92	1790302.09	442179.17	39°42'44.230"N	80°08'00.393"W	2028.63	56.259	8.74	4.16	9.24
8847.00	63.220	121.430	7881.91	-51.99	1090.73	1761.37	1790376.53	442143.11	39°42'43.879"N	80°07'59.437"W	2071.74	58.232	11.66	5.04	12.05
8942.00	69.350	130.850	7920.17	27.67	1039.40	1831.37	1790446.53	442091.79	39°42'43.376"N	80°07'58.537"W	2105.77	60.423	11.13	6.45	9.92
9036.00	75.970	135.000	7948.18	113.54	978.30	1896.98	1790512.14	442030.69	39°42'42.777"N	80°07'57.692"W	2134.39	62.719	8.21	7.04	4.41
9131.00	82.910	142.920	7965.61	205.18	907.91	1958.16	1790573.31	441960.31	39°42'42.086"N	80°07'56.903"W	2158.40	65.125	10.97	7.31	8.34
9226.00	91.290	148.960	7970.42	299.73	829.41	2011.21	1790626.36	441881.81	39°42'41.313"N	80°07'56.217"W	2175.52	67.589	10.87	8.82	6.36
9321.00	90.180	152.260	7969.20	394.70	746.65	2057.82	1790672.96	441799.06	39°42'40.499"N	80°07'55.613"W	2189.09	70.057	3.66	-1.17	3.47
9416.00	89.940	144.440	7969.10	489.60	665.84	2107.63	1790722.77	441718.25	39°42'39.704"N	80°07'54.968"W	2210.30	72.468	8.24	-0.25	-8.23
9511.00	90.520	147.440	7968.72	584.38	587.15	2160.83	1790775.97	441639.57	39°42'38.930"N	80°07'54.281"W	2239.18	74.798	3.22	0.61	3.16
9606.00	90.860	148.290	7967.57	679.33	506.71	2211.35	1790826.49	441559.13	39°42'38.138"N	80°07'53.627"W	2268.67	77.094	0.96	0.36	0.89
9700.00	91.320	149.410	7965.78	773.30	426.28	2259.97	1790875.10	441478.71	39°42'37.347"N	80°07'52.998"W	2299.82	79.318	1.29	0.49	1.19
9795.00	90.710	149.490	7964.10	868.29	344.48	2308.25	1790923.38	441396.91	39°42'36.542"N	80°07'52.372"W	2333.81	81.512	0.65	-0.64	0.08
9891.00	90.800	149.740	7962.84	964.28	261.68	2356.80	1790971.93	441314.11	39°42'35.727"N	80°07'51.744"W	2371.28	83.664	0.28	0.09	0.26
9986.00	90.950	151.070	7961.39	1059.26	179.08	2403.71	1791018.84	441231.52	39°42'34.914"N	80°07'51.136"W	2410.37	85.739	1.41	0.16	1.40
10081.00	90.620	149.440	7960.08	1154.24	96.61	2450.84	1791065.96	441149.05	39°42'34.102"N	80°07'50.526"W	2452.74	87.743	1.75	-0.35	-1.72
10176.00	90.550	146.530	7959.11	1249.18	16.07	2501.20	1791116.32	441068.52	39°42'33.310"N	80°07'49.874"W	2501.25	89.632	3.06	-0.07	-3.06
10272.00	90.280	148.830	7958.42	1345.12	-65.05	2552.52	1791167.63	440987.40	39°42'32.511"N	80°07'49.210"W	2553.35	91.460	2.41	-0.28	2.40
10367.00	90.400	148.580	7957.86	1440.10	-146.23	2601.86	1791216.98	440906.23	39°42'31.713"N	80°07'48.571"W	2605.97	93.217	0.29	0.13	-0.26
10462.00	89.970	146.470	7957.55	1535.03	-226.37	2652.87	1791267.98	440826.10	39°42'30.924"N	80°07'47.912"W	2662.51	94.877	2.27	-0.45	-2.22
10556.00	90.340	146.630	7957.29	1628.89	-304.80	2704.68	1791319.79	440747.67	39°42'30.153"N	80°07'47.242"W	2721.80	96.430	0.43	0.39	0.17
10652.00	90.400	149.960	7956.67	1724.84	-386.46	2755.13	1791370.23	440666.02	39°42'29.349"N	80°07'46.589"W	2782.10	97.985	3.47	0.06	3.47
10745.00	90.340	152.620	7956.07	1817.80	-468.01	2799.80	1791414.90	440584.47	39°42'28.546"N	80°07'46.010"W	2838.64	99.490	2.86	-0.06	2.86
10840.00	90.220	148.020	7955.61	1912.76	-550.53	2846.82	1791461.92	440501.96	39°42'27.734"N	80°07'45.401"W	2899.57	100.945	4.84	-0.13	-4.84
10935.00	89.050	143.580	7956.21	2007.52	-629.08	2900.21	1791515.30	440423.41	39°42'26.962"N	80°07'44.711"W	2967.65	102.238	4.83	-1.23	-4.67
11030.00	89.510	140.680	7957.41	2101.68	-704.06	2958.51	1791573.60	440348.44	39°42'26.225"N	80°07'43.958"W	3041.13	103.386	3.09	0.48	-3.05
11125.00	89.940	149.690	7957.87	2196.29	-781.97	3012.69	1791627.78	440270.53	39°42'25.458"N	80°07'43.258"W	3112.52	104.551	9.49	0.45	9.48
11221.00	89.940	154.720	7957.97	2292.17	-866.87	3057.45	1791672.53	440185.64	39°42'24.622"N	80°07'42.678"W	3177.96	105.829	5.24	0.00	5.24



Actual Wellpath Report

Jenkins 18H AWP Proj: 20126'MD

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH DATA (215 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]
8467.00	49.460	79.270	7664.92	-254.29	1150.51	1462.94	1790078.12	442202.90	39°42'44.449"N	80°08'03.261"W	1861.15	51.817	7.47	2.78	9.31
8562.00	51.370	91.200	7725.58	-222.71	1156.47	1535.67	1790150.85	442208.85	39°42'44.513"N	80°08'02.331"W	1922.42	53.018	9.88	2.01	12.56
8656.00	54.440	101.110	7782.36	-178.12	1148.32	1610.03	1790225.20	442200.70	39°42'44.437"N	80°08'01.379"W	1977.58	54.502	9.01	3.27	10.54
8752.00	58.430	109.980	7835.50	-120.70	1126.78	1686.92	1790302.09	442179.17	39°42'44.230"N	80°08'00.393"W	2028.63	56.259	8.74	4.16	9.24
8847.00	63.220	121.430	7881.91	-51.99	1090.73	1761.37	1790376.53	442143.11	39°42'43.879"N	80°07'59.437"W	2071.74	58.232	11.66	5.04	12.05
8942.00	69.350	130.850	7920.17	27.67	1039.40	1831.37	1790446.53	442091.79	39°42'43.376"N	80°07'58.537"W	2105.77	60.423	11.13	6.45	9.92
9036.00	75.970	135.000	7948.18	113.54	978.30	1896.98	1790512.14	442030.69	39°42'42.777"N	80°07'57.692"W	2134.39	62.719	8.21	7.04	4.41
9131.00	82.910	142.920	7965.61	205.18	907.91	1958.16	1790573.31	441960.31	39°42'42.086"N	80°07'56.903"W	2158.40	65.125	10.97	7.31	8.34
9226.00	91.290	148.960	7970.42	299.73	829.41	2011.21	1790626.36	441881.81	39°42'41.313"N	80°07'56.217"W	2175.52	67.589	10.87	8.82	6.36
9321.00	90.180	152.260	7969.20	394.70	746.65	2057.82	1790672.96	441799.06	39°42'40.499"N	80°07'55.613"W	2189.09	70.057	3.66	-1.17	3.47
9416.00	89.940	144.440	7969.10	489.60	665.84	2107.63	1790722.77	441718.25	39°42'39.704"N	80°07'54.968"W	2210.30	72.468	8.24	-0.25	-8.23
9511.00	90.520	147.440	7968.72	584.38	587.15	2160.83	1790775.97	441639.57	39°42'38.930"N	80°07'54.281"W	2239.18	74.798	3.22	0.61	3.16
9606.00	90.860	148.290	7967.57	679.33	506.71	2211.35	1790826.49	441559.13	39°42'38.138"N	80°07'53.627"W	2268.67	77.094	0.96	0.36	0.89
9700.00	91.320	149.410	7965.78	773.30	426.28	2259.97	1790875.10	441478.71	39°42'37.347"N	80°07'52.998"W	2299.82	79.318	1.29	0.49	1.19
9795.00	90.710	149.490	7964.10	868.29	344.48	2308.25	1790923.38	441396.91	39°42'36.542"N	80°07'52.372"W	2333.81	81.512	0.65	-0.64	0.08
9891.00	90.800	149.740	7962.84	964.28	261.68	2356.80	1790971.93	441314.11	39°42'35.727"N	80°07'51.744"W	2371.28	83.664	0.28	0.09	0.26
9986.00	90.950	151.070	7961.39	1059.26	179.08	2403.71	1791018.84	441231.52	39°42'34.914"N	80°07'51.136"W	2410.37	85.739	1.41	0.16	1.40
10081.00	90.620	149.440	7960.08	1154.24	96.61	2450.84	1791065.96	441149.05	39°42'34.102"N	80°07'50.526"W	2452.74	87.743	1.75	-0.35	-1.72
10176.00	90.550	146.530	7959.11	1249.18	16.07	2501.20	1791116.32	441068.52	39°42'33.310"N	80°07'49.874"W	2501.25	89.632	3.06	-0.07	-3.06
10272.00	90.280	148.830	7958.42	1345.12	-65.05	2552.52	1791167.63	440987.40	39°42'32.511"N	80°07'49.210"W	2553.35	91.460	2.41	-0.28	2.40
10367.00	90.400	148.580	7957.86	1440.10	-146.23	2601.86	1791216.98	440906.23	39°42'31.713"N	80°07'48.571"W	2605.97	93.217	0.29	0.13	-0.26
10462.00	89.970	146.470	7957.55	1535.03	-226.37	2652.87	1791267.98	440826.10	39°42'30.924"N	80°07'47.912"W	2662.51	94.877	2.27	-0.45	-2.22
10556.00	90.340	146.630	7957.29	1628.89	-304.80	2704.68	1791319.79	440747.67	39°42'30.153"N	80°07'47.242"W	2721.80	96.430	0.43	0.39	0.17
10652.00	90.400	149.960	7956.67	1724.84	-386.46	2755.13	1791370.23	440666.02	39°42'29.349"N	80°07'46.589"W	2782.10	97.985	3.47	0.06	3.47
10745.00	90.340	152.620	7956.07	1817.80	-468.01	2799.80	1791414.90	440584.47	39°42'28.546"N	80°07'46.010"W	2838.64	99.490	2.86	-0.06	2.86
10840.00	90.220	148.020	7955.61	1912.76	-550.53	2846.82	1791461.92	440501.96	39°42'27.734"N	80°07'45.401"W	2899.57	100.945	4.84	-0.13	-4.84
10935.00	89.050	143.580	7956.21	2007.52	-629.08	2900.21	1791515.30	440423.41	39°42'26.962"N	80°07'44.711"W	2967.65	102.238	4.83	-1.23	-4.67
11030.00	89.510	140.680	7957.41	2101.68	-704.06	2958.51	1791573.60	440348.44	39°42'26.225"N	80°07'43.958"W	3041.13	103.386	3.09	0.48	-3.05
11125.00	89.940	149.690	7957.87	2196.29	-781.97	3012.69	1791627.78	440270.53	39°42'25.458"N	80°07'43.258"W	3112.52	104.551	9.49	0.45	9.48
11221.00	89.940	154.720	7957.97	2292.17	-866.87	3057.45	1791672.53	440185.64	39°42'24.622"N	80°07'42.678"W	3177.96	105.829	5.24	0.00	5.24



Actual Wellpath Report

Jenkins 18H AWP Proj: 20126'MD

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH DATA (215 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]
11316.00	90.740	150.870	7957.40	2387.00	-951.34	3100.87	1791715.95	440101.17	39°42'23.791"N	80°07'42.115"W	3243.52	107.056	4.14	0.84	-4.05
11411.00	89.570	151.980	7957.15	2481.96	-1034.76	3146.30	1791761.39	440017.75	39°42'22.969"N	80°07'41.526"W	3312.09	108.205	1.70	-1.23	1.17
11507.00	90.220	155.170	7957.32	2577.72	-1120.72	3189.02	1791804.10	439931.80	39°42'22.123"N	80°07'40.972"W	3380.22	109.363	3.39	0.68	3.32
11602.00	90.370	154.420	7956.83	2672.34	-1206.68	3229.48	1791844.55	439845.85	39°42'21.276"N	80°07'40.446"W	3447.55	110.488	0.81	0.16	-0.79
11696.00	90.180	152.390	7956.38	2766.13	-1290.72	3271.56	1791886.63	439761.80	39°42'20.448"N	80°07'39.900"W	3516.97	111.531	2.17	-0.20	-2.16
11792.00	90.120	151.480	7956.13	2862.06	-1375.43	3316.72	1791931.79	439677.10	39°42'19.614"N	80°07'39.315"W	3590.61	112.524	0.95	-0.06	-0.95
11887.00	90.400	152.000	7955.70	2956.99	-1459.11	3361.70	1791976.77	439593.43	39°42'18.791"N	80°07'38.732"W	3664.70	113.463	0.62	0.29	0.55
11983.00	90.370	150.250	7955.05	3052.96	-1543.17	3408.06	1792023.12	439509.37	39°42'17.963"N	80°07'38.131"W	3741.15	114.361	1.82	-0.03	-1.82
12077.00	90.430	145.580	7954.40	3146.88	-1622.79	3457.97	1792073.03	439429.76	39°42'17.180"N	80°07'37.486"W	3819.82	115.140	4.97	0.06	-4.97
12173.00	90.650	145.240	7953.49	3242.61	-1701.82	3512.47	1792127.53	439350.74	39°42'16.402"N	80°07'36.781"W	3903.03	115.851	0.42	0.23	-0.35
12268.00	90.430	146.820	7952.60	3337.42	-1780.60	3565.55	1792180.60	439271.96	39°42'15.627"N	80°07'36.095"W	3985.43	116.537	1.68	-0.23	1.66
12361.00	90.580	150.360	7951.78	3430.38	-1859.95	3614.00	1792229.06	439192.61	39°42'14.847"N	80°07'35.468"W	4064.54	117.233	3.81	0.16	3.81
12456.00	90.770	149.240	7950.66	3525.37	-1942.05	3661.79	1792276.84	439110.52	39°42'14.039"N	80°07'34.849"W	4144.91	117.940	1.20	0.20	-1.18
12550.00	90.550	147.550	7949.57	3619.34	-2022.10	3711.04	1792326.09	439030.47	39°42'13.251"N	80°07'34.212"W	4226.20	118.585	1.81	-0.23	-1.80
12645.00	90.740	149.550	7948.50	3714.31	-2103.14	3760.61	1792375.65	438949.44	39°42'12.453"N	80°07'33.571"W	4308.75	119.216	2.11	0.20	2.11
12740.00	91.080	150.320	7947.00	3809.30	-2185.34	3808.19	1792423.23	438867.24	39°42'11.644"N	80°07'32.955"W	4390.68	119.849	0.89	0.36	0.81
12835.00	91.080	152.820	7945.21	3904.22	-2268.86	3853.41	1792468.45	438783.72	39°42'10.822"N	80°07'32.369"W	4471.74	120.489	2.63	0.00	2.63
12931.00	90.920	151.640	7943.53	4000.11	-2353.79	3898.13	1792513.16	438698.80	39°42'09.986"N	80°07'31.789"W	4553.65	121.125	1.24	-0.17	-1.23
13026.00	90.550	145.910	7942.31	4095.05	-2434.99	3947.35	1792562.39	438617.61	39°42'09.187"N	80°07'31.152"W	4637.97	121.669	6.04	-0.39	-6.03
13121.00	90.520	146.420	7941.42	4189.87	-2513.90	4000.25	1792615.28	438538.70	39°42'08.410"N	80°07'30.468"W	4724.58	122.147	0.54	-0.03	0.54
13216.00	90.370	147.750	7940.69	4284.76	-2593.64	4051.87	1792666.89	438458.96	39°42'07.626"N	80°07'29.801"W	4810.88	122.624	1.41	-0.16	1.40
13311.00	90.580	151.740	7939.90	4379.74	-2675.68	4099.72	1792714.74	438376.93	39°42'06.818"N	80°07'29.181"W	4895.61	123.130	4.21	0.22	4.20
13406.00	90.000	149.570	7939.42	4474.72	-2758.49	4146.27	1792761.29	438294.13	39°42'06.003"N	80°07'28.578"W	4980.04	123.636	2.36	-0.61	-2.28
13501.00	90.830	151.130	7938.73	4569.71	-2841.04	4193.27	1792808.28	438211.58	39°42'05.191"N	80°07'27.970"W	5065.08	124.119	1.86	0.87	1.64
13595.00	90.830	154.820	7937.37	4663.53	-2924.76	4235.97	1792850.98	438127.87	39°42'04.366"N	80°07'27.416"W	5147.58	124.623	3.93	0.00	3.93
13691.00	90.680	150.760	7936.10	4759.35	-3010.11	4279.85	1792894.86	438042.52	39°42'03.526"N	80°07'26.847"W	5232.39	125.120	4.23	-0.16	-4.23
13786.00	90.740	148.140	7934.92	4854.34	-3091.91	4328.13	1792943.14	437960.73	39°42'02.721"N	80°07'26.222"W	5319.08	125.541	2.76	0.06	-2.76
13882.00	91.050	150.310	7933.42	4950.32	-3174.37	4377.24	1792992.25	437878.27	39°42'01.909"N	80°07'25.586"W	5407.11	125.950	2.28	0.32	2.26
13976.00	90.650	150.770	7932.03	5044.30	-3256.21	4423.47	1793038.47	437796.44	39°42'01.104"N	80°07'24.988"W	5492.72	126.358	0.65	-0.43	0.49
14072.00	91.170	152.630	7930.50	5140.22	-3340.72	4468.97	1793083.97	437711.93	39°42'00.272"N	80°07'24.398"W	5579.62	126.779	2.01	0.54	1.94



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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH DATA (215 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]
14166.00	91.380	151.390	7928.41	5234.12	-3423.70	4513.08	1793128.07	437628.95	39°41'59.454"N	80°07'23.826"W	5664.77	127.185	1.34	0.22	-1.32
14261.00	91.350	150.400	7926.15	5329.07	-3506.68	4559.27	1793174.27	437545.98	39°41'58.638"N	80°07'23.228"W	5751.85	127.565	1.04	-0.03	-1.04
14355.00	91.570	149.170	7923.75	5423.03	-3587.88	4606.56	1793221.55	437464.78	39°41'57.838"N	80°07'22.616"W	5838.95	127.914	1.33	0.23	-1.31
14450.00	92.120	151.100	7920.70	5517.98	-3670.22	4653.84	1793268.83	437382.45	39°41'57.028"N	80°07'22.004"W	5926.95	128.261	2.11	0.58	2.03
14545.00	92.370	147.320	7916.97	5612.88	-3751.75	4702.42	1793317.41	437300.92	39°41'56.225"N	80°07'21.375"W	6015.68	128.584	3.98	0.26	-3.98
14640.00	91.290	149.390	7913.94	5707.80	-3832.58	4752.24	1793367.22	437220.10	39°41'55.430"N	80°07'20.730"W	6105.11	128.885	2.46	-1.14	2.18
14736.00	90.740	150.390	7912.24	5803.79	-3915.61	4800.39	1793415.37	437137.07	39°41'54.613"N	80°07'20.107"W	6194.82	129.204	1.19	-0.57	1.04
14831.00	89.940	149.630	7911.67	5898.78	-3997.89	4847.87	1793462.85	437054.80	39°41'53.803"N	80°07'19.492"W	6283.71	129.511	1.16	-0.84	-0.80
14927.00	89.910	148.680	7911.80	5994.78	-4080.31	4897.09	1793512.07	436972.38	39°41'52.992"N	80°07'18.855"W	6374.20	129.801	0.99	-0.03	-0.99
15022.00	89.230	147.100	7912.51	6089.72	-4160.77	4947.58	1793562.56	436891.93	39°41'52.200"N	80°07'18.202"W	6464.57	130.063	1.81	-0.72	-1.66
15117.00	89.480	154.570	7913.58	6184.63	-4243.67	4993.84	1793608.81	436809.04	39°41'51.384"N	80°07'17.603"W	6553.41	130.357	7.87	0.26	7.86
15212.00	88.920	152.050	7914.91	6279.42	-4328.53	5036.51	1793651.47	436724.18	39°41'50.548"N	80°07'17.050"W	6640.98	130.677	2.72	-0.59	-2.65
15307.00	88.980	148.010	7916.65	6374.38	-4410.80	5083.95	1793698.91	436641.92	39°41'49.738"N	80°07'16.436"W	6730.65	130.945	4.25	0.06	-4.25
15402.00	89.050	150.840	7918.29	6469.36	-4492.57	5132.26	1793747.22	436560.15	39°41'48.934"N	80°07'15.810"W	6820.79	131.198	2.98	0.07	2.98
15496.00	89.480	148.690	7919.49	6563.35	-4573.77	5179.58	1793794.54	436478.96	39°41'48.134"N	80°07'15.198"W	6909.95	131.446	2.33	0.46	-2.29
15591.00	89.690	148.300	7920.18	6658.32	-4654.76	5229.23	1793844.18	436397.97	39°41'47.337"N	80°07'14.555"W	7000.83	131.674	0.47	0.22	-0.41
15685.00	89.780	148.050	7920.61	6752.29	-4734.63	5278.80	1793893.75	436318.11	39°41'46.551"N	80°07'13.914"W	7091.01	131.889	0.28	0.10	-0.27
15780.00	89.720	146.220	7921.03	6847.19	-4814.42	5330.35	1793945.29	436238.32	39°41'45.766"N	80°07'13.248"W	7182.70	132.089	1.93	-0.06	-1.93
15874.00	89.940	146.320	7921.31	6941.03	-4892.60	5382.54	1793997.49	436160.15	39°41'44.997"N	80°07'12.573"W	7273.87	132.270	0.26	0.23	0.11
15969.00	90.150	149.700	7921.23	7035.97	-4973.16	5432.86	1794047.81	436079.59	39°41'44.205"N	80°07'11.922"W	7365.34	132.471	3.56	0.22	3.56
16064.00	90.120	152.780	7921.01	7130.93	-5056.43	5478.56	1794093.51	435996.33	39°41'43.385"N	80°07'11.330"W	7455.34	132.705	3.24	-0.03	3.24
16159.00	90.250	149.300	7920.70	7225.88	-5139.54	5524.56	1794139.49	435913.22	39°41'42.567"N	80°07'10.734"W	7545.57	132.932	3.67	0.14	-3.66
16254.00	90.430	149.020	7920.14	7320.88	-5221.10	5573.26	1794188.19	435831.66	39°41'41.764"N	80°07'10.104"W	7636.83	133.131	0.35	0.19	-0.29
16350.00	90.150	149.420	7919.65	7416.87	-5303.58	5622.38	1794237.31	435749.19	39°41'40.952"N	80°07'09.469"W	7729.11	133.329	0.51	-0.29	0.42
16444.00	90.060	151.540	7919.48	7510.86	-5385.37	5668.70	1794283.63	435667.40	39°41'40.147"N	80°07'08.869"W	7818.97	133.532	2.26	-0.10	2.26
16540.00	90.120	152.870	7919.33	7606.76	-5470.29	5713.46	1794328.39	435582.49	39°41'39.311"N	80°07'08.289"W	7909.98	133.754	1.39	0.06	1.39
16635.00	90.280	150.340	7919.00	7701.70	-5553.86	5758.63	1794373.56	435498.93	39°41'38.488"N	80°07'07.704"W	8000.45	133.963	2.67	0.17	-2.66
16730.00	90.310	148.920	7918.51	7796.70	-5635.82	5806.66	1794421.58	435416.97	39°41'37.681"N	80°07'07.082"W	8091.96	134.145	1.50	0.03	-1.49
16826.00	90.370	149.130	7917.94	7892.69	-5718.12	5856.07	1794470.99	435334.67	39°41'36.871"N	80°07'06.443"W	8184.77	134.317	0.23	0.06	0.22
16920.00	90.650	150.350	7917.10	7986.68	-5799.31	5903.44	1794518.35	435253.49	39°41'36.072"N	80°07'05.830"W	8275.42	134.490	1.33	0.30	1.30



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH DATA (215 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]
17015.00	90.770	150.940	7915.93	8081.66	-5882.11	5950.00	1794564.91	435170.70	39°41'35.257"N	80°07'05.227"W	8366.70	134.671	0.63	0.13	0.62
17110.00	90.890	148.490	7914.55	8176.64	-5964.13	5997.90	1794612.81	435088.68	39°41'34.450"N	80°07'04.607"W	8458.47	134.838	2.58	0.13	-2.58
17205.00	90.830	147.330	7913.12	8271.59	-6044.60	6048.37	1794663.27	435008.21	39°41'33.658"N	80°07'03.954"W	8551.02	134.982	1.22	-0.06	-1.22
17300.00	90.460	148.260	7912.05	8366.53	-6124.98	6098.99	1794713.89	434927.84	39°41'32.867"N	80°07'03.299"W	8643.67	135.122	1.05	-0.39	0.98
17396.00	90.740	149.080	7911.05	8462.51	-6206.98	6148.91	1794763.80	434845.85	39°41'32.060"N	80°07'02.654"W	8737.02	135.269	0.90	0.29	0.85
17491.00	90.950	152.220	7909.65	8557.47	-6289.76	6195.46	1794810.35	434763.07	39°41'31.245"N	80°07'02.051"W	8828.64	135.433	3.31	0.22	3.31
17586.00	89.380	150.960	7909.37	8652.41	-6373.32	6240.65	1794855.55	434679.52	39°41'30.422"N	80°07'01.465"W	8919.92	135.603	2.12	-1.65	-1.33
17681.00	89.080	143.570	7910.65	8747.25	-6453.17	6291.99	1794906.88	434599.67	39°41'29.637"N	80°07'00.802"W	9012.90	135.725	7.78	-0.32	-7.78
17776.00	89.570	148.110	7911.77	8842.01	-6531.75	6345.31	1794960.20	434521.09	39°41'28.864"N	80°07'00.113"W	9106.41	135.829	4.81	0.52	4.78
17871.00	89.660	149.640	7912.41	8937.00	-6613.07	6394.41	1795009.30	434439.78	39°41'28.063"N	80°06'59.477"W	9198.98	135.963	1.61	0.09	1.61
17966.00	89.940	150.930	7912.74	9031.99	-6695.58	6441.50	1795056.39	434357.28	39°41'27.251"N	80°06'58.868"W	9291.05	136.108	1.39	0.29	1.36
18061.00	90.490	149.440	7912.38	9126.98	-6778.00	6488.74	1795103.61	434274.86	39°41'26.440"N	80°06'58.256"W	9383.23	136.249	1.67	0.58	-1.57
18155.00	90.250	144.970	7911.78	9220.87	-6856.99	6539.63	1795154.51	434195.87	39°41'25.663"N	80°06'57.598"W	9475.50	136.357	4.76	-0.26	-4.76
18250.00	90.620	142.970	7911.06	9315.39	-6933.82	6595.51	1795210.38	434119.05	39°41'24.907"N	80°06'56.877"W	9569.67	136.432	2.14	0.39	-2.11
18346.00	90.920	146.610	7909.77	9411.02	-7012.23	6650.85	1795265.72	434040.64	39°41'24.136"N	80°06'56.162"W	9664.63	136.515	3.80	0.31	3.79
18440.00	90.770	150.200	7908.38	9504.97	-7092.28	6700.08	1795314.95	433960.60	39°41'23.348"N	80°06'55.525"W	9756.61	136.629	3.82	-0.16	3.82
18535.00	90.430	151.230	7907.38	9599.95	-7175.13	6746.55	1795361.41	433877.75	39°41'22.533"N	80°06'54.924"W	9848.78	136.763	1.14	-0.36	1.08
18631.00	90.430	152.210	7906.66	9695.88	-7259.67	6792.03	1795406.89	433793.22	39°41'21.700"N	80°06'54.334"W	9941.55	136.906	1.02	0.00	1.02
18726.00	90.490	152.590	7905.90	9790.77	-7343.85	6836.04	1795450.90	433709.04	39°41'20.871"N	80°06'53.764"W	10033.13	137.051	0.40	0.06	0.40
18821.00	90.400	151.260	7905.16	9885.69	-7427.67	6880.75	1795495.60	433625.23	39°41'20.046"N	80°06'53.185"W	10124.97	137.189	1.40	-0.09	-1.40
18914.00	90.250	150.140	7904.64	9978.67	-7508.77	6926.26	1795541.11	433544.13	39°41'19.248"N	80°06'52.596"W	10215.41	137.311	1.22	-0.16	-1.20
19008.00	90.180	151.760	7904.28	10072.65	-7590.94	6971.90	1795586.75	433461.97	39°41'18.439"N	80°06'52.005"W	10306.78	137.434	1.73	-0.07	1.72
19103.00	90.120	152.040	7904.03	10167.57	-7674.74	7016.65	1795631.49	433378.17	39°41'17.613"N	80°06'51.425"W	10398.80	137.565	0.30	-0.06	0.29
19197.00	89.970	153.010	7903.96	10261.46	-7758.14	7060.01	1795674.86	433294.78	39°41'16.792"N	80°06'50.863"W	10489.64	137.697	1.04	-0.16	1.03
19292.00	89.450	153.180	7904.44	10356.29	-7842.86	7103.00	1795717.84	433210.07	39°41'15.958"N	80°06'50.306"W	10581.26	137.834	0.58	-0.55	0.18
19388.00	89.630	153.150	7905.21	10452.10	-7928.51	7146.34	1795761.18	433124.41	39°41'15.114"N	80°06'49.744"W	10673.87	137.970	0.19	0.19	-0.03
19483.00	89.540	152.610	7905.90	10546.95	-8013.07	7189.64	1795804.48	433039.87	39°41'14.282"N	80°06'49.183"W	10765.70	138.100	0.58	-0.09	-0.57
19578.00	89.820	149.640	7906.43	10641.91	-8096.25	7235.51	1795850.35	432956.69	39°41'13.463"N	80°06'48.589"W	10858.26	138.213	3.14	0.29	-3.13
19673.00	89.750	148.220	7906.79	10736.90	-8177.61	7284.54	1795899.37	432875.33	39°41'12.662"N	80°06'47.954"W	10951.62	138.306	1.50	-0.07	-1.49
19767.00	89.380	148.690	7907.50	10830.87	-8257.72	7333.71	1795948.54	432795.23	39°41'11.874"N	80°06'47.318"W	11044.15	138.392	0.64	-0.39	0.50

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH DATA (215 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]
19862.00	90.490	148.740	7907.61	10925.86	-8338.91	7383.05	1795997.87	432714.05	39°41'11.075"N	80°06'46.680"W	11137.63	138.479	1.17	1.17	0.05
19958.00	90.740	147.210	7906.58	11021.81	-8420.29	7433.95	1796048.77	432632.67	39°41'10.274"N	80°06'46.022"W	11232.31	138.560	1.61	0.26	-1.59
20052.00	90.520	146.970	7905.54	11115.71	-8499.20	7485.02	1796099.84	432553.76	39°41'09.497"N	80°06'45.362"W	11325.28	138.630	0.35	-0.23	-0.26
20100.00	90.400	148.010	7905.16	11163.67	-8539.68	7510.82	1796125.63	432513.29	39°41'09.099"N	80°06'45.028"W	11372.70	138.668	2.18	-0.25	2.17
20126.00	90.400	148.010	7904.98	11189.66	-8561.73	7524.59	1796139.41	432491.24	39°41'08.882"N	80°06'44.850"W	11398.36	138.689	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Jenkins 18H AWB Ref Wellpath: Jenkins 18H AWP Proj: 20126'MD									
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]
9.625in Casing	25.00	2275.00	2250.00	25.00	2274.95	0.00	0.00	-6.05	11.68
8.75in Open Hole	2275.00	5701.00	3426.00	2274.95	5700.69	-6.05	11.68	-27.30	13.19
8.5in Open Hole	5701.00	20126.00	14425.00	5700.69	7904.98	-27.30	13.19	-8561.73	7524.59

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Jenkins 18H BHL Rev-1	7970.00	-8558.74	7530.89	1796145.71	432494.23	39°41'08.912"N	80°06'44.770"W	point
Jenkins 18H LP Rev-1	7970.00	853.36	2023.32	1790638.47	441905.76	39°42'41.551"N	80°07'56.064"W	point



Actual Wellpath Report

Jenkins 18H AWP Proj: 20126'MD

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REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #18
Area	Monongalia County, WV	Well	Jenkins 18H
Field	Monongalia	Wellbore	Jenkins 18H AWB
Facility	Jenkins Pad		

WELLPATH COMPOSITION - Ref Wellbore: Jenkins 18H AWB Ref Wellpath: Jenkins 18H AWP Proj: 20126'MD

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	5610.00	BHI Generic gyro - northseeking (Standard)	01_Javins Gyro <8-3/4"> (110'-5610)	Jenkins 18H AWB
5610.00	20100.00	BHI AutoTrak Curve (Short)	02_BH AT Curve <8-1/2"> (5610')(5675'-20100')	Jenkins 18H AWB
20100.00	20126.00	Blind Drilling (std)	Projection to bit	Jenkins 18H AWB

Actual Wellpath Report

Jenkins 18H AWP Proj: 20126'MD

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COMMENTS

Wellpath general comments

API: 47-061-01769-0000

Job #: 9047034

Rig: Patterson 334

Duration: 03/25/2018 - 04/03/2018