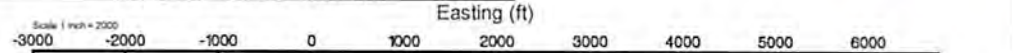


PKI reference wellpath is Jenkins 10H PWB Rev A.0	Grid System: NAD83 / Lambert West Virginia SP - Northern Zone (4701) US feet
True vertical depths are referenced to Patterson 334 (RKB)	North Reference: Grid north
Measured depths are referenced to Patterson 334 (RKB)	Scale: True distance
Patterson 334 (RKB) to Mean Sea Level: 1139 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #10) -1114 feet	Created by: edslarner on 2018-03-14
Coordinates are in feet referenced to NAD	Dateline: WA_MPL_EASTERN25_Datm



BH AT Curve <8-1/2"> (6110')(6191'-18894') : 6190.50ft TVD, 13.69ft S, 26.48ft E
 Javins Gyro <8-3/4"> (100'-7000') : 110.00ft TVD, 0.31ft N, 0.02ft E

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Jenkins Pad	1789480.777	441086.186	39°42'33.300"N	80°08'23.600"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #10	-29.23	114.83	1788585.600	441056.960
Comment: Jenkins 10H				
Patterson 334 (RKB) to Ground level (At Slot: Slot #10)				25ft
Mean Sea Level to Ground level (At Slot: Slot #10)				-1114ft
Patterson 334 (RKB) to Mean Sea Level				1139ft

Scale 1 inch = 2000 ft



Javins Gyro <8-3/4"> (100'-7000') : 0.42° Inc, 110.00ft MD, 110.00ft TVD, -0.26ft VS

API: 47-061-01725-0000
 BH Job #: 9018112
 Rig: Patterson 334
 Duration: 2/26/2018-3/8/2018

Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	6310.00	0.570	142.710	6309.53	-18.81	27.83	30.29
End of Tangent	6370.00	0.570	142.710	6369.53	-19.28	28.19	30.88
End of 3D Arc	6752.78	38.026	26.780	6724.99	68.49	84.57	-33.65
KDP 2	7534.63	38.026	26.780	7340.69	518.47	301.58	-295.13
Landing Pt.	8630.04	90.000	149.665	7980.00	264.41	836.52	244.67
BH	18945.62	90.000	149.665	7980.00	-8038.84	6148.47	0.00

BH AT Curve <8-1/2"> (6110')(6191'-18894') : 4.04° Inc, 6191.00ft MD, 6190.50ft TVD, 26.48ft VS

Projected MD at TD: 18919' : 90.00° Inc, 18919.00ft MD, 7899.02ft TVD, 10559.97ft VS

True Vertical Depth (ft)



Vertical Section (ft)
 Azimuth 149.66° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000

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 APR 15 2019
 WV Department of
 Environmental Protection

Projected MD at TD: 18919' : 7899.02ft TVD, 8641.98ft S, 6140.13ft E



BGGM (1900.0 to 2019.0) Dip: 66.69° Field: 52041.1 nT
 Magnetic North is 9.08 degrees West of True North (at 23/Feb/2018)
 Grid North is 0.41 degrees West of True North
 To correct azimuth from True to Grid add 0.41 degrees
 To correct azimuth from Magnetic to Grid subtract 8.67 degrees



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 1 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Edsaryar
Scale	0.999942	Report Generated	14/Mar/2018 at 18:30
Convergence at slot	0.41° West	Database/Source file	WA_MPL_EASTERNUS_Defn/Jenkins_10H_AWP_Proj_18919_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-29.23	114.83	1788595.60	441056.96	39°42'33.019"N	80°08'22.128"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 #10)	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	149.66°



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 2 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

WELLPATH DATA (199 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	3.210	0.00	0.00	0.00	0.00	1788595.60	441056.96	39°42'33.019"N	80°08'22.128"W	0.00	0.000	0.00	0.00	0.00
25.00	0.000	3.210	25.00	0.00	0.00	0.00	1788595.60	441056.96	39°42'33.019"N	80°08'22.128"W	0.00	0.000	0.00	0.00	0.00
110.00	0.420	3.210	110.00	-0.26	0.31	0.02	1788595.62	441057.27	39°42'33.022"N	80°08'22.128"W	0.31	3.210	0.49	0.49	3.78
210.00	0.460	16.510	210.00	-0.84	1.06	0.15	1788595.75	441058.02	39°42'33.030"N	80°08'22.126"W	1.07	8.149	0.11	0.04	13.30
310.00	0.420	38.110	309.99	-1.25	1.74	0.49	1788596.09	441058.70	39°42'33.036"N	80°08'22.122"W	1.80	15.841	0.17	-0.04	21.60
410.00	0.450	67.910	409.99	-1.33	2.17	1.08	1788596.68	441059.13	39°42'33.041"N	80°08'22.114"W	2.43	26.498	0.23	0.03	29.80
510.00	0.570	84.110	509.99	-1.06	2.37	1.94	1788597.54	441059.33	39°42'33.043"N	80°08'22.103"W	3.06	39.319	0.19	0.12	16.20
610.00	0.410	110.210	609.98	-0.58	2.30	2.77	1788598.37	441059.26	39°42'33.042"N	80°08'22.093"W	3.60	50.345	0.27	-0.16	26.10
710.00	0.550	105.110	709.98	0.04	2.05	3.57	1788599.17	441059.01	39°42'33.040"N	80°08'22.083"W	4.12	60.156	0.15	0.14	-5.10
810.00	0.440	119.210	809.98	0.71	1.74	4.37	1788599.97	441058.70	39°42'33.037"N	80°08'22.072"W	4.70	68.329	0.16	-0.11	14.10
910.00	0.540	112.410	909.97	1.41	1.37	5.14	1788600.74	441058.33	39°42'33.033"N	80°08'22.062"W	5.32	75.085	0.12	0.10	-6.80
1010.00	0.600	122.310	1009.97	2.25	0.91	6.02	1788601.62	441057.87	39°42'33.029"N	80°08'22.051"W	6.09	81.405	0.12	0.06	9.90
1110.00	0.470	134.610	1109.96	3.12	0.34	6.75	1788602.35	441057.30	39°42'33.023"N	80°08'22.042"W	6.76	87.103	0.17	-0.13	12.30
1210.00	0.770	110.810	1209.96	4.04	-0.19	7.67	1788603.27	441056.77	39°42'33.018"N	80°08'22.030"W	7.68	91.382	0.39	0.30	-23.80
1310.00	0.850	109.310	1309.95	5.12	-0.67	9.00	1788604.60	441056.29	39°42'33.013"N	80°08'22.013"W	9.03	94.251	0.08	0.08	-1.50
1410.00	0.760	85.610	1409.94	5.98	-0.86	10.36	1788605.96	441056.10	39°42'33.011"N	80°08'21.995"W	10.40	94.764	0.34	-0.09	-23.70
1510.00	1.220	79.610	1509.92	6.63	-0.62	12.07	1788607.67	441056.34	39°42'33.014"N	80°08'21.974"W	12.09	92.944	0.47	0.46	-6.00
1610.00	1.280	81.610	1609.90	7.41	-0.27	14.22	1788609.82	441056.69	39°42'33.018"N	80°08'21.946"W	14.23	91.071	0.07	0.06	2.00
1710.00	1.000	77.610	1709.88	8.10	0.08	16.18	1788611.78	441057.04	39°42'33.021"N	80°08'21.921"W	16.18	89.701	0.29	-0.28	-4.00
1810.00	1.200	79.210	1809.86	8.72	0.47	18.06	1788613.66	441057.43	39°42'33.025"N	80°08'21.897"W	18.07	88.517	0.20	0.20	1.60
1910.00	0.890	79.410	1909.84	9.33	0.81	19.85	1788615.45	441057.77	39°42'33.029"N	80°08'21.874"W	19.87	87.674	0.31	-0.31	0.20
2010.00	1.110	98.710	2009.83	10.20	0.80	21.57	1788617.17	441057.76	39°42'33.029"N	80°08'21.852"W	21.59	87.870	0.40	0.22	19.30
2110.00	1.250	98.510	2109.81	11.50	0.49	23.61	1788619.21	441057.45	39°42'33.026"N	80°08'21.826"W	23.62	88.800	0.14	0.14	-0.20
2210.00	1.140	91.310	2209.79	12.71	0.31	25.68	1788621.28	441057.27	39°42'33.024"N	80°08'21.799"W	25.68	89.308	0.19	-0.11	-7.20
2310.00	1.220	90.310	2309.76	13.77	0.28	27.74	1788623.34	441057.24	39°42'33.024"N	80°08'21.773"W	27.74	89.418	0.08	0.08	-1.00
2410.00	0.880	85.910	2409.75	14.65	0.33	29.57	1788625.17	441057.29	39°42'33.025"N	80°08'21.750"W	29.57	89.359	0.35	-0.34	-4.40
2510.00	0.680	80.610	2509.74	15.20	0.48	30.92	1788626.52	441057.44	39°42'33.026"N	80°08'21.732"W	30.93	89.106	0.21	-0.20	-5.30
2610.00	0.410	56.510	2609.73	15.40	0.78	31.81	1788627.41	441057.74	39°42'33.029"N	80°08'21.721"W	31.82	88.601	0.35	-0.27	-24.10
2710.00	0.350	119.610	2709.73	15.64	0.82	32.37	1788627.97	441057.78	39°42'33.030"N	80°08'21.714"W	32.38	88.544	0.40	-0.06	63.10
2810.00	0.370	38.110	2809.73	15.79	0.93	32.84	1788628.43	441057.89	39°42'33.031"N	80°08'21.708"W	32.85	88.384	0.47	0.02	-81.50



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 3 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

WELLPATH DATA (199 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	0.080	37.810	2909.73	15.64	1.24	33.08	1788628.68	441058.20	39°42'33.034"N	80°08'21.705"W	33.10	87.861	0.29	-0.29	-0.30
3010.00	0.260	97.110	3009.73	15.75	1.26	33.35	1788628.94	441058.22	39°42'33.034"N	80°08'21.702"W	33.37	87.832	0.23	0.18	59.30
3110.00	0.430	83.810	3109.73	16.05	1.27	33.94	1788629.54	441058.23	39°42'33.034"N	80°08'21.694"W	33.97	87.849	0.19	0.17	-13.30
3210.00	0.300	103.110	3209.73	16.38	1.26	34.57	1788630.17	441058.22	39°42'33.034"N	80°08'21.686"W	34.60	87.920	0.18	-0.13	19.30
3310.00	0.170	173.210	3309.72	16.70	1.05	34.85	1788630.44	441058.01	39°42'33.032"N	80°08'21.682"W	34.86	88.275	0.29	-0.13	70.10
3410.00	0.090	180.210	3409.72	16.90	0.82	34.86	1788630.46	441057.78	39°42'33.030"N	80°08'21.682"W	34.87	88.647	0.08	-0.08	7.00
3510.00	0.360	267.710	3509.72	16.82	0.73	34.55	1788630.15	441057.69	39°42'33.029"N	80°08'21.686"W	34.56	88.786	0.37	0.27	87.50
3610.00	0.310	330.910	3609.72	16.40	0.96	34.10	1788629.70	441057.92	39°42'33.031"N	80°08'21.692"W	34.12	88.394	0.35	-0.05	63.20
3710.00	0.560	292.710	3709.72	15.74	1.38	33.52	1788629.12	441058.34	39°42'33.035"N	80°08'21.699"W	33.55	87.640	0.37	0.25	-38.20
3810.00	0.160	12.610	3809.72	15.25	1.71	33.10	1788628.70	441058.67	39°42'33.038"N	80°08'21.705"W	33.14	87.049	0.55	-0.40	79.90
3910.00	0.320	272.410	3909.72	14.99	1.85	32.85	1788628.45	441058.81	39°42'33.040"N	80°08'21.708"W	32.90	86.770	0.38	0.16	-100.20
4010.00	0.460	278.410	4009.71	14.59	1.92	32.18	1788627.77	441058.88	39°42'33.041"N	80°08'21.717"W	32.23	86.577	0.15	0.14	6.00
4110.00	0.130	351.810	4109.71	14.24	2.10	31.76	1788627.36	441059.06	39°42'33.042"N	80°08'21.722"W	31.83	86.225	0.44	-0.33	73.40
4210.00	0.560	278.610	4209.71	13.82	2.28	31.26	1788626.86	441059.24	39°42'33.044"N	80°08'21.728"W	31.35	85.827	0.54	0.43	-73.20
4310.00	0.210	303.610	4309.71	13.35	2.46	30.63	1788626.23	441059.42	39°42'33.046"N	80°08'21.736"W	30.73	85.416	0.38	-0.35	25.00
4410.00	0.410	265.010	4409.71	13.03	2.53	30.12	1788625.72	441059.49	39°42'33.046"N	80°08'21.743"W	30.22	85.206	0.28	0.20	-38.60
4510.00	0.550	269.910	4509.70	12.64	2.49	29.28	1788624.88	441059.45	39°42'33.046"N	80°08'21.754"W	29.39	85.132	0.15	0.14	4.90
4610.00	0.350	302.510	4609.70	12.13	2.66	28.54	1788624.14	441059.62	39°42'33.048"N	80°08'21.763"W	28.67	84.681	0.32	-0.20	32.60
4710.00	0.500	243.510	4709.70	11.82	2.63	27.90	1788623.49	441059.59	39°42'33.047"N	80°08'21.771"W	28.02	84.620	0.44	0.15	-59.00
4810.00	0.490	203.410	4809.70	12.05	2.04	27.34	1788622.93	441059.00	39°42'33.041"N	80°08'21.778"W	27.41	85.732	0.34	-0.01	-40.10
4910.00	0.580	194.610	4909.69	12.66	1.16	27.04	1788622.64	441058.12	39°42'33.033"N	80°08'21.782"W	27.06	87.548	0.12	0.09	-8.80
5010.00	0.850	189.510	5009.68	13.59	-0.06	26.79	1788622.39	441056.90	39°42'33.020"N	80°08'21.785"W	26.79	90.136	0.28	0.27	-5.10
5110.00	1.240	180.610	5109.67	15.08	-1.88	26.65	1788622.25	441055.08	39°42'33.003"N	80°08'21.787"W	26.72	94.028	0.42	0.39	-8.90
5210.00	1.050	183.910	5209.65	16.77	-3.87	26.58	1788622.18	441053.09	39°42'32.983"N	80°08'21.788"W	26.86	98.290	0.20	-0.19	3.30
5310.00	0.960	185.910	5309.63	18.20	-5.62	26.43	1788622.03	441051.34	39°42'32.966"N	80°08'21.789"W	27.02	102.005	0.10	-0.09	2.00
5410.00	1.070	179.210	5409.62	19.69	-7.39	26.36	1788621.96	441049.57	39°42'32.948"N	80°08'21.790"W	27.37	105.657	0.16	0.11	-6.70
5510.00	0.450	146.710	5509.61	20.89	-8.65	26.59	1788622.18	441048.31	39°42'32.936"N	80°08'21.787"W	27.96	108.021	0.73	-0.62	-32.50
5610.00	0.830	183.210	5609.60	21.89	-9.70	26.76	1788622.36	441047.26	39°42'32.925"N	80°08'21.785"W	28.47	109.925	0.54	0.38	36.50
5710.00	0.510	185.610	5709.59	22.85	-10.87	26.68	1788622.28	441046.09	39°42'32.914"N	80°08'21.786"W	28.81	112.163	0.32	-0.32	2.40
5810.00	0.820	181.710	5809.59	23.82	-12.02	26.61	1788622.21	441044.94	39°42'32.902"N	80°08'21.786"W	29.20	114.316	0.31	0.31	-3.90



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 4 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

WELLPATH DATA (199 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]
5910.00	1.060	149.110	5909.57	25.35	-13.53	27.07	1788622.66	441043.43	39°42'32.887"N	80°08'21.781"W	30.26	116.567	0.58	0.24	-32.60
6010.00	0.410	168.910	6009.57	26.61	-14.68	27.61	1788623.21	441042.28	39°42'32.876"N	80°08'21.773"W	31.27	117.998	0.69	-0.65	19.80
6110.00	0.960	182.310	6109.56	27.66	-15.87	27.64	1788623.24	441041.09	39°42'32.864"N	80°08'21.773"W	31.87	119.854	0.57	0.55	13.40
6191.00	4.040	21.750	6190.50	26.48	-13.89	28.68	1788624.27	441043.07	39°42'32.884"N	80°08'21.760"W	31.86	115.851	6.12	3.80	-198.22
6286.00	10.370	15.180	6284.71	18.42	-2.52	32.16	1788627.76	441054.44	39°42'32.997"N	80°08'21.716"W	32.26	94.484	6.71	6.66	-6.92
6382.00	14.250	23.110	6378.49	5.32	16.69	39.06	1788634.66	441073.65	39°42'33.187"N	80°08'21.630"W	42.48	66.860	4.40	4.04	8.26
6477.00	18.150	32.850	6469.71	-8.32	39.89	51.68	1788647.28	441096.85	39°42'33.417"N	80°08'21.470"W	65.29	52.338	4.99	4.11	10.25
6572.00	21.360	33.250	6559.11	-22.69	66.80	69.20	1788664.80	441123.75	39°42'33.684"N	80°08'21.249"W	96.18	46.013	3.38	3.38	0.42
6667.00	24.110	27.330	6646.73	-40.77	98.51	87.60	1788683.20	441155.47	39°42'33.999"N	80°08'21.016"W	131.83	41.644	3.76	2.89	-6.23
6762.00	26.370	24.490	6732.66	-63.30	134.96	105.26	1788700.85	441191.91	39°42'34.360"N	80°08'20.794"W	171.15	37.952	2.70	2.38	-2.99
6857.00	28.640	25.520	6816.92	-88.24	174.71	123.81	1788719.41	441231.66	39°42'34.754"N	80°08'20.560"W	214.13	35.325	2.44	2.39	1.08
6952.00	33.970	28.930	6898.06	-114.60	218.52	146.48	1788742.07	441275.46	39°42'35.189"N	80°08'20.274"W	263.07	33.835	5.91	5.61	3.59
7047.00	36.790	27.650	6975.51	-143.25	266.95	172.53	1788768.12	441323.90	39°42'35.670"N	80°08'19.945"W	317.85	32.874	3.07	2.97	-1.35
7142.00	37.660	23.880	7051.17	-175.30	318.70	197.48	1788793.07	441375.64	39°42'36.183"N	80°08'19.630"W	374.92	31.784	2.57	0.92	-3.97
7236.00	38.010	23.120	7125.41	-209.32	371.57	220.47	1788816.06	441428.51	39°42'36.707"N	80°08'19.341"W	432.06	30.682	0.62	0.37	-0.81
7331.00	38.060	27.200	7200.25	-242.46	424.53	245.34	1788840.93	441481.46	39°42'37.232"N	80°08'19.027"W	490.32	30.025	2.65	0.05	4.29
7426.00	37.980	30.610	7275.09	-272.37	475.74	273.62	1788869.20	441532.67	39°42'37.740"N	80°08'18.670"W	548.81	29.905	2.21	-0.08	3.59
7521.00	38.040	30.040	7349.95	-301.03	526.23	303.15	1788898.74	441583.16	39°42'38.241"N	80°08'18.297"W	607.31	29.945	0.37	0.06	-0.60
7617.00	32.290	48.030	7428.60	-320.89	569.14	337.15	1788932.72	441626.06	39°42'38.667"N	80°08'17.866"W	661.50	30.642	12.29	-5.99	18.74
7712.00	34.910	64.700	7507.90	-323.62	597.79	380.69	1788976.27	441654.71	39°42'38.954"N	80°08'17.311"W	708.71	32.490	10.07	2.76	17.55
7806.00	37.410	76.320	7583.87	-313.06	616.06	432.82	1789028.39	441672.99	39°42'39.138"N	80°08'16.646"W	752.90	35.090	7.75	2.66	12.36
7900.00	39.730	90.790	7657.51	-289.29	622.41	490.73	1789086.30	441679.34	39°42'39.205"N	80°08'15.906"W	792.60	38.253	9.89	2.47	15.39
7996.00	44.200	107.030	7729.09	-248.67	612.16	553.62	1789149.19	441669.08	39°42'39.108"N	80°08'15.100"W	825.37	42.126	12.20	4.66	16.92
8092.00	48.670	118.620	7795.35	-193.03	585.03	617.40	1789212.97	441641.95	39°42'38.844"N	80°08'14.281"W	850.56	46.542	9.90	4.66	12.07
8187.00	57.420	124.360	7852.44	-126.12	545.25	681.92	1789277.47	441602.18	39°42'38.456"N	80°08'13.452"W	873.10	51.354	10.39	9.21	6.04
8281.00	63.770	130.450	7898.60	-50.37	495.46	746.80	1789342.36	441552.39	39°42'37.968"N	80°08'12.617"W	896.21	56.438	8.80	6.76	6.48
8377.00	70.190	140.150	7936.20	35.09	432.66	808.70	1789404.25	441489.60	39°42'37.352"N	80°08'11.820"W	917.16	61.853	11.45	6.69	10.10
8472.00	76.650	142.940	7963.30	125.17	361.39	865.26	1789460.80	441418.32	39°42'36.651"N	80°08'11.090"W	937.69	67.331	7.36	6.80	2.94
8568.00	85.100	148.090	7978.52	219.60	283.33	918.81	1789514.36	441340.27	39°42'35.864"N	80°08'10.397"W	961.50	72.862	10.27	8.80	5.36
8662.00	88.280	148.340	7983.95	313.40	203.57	968.24	1789563.78	441260.52	39°42'35.099"N	80°08'09.758"W	989.40	78.127	3.39	3.38	0.27



Operator	Area	Field	Facility
NORTHEAST NATURAL ENERGY, LLC	Monongalia County, WV	Monongalia	Jenkins Pad
			Sidetrack from
			Jenkins 10H AWP Proj: 7010 MD at 6110.00 MD
			Jenkins 10H AWB
			Jenkins 10H
			Slot #10

WELLPATH DATA (199 stations)												
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[/100ft]
8757.00	90.520	147.090	7984.94	408.33	123.27	1018.97	1789614.51	44180.22	39°42'34.309"N	80°08'09.101"W	1026.40	2.36
8850.00	90.060	144.770	7984.47	501.13	46.24	1071.07	1789666.60	441103.19	39°42'33.551"N	80°08'08.428"W	1072.06	-2.49
8945.00	89.720	149.330	7984.55	596.00	-33.46	1122.72	1789718.26	441023.50	39°42'32.767"N	80°08'07.760"W	1123.22	4.80
9041.00	90.430	150.230	7984.53	692.00	-116.41	1171.04	1789766.57	440940.55	39°42'31.951"N	80°08'07.134"W	1176.81	0.74
9136.00	90.710	150.120	7983.58	786.99	-198.83	1218.29	1789813.81	44058.14	39°42'31.140"N	80°08'06.522"W	1234.41	0.29
9230.00	91.200	151.010	7982.01	880.96	-280.68	1264.48	1789860.00	440776.30	39°42'30.334"N	80°08'05.923"W	1295.25	1.08
9326.00	91.540	151.410	7979.72	976.90	-364.79	1310.70	1789906.22	440692.19	39°42'29.506"N	80°08'05.324"W	1360.51	0.35
9422.00	91.850	151.460	7976.88	1072.81	-449.07	1356.58	1789952.10	440607.92	39°42'28.676"N	80°08'04.730"W	1428.97	0.32
9517.00	91.570	150.460	7974.04	1167.75	-532.09	1402.67	1789998.19	440524.91	39°42'27.859"N	80°08'04.132"W	1500.20	-2.29
9612.00	90.980	153.420	7971.93	1262.64	-615.89	1447.34	1790042.86	440441.11	39°42'27.034"N	80°08'03.553"W	1572.93	-0.62
9707.00	91.200	150.710	7970.12	1357.53	-699.80	1491.84	1790087.35	440357.21	39°42'26.208"N	80°08'02.977"W	1647.81	2.86
9802.00	91.390	148.770	7967.98	1452.50	-781.83	1539.69	1790135.20	440275.18	39°42'25.401"N	80°08'02.357"W	1726.82	2.05
9897.00	91.320	148.790	7965.73	1547.46	-863.05	1588.92	1790184.43	440193.97	39°42'24.601"N	80°08'01.720"W	1808.18	0.08
9992.00	91.020	149.530	7963.79	1642.44	-944.60	1637.61	1790233.11	440112.42	39°42'23.799"N	80°08'01.089"W	1890.51	0.84
10088.00	90.490	148.130	7962.52	1738.41	-1026.73	1687.29	1790282.79	440030.29	39°42'22.991"N	80°08'00.466"W	1975.13	1.56
10183.00	90.680	151.630	7961.55	1833.39	-1108.88	1734.96	1790330.45	439948.14	39°42'22.182"N	80°07'59.829"W	2059.05	3.69
10278.00	91.020	154.540	7960.14	1928.20	-1193.57	1777.95	1790373.44	439863.46	39°42'21.348"N	80°07'59.271"W	2141.43	3.08
10373.00	90.620	148.680	7958.78	2023.10	-1277.10	1823.10	1790418.59	439779.93	39°42'20.526"N	80°07'58.686"W	2225.91	6.18
10466.00	90.580	147.460	7957.81	2116.05	-1356.03	1872.28	1790467.77	439701.02	39°42'19.749"N	80°07'58.050"W	2311.76	-0.04
10561.00	90.400	147.780	7957.00	2210.99	-1436.25	1923.15	1790518.64	439620.79	39°42'18.960"N	80°07'57.392"W	2400.28	0.39
10656.00	90.550	149.230	7956.21	2305.97	-1517.25	1972.78	1790568.26	439539.80	39°42'18.163"N	80°07'56.749"W	2488.76	1.53
10751.00	90.520	148.970	7955.32	2400.96	-1598.77	2021.56	1790617.04	439458.29	39°42'17.361"N	80°07'56.118"W	2577.36	0.28
10845.00	90.180	145.680	7954.75	2494.86	-1677.88	2072.30	1790667.78	439379.18	39°42'16.582"N	80°07'55.461"W	2666.40	-0.36
10941.00	89.880	142.520	7954.70	2590.40	-1755.63	2128.59	1790724.06	439301.43	39°42'15.818"N	80°07'54.734"W	2759.19	3.31
11036.00	89.480	142.810	7955.23	2684.69	-1831.16	2186.20	1790781.67	439225.91	39°42'15.075"N	80°07'53.990"W	2851.78	0.52
11131.00	89.940	150.030	7955.71	2779.47	-1910.26	2238.71	1790834.18	439146.82	39°42'14.297"N	80°07'53.311"W	2942.94	0.48
11226.00	89.820	150.790	7955.91	2874.47	-1992.67	2286.62	1790881.08	439064.21	39°42'13.484"N	80°07'52.704"W	3032.42	0.81
11321.00	90.180	149.780	7955.91	2969.46	-2075.37	2332.71	1790928.17	438981.71	39°42'12.672"N	80°07'52.094"W	3122.29	1.13
11417.00	90.620	152.320	7955.24	3065.42	-2159.37	2379.17	1790974.63	438897.72	39°42'11.845"N	80°07'51.492"W	3212.99	2.69
11512.00	90.400	151.120	7954.39	3160.35	-2243.02	2424.18	1791019.63	438814.07	39°42'11.022"N	80°07'50.909"W	3302.70	-0.23



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 6 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

WELLPATH DATA (199 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]
11606.00	90.680	151.320	7953.51	3254.31	-2325.41	2469.43	1791064.89	438731.69	39°42'10.211"N	80°07'50.322"W	3392.00	133.279	0.37	0.30	0.21
11701.00	90.180	152.080	7952.79	3349.25	-2409.05	2514.47	1791109.92	438648.05	39°42'09.387"N	80°07'49.739"W	3482.25	133.773	0.96	-0.53	0.80
11796.00	89.880	151.650	7952.74	3444.18	-2492.82	2559.27	1791154.71	438564.29	39°42'08.562"N	80°07'49.158"W	3572.68	134.247	0.55	-0.32	-0.45
11891.00	90.280	154.490	7952.61	3539.00	-2577.51	2602.29	1791197.73	438479.60	39°42'07.728"N	80°07'48.600"W	3662.72	134.726	3.02	0.42	2.99
11987.00	90.310	153.480	7952.12	3634.73	-2663.79	2644.39	1791239.84	438393.34	39°42'06.879"N	80°07'48.053"W	3753.47	135.209	1.05	0.03	-1.05
12082.00	90.220	154.700	7951.68	3729.44	-2749.23	2685.90	1791281.34	438307.89	39°42'06.037"N	80°07'47.515"W	3843.48	135.668	1.29	-0.09	1.28
12177.00	90.490	153.730	7951.09	3824.14	-2834.77	2727.23	1791322.66	438222.36	39°42'05.195"N	80°07'46.978"W	3933.66	136.108	1.06	0.28	-1.02
12271.00	89.910	148.310	7950.76	3918.07	-2916.97	2772.75	1791368.19	438140.17	39°42'04.386"N	80°07'46.389"W	4024.53	136.452	5.80	-0.62	-5.77
12366.00	90.280	148.310	7950.60	4013.05	-2997.81	2822.66	1791418.09	438059.33	39°42'03.590"N	80°07'45.743"W	4117.55	136.724	0.39	0.39	0.00
12460.00	90.310	147.980	7950.12	4107.01	-3077.65	2872.27	1791467.70	437979.50	39°42'02.805"N	80°07'45.101"W	4209.73	136.977	0.35	0.03	-0.35
12555.00	90.430	148.690	7949.51	4201.98	-3158.50	2922.14	1791517.56	437898.65	39°42'02.009"N	80°07'44.456"W	4302.91	137.226	0.76	0.13	0.75
12650.00	90.620	150.500	7948.64	4296.98	-3240.43	2970.21	1791565.64	437816.73	39°42'01.203"N	80°07'43.833"W	4395.74	137.491	1.92	0.20	1.91
12746.00	90.800	151.360	7947.45	4392.94	-3324.33	3016.85	1791612.27	437732.83	39°42'00.377"N	80°07'43.229"W	4489.16	137.776	0.92	0.19	0.90
12841.00	90.950	148.110	7945.99	4487.92	-3406.36	3064.72	1791660.14	437650.80	39°41'59.569"N	80°07'42.609"W	4582.12	138.022	3.42	0.16	-3.42
12936.00	90.740	146.500	7944.59	4582.83	-3486.30	3116.03	1791711.44	437570.87	39°41'58.783"N	80°07'41.946"W	4675.89	138.210	1.71	-0.22	-1.69
13032.00	91.080	149.810	7943.07	4678.77	-3567.83	3166.67	1791762.08	437489.35	39°41'57.981"N	80°07'41.291"W	4770.45	138.409	3.47	0.35	3.45
13127.00	91.200	150.400	7941.18	4773.75	-3650.17	3214.01	1791809.42	437407.01	39°41'57.170"N	80°07'40.678"W	4863.49	138.636	0.63	0.13	0.62
13222.00	91.110	145.940	7939.26	4868.67	-3730.84	3264.09	1791859.49	437326.34	39°41'56.376"N	80°07'40.030"W	4957.16	138.818	4.69	-0.09	-4.69
13318.00	91.080	147.590	7937.43	4964.53	-3811.12	3316.69	1791912.09	437246.06	39°41'55.587"N	80°07'39.350"W	5052.24	138.968	1.72	-0.03	1.72
13412.00	91.350	148.820	7935.43	5058.47	-3891.00	3366.21	1791961.61	437166.20	39°41'54.801"N	80°07'38.709"W	5145.02	139.136	1.34	0.29	1.31
13507.00	91.170	150.430	7933.35	5153.45	-3972.94	3414.23	1792009.63	437084.26	39°41'53.994"N	80°07'38.087"W	5238.44	139.325	1.70	-0.19	1.69
13602.00	90.770	149.380	7931.74	5248.43	-4055.12	3461.86	1792057.25	437002.09	39°41'53.185"N	80°07'37.471"W	5331.83	139.513	1.18	-0.42	-1.11
13697.00	90.920	151.160	7930.34	5343.41	-4137.60	3508.97	1792104.35	436919.61	39°41'52.373"N	80°07'36.861"W	5425.18	139.700	1.88	0.16	1.87
13791.00	90.520	152.350	7929.15	5437.34	-4220.40	3553.45	1792148.83	436836.81	39°41'51.558"N	80°07'36.284"W	5517.13	139.904	1.34	-0.43	1.27
13886.00	90.340	150.940	7928.44	5532.28	-4304.00	3598.56	1792193.95	436753.22	39°41'50.735"N	80°07'35.700"W	5610.17	140.101	1.50	-0.19	-1.48
13980.00	89.820	147.670	7928.31	5626.26	-4384.82	3646.54	1792241.92	436672.41	39°41'49.940"N	80°07'35.079"W	5702.97	140.252	3.52	-0.55	-3.48
14075.00	89.750	143.990	7928.67	5721.03	-4463.40	3699.89	1792295.26	436593.83	39°41'49.167"N	80°07'34.389"W	5797.51	140.343	3.87	-0.07	-3.87
14170.00	90.430	146.070	7928.52	5815.72	-4541.25	3754.33	1792349.71	436515.99	39°41'48.401"N	80°07'33.686"W	5892.19	140.419	2.30	0.72	2.19
14265.00	90.460	149.900	7927.78	5910.66	-4621.78	3804.69	1792400.06	436435.46	39°41'47.609"N	80°07'33.034"W	5986.36	140.539	4.03	0.03	4.03
14359.00	90.980	147.410	7926.60	6004.63	-4702.05	3853.57	1792448.94	436355.20	39°41'46.819"N	80°07'32.402"W	6079.42	140.664	2.71	0.55	-2.65



northeast
NATURAL ENERGY

Actual Wellpath Report

Jenkins 10H AWP Proj: 18919

Page 7 of 10

BAKER
HUGHES
a GE company



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010 MD at 6110.00 MD

WELLPATH DATA (199 stations)

MD	Inclination	Azimuth	TVD	Vent Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	DLS	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)	(N)	(W)	(ft)	(ft/100ft)	(ft/100ft)	(°/100ft)
1455.00	91.290	148.300	7924.70	6100.56	-4783.31	3904.64	1792500.01	436273.93	39°41'46.019"N	80°07'31.741"W	6174.65	140.775	0.98	0.32
1450.00	91.110	148.850	7922.71	6195.52	-4864.36	3954.16	1792549.52	436192.89	39°41'45.222"N	80°07'31.101"W	6268.77	140.893	0.61	-0.19
1454.00	91.570	148.790	7920.49	6290.48	-4945.62	4003.33	1792598.69	436111.64	39°41'44.422"N	80°07'30.464"W	6362.84	141.011	0.49	-0.06
14740.00	91.480	151.750	7917.96	6385.43	-5028.07	4050.42	1792645.78	436029.19	39°41'43.611"N	80°07'29.854"W	6456.58	141.146	3.12	-0.09
14836.00	91.630	152.550	7915.35	6481.31	-5112.92	4095.25	1792690.61	435944.35	39°41'42.775"N	80°07'29.273"W	6550.81	141.307	0.85	0.16
14931.00	91.510	150.280	7912.75	6576.22	-5196.31	4140.69	1792736.04	435860.97	39°41'41.954"N	80°07'28.685"W	6644.31	141.450	2.39	-2.39
15026.00	91.350	149.760	7910.38	6671.19	-5278.57	4188.14	1792783.49	435778.71	39°41'41.144"N	80°07'28.070"W	6738.24	141.571	0.57	-0.17
15121.00	90.860	152.940	7908.55	6766.12	-5361.91	4233.68	1792829.02	435695.37	39°41'40.324"N	80°07'27.481"W	6831.85	141.706	3.39	-0.52
15215.00	90.890	154.330	7907.11	6859.88	-5446.12	4275.42	1792870.76	435611.17	39°41'39.495"N	80°07'26.939"W	6923.83	141.867	1.48	0.03
15310.00	89.630	149.150	7906.68	6954.78	-5529.77	4320.38	1792915.72	435527.53	39°41'38.671"N	80°07'26.356"W	7017.41	142.000	5.61	-1.33
15406.00	88.660	150.880	7907.94	7050.77	-5612.91	4368.35	1792963.69	435444.39	39°41'37.853"N	80°07'25.735"W	7112.47	142.107	1.97	-0.80
15501.00	89.880	151.950	7908.99	7145.71	-5696.32	4413.80	1793009.14	435360.98	39°41'37.032"N	80°07'25.147"W	7206.23	142.230	1.56	1.07
15596.00	89.350	152.170	7909.63	7240.63	-5780.24	4458.31	1793053.64	435277.06	39°41'36.205"N	80°07'24.570"W	7299.85	142.357	0.60	-0.56
15691.00	89.220	152.130	7910.31	7335.54	-5864.24	4502.69	1793098.02	435193.08	39°41'35.378"N	80°07'23.995"W	7393.48	142.482	0.50	-0.04
15786.00	89.750	148.300	7910.67	7430.51	-5946.67	4549.87	1793145.20	435110.65	39°41'34.557"N	80°07'23.384"W	7487.61	142.580	4.03	-4.03
15882.00	89.630	148.860	7911.19	7526.49	-6028.59	4599.92	1793195.24	435028.73	39°41'33.761"N	80°07'22.736"W	7583.09	142.656	0.60	-0.13
15976.00	89.600	150.510	7911.82	7620.49	-6109.74	4647.36	1793242.68	434947.59	39°41'32.962"N	80°07'22.122"W	7676.38	142.742	1.76	-0.03
16072.00	89.540	149.440	7912.54	7716.48	-6192.85	4695.40	1793290.71	434864.48	39°41'32.144"N	80°07'21.500"W	7771.62	142.831	1.12	-0.06
16166.00	89.450	147.660	7913.37	7810.46	-6273.03	4744.44	1793339.75	434784.30	39°41'31.355"N	80°07'20.865"W	7865.15	142.899	1.90	-0.10
16261.00	89.450	145.830	7914.28	7905.30	-6352.24	4796.87	1793392.18	434705.10	39°41'30.576"N	80°07'20.188"W	7959.96	142.942	2.45	0.00
16356.00	89.420	143.950	7915.22	7999.93	-6429.71	4851.84	1793447.15	434627.64	39°41'29.814"N	80°07'19.478"W	8054.91	142.962	1.45	-0.03
16451.00	89.540	146.960	7916.08	8094.66	-6507.95	4905.71	1793501.01	434549.40	39°41'29.044"N	80°07'18.782"W	8149.81	142.991	3.17	0.13
16545.00	89.290	148.140	7917.04	8188.59	-6587.26	4956.14	1793551.44	434470.09	39°41'28.264"N	80°07'18.130"W	8243.51	143.043	1.28	-0.27
16641.00	89.200	150.110	7918.31	8284.57	-6669.65	5005.40	1793600.70	434387.71	39°41'27.453"N	80°07'17.493"W	8338.96	143.113	2.05	-0.09
16736.00	88.830	148.170	7919.94	8379.55	-6751.18	5054.12	1793649.41	434306.18	39°41'26.651"N	80°07'16.862"W	8433.42	143.180	2.08	-0.39
16831.00	90.250	146.900	7920.70	8474.48	-6831.33	5105.11	1793700.40	434226.04	39°41'25.862"N	80°07'16.203"W	8528.14	143.229	2.01	1.49
16926.00	90.740	151.990	7919.88	8569.44	-6913.11	5153.38	1793748.67	434144.27	39°41'25.057"N	80°07'15.578"W	8622.55	143.297	5.38	0.52
17020.00	91.420	147.370	7918.11	8663.40	-6994.21	5200.82	1793796.10	434063.17	39°41'24.259"N	80°07'14.964"W	8715.94	143.366	4.97	0.72
17114.00	91.350	143.470	7915.84	8757.10	-7071.57	5254.14	1793849.42	433986.82	39°41'23.498"N	80°07'14.275"W	8809.83	143.388	4.15	-0.07
17209.00	91.480	149.460	7913.49	8851.88	-7150.70	5306.68	1793901.86	433906.69	39°41'22.720"N	80°07'13.597"W	8904.62	143.421	6.80	0.14



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 8 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

WELLPATH DATA (199 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]
17303.00	90.400	154.160	7911.95	8945.77	-7233.51	5350.97	1793946.25	433823.88	39°41'21.904"N	80°07'13.022"W	8997.59	143.508	5.13	-1.15	5.00
17398.00	90.830	153.860	7910.93	9040.49	-7318.90	5392.60	1793987.87	433738.50	39°41'21.063"N	80°07'12.482"W	9091.01	143.617	0.55	0.45	-0.32
17494.00	90.950	149.790	7909.43	9136.39	-7403.50	5437.91	1794033.18	433653.91	39°41'20.230"N	80°07'11.895"W	9186.00	143.703	4.24	0.12	-4.24
17588.00	91.170	151.740	7907.69	9230.35	-7485.51	5483.81	1794079.08	433571.91	39°41'19.423"N	80°07'11.301"W	9279.28	143.774	2.09	0.23	2.07
17683.00	90.830	151.260	7906.04	9325.29	-7568.98	5529.13	1794124.40	433488.44	39°41'18.601"N	80°07'10.714"W	9373.41	143.852	0.62	-0.36	-0.51
17778.00	90.180	150.820	7905.20	9420.26	-7652.10	5575.13	1794170.39	433405.32	39°41'17.783"N	80°07'10.118"W	9467.66	143.924	0.83	-0.68	-0.46
17873.00	90.000	151.930	7905.05	9515.21	-7735.48	5620.64	1794215.90	433321.94	39°41'16.962"N	80°07'09.528"W	9561.87	143.998	1.18	-0.19	1.17
17968.00	89.940	153.740	7905.10	9610.06	-7820.00	5664.01	1794259.27	433237.43	39°41'16.129"N	80°07'08.966"W	9655.75	144.084	1.91	-0.06	1.91
18063.00	90.520	155.110	7904.72	9704.73	-7905.69	5705.02	1794300.28	433151.75	39°41'15.285"N	80°07'08.434"W	9749.22	144.184	1.57	0.61	1.44
18158.00	90.650	152.150	7903.75	9799.49	-7990.79	5747.21	1794342.46	433066.65	39°41'14.447"N	80°07'07.887"W	9842.92	144.275	3.12	0.14	-3.12
18253.00	90.550	150.210	7902.75	9894.44	-8074.02	5793.00	1794388.25	432983.43	39°41'13.628"N	80°07'07.294"W	9937.23	144.341	2.04	-0.11	-2.04
18347.00	89.850	146.950	7902.43	9988.41	-8154.22	5842.00	1794437.24	432903.23	39°41'12.839"N	80°07'06.660"W	10030.96	144.381	3.55	-0.74	-3.47
18439.00	89.940	146.800	7902.59	10080.30	-8231.27	5892.27	1794487.52	432826.19	39°41'12.081"N	80°07'06.010"W	10122.88	144.403	0.19	0.10	-0.16
18534.00	90.250	148.890	7902.44	10175.25	-8311.69	5942.83	1794538.07	432745.77	39°41'11.289"N	80°07'05.357"W	10217.70	144.435	2.22	0.33	2.20
18629.00	90.770	152.180	7901.59	10270.22	-8394.39	5989.55	1794584.79	432663.08	39°41'10.475"N	80°07'04.752"W	10312.15	144.491	3.51	0.55	3.46
18723.00	91.230	149.340	7899.95	10364.18	-8476.39	6035.45	1794630.69	432581.08	39°41'09.668"N	80°07'04.157"W	10405.57	144.548	3.06	0.49	-3.02
18818.00	89.940	144.790	7898.98	10459.05	-8556.10	6087.09	1794682.32	432501.38	39°41'08.884"N	80°07'03.490"W	10500.45	144.571	4.98	-1.36	-4.79
18894.00	90.000	150.420	7899.02	10534.97	-8620.24	6127.79	1794723.02	432437.24	39°41'08.252"N	80°07'02.964"W	10576.31	144.592	7.41	0.08	7.41
18919.00	90.000	150.420	7899.02	10559.97	-8641.98	6140.13	1794735.36	432415.50	39°41'08.038"N	80°07'02.804"W	10601.18	144.606	0.00	0.00	0.00



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 9 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

HOLE & CASING SECTIONS - Ref Wellbore: Jenkins 10H AWB Ref Wellpath: Jenkins 10H AWP Proj: 18919'									
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]
24in Conductor	25.00	65.00	40.00	25.00	65.00	0.00	0.00	0.07	0.00
17.5in Open Hole	65.00	1115.00	1050.00	65.00	1114.96	0.07	0.00	0.31	6.78
13.375in Casing Surface	25.00	1115.00	1090.00	25.00	1114.96	0.00	0.00	0.31	6.78
12.25in Open Hole	1115.00	2275.00	1160.00	1114.96	2274.77	0.31	6.78	0.29	27.01
9.625in Casing Intermediate	25.00	2275.00	2250.00	25.00	2274.77	0.00	0.00	0.29	27.01
8.75in Open Hole	2275.00	6110.00	3835.00	2274.77	6109.56	0.29	27.01	-15.87	27.64
8.5in Open Hole	6110.00	18919.00	12809.00	6109.56	7899.02	-15.87	27.64	-8641.98	6140.13
5.5in Casing Production	25.00	18919.00	18894.00	25.00	7899.02	0.00	0.00	-8641.98	6140.13

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Jenkins 10H BHL Rev-3	7980.00	-8638.84	6146.47	1794741.70	432418.64	39°41'08.070"N	80°07'02.723"W	point
Jenkins 10H LP Rev-3	7980.00	264.41	936.52	1789532.07	441321.35	39°42'35.698"N	80°08'10.169"W	point

WELLPATH COMPOSITION - Ref Wellbore: Jenkins 10H AWB Ref Wellpath: Jenkins 10H AWP Proj: 18919'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
25.00	6110.00	BHI Generic gyro - northseeking (Standard)	01_Javins Gyro <8-3/4"> (110'-7010')	Jenkins 10H Pilot AWB	
6110.00	18894.00	BHI AutoTrak Curve (Short)	02_BH AT Curve <8-1/2"> (6110')(6191'-18894')	Jenkins 10H AWB	
18894.00	18919.00	Blind Drilling (std)	Projection to bit	Jenkins 10H AWB	



Actual Wellpath Report

Jenkins 10H AWP Proj: 18919'

Page 10 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot #10
Area	Monongalia County, WV	Well	Jenkins 10H
Field	Monongalia	Wellbore	Jenkins 10H AWB
Facility	Jenkins Pad	Sidetrack from	Jenkins 10H Pilot AWP Proj: 7010'MD at 6110.00 MD

COMMENTS

Wellpath general comments

API: 47-061-01725-0000

BH Job #: 9018112

Rig: Patterson 334

Duration: 2/26/2018-3/8/2018

Javins Gyro <8-3/4"> (100'-7000')

BH AT Curve <8-1/2"> (6110')(6191'-18894')

Projected MD at TD: 18919'