

# ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV

Slot: Slot #04

Field: Ritchie Well: Master Unit 1H

Facility: Lettie Pad Wellbore: Master Unit 1H PWB

Plot reference wellpath is Master Unit 1H PWB Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to H&P 317 (RKB)	North Reference: Grid north
Measured depths are referenced to H&P 317 (RKB)	Scale: True distance
H&P 317 (RKB) to Mean Sea Level: 995.5 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #04): -970 feet	Created by: dfeasant on 2018-12-10
Coordinates are in feet referenced to Slot	Database: WA, MPL, EasternUS, Dwin

## Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Lettie Pad	1665674.089	14294790.024	39°21'53.460"N	80°54'38.290"W
Slot #04	1665694.502	14294789.033	39°21'53.450"N	80°54'38.030"W

Comment	Master Unit 1H	25.5ft
H&P 317 (RKB) to Ground level (At Slot: Slot #04)		-970ft
Mean Sea Level to Ground level (At Slot: Slot #04)		995.5ft

Slot	Well	Wellbore	Wellpath
Slot #04	Master Unit 1H	Master Unit 1H AWP	Master Unit 1H AWP Proj. 17443
Slot #04	Master Unit 1H	Master Unit 1H PWB	Master Unit 1H PWB Rev-A.0

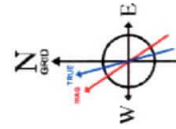


### Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (/100ft)	VS (ft)
Top On	5958.50	25.930	307.780	5977.66	-522.54	-424.02	7.43	-348.42
Proj. to Bottom	6032.50	29.940	309.050	5943.02	-500.98	-451.16	5.48	-318.96
End of 3D Arc	6154.56	34.496	320.279	6046.36	-455.14	-486.97	6.15	-260.33
POE	6642.74	75.440	329.000	6321.00	-132.06	-716.67	8.50	118.01
Landing Pt.	6924.74	90.000	329.000	6344.00	22.27	-809.40	8.00	294.60
On Azimuth	7199.38	90.000	340.240	6344.00	360.21	-969.73	3.00	666.85
BHL	17464.39	90.000	340.240	6344.00	10020.75	-4440.21	0.00	10931.85

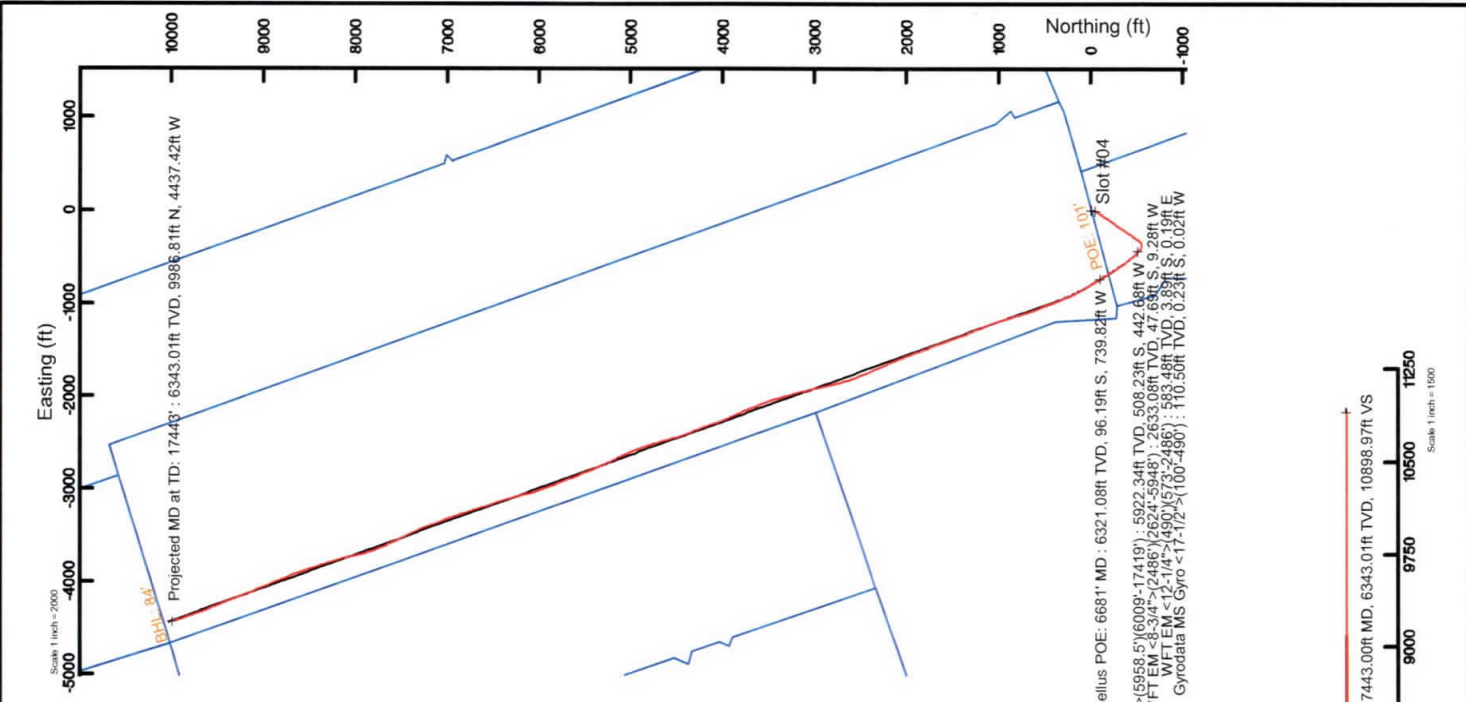
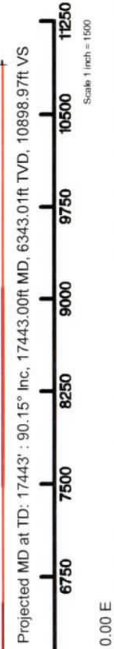
H&P 317 (RKB) to Ground level (At Slot: Slot #04): 0.70° Inc, 2634.50ft MD, 2633.08ft TVD, -41.74ft VS

API: 47-085-10360-0000  
 BHI Job #: 109523463  
 Rig: H&P 317  
 Duration: 12/02/2018-12/04/2018



User specified (HDGM) Dip: 66.49° Field: 51838.0T  
 Magnetic North is 7.66 degrees West of True North (at 20/Nov/2018)  
 Grid North is 0.06 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.06 degrees  
 To correct azimuth from Magnetic to Grid subtract 7.72 degrees

BH AT Curve <8-1/2°>(5958.5)(6009-17419) : 29.60° Inc, 6009.00ft MD, 5922.34ft TVD, -328.64ft VS  
 Marcellus POE: 6681° MD : 78.12° Inc, 6681.00ft MD, 6321.08ft TVD, 159.59ft VS





# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Ritchie County, WV
Field	Ritchie
Facility	Lettie Pad
Slot	Slot #04
Well	Master Unit 1H
Wellbore	Master Unit 1H AWB

REPORT SETUP INFORMATION	
Projection System	NAD27 / UTM Zone 17 North, US feet
North Reference	Grid
Scale	0.999601
Convergence at slot	0.06° East
Software System	WellIArchitect® 5.1
User	Delaset
Report Generated	10/Dec/2018 at 14:35
Database/Source file	WA_MPL_EasternUS_Defm/Master_Unit_1H_AWP_Proj_17443_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.99	20.42	1665694.50	14294789.03	39°21'53.450"N	80°54'38.030"W
Facility Reference Pt			1665674.09	14294790.02	39°21'53.460"N	80°54'38.290"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM	
Calculation method	H&P 317 (RKB) to Facility Vertical Datum
Horizontal Reference Pt	H&P 317 (RKB) to Mean Sea Level
Vertical Reference Pt	H&P 317 (RKB) to Ground Level at Slot (Slot #04)
MD Reference Pt	Section Origin
Field Vertical Reference	Section Azimuth
	25.50ft
	995.50ft
	25.50ft
	N 0.00, E 0.00 ft
	340.24°

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'  
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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Ritchie County, WV
Field	Ritchie
Facility	Lettie Pad
Slot	Slot #04
Well	Master Unit 1H
Wellbore	Master Unit 1H AWB

WELLPATH DATA (219 stations) + = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert.Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude (°)	Longitude (°)	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
0.00	0.000	184.870	0.00	0.00	0.00	0.00	1665694.50	14294789.03	39°21'53.450"N	80°54'38.030"W	0.00	0.000	0.00	0.00	0.00	
25.50	0.000	184.870	25.50	0.00	0.00	0.00	1665694.50	14294789.03	39°21'53.450"N	80°54'38.030"W	0.00	0.000	0.00	0.00	0.00	
110.50	0.310	184.870	110.50	-0.21	-0.23	-0.02	1665694.48	14294789.80	39°21'53.448"N	80°54'38.030"W	0.23	184.870	0.36	0.36	0.36	-206.04 Gyrodota MS Gyro <17.1/2">(100'-490')
135.50	0.370	193.690	135.50	-0.34	-0.37	-0.04	1665694.46	14294788.66	39°21'53.446"N	80°54'38.031"W	0.38	186.749	0.32	0.24	0.24	35.28
160.50	0.430	182.690	160.50	-0.49	-0.55	-0.07	1665694.43	14294788.47	39°21'53.445"N	80°54'38.031"W	0.55	187.072	0.39	0.24	0.24	-44.00
185.50	0.560	175.870	185.50	-0.70	-0.76	-0.06	1665694.44	14294788.29	39°21'53.442"N	80°54'38.031"W	0.77	184.758	0.57	0.52	0.52	-27.28
210.50	0.580	183.470	210.50	-0.93	-1.01	-0.06	1665694.44	14294788.02	39°21'53.440"N	80°54'38.031"W	1.01	183.529	0.31	0.08	0.08	30.40
235.50	0.670	173.870	235.49	-1.19	-1.28	-0.05	1665694.45	14294787.75	39°21'53.437"N	80°54'38.031"W	1.28	182.428	0.55	0.36	0.36	-38.40
260.50	0.380	179.610	260.49	-1.41	-1.51	-0.04	1665694.46	14294787.52	39°21'53.435"N	80°54'38.031"W	1.51	181.449	1.18	-0.16	-0.16	22.96
285.50	0.340	173.180	285.49	-1.56	-1.67	-0.03	1665694.47	14294787.37	39°21'53.434"N	80°54'38.030"W	1.67	180.991	0.23	-0.16	-0.16	-25.72
310.50	0.480	164.180	310.49	-1.74	-1.84	0.01	1665694.51	14294787.19	39°21'53.432"N	80°54'38.030"W	1.84	179.735	0.61	0.56	0.56	-36.00
335.50	0.470	177.090	335.49	-1.94	-2.04	0.04	1665694.54	14294786.99	39°21'53.430"N	80°54'38.029"W	2.05	178.816	0.43	-0.04	-0.04	51.64
360.50	0.400	180.420	360.49	-2.12	-2.23	0.05	1665694.55	14294786.80	39°21'53.428"N	80°54'38.029"W	2.23	178.799	0.30	0.00	0.00	13.32
385.50	0.400	187.720	385.49	-2.28	-2.41	0.03	1665694.54	14294786.63	39°21'53.426"N	80°54'38.030"W	2.41	179.180	0.20	0.00	0.00	29.20
410.50	0.440	180.310	410.49	-2.45	-2.59	0.02	1665694.52	14294786.44	39°21'53.424"N	80°54'38.030"W	2.59	179.508	0.27	0.16	0.16	-29.64
435.50	0.460	176.240	435.49	-2.63	-2.79	0.03	1665694.53	14294786.25	39°21'53.422"N	80°54'38.030"W	2.79	179.418	0.15	0.08	0.08	-16.28
460.50	0.430	184.430	460.49	-2.81	-2.98	0.03	1665694.53	14294786.05	39°21'53.421"N	80°54'38.030"W	2.98	179.469	0.28	-0.12	-0.12	32.76
485.50	0.510	171.490	485.49	-3.01	-3.18	0.04	1665694.54	14294785.85	39°21'53.419"N	80°54'38.030"W	3.18	179.337	0.53	0.32	0.32	-51.76
500.50	0.570	168.810	500.49	-3.15	-3.32	0.06	1665694.56	14294785.71	39°21'53.417"N	80°54'38.029"W	3.32	178.945	0.40	0.40	0.40	-17.87
583.50	0.240	162.710	583.48	-3.73	-3.89	0.19	1665694.70	14294785.14	39°21'53.412"N	80°54'38.028"W	3.90	177.163	0.40	-0.40	-0.40	-7.35 MFT EM <12-1/4">(490')(573'-2486')
675.50	1.160	183.720	675.48	-4.78	-5.01	0.19	1665694.69	14294784.03	39°21'53.401"N	80°54'38.028"W	5.01	177.829	1.02	1.00	1.00	22.84
768.50	2.200	178.650	768.44	-7.33	-7.73	0.17	1665694.67	14294781.30	39°21'53.374"N	80°54'38.028"W	7.73	178.734	1.13	1.12	1.12	-5.45
883.50	3.200	179.410	883.31	-12.46	-13.15	0.26	1665694.76	14294775.89	39°21'53.320"N	80°54'38.027"W	13.15	178.885	0.87	0.87	0.87	0.66
979.50	3.320	175.420	979.15	-17.67	-18.60	0.51	1665695.01	14294770.44	39°21'53.266"N	80°54'38.024"W	18.60	178.443	0.27	0.12	0.12	-4.16
1074.50	3.570	176.140	1073.98	-23.17	-24.29	0.92	1665695.43	14294764.75	39°21'53.210"N	80°54'38.019"W	24.31	177.821	0.27	0.26	0.26	0.76
1169.50	4.170	179.230	1168.76	-29.28	-30.70	1.17	1665695.67	14294758.35	39°21'53.147"N	80°54'38.015"W	30.72	177.818	0.67	0.63	0.63	3.25
1264.50	4.270	176.290	1263.51	-35.95	-37.68	1.44	1665695.95	14294751.37	39°21'53.078"N	80°54'38.012"W	37.71	177.804	0.25	0.11	0.11	-3.09
1359.50	2.730	173.640	1358.33	-41.55	-43.46	1.92	1665696.43	14294745.59	39°21'53.020"N	80°54'38.006"W	43.50	177.464	1.63	-1.62	-1.62	-2.79
1453.50	1.470	181.560	1452.26	-44.85	-46.89	2.14	1665696.64	14294742.16	39°21'52.987"N	80°54'38.003"W	46.94	177.387	1.37	-1.34	-1.34	8.43
1548.50	0.590	236.340	1547.25	-46.10	-48.38	1.70	1665696.20	14294740.68	39°21'52.972"N	80°54'38.009"W	48.41	177.988	1.29	-0.93	-0.93	57.66

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #04
Operator	ANTERO RESOURCES CORPORATION	Well	Master Unit 1H
Area	Ritchie County, WV	Wellbore	Master Unit 1H AWB
Field	Ritchie		
Facility	Lettie Pad		

WELLPATH DATA (219 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 [P/100ft]	Build Rate [P/100ft]	Turn Rate [°/100ft]	Comments
1643.50	1.080	247.600	1642.24	-46.26	-48.99	0.46	1665694.97	14294740.06	39°21'52.966"N	80°54'38.025"W	48.99	179.457	0.54	0.52	11.85	
1738.50	1.690	239.630	1737.21	-46.56	-50.04	-1.57	1665692.93	14294739.01	39°21'52.955"N	80°54'38.051"W	50.06	181.799	0.67	0.64	-8.39	
1833.50	1.030	222.760	1832.18	-47.21	-51.37	-3.36	1665691.14	14294737.68	39°21'52.942"N	80°54'38.073"W	51.48	183.742	0.81	-0.69	-17.76	
1928.50	0.630	165.290	1927.17	-48.13	-52.51	-3.81	1665690.70	14294736.55	39°21'52.931"N	80°54'38.079"W	52.64	184.147	0.92	-0.42	-60.49	
2023.50	0.810	165.260	2022.16	-49.32	-53.66	-3.50	1665689.10	14294735.39	39°21'52.920"N	80°54'38.075"W	53.77	183.736	0.19	-0.19	-0.03	
2117.50	0.580	299.790	2116.16	-49.62	-54.07	-3.75	1665690.76	14294734.99	39°21'52.916"N	80°54'38.078"W	54.20	183.965	1.37	-0.24	143.12	
2212.50	1.230	326.910	2211.15	-48.26	-52.97	-4.72	1665689.78	14294736.08	39°21'52.926"N	80°54'38.091"W	53.18	185.094	0.80	0.68	28.55	
2307.50	1.630	330.900	2306.12	-45.93	-50.94	-5.94	1665688.57	14294738.12	39°21'52.947"N	80°54'38.106"W	51.28	186.646	0.43	0.42	4.20	
2402.50	0.970	324.330	2401.09	-43.83	-49.10	-7.06	1665687.44	14294739.95	39°21'52.965"N	80°54'38.121"W	49.61	188.183	0.71	-0.69	-6.92	
2496.50	0.530	294.480	2495.09	-42.76	-48.28	-7.92	1665686.58	14294740.77	39°21'52.973"N	80°54'38.131"W	48.92	189.318	0.61	-0.47	-31.76	
2634.50	0.700	292.640	2633.08	-41.74	-47.69	-9.28	1665685.23	14294741.36	39°21'52.979"N	80°54'38.149"W	48.58	191.012	0.12	0.12	-1.33	WFT EM -8-3/4">(2486')(2624'-5948)
2729.50	1.300	198.580	2728.07	-42.20	-48.49	-10.16	1665684.35	14294740.57	39°21'52.971"N	80°54'38.160"W	49.54	191.834	1.60	0.63	-99.01	
2824.50	3.360	192.690	2822.98	-45.39	-52.22	-11.11	1665683.39	14294736.83	39°21'52.934"N	80°54'38.172"W	53.39	192.014	2.18	2.17	-6.20	
2819.50	5.550	196.800	2917.69	-51.43	-59.34	-13.05	1665681.45	14294729.72	39°21'52.864"N	80°54'38.197"W	60.76	192.407	2.33	2.31	4.33	
3019.50	6.370	211.620	3017.16	-58.78	-68.69	-17.36	1665677.15	14294720.37	39°21'52.771"N	80°54'38.252"W	70.85	194.183	1.74	0.82	14.82	
3114.50	8.000	213.790	3111.41	-66.00	-78.68	-23.80	1665670.71	14294710.39	39°21'52.673"N	80°54'38.334"W	82.20	196.831	1.74	1.72	2.28	
3209.50	10.390	211.250	3205.18	-75.32	-91.50	-31.92	1665662.59	14294697.57	39°21'52.546"N	80°54'38.438"W	96.90	199.233	2.55	2.52	-2.67	
3304.50	12.320	210.000	3298.32	-87.25	-107.60	-41.43	1665653.08	14294681.48	39°21'52.387"N	80°54'38.559"W	115.30	201.061	2.05	2.03	-1.32	
3398.50	13.540	215.140	3389.93	-100.06	-125.28	-52.78	1665641.74	14294663.80	39°21'52.212"N	80°54'38.704"W	135.95	202.846	1.78	1.30	5.47	
3493.50	13.610	215.220	3482.28	-112.87	-143.51	-65.63	1665628.90	14294645.58	39°21'52.032"N	80°54'38.867"W	157.80	204.576	0.08	0.07	0.08	
3588.50	13.410	214.420	3574.65	-125.73	-161.73	-78.30	1665616.23	14294627.37	39°21'51.852"N	80°54'39.029"W	179.69	205.835	0.29	-0.21	-0.84	
3683.50	13.470	212.460	3667.05	-138.96	-180.15	-90.47	1665604.07	14294608.96	39°21'51.670"N	80°54'39.184"W	201.59	206.665	0.48	0.06	-2.06	
3777.50	13.570	215.060	3758.45	-152.02	-198.41	-102.68	1665591.86	14294590.70	39°21'51.490"N	80°54'39.340"W	223.41	207.362	0.66	0.11	2.77	
3872.50	13.560	214.400	3850.80	-164.96	-216.73	-115.37	1665579.17	14294572.39	39°21'51.309"N	80°54'39.502"W	245.52	208.028	0.16	-0.01	-0.69	
3967.50	13.680	213.110	3943.13	-178.26	-235.33	-127.80	1665566.75	14294553.80	39°21'51.125"N	80°54'39.660"W	267.79	208.506	0.34	0.13	-1.36	
4062.50	13.350	217.700	4035.50	-190.94	-253.41	-140.65	1665553.91	14294535.72	39°21'50.947"N	80°54'39.824"W	289.83	209.031	1.18	-0.35	4.83	
4156.50	12.570	218.710	4127.10	-202.13	-269.98	-153.68	1665540.88	14294519.16	39°21'50.783"N	80°54'39.990"W	310.66	209.649	0.86	-0.83	1.07	
4251.50	12.600	218.510	4219.82	-212.98	-286.16	-166.60	1665527.97	14294502.99	39°21'50.623"N	80°54'40.155"W	331.12	210.207	0.06	0.03	-0.21	
4346.50	12.450	214.000	4312.56	-224.49	-302.75	-178.77	1665515.80	14294486.40	39°21'50.459"N	80°54'40.310"W	351.60	210.562	1.04	-0.16	-4.75	
4441.50	12.930	212.000	4405.24	-237.12	-320.26	-190.13	1665504.45	14294468.90	39°21'50.287"N	80°54'40.455"W	372.45	210.697	0.68	0.51	-2.11	

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #04
Operator	ANTERO RESOURCES CORPORATION	Well	Master Unit 1H
Area	Ritchie County, WV	Wellbore	Master Unit 1H AWB
Field	Ritchie		
Facility	Lettie Pad		

WELLPATH DATA (219 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 (1/100ft)	Build Rate (1/100ft)	Turn Rate (1/100ft)	Comments
4536.50	13.140	209.980	4497.79	-250.68	-338.63	201.16	1665493.42	14294450.54	39°21'50.105"N	80°54'40.595"W	393.87	210.713	0.53	0.22	-2.13	
4630.50	12.440	212.810	4589.46	-263.74	-356.39	-211.99	1665482.60	14294432.79	39°21'49.930"N	80°54'40.733"W	414.67	210.745	1.00	-0.74	3.01	
4725.50	12.830	212.910	4682.16	-276.35	-373.85	-223.26	1665471.33	14294415.34	39°21'49.757"N	80°54'40.877"W	435.44	210.846	0.41	0.41	0.11	
4820.50	12.280	215.400	4774.89	-288.52	-390.94	-234.85	1665459.75	14294398.25	39°21'49.588"N	80°54'41.025"W	456.05	210.994	0.81	-0.58	2.62	
4915.50	13.110	215.080	4867.57	-300.50	-407.99	-246.89	1665447.71	14294381.21	39°21'49.420"N	80°54'41.179"W	476.87	211.180	0.88	0.87	-0.34	
5009.50	13.890	214.070	4958.97	-313.29	-426.06	-259.34	1665435.27	14294363.15	39°21'49.242"N	80°54'41.337"W	498.78	211.328	0.87	0.83	-1.07	
5104.50	12.780	214.680	5051.41	-326.13	-444.15	-271.70	1665422.91	14294345.07	39°21'49.063"N	80°54'41.495"W	520.66	211.456	1.18	-1.17	0.64	
5199.50	11.540	216.090	5144.27	-337.58	-460.47	-283.28	1665411.33	14294328.75	39°21'48.902"N	80°54'41.643"W	540.63	211.600	1.34	-1.31	1.48	
5294.50	11.570	215.540	5237.35	-348.34	-475.90	-294.42	1665400.24	14294313.33	39°21'48.749"N	80°54'41.784"W	559.61	211.743	0.12	0.03	-0.58	
5389.50	12.410	214.230	5330.27	-359.76	-492.09	-305.70	1665388.93	14294297.14	39°21'48.589"N	80°54'41.928"W	579.31	211.849	0.93	0.88	-1.38	
5483.50	12.460	214.200	5422.07	-371.67	-508.83	-317.08	1665377.55	14294280.41	39°21'48.424"N	80°54'42.073"W	599.54	211.929	0.05	0.05	-0.03	
5578.50	12.700	212.470	5514.79	-384.09	-526.11	-328.45	1665366.19	14294263.13	39°21'48.253"N	80°54'42.218"W	620.22	211.976	0.47	0.25	-1.82	
5641.50	12.680	227.970	5576.27	-390.96	-536.59	-337.30	1665357.34	14294252.66	39°21'48.150"N	80°54'42.331"W	633.80	212.154	5.39	-0.03	24.60	
5673.50	13.690	240.750	5607.43	-392.91	-540.79	-343.22	1665351.42	14294248.46	39°21'48.108"N	80°54'42.407"W	640.51	212.401	9.62	3.16	39.94	
5705.50	15.210	249.590	5638.42	-393.59	-544.11	-350.45	1665344.19	14294245.15	39°21'48.076"N	80°54'42.499"W	647.20	212.785	8.36	4.75	27.63	
5736.50	16.570	256.720	5668.24	-393.13	-546.54	-358.57	1665336.08	14294242.71	39°21'48.052"N	80°54'42.602"W	653.66	213.268	7.67	4.39	23.00	
5768.50	16.710	265.300	5698.90	-391.42	-547.97	-367.60	1665327.05	14294241.29	39°21'48.038"N	80°54'42.717"W	659.84	213.855	7.68	0.44	26.81	
5799.50	16.470	275.480	5728.62	-388.39	-547.91	-376.41	1665318.24	14294241.34	39°21'48.038"N	80°54'42.829"W	664.75	214.489	9.40	-0.77	32.84	
5831.50	16.810	286.080	5759.29	-383.75	-546.20	-385.38	1665309.28	14294243.06	39°21'48.055"N	80°54'42.943"W	668.47	215.206	9.51	1.06	33.06	
5863.50	18.500	294.990	5789.78	-377.46	-542.77	-394.43	1665300.23	14294246.48	39°21'48.089"N	80°54'43.059"W	670.95	216.006	9.96	5.28	27.91	
5894.50	20.850	303.390	5818.98	-369.58	-537.66	-403.50	1665291.17	14294251.59	39°21'48.140"N	80°54'43.174"W	672.22	216.887	11.84	7.58	27.10	
5926.50	23.580	306.940	5848.60	-359.67	-530.67	-413.37	1665281.30	14294266.70	39°21'48.209"N	80°54'43.300"W	672.67	217.917	9.50	8.53	11.09	
5958.50	25.930	307.780	5877.66	-348.42	-522.54	-424.02	1665270.66	14294276.70	39°21'48.290"N	80°54'43.435"W	672.93	219.058	7.43	7.34	2.62	
6009.00	29.600	307.210	5922.34	-328.64	-508.23	-442.68	1665252.00	14294281.01	39°21'48.431"N	80°54'43.673"W	673.99	221.057	7.29	7.27	-1.13	BH AT Curve -8-1/2" > (5958.5) (6009-17419)
6058.00	31.230	310.820	5964.59	-307.43	-492.60	-461.94	1665232.75	14294296.63	39°21'48.586"N	80°54'43.918"W	675.31	223.160	5.00	3.33	7.37	
6105.00	32.690	317.380	6004.48	-285.11	-475.29	-479.76	1665214.94	14294313.93	39°21'48.757"N	80°54'44.144"W	675.33	225.268	8.01	3.11	13.96	
6152.00	35.260	321.370	6043.46	-260.57	-455.35	-496.83	1665197.88	14294333.87	39°21'48.954"N	80°54'44.361"W	673.93	227.494	7.24	5.47	8.49	
6200.00	39.080	322.690	6081.70	-233.02	-432.48	-514.65	1665180.06	14294356.72	39°21'49.180"N	80°54'44.588"W	672.24	229.958	8.13	7.96	2.75	
6247.00	42.580	322.990	6117.26	-203.70	-408.00	-533.21	1665161.51	14294381.20	39°21'49.423"N	80°54'44.824"W	671.40	232.578	7.46	7.45	0.64	
6295.00	46.410	322.850	6151.49	-171.60	-381.16	-553.49	1665141.23	14294408.02	39°21'49.688"N	80°54'45.082"W	672.04	235.447	7.98	7.98	-0.29	

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #04
Operator	ANTERO RESOURCES CORPORATION	Well	Master Unit 1H
Area	Ritchie County, WV	Wellbore	Master Unit 1H AWB
Field	Ritchie		
Facility	Lettie Pad		

WELLPATH DATA (219 stations) + = interpolated/extrapolated station																	
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert.Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments	
6311.00†	47.876	323.158	6162.37	-160.39	-371.80	-560.55	1665134.18	142944417.39	39°21'49.781"N	80°54'45.172"W	672.64	236.445	9.27	9.17	1.93	Middlesex: 6311' MD	
6342.00	50.720	323.720	6182.59	-137.90	-352.92	-574.54	1665120.19	14294436.25	39°21'49.967"N	80°54'45.349"W	674.28	238.439	9.27	9.17	1.81		
6390.00	54.890	324.690	6211.60	-101.15	-321.91	-596.89	1665097.85	14294467.25	39°21'50.274"N	80°54'45.634"W	678.16	241.662	8.84	8.69	2.02		
6437.00	58.970	326.370	6237.24	-63.07	-289.44	-619.17	1665075.58	14294499.71	39°21'50.995"N	80°54'45.917"W	683.48	244.946	9.18	8.68	3.57		
6485.00	63.490	327.440	6260.34	-22.14	-254.19	-642.13	1665052.63	14294534.94	39°21'50.944"N	80°54'46.209"W	690.61	248.403	9.62	9.42	2.23		
6487.00†	63.691	327.471	6261.23	-20.39	-252.68	-643.09	1665051.67	14294536.45	39°21'50.959"N	80°54'46.221"W	690.95	248.549	10.16	10.06	1.54	Burkett: 6487' MD	
6532.00	68.220	328.140	6279.56	19.73	-217.92	-664.98	1665029.79	14294571.20	39°21'51.303"N	80°54'46.499"W	699.77	251.856	10.16	10.06	1.49		
6580.00	72.170	328.460	6295.82	63.91	-179.50	-688.70	1665006.08	14294609.61	39°21'51.683"N	80°54'46.801"W	711.71	255.392	8.25	8.23	0.87		
6583.00†	72.391	328.464	6296.73	66.71	-177.06	-690.20	1665006.58	14294612.04	39°21'51.707"N	80°54'46.820"W	712.55	255.612	7.38	7.38	0.13	Tully: 6583' MD	
6627.00	75.640	328.520	6308.85	108.11	-141.01	-712.30	1664982.49	14294648.08	39°21'52.063"N	80°54'47.101"W	726.12	258.803	7.38	7.38	0.13		
6674.00	77.840	328.390	6319.63	152.89	-102.02	-736.23	1664958.56	14294687.05	39°21'52.449"N	80°54'47.405"W	743.27	262.111	4.69	4.68	-0.28		
6681.00†	78.117	328.450	6321.08	159.59	-96.19	-739.82	1664954.98	14294692.88	39°21'52.506"N	80°54'47.451"W	746.05	262.592	4.04	3.96	0.86	Marcellus POE: 6681' MD	
6721.00	79.700	328.790	6328.78	198.04	-62.68	-760.26	1664934.55	14294726.38	39°21'52.838"N	80°54'47.710"W	762.84	265.287	4.04	3.96	0.85		
6769.00	82.000	329.070	6336.41	244.51	-22.09	-784.71	1664910.11	14294766.95	39°21'53.239"N	80°54'48.021"W	785.02	268.388	4.83	4.79	0.58		
6816.00	85.470	329.610	6341.54	290.38	18.09	-808.53	1664886.29	14294807.12	39°21'53.637"N	80°54'48.324"W	808.73	271.282	7.47	7.38	1.15		
6864.00	90.030	330.520	6343.42	337.57	59.65	-832.46	1664862.38	14294848.65	39°21'54.048"N	80°54'48.628"W	834.59	274.098	9.69	9.50	1.90		
6959.00	90.030	332.270	6343.37	431.44	143.05	-877.94	1664816.91	14294932.02	39°21'54.872"N	80°54'49.206"W	889.52	279.254	1.84	0.00	1.84		
7054.00	89.940	335.460	6343.40	525.84	228.32	-919.78	1664775.09	14295017.26	39°21'55.715"N	80°54'49.738"W	947.70	283.941	3.36	-0.09	3.36		
7149.00	89.940	337.560	6343.50	620.63	315.45	-957.64	1664737.24	14295104.35	39°21'56.577"N	80°54'50.219"W	1008.26	288.232	2.21	0.00	2.21		
7244.00	89.970	338.640	6343.57	715.56	403.59	-983.08	1664701.82	14295192.46	39°21'57.448"N	80°54'50.669"W	1071.96	292.117	1.14	0.03	1.14		
7338.00	90.180	339.170	6343.45	809.54	491.29	-1026.91	1664668.00	14295280.12	39°21'58.316"N	80°54'51.099"W	1138.38	295.567	0.61	0.22	0.56		
7433.00	90.090	339.380	6343.23	904.53	580.14	-1060.53	1664634.40	14295368.94	39°21'59.194"N	80°54'51.526"W	1208.84	298.680	0.24	-0.09	0.22		
7528.00	89.940	339.950	6343.20	999.52	669.22	-1093.54	1664601.40	14295457.98	39°22'00.075"N	80°54'51.945"W	1282.06	301.466	0.62	-0.16	0.60		
7623.00	89.910	342.700	6343.32	1094.49	759.21	-1123.96	1664571.00	14295547.94	39°22'00.964"N	80°54'52.331"W	1356.35	304.038	2.89	-0.03	2.89		
7718.00	90.430	343.960	6343.04	1189.35	850.21	-1151.21	1664543.76	14295638.91	39°22'01.864"N	80°54'52.677"W	1431.13	306.447	1.43	0.55	1.33		
7813.00	90.340	343.470	6342.40	1284.18	941.40	-1177.85	1664517.13	14295730.06	39°22'02.766"N	80°54'53.015"W	1507.83	308.634	0.52	-0.09	-0.52		
7908.00	89.940	340.440	6342.17	1379.12	1031.72	-1207.27	1664487.71	14295820.34	39°22'03.659"N	80°54'53.389"W	1588.06	310.517	3.22	-0.42	-3.19		
8002.00	89.750	338.920	6342.43	1473.11	1119.86	-1239.91	1664455.09	14295908.45	39°22'04.530"N	80°54'53.803"W	1670.77	312.088	1.63	-0.20	-1.62		
8097.00	89.780	338.290	6342.82	1568.07	1208.32	-1274.57	1664420.45	14295996.86	39°22'05.405"N	80°54'54.243"W	1756.29	313.471	0.66	0.03	-0.66		
8192.00	89.910	337.430	6343.07	1662.99	1296.31	-1310.37	1664384.66	14296084.82	39°22'06.275"N	80°54'54.698"W	1843.23	314.691	0.92	0.14	-0.91		

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #04
ANTERO RESOURCES CORPORATION	Well	Master Unit 1H
Ritchie County, WV	Wellbore	Master Unit 1H AWB
Ritchie		
Lettie Pad		

## WELLPATH DATA (219 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 [P/100ft]	Build Rate [P/100ft]	Turn Rate [P/100ft]	Comments
8287.00	89.750	338.080	6343.36	1757.90	1384.24	-1346.33	1664348.71	14296172.72	39°22'07.144"N	80°54'55.155"W	1930.99	315.795	1.93	0.70	-0.17	0.68
8382.00	90.030	339.890	6343.54	1852.87	1472.92	-1380.40	1664314.66	14296261.36	39°22'08.021"N	80°54'55.588"W	2018.66	316.857	1.93	0.29	1.91	0.63
8476.00	90.250	340.480	6343.31	1946.87	1561.35	-1412.27	1664282.80	14296349.76	39°22'08.895"N	80°54'55.993"W	2105.30	317.870	0.67	0.23	0.63	0.63
8571.00	90.830	339.960	6342.41	2041.87	1650.74	-1444.41	1664250.67	14296439.11	39°22'09.779"N	80°54'56.401"W	2193.46	318.814	0.82	0.61	-0.55	0.44
8666.00	90.650	340.380	6341.19	2136.86	1740.10	-1476.64	1664218.46	14296528.43	39°22'10.662"N	80°54'56.810"W	2282.19	319.682	0.48	-0.19	0.44	0.44
8761.00	90.740	339.490	6340.03	2231.85	1829.33	-1509.23	1664185.88	14296617.62	39°22'11.545"N	80°54'57.224"W	2371.54	320.477	0.94	0.09	-0.94	-0.94
8855.00	90.740	339.290	6338.82	2325.83	1917.30	-1542.31	1664152.81	14296705.57	39°22'12.414"N	80°54'57.644"W	2460.65	321.186	0.21	0.00	-0.21	-0.21
8950.00	91.720	339.830	6336.78	2420.80	2006.30	-1575.48	1664119.65	14296794.53	39°22'13.294"N	80°54'58.065"W	2550.96	321.859	1.18	1.03	0.57	0.57
9045.00	91.080	338.290	6334.46	2515.75	2094.99	-1609.42	1664085.73	14296883.19	39°22'14.171"N	80°54'58.497"W	2641.83	322.468	1.76	-0.67	-1.62	-1.62
9140.00	90.090	336.680	6333.49	2610.63	2182.75	-1645.80	1664049.37	14296970.90	39°22'15.039"N	80°54'58.959"W	2733.68	322.984	1.99	-1.04	-1.69	-1.69
9235.00	90.250	336.620	6333.21	2705.44	2269.96	-1683.45	1664011.73	14297058.09	39°22'15.901"N	80°54'59.437"W	2826.08	323.439	0.18	0.17	-0.06	-0.06
9330.00	89.880	336.200	6333.10	2800.23	2357.02	-1721.47	1663973.73	14297145.11	39°22'16.762"N	80°54'59.920"W	2918.74	323.857	0.59	-0.39	-0.44	-0.44
9425.00	90.280	338.310	6332.97	2895.10	2444.63	-1758.19	1663937.01	14297232.68	39°22'17.628"N	80°55'00.387"W	3011.22	324.276	2.26	0.42	2.22	2.22
9519.00	90.000	337.940	6332.74	2989.03	2531.86	-1793.22	1663902.00	14297319.88	39°22'18.491"N	80°55'00.832"W	3102.57	324.692	0.49	-0.30	-0.39	-0.39
9614.00	89.880	340.820	6332.84	3084.01	2620.77	-1826.67	1663868.57	14297408.75	39°22'19.370"N	80°55'01.257"W	3194.55	325.124	3.03	-0.13	3.03	3.03
9709.00	89.970	344.980	6332.96	3178.89	2711.55	-1854.60	1663840.65	14297499.49	39°22'20.267"N	80°55'01.611"W	3285.12	325.629	4.38	0.09	4.38	4.38
9804.00	89.750	345.680	6333.19	3273.51	2803.45	-1878.66	1663816.60	14297591.36	39°22'21.176"N	80°55'01.917"W	3374.71	326.173	0.77	-0.23	0.74	0.74
9899.00	90.000	347.700	6333.40	3367.91	2895.89	-1900.53	1663794.74	14297683.76	39°22'22.090"N	80°55'02.194"W	3463.84	326.724	2.14	0.26	2.13	2.13
9994.00	90.000	348.340	6333.40	3462.03	2988.82	-1920.24	1663775.03	14297776.66	39°22'23.008"N	80°55'02.444"W	3552.52	327.280	0.67	0.00	0.67	0.67
10089.00	89.690	346.100	6333.66	3556.32	3081.46	-1941.26	1663754.02	14297869.26	39°22'23.924"N	80°55'02.710"W	3641.96	327.790	2.38	-0.33	-2.36	-2.36
10184.00	89.750	344.610	6334.12	3650.94	3173.37	-1965.28	1663730.01	14297961.13	39°22'24.833"N	80°55'03.015"W	3732.84	328.230	1.57	0.06	-1.57	-1.57
10278.00	89.630	344.510	6334.63	3744.67	3263.98	-1990.30	1663705.00	14298051.70	39°22'25.729"N	80°55'03.333"W	3822.94	328.626	0.17	-0.13	-0.11	-0.11
10373.00	90.280	344.890	6334.70	3839.38	3355.61	-2015.37	1663679.94	14298143.30	39°22'26.634"N	80°55'03.651"W	3914.31	329.011	0.79	0.68	0.40	0.40
10468.00	89.820	342.350	6334.62	3934.21	3446.75	-2042.16	1663653.16	14298234.40	39°22'27.535"N	80°55'03.991"W	4006.31	329.354	2.72	-0.48	-2.67	-2.67
10563.00	90.250	339.800	6334.56	4029.19	3536.61	-2072.97	1663622.37	14298324.22	39°22'28.424"N	80°55'04.382"W	4099.36	329.623	2.72	0.45	-2.68	-2.68
10658.00	89.600	338.870	6334.69	4124.18	3625.49	-2106.49	1663588.86	14298413.07	39°22'29.303"N	80°55'04.808"W	4193.03	329.842	1.19	-0.68	-0.98	-0.98
10753.00	89.570	338.890	6335.38	4219.15	3714.11	-2140.72	1663554.64	14298501.65	39°22'30.179"N	80°55'05.243"W	4286.87	330.042	0.04	-0.03	0.02	0.02
10848.00	89.690	336.390	6335.99	4314.04	3801.96	-2176.86	1663518.52	14298589.46	39°22'31.047"N	80°55'05.702"W	4381.05	330.206	2.63	0.13	-2.63	-2.63
10942.00	89.380	334.480	6336.75	4407.70	3887.44	-2215.93	1663479.46	14298674.91	39°22'31.893"N	80°55'06.199"W	4474.66	330.316	2.06	-0.33	-2.03	-2.03
11037.00	89.200	336.580	6337.93	4502.37	3973.90	-2255.28	1663440.13	14298761.34	39°22'32.747"N	80°55'06.699"W	4569.26	330.424	2.22	-0.19	2.21	2.21

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Ritchie County, WV	Well	Master Unit 1H
Field	Ritchie	Wellbore	Master Unit 1H AWB
Facility	Lettie Pad		

## WELLPATH DATA (219 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (1/100ft)	Build Rate (1/100ft)	Turn Rate (1/100ft)	Comments
11322.00	89.660	340.290	6338.88	4597.30	4062.23	-2290.19	1663405.23	14298849.63	39°22'33.62"N	80°55'07.142"W	4663.33	330.567	3.93	0.48	3.91	
11227.00	89.720	342.170	6339.39	4692.28	4152.17	-2320.75	1663374.68	14298939.54	39°22'34.510"N	80°55'07.531"W	4756.72	330.798	1.98	0.06	1.98	
11322.00	89.660	339.810	6339.90	4787.26	4241.98	-2351.70	1663343.75	14299029.31	39°22'35.398"N	80°55'07.924"W	4850.25	330.997	2.48	-0.06	-2.48	
11417.00	89.910	338.490	6340.26	4882.24	4330.78	-2385.51	1663309.95	14299118.05	39°22'36.276"N	80°55'08.353"W	4944.30	331.153	1.41	0.26	-1.39	
11511.00	89.940	340.060	6340.38	4976.23	4418.67	-2418.77	1663276.70	14299205.93	39°22'37.145"N	80°55'08.776"W	5037.37	331.304	1.67	0.03	1.67	
11606.00	89.940	342.710	6340.48	5071.20	4508.69	-2449.09	1663246.39	14299295.92	39°22'38.035"N	80°55'09.161"W	5130.92	331.489	2.79	0.00	2.79	
11701.00	90.090	344.110	6340.46	5166.05	4599.74	-2476.22	1663219.28	14299386.92	39°22'38.935"N	80°55'09.505"W	5223.91	331.705	1.48	0.16	1.47	
11796.00	90.120	344.730	6340.28	5260.80	4691.25	-2501.73	1663193.77	14299478.40	39°22'39.840"N	80°55'09.829"W	5316.82	331.930	0.65	0.03	0.65	
11891.00	90.120	343.790	6340.08	5355.56	4782.68	-2527.50	1663168.01	14299569.80	39°22'40.744"N	80°55'10.156"W	5409.47	332.145	0.99	0.00	-0.99	
11986.00	90.120	341.930	6339.89	5450.46	4873.46	-2555.50	1663140.03	14299660.94	39°22'41.641"N	80°55'10.512"W	5502.83	332.329	1.96	0.00	-1.96	
12080.00	90.090	336.890	6339.71	5544.42	4961.43	-2588.55	1663106.99	14299748.47	39°22'42.511"N	80°55'10.932"W	5596.10	332.447	5.36	-0.03	-5.36	
12175.00	90.180	335.940	6339.49	5639.21	5048.49	-2626.56	1663069.00	14299835.50	39°22'43.372"N	80°55'11.415"W	5690.87	332.514	1.00	0.09	-1.00	
12270.00	90.090	332.820	6339.27	5733.70	5134.14	-2667.63	1663027.94	14299921.11	39°22'44.218"N	80°55'11.937"W	5785.81	332.544	3.29	-0.09	-3.28	
12365.00	90.030	334.720	6339.17	5828.09	5219.35	-2709.61	1662985.97	14300006.29	39°22'45.061"N	80°55'12.470"W	5880.79	332.564	2.00	-0.06	2.00	
12460.00	90.250	337.140	6338.93	5922.81	5306.08	-2748.36	1662947.25	14300092.99	39°22'45.919"N	80°55'12.963"W	5975.62	332.617	2.56	0.23	2.55	
12555.00	90.000	338.700	6338.73	6017.73	5394.11	-2784.07	1662911.55	14300180.98	39°22'46.789"N	80°55'13.417"W	6070.21	332.700	1.66	-0.26	1.64	
12650.00	90.030	338.160	6338.70	6112.68	5482.46	-2818.99	1662876.64	14300269.29	39°22'47.662"N	80°55'13.860"W	6164.75	332.789	0.57	0.03	-0.57	
12745.00	90.250	337.810	6338.47	6207.61	5570.53	-2854.60	1662841.04	14300357.33	39°22'48.533"N	80°55'14.313"W	6259.36	332.867	0.44	0.23	-0.37	
12839.00	90.000	339.500	6338.26	6301.57	5658.08	-2888.82	1662806.85	14300444.84	39°22'49.399"N	80°55'14.748"W	6352.88	332.953	1.82	-0.27	1.80	
12934.00	89.780	339.620	6338.45	6396.56	5747.10	-2921.99	1662773.68	14300533.83	39°22'50.279"N	80°55'15.169"W	6447.26	333.050	0.26	-0.23	0.13	
13029.00	88.920	336.920	6339.52	6491.49	5835.33	-2957.16	1662738.53	14300622.03	39°22'51.151"N	80°55'15.616"W	6541.86	333.126	2.98	-0.91	-2.84	
13124.00	89.820	341.270	6340.57	6586.44	5924.05	-2991.05	1662704.66	14300710.71	39°22'52.028"N	80°55'16.046"W	6636.32	333.211	4.68	0.95	4.58	
13219.00	89.350	341.750	6341.26	6681.42	6014.15	-3021.17	1662674.54	14300800.77	39°22'52.919"N	80°55'16.429"W	6730.34	333.328	0.71	-0.49	0.51	
13314.00	89.780	344.240	6341.98	6776.30	6104.98	-3048.95	1662646.77	14300891.57	39°22'53.817"N	80°55'16.782"W	6824.00	333.462	2.66	0.45	2.62	
13409.00	89.480	346.250	6342.59	6870.93	6196.84	-3073.15	1662622.59	14300983.39	39°22'54.725"N	80°55'17.089"W	6917.02	333.622	2.14	-0.32	2.12	
13504.00	89.720	344.880	6343.26	6965.51	6288.84	-3096.83	1662598.92	14301075.35	39°22'55.635"N	80°55'17.390"W	7009.98	333.783	1.46	0.25	-1.44	
13598.00	89.820	342.380	6343.63	7059.34	6379.02	-3123.32	1662572.44	14301165.50	39°22'56.526"N	80°55'17.726"W	7102.61	333.913	2.66	0.11	-2.66	
13693.00	89.850	342.040	6343.91	7154.28	6469.48	-3152.34	1662543.42	14301255.92	39°22'57.421"N	80°55'18.095"W	7196.63	334.022	0.36	0.03	-0.36	
13788.00	89.780	341.420	6344.21	7249.25	6559.69	-3182.12	1662513.65	14301346.09	39°22'58.312"N	80°55'18.473"W	7290.78	334.122	0.66	-0.07	-0.65	
13883.00	89.750	341.610	6344.60	7344.60	6649.79	-3212.24	1662483.55	14301436.15	39°22'59.203"N	80°55'18.855"W	7385.00	334.217	0.20	-0.03	0.20	

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #04
ANTERO RESOURCES CORPORATION	Well	Master Unit 1H
Ritchie County, WV	Wellbore	Master Unit 1H AWB
Ritchie		
Lettie Pad		

## WELLPATH DATA (219 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
13978.00	89.720	343.060	6345.04	7439.16	6740.30	-3241.07	1662454.73	14301826.63	39°23'00.098"N	80°55'19.222"W	7479.05	334.319	1.53	-0.03	1.53	
14073.00	89.720	343.030	6345.51	7534.04	6831.17	-3268.78	1662427.04	14301817.47	39°23'00.996"N	80°55'19.573"W	7572.97	334.428	0.03	0.00	-0.03	
14168.00	89.780	340.690	6345.92	7629.00	6921.44	-3298.35	1662397.48	14301707.70	39°23'01.889"N	80°55'19.949"W	7667.17	334.520	2.46	0.06	-2.46	
14262.00	89.850	338.860	6346.23	7722.99	7009.64	-3330.84	1662364.99	14301795.86	39°23'02.761"N	80°55'20.362"W	7760.78	334.584	1.95	0.07	-1.95	
14357.00	89.630	338.240	6346.66	7817.95	7098.06	-3365.58	1662330.27	14301884.25	39°23'03.635"N	80°55'20.803"W	7855.55	334.632	0.69	-0.23	-0.65	
14452.00	89.720	341.130	6347.20	7912.93	7187.14	-3398.56	1662297.30	14301973.29	39°23'04.516"N	80°55'21.222"W	7950.17	334.692	3.04	0.09	3.04	
14547.00	89.780	338.570	6347.61	8007.92	7276.32	-3431.29	1662264.59	14302062.43	39°23'05.397"N	80°55'21.638"W	8044.78	334.753	2.70	0.06	-2.69	
14642.00	89.690	335.000	6348.05	8102.73	7363.61	-3468.73	1662227.17	14302149.69	39°23'06.260"N	80°55'22.114"W	8139.71	334.777	3.76	-0.09	-3.76	
14737.00	89.780	333.770	6348.48	8197.23	7449.27	-3509.80	1662186.11	14302235.32	39°23'07.107"N	80°55'22.636"W	8234.70	334.772	1.30	0.09	-1.29	
14832.00	89.600	334.240	6349.00	8291.67	7534.66	-3551.43	1662144.49	14302320.67	39°23'07.952"N	80°55'23.166"W	8329.69	334.763	0.53	-0.19	0.49	
14927.00	90.000	335.550	6349.33	8386.25	7620.68	-3591.74	1662104.21	14302406.66	39°23'08.802"N	80°55'23.678"W	8424.69	334.765	1.44	0.42	1.38	
15021.00	90.090	337.660	6349.26	8480.06	7706.95	-3629.06	1662066.90	14302492.89	39°23'09.655"N	80°55'24.152"W	8518.64	334.785	2.25	0.10	2.24	
15116.00	90.120	339.570	6349.09	8575.02	7795.41	-3663.70	1662032.27	14302581.31	39°23'10.530"N	80°55'24.593"W	8613.42	334.827	2.01	0.03	2.01	
15211.00	90.150	343.400	6348.86	8669.98	7885.47	-3693.86	1662002.12	14302671.34	39°23'11.420"N	80°55'24.976"W	8707.77	334.900	4.03	0.03	4.03	
15305.00	90.740	348.610	6348.13	8763.47	7976.65	-3716.58	1661979.41	14302762.48	39°23'12.321"N	80°55'25.264"W	8800.00	335.018	5.58	0.63	5.54	
15400.00	90.340	347.430	6347.24	8857.59	8069.57	-3736.30	1661959.70	14302855.37	39°23'13.240"N	80°55'25.514"W	8892.58	335.155	1.31	-0.42	-1.24	
15495.00	90.620	343.550	6346.44	8952.17	8161.52	-3760.10	1661935.91	14302947.28	39°23'14.149"N	80°55'25.816"W	8986.03	335.264	4.09	0.29	-4.08	
15590.00	90.400	341.940	6345.59	9047.07	8252.24	-3788.28	1661907.75	14303037.96	39°23'15.046"N	80°55'26.174"W	9080.23	335.342	1.71	-0.23	-1.69	
15685.00	90.340	343.280	6344.98	9141.98	8342.89	-3816.67	1661879.37	14303128.58	39°23'15.942"N	80°55'26.535"W	9174.47	335.417	1.41	-0.06	1.41	
15780.00	90.280	341.470	6344.47	9236.91	8433.43	-3845.43	1661850.61	14303219.08	39°23'16.837"N	80°55'26.900"W	9268.77	335.488	1.91	-0.06	-1.91	
15874.00	90.400	341.620	6343.91	9330.88	8522.59	-3875.19	1661820.87	14303308.21	39°23'17.719"N	80°55'27.278"W	9362.25	335.549	0.20	0.13	0.16	
15969.00	90.280	340.110	6343.35	9425.87	8612.34	-3906.33	1661789.74	14303397.92	39°23'18.606"N	80°55'27.674"W	9456.84	335.602	1.59	-0.13	-1.59	
16064.00	90.090	339.770	6343.04	9520.87	8701.58	-3938.91	1661757.17	14303487.12	39°23'19.488"N	80°55'28.068"W	9551.57	335.645	0.41	-0.20	-0.36	
16159.00	90.280	335.310	6342.73	9615.74	8789.35	-3975.20	1661720.90	14303574.85	39°23'20.356"N	80°55'28.549"W	9646.49	335.664	4.70	0.20	-4.69	
16253.00	90.580	337.890	6342.03	9709.54	8875.61	-4012.52	1661683.59	14303661.08	39°23'21.209"N	80°55'29.024"W	9740.47	335.673	2.76	0.32	2.74	
16348.00	90.340	337.950	6341.26	9804.46	8963.64	-4048.23	1661647.89	14303749.07	39°23'22.079"N	80°55'29.478"W	9835.39	335.695	0.26	-0.25	0.06	
16443.00	89.540	338.100	6341.36	9899.39	9051.73	-4083.78	1661612.36	14303837.13	39°23'22.950"N	80°55'29.929"W	9930.32	335.717	0.86	-0.84	0.16	
16538.00	89.380	338.030	6342.26	9994.32	9139.85	-4119.27	1661576.89	14303925.22	39°23'23.821"N	80°55'30.381"W	10025.23	335.739	0.18	-0.17	-0.07	
16633.00	89.350	339.040	6343.31	10089.27	9228.26	-4154.03	1661542.14	14304013.59	39°23'24.695"N	80°55'30.822"W	10120.11	335.765	1.06	-0.03	1.06	
16728.00	89.480	339.020	6344.28	10184.24	9316.96	-4188.03	1661508.16	14304102.25	39°23'25.572"N	80°55'31.254"W	10214.96	335.796	0.14	0.14	-0.02	

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #04
ANTERO RESOURCES CORPORATION	Well	Master Unit 1H
Ritchie County, WV	Wellbore	Master Unit 1H AWB
Ritchie		
Lettie Pad		

## WELLPATH DATA (219 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 [F/100ft]	Build Rate [F/100ft]	Turn Rate [F/100ft]	Comments
16823.00	90.060	337.820	6344.66	10279.19	9405.30	-4222.97	1661473.23	14304190.56	39°23'26.446"N	80°55'31.699"W	10309.85	335.820	1.40	0.61	-1.26	
16917.00	90.220	337.860	6344.43	10373.11	9492.35	-4258.42	1661437.79	14304277.58	39°23'27.307"N	80°55'32.149"W	10403.80	335.838	0.18	0.17	0.04	
17012.00	90.120	338.320	6344.15	10468.04	9580.49	-4293.87	1661402.35	14304365.68	39°23'28.178"N	80°55'32.600"W	10498.72	335.859	0.50	-0.11	0.48	
17107.00	90.180	339.480	6343.90	10563.01	9669.12	-4328.07	1661368.17	14304454.27	39°23'29.054"N	80°55'33.034"W	10593.59	335.886	1.22	0.06	1.22	
17202.00	90.220	340.980	6343.57	10658.01	9758.52	-4360.20	1661336.05	14304543.64	39°23'29.938"N	80°55'33.443"W	10688.31	335.924	1.58	0.04	1.58	
17297.00	90.090	341.450	6343.31	10752.99	9848.46	-4390.79	1661305.47	14304633.54	39°23'30.827"N	80°55'33.831"W	10782.91	335.971	0.51	-0.14	0.49	
17391.00	90.120	341.310	6343.14	10846.98	9937.54	-4420.81	1661275.47	14304722.58	39°23'31.708"N	80°55'34.213"W	10876.50	336.018	0.15	0.03	-0.15	
17419.00	90.150	341.390	6343.08	10874.97	9964.07	-4429.76	1661266.52	14304749.10	39°23'31.970"N	80°55'34.327"W	10904.38	336.031	0.31	0.11	0.29	
17443.00	90.150	341.390	6343.01	10898.97	9986.81	-4437.42	1661258.86	14304771.84	39°23'32.195"N	80°55'34.424"W	10928.27	336.043	0.00	0.00	0.00	Projected MD at TD: 17443'

## HOLE & CASING SECTIONS - Ref Wellbore: Master Unit 1H AWB Ref Wellpath: Master Unit 1H AWP Proj: 17443'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	End N/S [ft]	Start E/W [ft]	End E/W [ft]
20in Conductor	25.50	105.50	80.00	25.50	105.50	0.00	-0.20	0.00	-0.02
17.5in Open Hole	105.50	522.50	417.00	105.50	522.49	-0.20	-3.52	-0.02	0.10
13.375in Casing Surface	25.50	522.50	497.00	25.50	522.49	0.00	-3.52	0.00	0.10
12.25in Open Hole	522.50	2597.50	2075.00	522.49	2596.08	-3.52	-47.86	0.10	-8.88
9.625in Casing Intermediate	25.50	2597.50	2572.00	25.50	2596.08	0.00	-47.86	0.00	-8.88
8.75in Open Hole	2597.50	6032.50	3435.00	2596.08	5942.69	-47.86	-500.98	-8.88	-451.92
8.5in Open Hole	6032.50	17443.00	11410.50	5942.69	6343.01	-500.98	9986.81	-451.92	-4437.42
5.5in Casing Production	25.50	17443.00	17417.50	25.50	6343.01	0.00	9986.81	0.00	-4437.42

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# Actual Wellpath Report

Master Unit 1H AWP Proj: 17443'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Ritchie County, WV	Well	Master Unit 1H
Field	Ritchie	Wellbore	Master Unit 1H AWB
Facility	Lettie Pad		

TARGETS	Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
	Master Unit 1H POE Rev-2	6321.00	-132.06	-716.67	1664978.12	14294657.02	39°21'52.152"N	80°54'47.156"W	point
	Master Unit 1H BHL Rev-2	6344.00	10020.75	-4440.21	1661256.07	14304805.76	39°23'32.530"N	80°55'34.459"W	point
	Master Unit 1H LP Rev-2	6344.00	22.27	-809.40	1664885.42	14294811.29	39°21'53.678"N	80°54'48.335"W	point

WELLPATH COMPOSITION - Ref Wellbore: Master Unit 1H AWP Proj: 17443'		Log Name/Comment	Wellbore
Start MD [ft]	End MD [ft]		
25.50	500.50	Gyrodata standard - Drop gyro or Multi-shot	Master Unit 1H AWB
500.50	2496.50	ISCWSA MWD, Rev. 4 (Standard)	Master Unit 1H AWB
2496.50	5958.50	ISCWSA MWD, Rev. 4 (Standard)	Master Unit 1H AWB
5958.50	17419.00	BHI AutoTrak Curve (Short)	Master Unit 1H AWB
17419.00	17443.00	Blind Drilling (std)	Master Unit 1H AWB
		01. Gyrodata MS Gyro <17-1/2">(100'-490')	
		02. WFT EM <12-1/4">(490')(573'-2486')	
		03. WFT EM <8-3/4">(2486')(2624'-5948')	
		04. BHAT Curve <8-1/2">(5958.5')(6009'-17419')	
		Projection to bit	

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Facility	Lettie Pad		

## COMMENTS

Wellpath general comments  
 API: 47-085-10360-0000  
 BHI Job #: 109523463  
 Rig: H&P 317  
 Duration: 12/02/2018-12/04/2018  
 Gyrodatta MS Gyro <17'-1/2">(100'-490')  
 WFT EM <12'-1/4">(490')(573'-2486')  
 WFT EM <8'-3/4">(2486')(2624'-5948')  
 BH AT Curve <8'-1/2">(5958.5')(6009'-17419')  
 Middlesex: 6311' MD  
 Burkett: 6487' MD  
 Tully: 6583' MD  
 Marcellus POE: 6681' MD  
 Projected MD at TD: 17443'

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