



# ANTERO RESOURCES CORPORATION



Location: Tyler County, WV  
 Field: Tyler  
 Facility: Ritchie Petroleum Pad

Slot: Slot #06  
 Well: Hopper Unit 1H  
 Wellbore: Hopper Unit 1H PWB

Plot reference wellpath is Hopper Unit 1H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 32 (RKB)	North Reference: Grid north
Measured depths are referenced to Frontier 32 (RKB)	Scale: True distance
Frontier 32 (RKB) to Mean Sea Level: 1210 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: Slot #06): -1178 feet	Created by: edsaryar on 2017-11-28
Coordinates are in feet referenced to Slot	Database: WA_MPL_EASTERNUS_Defn

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Ritchie Petroleum Pad	1647374.770	14292738.540	39°21'33.290"N	80°58'31.380"W
Slot	Local N (ft)	Local E (ft)	Latitude	Longitude
Slot #06	0.00	0.00	1647374.770	14292738.540
39°21'33.290"N			80°58'31.380"W	
Comment: Hopper Unit 1H				
Frontier 32 (RKB) to Mud line (At Slot: Slot #06)			32ft	
Mean Sea Level to Mud line (At Slot: Slot #06)			-1178ft	
Frontier 32 (RKB) to Mean Sea Level			1210ft	

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #06	Hopper Unit 1H	Hopper Unit 1H AWP	Hopper Unit 1H AWP Proj: 14406
Slot #06	Hopper Unit 1H	Hopper Unit 1H PWB	Hopper Unit 1H PWP Rev-A.0



Gyrodata SS Gyro <17-1/2"> (100°-325') : 0.50° Inc, 117.00ft MD, 117.00ft TVD, 0.27ft VS  
 Gyrodata SS Gyro <12-1/4"> (325°)(388°-479') : 0.65° Inc, 405.00ft MD, 404.98ft TVD, 2.98ft VS  
 Directional ONE MWD <12-1/4"> (479°)(535°-2532') : 3.40° Inc, 552.00ft MD, 551.91ft TVD, 1.50ft VS

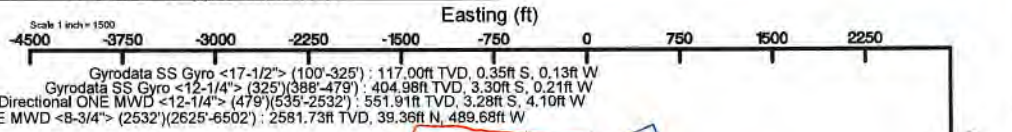
Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	8519.00	42.610	167.860	6262.06	-152.25	-1402.32	-385.81
Proj. To Bottom	6995.00	49.700	166.000	6321.60	-212.61	-1388.25	-324.59
POE	6787.58	72.025	160.000	6410.00	-363.78	-1341.07	-166.77
Landing Pt.	7012.24	90.000	152.655	6445.00	-565.90	-1252.08	53.97
On Azimuth	7275.76	90.000	157.930	6445.00	-805.21	-1141.97	317.12
BHL	14401.64	90.000	157.930	6445.00	-7408.92	1535.54	7443.00

Directional ONE MWD <8-3/4"> (2532°)(2625°-6502') : 15.92° Inc, 2642.00ft MD, 2581.73ft TVD, -220.47ft VS

API: 47-095-02388-0000  
 BH Job #: 8768124  
 Rig: Frontier 32  
 Duration: 9/23/2017-9/25/2017

BH AT Curve <8-1/2"> (6519°)(6594°-14383') : 48.68° Inc, 6594.00ft MD, 6314.47ft TVD, -332.92ft VS  
 Marcellus POE: 6797' MD : 71.69° Inc, 6797.00ft MD, 6415.81ft TVD, -159.42ft VS

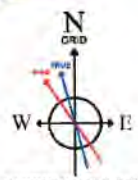
Projected MD at TD: 14406' : 89.91° Inc, 14406.00ft MD, 6467.91ft TVD, 7435.04ft VS



BH AT Curve <8-1/2"> (6519°)(6594°-14383') : 6314.47ft TVD, 204.53ft S, 1390.51ft W  
 Marcellus POE: 6797' MD : 6415.81ft TVD, 369.50ft S, 1335.61ft W

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Projected MD at TD: 14406' : 6467.91ft TVD, 7395.79ft S, 1546.75ft E BHL 62'



User specified (HDGM) Dip: 66.59° Field: 51911 nT  
 Magnetic North is 7.80 degrees West of True North (at 19/Sep/2017)  
 Grid North is 0.02 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.02 degrees  
 To correct azimuth from Magnetic to Grid subtract 7.82 degrees





# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Edsaryar
Scale	0.999600	Report Generated	28/Nov/2017 at 09:59
Convergence at slot	0.02° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Hopper_Unit_1H_AWP_Proj_14406_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W
Facility Reference Pt			1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 32 (RKB) to Facility Vertical Datum	32.00ft
Horizontal Reference Pt	Slot	Frontier 32 (RKB) to Mean Sea Level	1210.00ft
Vertical Reference Pt	Frontier 32 (RKB)	Frontier 32 (RKB) to Mud Line at Slot (Slot #06)	32.00ft
MD Reference Pt	Frontier 32 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	157.93°

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# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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]	Comments
0.00	0.00	200.460	0.00	0.00	0.00	0.00	1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W	0.00	0.000	0.00	0.00	0.00	
32.00	0.00	200.460	32.00	0.00	0.00	0.00	1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W	0.00	0.000	0.00	0.00	0.00	
117.00	0.500	200.460	117.00	0.27	-0.35	-0.13	1647374.64	14292738.19	39°21'33.287"N	80°58'31.382"W	0.37	200.460	0.59	0.59	-187.69	Gyrodata SS Gyro <17-1/2"> (100'-325')
217.00	0.460	209.600	217.00	0.84	-1.11	-0.48	1647374.29	14292737.44	39°21'33.279"N	80°58'31.386"W	1.21	203.493	0.09	-0.04	9.14	
317.00	0.790	163.270	316.99	1.78	-2.11	-0.48	1647374.29	14292736.43	39°21'33.269"N	80°58'31.386"W	2.17	192.796	0.58	0.33	-46.33	
342.00	0.910	162.950	341.99	2.15	-2.47	-0.37	1647374.40	14292736.07	39°21'33.266"N	80°58'31.385"W	2.50	188.577	0.48	0.48	-1.28	
405.00	0.650	177.390	404.98	2.98	-3.30	-0.21	1647374.56	14292735.24	39°21'33.257"N	80°58'31.383"W	3.31	183.627	0.51	-0.41	22.92	Gyrodata SS Gyro <12-1/4"> (325')(388'-479')
496.00	1.790	275.620	495.97	2.81	-3.68	-1.60	1647373.17	14292734.86	39°21'33.254"N	80°58'31.400"W	4.01	203.499	2.19	1.25	107.95	
552.00	3.400	281.060	551.91	1.50	-3.28	-4.10	1647370.67	14292735.26	39°21'33.258"N	80°58'31.432"W	5.25	231.372	2.91	2.87	9.71	Directional ONE MWD <12-1/4"> (479')(535'-2532')
613.00	5.060	280.590	612.74	-0.94	-2.44	-8.52	1647366.25	14292736.11	39°21'33.266"N	80°58'31.488"W	8.86	254.048	2.72	2.72	-0.77	
704.00	7.630	274.690	703.17	-5.83	-1.20	-18.49	1647356.29	14292737.34	39°21'33.278"N	80°58'31.615"W	18.53	266.275	2.91	2.82	-6.48	
794.00	10.190	271.750	792.08	-11.74	-0.47	-32.40	1647342.38	14292738.07	39°21'33.285"N	80°58'31.793"W	32.41	269.165	2.89	2.84	-3.27	
854.00	11.870	271.080	850.97	-16.31	-0.19	-43.88	1647330.91	14292738.35	39°21'33.288"N	80°58'31.939"W	43.88	269.747	2.81	2.80	-1.12	
944.00	13.020	275.770	938.86	-24.68	1.00	-63.22	1647311.57	14292739.54	39°21'33.300"N	80°58'32.185"W	63.23	270.906	1.70	1.28	5.21	
1032.00	14.380	275.910	1024.35	-34.44	3.12	-83.95	1647290.85	14292741.66	39°21'33.321"N	80°58'32.449"W	84.01	272.130	1.55	1.55	0.16	
1121.00	14.650	275.690	1110.51	-44.87	5.38	-106.15	1647268.67	14292743.91	39°21'33.343"N	80°58'32.731"W	106.28	272.899	0.31	0.30	-0.25	
1209.00	14.970	275.360	1195.59	-55.28	7.54	-128.54	1647246.29	14292746.08	39°21'33.365"N	80°58'33.016"W	128.76	273.358	0.38	0.36	-0.37	
1297.00	15.030	274.690	1280.59	-65.66	9.54	-151.22	1647223.61	14292748.07	39°21'33.385"N	80°58'33.305"W	151.52	273.608	0.21	0.07	-0.76	
1386.00	14.980	275.820	1366.55	-76.23	11.65	-174.17	1647200.67	14292750.18	39°21'33.406"N	80°58'33.597"W	174.56	273.825	0.33	-0.06	1.27	
1474.00	15.230	276.800	1451.51	-87.13	14.17	-196.96	1647177.89	14292752.70	39°21'33.431"N	80°58'33.887"W	197.47	274.114	0.41	0.28	1.11	
1562.00	14.310	276.940	1536.60	-97.99	16.85	-219.23	1647155.62	14292755.38	39°21'33.457"N	80°58'34.171"W	219.88	274.395	1.05	-1.05	0.16	
1651.00	13.990	277.790	1622.90	-108.68	19.64	-240.81	1647134.06	14292758.17	39°21'33.485"N	80°58'34.446"W	241.61	274.662	0.43	-0.36	0.96	
1739.00	13.800	277.260	1708.33	-119.12	22.41	-261.76	1647113.11	14292760.94	39°21'33.512"N	80°58'34.712"W	262.72	274.892	0.26	-0.22	-0.60	
1827.00	14.100	277.020	1793.73	-129.47	25.04	-282.81	1647092.07	14292763.57	39°21'33.538"N	80°58'34.980"W	283.92	275.060	0.35	0.34	-0.27	
1916.00	13.780	275.330	1880.11	-139.62	27.35	-304.12	1647070.77	14292765.88	39°21'33.561"N	80°58'35.252"W	305.35	275.139	0.58	-0.36	-1.90	
2004.00	13.310	272.590	1965.67	-148.67	28.78	-324.68	1647050.22	14292767.31	39°21'33.575"N	80°58'35.513"W	325.95	275.066	0.90	-0.53	-3.11	
2092.00	12.870	270.550	2051.38	-156.66	29.33	-344.60	1647030.31	14292767.86	39°21'33.581"N	80°58'35.767"W	345.85	274.866	0.72	-0.50	-2.32	
2181.00	15.080	272.450	2137.74	-165.28	29.92	-366.08	1647008.84	14292768.45	39°21'33.587"N	80°58'36.041"W	367.30	274.673	2.54	2.48	2.13	
2269.00	16.760	274.770	2222.36	-175.76	31.47	-390.16	1646984.76	14292770.00	39°21'33.602"N	80°58'36.347"W	391.43	274.611	2.04	1.91	2.64	
2357.00	15.960	274.670	2306.80	-186.94	33.51	-414.87	1646960.07	14292772.04	39°21'33.622"N	80°58'36.662"W	416.22	274.618	0.91	-0.91	-0.11	

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# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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]	Comments
2445.00	14.480	274.130	2391.71	-197.24	35.29	-437.90	1646937.05	14292773.81	39°21'33.640"N	80°58'36.955"W	439.32	274.607	1.69	-1.68	-0.61	
2534.00	15.260	272.910	2477.73	-207.10	36.68	-460.69	1646914.26	14292775.21	39°21'33.654"N	80°58'37.245"W	462.15	274.553	0.94	0.88	-1.37	
2549.00	15.450	274.320	2492.19	-208.82	36.93	-464.66	1646910.30	14292775.46	39°21'33.656"N	80°58'37.295"W	466.12	274.545	2.79	1.27	9.40	
2642.00	15.920	276.740	2581.73	-220.47	39.36	-489.68	1646885.29	14292777.89	39°21'33.680"N	80°58'37.614"W	491.26	274.596	0.87	0.51	2.60	Directional ONE MWD <8-3/4"> (2532')(2625'-6502')
2730.00	15.130	266.980	2666.53	-230.04	40.18	-513.14	1646861.84	14292778.70	39°21'33.688"N	80°58'37.913"W	514.71	274.477	3.10	-0.90	-11.09	
2818.00	16.320	273.800	2751.25	-239.18	40.39	-536.94	1646838.04	14292778.91	39°21'33.691"N	80°58'38.216"W	538.46	274.302	2.50	1.35	7.75	
2907.00	17.470	288.870	2836.45	-253.40	45.54	-562.08	1646812.92	14292784.06	39°21'33.742"N	80°58'38.536"W	563.92	274.632	5.07	1.29	16.93	
2998.00	17.120	285.040	2923.33	-270.43	53.44	-587.94	1646787.07	14292791.95	39°21'33.820"N	80°58'38.865"W	590.36	275.193	1.31	-0.38	-4.21	
3086.00	16.700	279.250	3007.53	-284.82	58.83	-612.93	1646762.09	14292797.35	39°21'33.873"N	80°58'39.183"W	615.74	275.482	1.97	-0.48	-6.58	
3174.00	15.880	273.830	3092.01	-296.65	61.67	-637.42	1646737.61	14292800.18	39°21'33.901"N	80°58'39.495"W	640.40	275.526	1.96	-0.93	-6.16	
3262.00	15.700	273.430	3176.69	-307.04	63.18	-661.32	1646713.72	14292801.70	39°21'33.916"N	80°58'39.799"W	664.33	275.457	0.24	-0.20	-0.45	
3351.00	15.680	273.530	3262.37	-317.42	64.64	-685.34	1646689.70	14292803.16	39°21'33.931"N	80°58'40.105"W	688.38	275.388	0.04	-0.02	0.11	
3439.00	15.780	273.020	3347.07	-327.63	66.01	-709.16	1646665.89	14292804.52	39°21'33.944"N	80°58'40.408"W	712.23	275.318	0.19	0.11	-0.58	
3527.00	17.030	274.800	3431.49	-338.53	67.71	-733.95	1646641.11	14292806.23	39°21'33.961"N	80°58'40.724"W	737.07	275.271	1.53	1.42	2.02	
3616.00	16.250	268.460	3516.77	-348.79	68.47	-759.39	1646615.69	14292806.98	39°21'33.969"N	80°58'41.048"W	762.47	275.152	2.22	-0.88	-7.12	
3704.00	14.880	277.820	3601.55	-358.74	69.68	-782.90	1646592.19	14292808.19	39°21'33.981"N	80°58'41.347"W	785.99	275.086	3.25	-1.56	10.64	
3792.00	16.470	281.750	3686.28	-371.31	73.76	-806.31	1646568.79	14292812.27	39°21'34.021"N	80°58'41.645"W	809.67	275.227	2.17	1.81	4.47	
3881.00	16.790	280.300	3771.56	-385.22	78.62	-831.30	1646543.80	14292817.13	39°21'34.069"N	80°58'41.963"W	835.01	275.403	0.59	0.36	-1.63	
3969.00	16.060	271.130	3855.98	-396.82	81.14	-855.98	1646519.13	14292819.64	39°21'34.094"N	80°58'42.277"W	859.82	275.415	3.06	-0.83	-10.42	
4057.00	15.380	265.700	3940.69	-405.18	80.50	-879.79	1646495.33	14292819.01	39°21'34.088"N	80°58'42.580"W	883.47	275.228	1.84	-0.77	-6.17	
4145.00	14.710	276.230	4025.69	-414.04	80.84	-902.54	1646472.59	14292819.35	39°21'34.091"N	80°58'42.870"W	906.15	275.118	3.19	-0.76	11.97	
4233.00	14.810	287.360	4110.81	-426.48	85.41	-924.39	1646450.75	14292823.91	39°21'34.136"N	80°58'43.148"W	928.32	275.279	3.22	0.11	12.65	
4322.00	15.530	292.860	4196.71	-442.12	93.43	-946.22	1646428.93	14292831.93	39°21'34.216"N	80°58'43.426"W	950.83	275.639	1.81	0.81	6.18	
4410.00	16.350	284.430	4281.34	-457.81	101.10	-969.08	1646406.08	14292839.59	39°21'34.292"N	80°58'43.717"W	974.34	275.956	2.79	0.93	-9.58	
4498.00	14.350	281.340	4366.19	-471.18	106.33	-991.77	1646383.40	14292844.82	39°21'34.343"N	80°58'44.006"W	997.45	276.119	2.45	-2.27	-3.51	
4587.00	13.840	278.590	4452.51	-482.68	110.09	-1013.11	1646362.07	14292848.58	39°21'34.381"N	80°58'44.278"W	1019.07	276.202	0.95	-0.57	-3.09	
4674.00	14.840	277.200	4536.80	-493.44	113.04	-1034.45	1646340.73	14292851.53	39°21'34.410"N	80°58'44.549"W	1040.61	276.236	1.22	1.15	-1.60	
4763.00	16.830	274.210	4622.42	-504.72	115.41	-1058.61	1646316.58	14292853.90	39°21'34.433"N	80°58'44.857"W	1064.88	276.222	2.42	2.24	-3.36	
4851.00	15.760	265.920	4706.90	-514.05	115.50	-1083.24	1646291.96	14292853.99	39°21'34.434"N	80°58'45.171"W	1089.38	276.086	2.91	-1.22	-9.42	
4939.00	14.700	263.780	4791.86	-520.79	113.44	-1106.26	1646268.95	14292851.93	39°21'34.414"N	80°58'45.464"W	1112.06	275.855	1.36	-1.20	-2.43	

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# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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]	Comments
5027.00	13.900	267.270	4877.08	-527.34	111.72	-1127.92	1646247.30	14292850.22	39°21'34.397"N	80°58'45.739"W	1133.44	275.657	1.34	-0.91	3.97	
5116.00	14.750	274.850	4963.32	-536.01	112.17	-1149.89	1646225.34	14292850.67	39°21'34.401"N	80°58'46.019"W	1155.35	275.572	2.31	0.96	8.52	
5204.00	16.520	273.980	5048.06	-546.58	113.99	-1173.54	1646201.71	14292852.48	39°21'34.419"N	80°58'46.320"W	1179.06	275.548	2.03	2.01	-0.99	
5293.00	18.740	268.990	5132.88	-557.27	114.61	-1200.46	1646174.79	14292853.11	39°21'34.426"N	80°58'46.663"W	1205.92	275.454	3.02	2.49	-5.61	
5381.00	18.400	269.960	5216.30	-567.56	114.35	-1228.48	1646146.78	14292852.85	39°21'34.423"N	80°58'47.020"W	1233.79	275.318	0.52	-0.39	1.10	
5469.00	16.530	274.050	5300.24	-578.29	115.23	-1254.86	1646120.41	14292853.72	39°21'34.432"N	80°58'47.355"W	1260.14	275.247	2.54	-2.12	4.65	
5557.00	15.780	269.620	5384.77	-588.22	116.03	-1279.31	1646095.97	14292854.53	39°21'34.440"N	80°58'47.667"W	1284.57	275.183	1.64	-0.85	-5.03	
5645.00	16.060	274.870	5469.40	-598.16	116.99	-1303.41	1646071.89	14292855.48	39°21'34.449"N	80°58'47.974"W	1308.65	275.129	1.67	0.32	5.97	
5734.00	15.110	277.510	5555.13	-609.46	119.55	-1327.18	1646048.13	14292858.04	39°21'34.475"N	80°58'48.276"W	1332.55	275.147	1.33	-1.07	2.97	
5778.00	14.730	275.070	5597.64	-614.84	120.79	-1338.43	1646036.87	14292859.28	39°21'34.487"N	80°58'48.419"W	1343.87	275.157	1.67	-0.86	-5.55	
5822.00	13.590	266.910	5640.31	-619.08	121.01	-1349.17	1646026.14	14292859.50	39°21'34.489"N	80°58'48.556"W	1354.59	275.125	5.22	-2.59	-18.55	
5866.00	13.460	248.090	5683.11	-620.77	118.82	-1359.09	1646016.23	14292857.31	39°21'34.468"N	80°58'48.682"W	1364.27	274.996	9.97	-0.30	-42.77	
5910.00	16.940	233.280	5725.58	-619.17	113.07	-1368.88	1646006.34	14292851.57	39°21'34.411"N	80°58'48.808"W	1373.64	274.722	11.79	7.91	-33.66	
5954.00	18.370	221.270	5767.52	-614.43	104.02	-1378.70	1645996.63	14292842.52	39°21'34.321"N	80°58'48.932"W	1382.62	274.315	8.87	3.25	-27.30	
5999.00	19.810	211.220	5810.06	-606.69	92.17	-1387.33	1645988.00	14292830.67	39°21'34.204"N	80°58'49.042"W	1390.39	273.801	7.96	3.20	-22.33	
6043.00	20.990	202.680	5851.31	-596.63	78.52	-1394.24	1645981.09	14292817.03	39°21'34.069"N	80°58'49.130"W	1396.44	273.223	7.27	2.68	-19.41	
6087.00	21.800	194.810	5892.28	-584.50	63.35	-1399.36	1645975.97	14292801.86	39°21'33.919"N	80°58'49.195"W	1400.80	272.592	6.77	1.84	-17.89	
6131.00	21.980	187.080	5933.12	-570.77	47.27	-1402.47	1645972.87	14292785.79	39°21'33.761"N	80°58'49.235"W	1403.26	271.930	6.56	0.41	-17.57	
6175.00	22.750	184.370	5973.81	-555.96	30.62	-1404.13	1645971.20	14292769.14	39°21'33.596"N	80°58'49.256"W	1404.46	271.249	2.92	1.75	-6.16	
6219.00	24.080	183.930	6014.19	-540.27	13.18	-1405.39	1645969.94	14292751.71	39°21'33.424"N	80°58'49.272"W	1405.46	270.537	3.05	3.02	-1.00	
6263.00	27.070	186.540	6053.87	-523.41	-5.73	-1407.15	1645968.19	14292732.81	39°21'33.237"N	80°58'49.295"W	1407.16	269.767	7.26	6.80	5.93	
6307.00	30.510	186.950	6092.43	-504.85	-26.77	-1409.64	1645965.69	14292711.78	39°21'33.029"N	80°58'49.326"W	1409.90	268.912	7.83	7.82	0.93	
6352.00	32.920	184.520	6130.71	-483.92	-50.30	-1411.99	1645963.35	14292688.26	39°21'32.796"N	80°58'49.356"W	1412.88	267.960	6.06	5.36	-5.40	
6396.00	35.570	178.380	6167.09	-461.23	-75.03	-1412.57	1645962.77	14292663.54	39°21'32.552"N	80°58'49.364"W	1414.56	266.960	9.89	6.02	-13.95	
6440.00	38.410	174.160	6202.23	-436.11	-101.42	-1410.82	1645964.52	14292637.16	39°21'32.291"N	80°58'49.342"W	1414.46	265.888	8.65	6.45	-9.59	
6484.00	41.250	169.800	6236.03	-408.78	-129.31	-1406.86	1645968.48	14292609.28	39°21'32.015"N	80°58'49.291"W	1412.79	264.748	9.05	6.45	-9.91	
6519.00	42.610	167.860	6262.06	-385.84	-152.25	-1402.32	1645973.01	14292586.35	39°21'31.789"N	80°58'49.234"W	1410.56	263.804	5.37	3.89	-5.54	
6575.00†	47.141	166.995	6301.74	-346.88	-190.80	-1393.71	1645981.62	14292547.81	39°21'31.408"N	80°58'49.124"W	1406.71	262.205	8.16	8.09	-1.54	Middlesex: 6575' MD
6594.00	48.680	166.730	6314.43	-332.92	-204.53	-1390.51	1645984.82	14292534.09	39°21'31.272"N	80°58'49.083"W	1405.47	261.632	8.16	8.10	-1.39	BH AT Curve <8-1/2"> (6519')(6594'-14383')
6598.00	48.830	166.690	6317.11	-329.95	-207.46	-1389.81	1645985.51	14292531.16	39°21'31.243"N	80°58'49.074"W	1405.21	261.510	3.82	3.75	-1.00	

Department of  
 Environmental Protection  
 2023  
 and Gas





# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 stations) † = interpolated/extrapolated station																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]	
6645.00	52.520	164.220	6346.89	-293.91	-242.64	-1380.67	1645994.66	14292496.00	39°21'30.895"N	80°58'48.958"W	1401.82	260.033	8.84	7.85	-5.26	
6694.00	59.660	159.860	6374.22	-253.39	-281.26	-1368.08	1646007.24	14292457.39	39°21'30.513"N	80°58'48.798"W	1396.69	258.383	16.33	14.57	-8.90	
6736.00†	65.317	159.420	6393.61	-216.17	-316.17	-1355.12	1646020.20	14292422.50	39°21'30.168"N	80°58'48.633"W	1391.51	256.867	13.50	13.47	-1.05	Burkett: 6736' MD
6741.00	65.990	159.370	6395.68	-211.62	-320.43	-1353.52	1646021.80	14292418.24	39°21'30.126"N	80°58'48.613"W	1390.93	256.681	13.50	13.47	-0.99	
6781.00†	70.198	160.191	6410.60	-174.53	-355.25	-1340.70	1646034.61	14292383.43	39°21'29.782"N	80°58'48.450"W	1386.96	255.159	10.69	10.52	2.05	fully: 6781' MD
6789.00	71.040	160.350	6413.25	-166.99	-362.35	-1338.15	1646037.16	14292376.33	39°21'29.712"N	80°58'48.417"W	1386.34	254.848	10.69	10.53	1.98	
6797.00†	71.692	160.523	6415.81	-159.42	-369.50	-1335.61	1646039.70	14292369.19	39°21'29.641"N	80°58'48.385"W	1385.78	254.536	8.40	8.14	2.16	Marcellus POE: 6797' MD
6836.00	74.870	161.350	6427.03	-122.13	-404.79	-1323.42	1646051.89	14292333.91	39°21'29.292"N	80°58'48.230"W	1383.94	252.993	8.40	8.15	2.12	
6884.00	79.360	161.220	6437.73	-75.43	-449.10	-1308.40	1646066.89	14292289.62	39°21'28.854"N	80°58'48.039"W	1383.33	251.056	9.36	9.35	-0.27	
6931.00	83.180	160.840	6444.86	-29.05	-493.02	-1293.31	1646081.98	14292245.71	39°21'28.420"N	80°58'47.847"W	1384.09	249.133	8.17	8.13	-0.81	
6978.00	87.010	160.010	6448.88	17.73	-537.14	-1277.62	1646097.66	14292201.62	39°21'27.984"N	80°58'47.647"W	1385.94	247.197	8.34	8.15	-1.77	
7025.00	89.910	157.500	6450.14	64.70	-580.92	-1260.60	1646114.68	14292157.86	39°21'27.551"N	80°58'47.430"W	1388.01	245.258	8.16	6.17	-5.34	
7074.00	90.710	155.440	6449.87	113.68	-625.84	-1241.04	1646134.23	14292112.95	39°21'27.107"N	80°58'47.182"W	1389.91	243.239	4.51	1.63	-4.20	
7170.00	90.280	155.840	6449.05	209.60	-713.29	-1201.44	1646173.81	14292025.54	39°21'26.243"N	80°58'46.678"W	1397.23	239.303	0.61	-0.45	0.42	
7264.00	90.340	154.920	6448.54	303.50	-798.74	-1162.28	1646212.96	14291940.12	39°21'25.398"N	80°58'46.179"W	1410.28	235.502	0.98	0.06	-0.98	
7360.00	90.310	155.600	6447.99	399.39	-885.93	-1122.11	1646253.12	14291852.97	39°21'24.537"N	80°58'45.668"W	1429.68	231.708	0.71	-0.03	0.71	
7455.00	90.280	156.980	6447.50	494.35	-972.91	-1083.91	1646291.30	14291766.02	39°21'23.677"N	80°58'45.182"W	1456.50	228.089	1.45	-0.03	1.45	
7551.00	90.340	156.580	6446.98	590.33	-1061.13	-1046.06	1646329.13	14291677.84	39°21'22.805"N	80°58'44.701"W	1490.05	224.590	0.42	0.06	-0.42	
7644.00	90.370	157.610	6446.41	683.32	-1146.79	-1009.86	1646365.31	14291592.21	39°21'21.958"N	80°58'44.240"W	1528.06	221.367	1.11	0.03	1.11	
7739.00	90.220	157.350	6445.92	778.31	-1234.55	-973.48	1646401.68	14291504.49	39°21'21.091"N	80°58'43.777"W	1572.19	218.257	0.32	-0.16	-0.27	
7834.00	90.090	153.650	6445.66	873.21	-1320.98	-934.09	1646441.06	14291418.09	39°21'20.236"N	80°58'43.276"W	1617.87	215.265	3.90	-0.14	-3.89	
7928.00	90.000	151.460	6445.59	966.79	-1404.39	-890.77	1646484.36	14291334.71	39°21'19.412"N	80°58'42.725"W	1663.07	212.386	2.33	-0.10	-2.33	
8024.00	89.600	157.550	6445.92	1062.57	-1491.01	-849.47	1646525.64	14291248.13	39°21'18.556"N	80°58'42.199"W	1716.01	209.671	6.36	-0.42	6.34	
8119.00	91.970	162.110	6444.62	1157.48	-1580.14	-816.72	1646558.38	14291159.03	39°21'17.675"N	80°58'41.783"W	1778.73	207.333	5.41	2.49	4.80	
8214.00	90.710	155.950	6442.40	1252.39	-1668.78	-782.75	1646592.34	14291070.43	39°21'16.798"N	80°58'41.350"W	1843.24	205.129	6.62	-1.33	-6.48	
8309.00	90.120	156.330	6441.71	1347.34	-1755.66	-744.32	1646630.75	14290983.59	39°21'15.940"N	80°58'40.861"W	1906.92	202.975	0.74	-0.62	0.40	
8405.00	91.050	160.110	6440.73	1443.32	-1844.78	-708.71	1646666.34	14290894.50	39°21'15.059"N	80°58'40.408"W	1976.23	201.015	4.05	0.97	3.94	
8499.00	92.340	158.750	6437.95	1537.24	-1932.75	-675.70	1646699.34	14290806.57	39°21'14.189"N	80°58'39.988"W	2047.46	199.270	1.99	1.37	-1.45	
8594.00	90.060	149.580	6435.95	1631.91	-2018.14	-634.35	1646740.67	14290721.22	39°21'13.345"N	80°58'39.462"W	2115.48	197.449	9.94	-2.40	-9.65	
8689.00	91.540	152.830	6434.63	1726.23	-2101.37	-588.61	1646786.40	14290638.02	39°21'12.522"N	80°58'38.880"W	2182.25	195.648	3.76	1.56	3.42	

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# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	["/100ft]	["/100ft]	["/100ft]	
8784.00	91.140	157.570	6432.40	1821.07	-2187.56	-548.78	1646826.21	14290551.86	39°21'11.670"N	80°58'38.374"W	2255.34	194.083	5.01	-0.42	4.99	
8879.00	89.880	155.200	6431.56	1916.02	-2274.59	-510.73	1646864.25	14290464.86	39°21'10.810"N	80°58'37.889"W	2331.22	192.655	2.83	-1.33	-2.49	
8974.00	89.940	156.850	6431.71	2010.96	-2361.39	-472.13	1646902.83	14290378.10	39°21'09.952"N	80°58'37.398"W	2408.13	191.306	1.74	0.06	1.74	
9069.00	89.290	158.510	6432.35	2105.96	-2449.27	-436.05	1646938.89	14290290.26	39°21'09.083"N	80°58'36.939"W	2487.78	190.095	1.88	-0.68	1.75	
9164.00	89.510	161.380	6433.34	2200.88	-2538.49	-403.48	1646971.45	14290201.07	39°21'08.202"N	80°58'36.525"W	2570.36	189.031	3.03	0.23	3.02	
9259.00	87.140	156.630	6436.12	2295.79	-2627.12	-369.47	1647005.45	14290112.48	39°21'07.326"N	80°58'36.092"W	2652.97	188.005	5.59	-2.49	-5.00	
9354.00	87.690	157.800	6440.40	2390.69	-2714.61	-332.72	1647042.18	14290025.02	39°21'06.461"N	80°58'35.625"W	2734.93	186.988	1.36	0.58	1.23	
9449.00	87.810	159.870	6444.13	2485.59	-2803.13	-298.45	1647076.44	14289936.54	39°21'05.586"N	80°58'35.189"W	2818.97	186.077	2.18	0.13	2.18	
9544.00	87.750	160.810	6447.81	2580.44	-2892.53	-266.51	1647108.37	14289847.18	39°21'04.702"N	80°58'34.783"W	2904.78	185.264	0.99	-0.06	0.99	
9640.00	87.810	157.480	6451.53	2676.33	-2982.16	-232.36	1647142.50	14289757.58	39°21'03.816"N	80°58'34.348"W	2991.19	184.455	3.47	0.06	-3.47	
9735.00	88.830	157.760	6454.32	2771.29	-3069.96	-196.21	1647178.64	14289669.81	39°21'02.948"N	80°58'33.888"W	3076.22	183.657	1.11	1.07	0.29	
9830.00	88.920	159.550	6456.19	2866.26	-3158.42	-161.64	1647213.20	14289581.39	39°21'02.074"N	80°58'33.449"W	3162.56	182.930	1.89	0.09	1.88	
9925.00	89.450	161.290	6457.54	2961.15	-3247.92	-129.81	1647245.02	14289491.93	39°21'01.189"N	80°58'33.044"W	3250.51	182.289	1.91	0.56	1.83	
10020.00	89.480	160.630	6458.42	3056.02	-3337.72	-98.82	1647275.99	14289402.17	39°21'00.302"N	80°58'32.649"W	3339.18	181.696	0.70	0.03	-0.69	
10115.00	89.540	159.720	6459.24	3150.94	-3427.08	-66.60	1647308.20	14289312.84	39°20'59.418"N	80°58'32.240"W	3427.73	181.113	0.96	0.06	-0.96	
10210.00	89.450	159.110	6460.07	3245.90	-3516.01	-33.20	1647341.58	14289223.94	39°20'58.539"N	80°58'31.815"W	3516.17	180.541	0.65	-0.09	-0.64	
10305.00	89.480	158.690	6460.96	3340.89	-3604.64	1.00	1647375.77	14289135.35	39°20'57.663"N	80°58'31.380"W	3604.64	179.984	0.44	0.03	-0.44	
10401.00	89.380	163.810	6461.92	3436.69	-3695.51	31.85	1647406.60	14289044.52	39°20'56.765"N	80°58'30.987"W	3695.65	179.506	5.33	-0.10	5.33	
10496.00	90.310	161.280	6462.17	3531.37	-3786.13	60.34	1647435.08	14288953.94	39°20'55.869"N	80°58'30.625"W	3786.61	179.087	2.84	0.98	-2.66	
10591.00	89.690	156.810	6462.17	3626.33	-3874.82	94.31	1647469.04	14288865.28	39°20'54.992"N	80°58'30.193"W	3875.97	178.606	4.75	-0.65	-4.71	
10686.00	89.630	152.940	6462.74	3721.17	-3960.81	134.63	1647509.35	14288779.32	39°20'54.142"N	80°58'29.680"W	3963.10	178.053	4.07	-0.06	-4.07	
10782.00	89.540	151.970	6463.43	3816.73	-4045.93	179.03	1647553.72	14288694.24	39°20'53.301"N	80°58'29.115"W	4049.89	177.466	1.01	-0.09	-1.01	
10876.00	89.290	150.560	6464.39	3910.09	-4128.35	224.21	1647598.89	14288611.85	39°20'52.486"N	80°58'28.540"W	4134.43	176.891	1.52	-0.27	-1.50	
10971.00	89.350	154.980	6465.52	4004.67	-4212.79	267.67	1647642.33	14288527.44	39°20'51.652"N	80°58'27.987"W	4221.29	176.364	4.65	0.06	4.65	
11066.00	89.660	156.270	6466.34	4099.59	-4299.32	306.87	1647681.52	14288440.95	39°20'50.796"N	80°58'27.489"W	4310.26	175.917	1.40	0.33	1.36	
11161.00	90.120	158.000	6466.52	4194.58	-4386.85	343.79	1647718.42	14288353.45	39°20'49.931"N	80°58'27.019"W	4400.30	175.519	1.88	0.48	1.82	
11256.00	89.660	156.200	6466.71	4289.56	-4474.36	380.75	1647755.37	14288265.98	39°20'49.066"N	80°58'26.549"W	4490.53	175.136	1.96	-0.48	-1.89	
11351.00	90.340	159.240	6466.71	4384.55	-4562.25	416.76	1647791.37	14288178.12	39°20'48.197"N	80°58'26.091"W	4581.25	174.780	3.28	0.72	3.20	
11445.00	90.220	159.020	6466.25	4478.53	-4650.09	450.25	1647824.84	14288090.32	39°20'47.329"N	80°58'25.665"W	4671.83	174.470	0.27	-0.13	-0.23	
11540.00	89.320	158.760	6466.63	4573.52	-4738.71	484.47	1647859.05	14288001.74	39°20'46.453"N	80°58'25.230"W	4763.41	174.163	0.99	-0.95	-0.28	

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# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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]	Comments
11634.00	90.220	160.180	6467.01	4667.48	-4826.73	517.44	1647892.01	14287913.75	39°20'45.583"N	80°58'24.810"W	4854.39	173.881	1.80	0.96	1.52	
11729.00	90.310	159.560	6466.57	4762.42	-4915.92	550.14	1647924.69	14287824.59	39°20'44.701"N	80°58'24.395"W	4946.61	173.615	0.66	0.09	-0.65	
11825.00	89.380	156.370	6466.83	4858.41	-5004.90	586.15	1647960.68	14287735.65	39°20'43.822"N	80°58'23.936"W	5039.11	173.320	3.46	-0.97	-3.32	
11920.00	89.230	155.120	6467.98	4953.33	-5091.51	625.17	1647999.69	14287649.08	39°20'42.966"N	80°58'23.440"W	5129.74	173.000	1.33	-0.16	-1.32	
12015.00	90.580	162.000	6468.14	5048.26	-5179.88	659.88	1648034.38	14287560.75	39°20'42.092"N	80°58'22.999"W	5221.74	172.740	7.38	1.42	7.24	
12110.00	91.020	162.970	6466.81	5142.95	-5270.46	688.46	1648062.96	14287470.20	39°20'41.197"N	80°58'22.635"W	5315.24	172.558	1.12	0.46	1.02	
12205.00	89.940	157.110	6466.01	5237.84	-5359.71	720.88	1648095.36	14287380.98	39°20'40.315"N	80°58'22.223"W	5407.97	172.340	6.27	-1.14	-6.17	
12299.00	89.880	155.540	6466.16	5331.80	-5445.80	758.62	1648133.09	14287294.93	39°20'39.464"N	80°58'21.743"W	5498.38	172.070	1.67	-0.06	-1.67	
12394.00	90.000	159.320	6466.26	5426.78	-5533.51	795.08	1648169.53	14287207.26	39°20'38.597"N	80°58'21.279"W	5590.33	171.823	3.98	0.13	3.98	
12489.00	89.910	161.150	6466.33	5521.70	-5622.91	827.20	1648201.64	14287117.89	39°20'37.713"N	80°58'20.871"W	5683.43	171.631	1.93	-0.09	1.93	
12584.00	89.850	163.570	6466.53	5616.41	-5713.43	855.99	1648230.41	14287027.40	39°20'36.818"N	80°58'20.505"W	5777.20	171.479	2.55	-0.06	2.55	
12679.00	89.910	162.300	6466.73	5711.05	-5804.25	883.86	1648258.28	14286936.63	39°20'35.920"N	80°58'20.150"W	5871.16	171.342	1.34	0.06	-1.34	
12774.00	89.940	160.620	6466.86	5805.86	-5894.31	914.07	1648288.47	14286846.60	39°20'35.030"N	80°58'19.766"W	5964.77	171.185	1.77	0.03	-1.77	
12869.00	89.970	157.940	6466.93	5900.83	-5983.16	947.68	1648322.07	14286757.78	39°20'34.152"N	80°58'19.339"W	6057.75	171.000	2.82	0.03	-2.82	
12964.00	89.780	157.090	6467.14	5995.82	-6070.94	984.01	1648358.38	14286670.04	39°20'33.284"N	80°58'18.876"W	6150.17	170.793	0.92	-0.20	-0.89	
13059.00	89.970	159.280	6467.35	6090.82	-6159.13	1019.31	1648393.67	14286581.89	39°20'32.413"N	80°58'18.428"W	6242.91	170.603	2.31	0.20	2.31	
13154.00	89.880	161.210	6467.47	6185.73	-6248.53	1051.42	1648425.77	14286492.52	39°20'31.529"N	80°58'18.019"W	6336.38	170.449	2.03	-0.09	2.03	
13248.00	89.940	162.890	6467.62	6279.49	-6337.95	1080.39	1648454.72	14286403.13	39°20'30.645"N	80°58'17.651"W	6429.38	170.326	1.79	0.06	1.79	
13343.00	90.490	160.850	6467.26	6374.26	-6428.23	1109.95	1648484.27	14286312.89	39°20'29.753"N	80°58'17.275"W	6523.35	170.203	2.22	0.58	-2.15	
13438.00	90.980	153.000	6466.04	6469.16	-6515.56	1147.15	1648521.46	14286225.60	39°20'28.889"N	80°58'16.802"W	6615.77	170.015	8.28	0.52	-8.26	
13533.00	89.780	149.140	6465.41	6563.46	-6598.68	1193.09	1648567.38	14286142.51	39°20'28.068"N	80°58'16.217"W	6705.68	169.751	4.25	-1.26	-4.06	
13628.00	89.880	151.610	6465.69	6657.63	-6681.26	1240.05	1648614.32	14286059.97	39°20'27.251"N	80°58'15.620"W	6795.36	169.485	2.60	0.11	2.60	
13723.00	89.230	157.760	6466.43	6752.43	-6767.09	1280.65	1648654.91	14285974.17	39°20'26.403"N	80°58'15.104"W	6887.20	169.284	6.51	-0.68	6.47	
13818.00	89.940	160.510	6467.12	6847.39	-6855.85	1314.48	1648688.72	14285885.45	39°20'25.525"N	80°58'14.673"W	6980.73	169.146	2.99	0.75	2.89	
13913.00	89.910	155.840	6467.24	6942.36	-6944.01	1349.79	1648724.02	14285797.32	39°20'24.654"N	80°58'14.224"W	7073.99	169.000	4.92	-0.03	-4.92	
14009.00	89.970	155.620	6467.34	7038.29	-7031.53	1389.25	1648763.46	14285709.84	39°20'23.789"N	80°58'13.723"W	7167.46	168.824	0.24	0.06	-0.23	
14104.00	89.940	155.000	6467.42	7133.19	-7117.84	1428.93	1648803.13	14285623.56	39°20'22.936"N	80°58'13.218"W	7259.86	168.649	0.65	-0.03	-0.65	
14199.00	89.940	155.890	6467.52	7228.10	-7204.25	1468.41	1648842.59	14285537.18	39°20'22.081"N	80°58'12.716"W	7352.38	168.479	0.94	0.00	0.94	
14294.00	89.850	157.050	6467.69	7323.07	-7291.35	1506.34	1648880.50	14285450.12	39°20'21.221"N	80°58'12.233"W	7445.32	168.327	1.22	-0.09	1.22	
14383.00	89.910	160.300	6467.88	7417.06	-7374.17	1538.89	1648913.05	14285367.33	39°20'20.402"N	80°58'11.819"W	7533.03	168.212	3.35	0.07	3.35	

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# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

## WELLPATH DATA (181 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]	Comments
14406.00	89.910	160.030	6467.91	7435.04	-7395.79	1546.75	1648920.90	14285345.72	39°20'20.188"N	80°58'11.720"W	7555.80	168.187	0.00	0.00	0.00	Projected MD at TD: 14406'

## HOLE & CASING SECTIONS - Ref Wellbore: Hopper Unit 1H AWB Ref Wellpath: Hopper Unit 1H AWP Proj: 14406'

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]
20in Conductor	32.00	112.00	80.00	32.00	112.00	0.00	0.00	-0.31	-0.11
17.5in Open Hole	112.00	373.40	261.40	112.00	373.38	-0.31	-0.11	-2.92	-0.26
13.375in Casing Surface	32.00	373.40	341.40	32.00	373.38	0.00	0.00	-2.92	-0.26
12.25in Open Hole	373.40	2621.60	2248.20	373.38	2562.11	-2.92	-0.26	38.73	-484.14
9.625in Casing Intermediate	32.00	2621.60	2589.60	32.00	2562.11	0.00	0.00	38.73	-484.14
8.75in Open Hole	2621.60	6605.00	3983.40	2562.11	6321.69	38.73	-484.14	-212.60	-1388.58
8.5in Open Hole	6605.00	14406.00	7801.00	6321.69	6467.91	-212.60	-1388.58	-7395.79	1546.75
5.5in Casing Production	32.00	14406.00	14374.00	32.00	6467.91	0.00	0.00	-7395.79	1546.75

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Hopper Unit 1H POE - Rev-2	6410.00	-363.78	-1341.07	1646034.24	14292374.90	39°21'29.698"N	80°58'48.454"W	point
Hopper Unit 1H BHL - Rev-2	6445.00	-7408.92	1535.54	1648909.69	14285332.59	39°20'20.058"N	80°58'11.862"W	point
Hopper Unit 1H LP - Rev-2	6445.00	-565.90	-1252.08	1646123.19	14292172.87	39°21'27.700"N	80°58'47.322"W	point

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# Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH COMPOSITION - Ref Wellbore: Hopper Unit 1H AWB Ref Wellpath: Hopper Unit 1H AWP Proj: 14406'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
32.00	342.00	Gyrodata standard - Single-shot	01_Gyrodata SS Gyro <17-1/2">(100'-325')	Hopper Unit 1H AWB
342.00	496.00	Gyrodata standard - Single-shot	02_Gyrodata SS Gyro <12-1/4">(325')(388'-479')	Hopper Unit 1H AWB
496.00	2549.00	ISCWSA MWD, Rev. 4 (Standard)	03_Directional ONE MWD <12-1/4">(479')(535'-2532')	Hopper Unit 1H AWB
2549.00	6519.00	ISCWSA MWD, Rev. 4 (Standard)	04_Directional ONE MWD <8-3/4">(2532')(2625'-6502')	Hopper Unit 1H AWB
6519.00	14383.00	BHI AutoTrak Curve (Short)	05_BHI AT Curve <8-1/2">(6519')(6594'-14383')	Hopper Unit 1H AWB
14383.00	14406.00	Blind Drilling (std)	Projection to bit	Hopper Unit 1H AWB

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Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

COMMENTS
<p><b>Wellpath general comments</b> API: 47-095-02388-0000 BH Job #: 8768124 Rig: Frontier 32 Duration: 9/23/2017-9/25/2017 Gyrodata SS Gyro &lt;17-1/2"&gt; (100'-325') Gyrodata SS Gyro &lt;12-1/4"&gt; (325')(388'-479') Directional ONE MWD &lt;12-1/4"&gt; (479')(535'-2532') Directional ONE MWD &lt;8-3/4"&gt; (2532')(2625'-6502') BH AT Curve &lt;8-1/2"&gt; (6519')(6594'-14383') Middlesex: 6575' MD Burkett: 6736' MD Tully: 6781' MD Marcellus POE: 6797' MD Projected MD at TD: 14406'</p>

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