

ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV
 Field: Lettie Pad
 Facility: Lettie Pad

Wellbore: Master Unit 2H PWB
 Well: Master Unit 2H
 Slot: Slot #05

Plot reference wellpath is Master Unit 2H PWP Rev-A.0
 True vertical depths are referenced to H&P 317 (RKB)
 Measured depths are referenced to H&P 317 (RKB)
 H&P 317 (RKB) to Mean Sea Level: 995.5 feet
 Mean Sea Level to Ground level (At Slot: Slot #05): -970 feet
 Coordinates are in feet referenced to Slot
 Grid System: NAD27 / UTM Zone 17 North, US feet
 North Reference: Grid north
 Scale: True distance
 Depths are in feet
 Created by: dslent on 2018-12-10
 Database: WA_MPL_EasternUS_Dahn

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°54'38.280"W
Slot #05	1665703.924	14294788.031	39°21'53.440"N	80°54'37.910"W

Well Data

Slot	Well	Wellbore	Wellpath
Slot #05	Master Unit 2H	Master Unit 2H AWB	Master Unit 2H AWP Proj 17467
	Master Unit 2H	Master Unit 2H PWB	Master Unit 2H PWP Rev-A.0

Well Profile Data

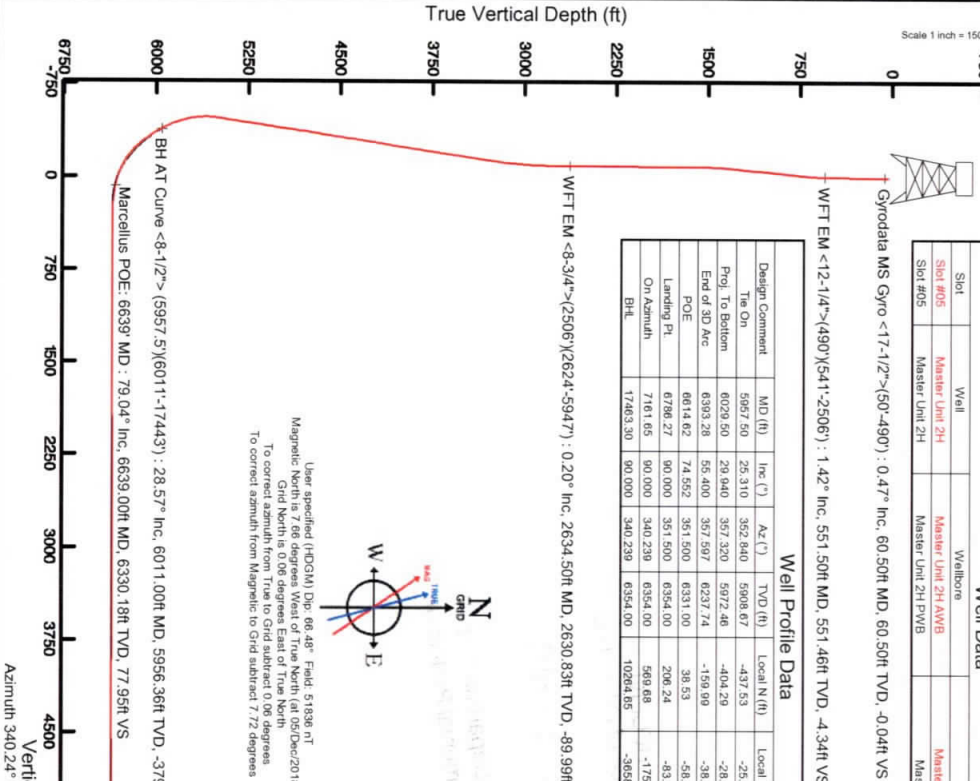
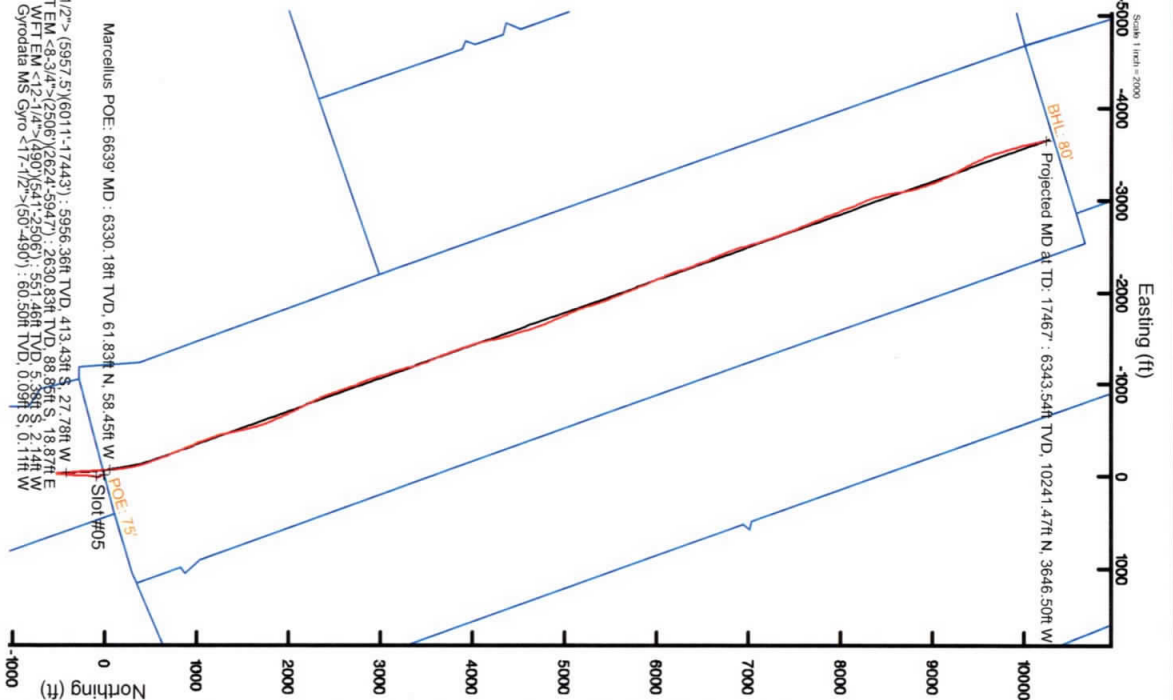
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (7/100ft)	VS (ft)
The On	5957.50	25.310	357.840	5908.67	-437.53	-25.28	7.04	-371.01
Proj. To Bottom	6029.50	29.940	357.320	5972.46	-404.29	-28.04		
End of 3D Arc	6393.28	55.400	357.597	6237.74	-159.99	-38.74	7.00	-137.47
POE	6014.62	74.552	351.500	6331.00	38.53	-58.53	9.00	56.05
Landing Pl	6786.27	90.000	351.500	6354.00	206.24	-83.59	9.00	222.36
On Azimuth	7161.65	90.000	340.239	6354.00	569.68	-175.09	3.00	595.33
BHL	17463.30	90.000	340.239	6354.00	10264.65	-3668.13	0.00	10096.98

Gyrodatta MS Gyro <-17-1/2> (50-490) : 0.47° Inc. 60.50ft MD. 60.50ft TVD. -0.04ft VS
 WFT EM <-12-1/4> (490)(541-25061) : 1.42° Inc. 551.50ft MD. 551.46ft TVD. -4.34ft VS

WFT EM <-8-3/4> (2506)(2624-5947) : 0.20° Inc. 2634.50ft MD. 2630.83ft TVD. -89.99ft VS

API: 47-085-10322-0000
 BHI Job #: 109546857
 Rig: H&P 317
 Duration: 12/07/2018-12/10/2018

BH AT Curve <-8-1/2> (5957.5)(6011-17443) : 5956.36ft TVD. 413.43ft S. 27.78ft W
 WFT EM <-8-3/4> (2506)(2624-5947) : 2630.83ft TVD. 88.86ft S. 18.87ft E
 Gyrodatta MS Gyro <-17-1/2> (50-490) : 590.58ft TVD. 0.08ft S. 0.14ft W
 Marcellus POE: 6639' MD : 6330.18ft TVD. 61.83ft N. 58.45ft W



Use specified (HDGM) Dip: 66.48° Field: 5.18ea AT
 Magnetic North is 7.76 degrees West of True North (0.06Dec2018)
 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

Projected MD at TD: 17467' : 89.88° Inc. 17467.00ft MD. 6343.54ft TVD. 10871.23ft VS
 Vertical Section (ft)
 Azimuth 340.24° with reference 0.00 N. 0.00 E

Scale 1 inch = 1500
 Scale 1 inch = 2000
 Scale 1 inch = 1500



Actual Wellpath Report

Master Unit 2H AWP Proj: 17467'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Ritchie County, WV	Well	Master Unit 2H
Field	Ritchie	Wellbore	Master Unit 2H AWB
Facility	Lettie Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999601	Report Generated	10/Dec/2018 at 15:00
Convergence at slot	0.06° East	Database/Source file	WA_MPL_EasternUS_Defn/Master_Unit_2H_AWP_Proj_17467_.xml

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-1.99	29.85	1665703.92	14294788.03	39°21'53.440"N	80°54'37.910"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	Minimum curvature	H&P 317 (RKB) to Facility Vertical Datum	25.50ft
Horizontal Reference Pt	Slot	H&P 317 (RKB) to Mean Sea Level	995.50ft
Vertical Reference Pt	H&P 317 (RKB)	H&P 317 (RKB) to Ground Level at Slot (Slot #05)	25.50ft
MD Reference Pt	H&P 317 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	340.24°

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		Area	Ritchie County, WV	Well	Master Unit 2H
		Field	Ritchie	Wellbore	Master Unit 2H AWB
		Facility	Lettie Pad		

WELLPATH DATA (224 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	°	ft/100ft	ft/100ft	ft/100ft	
0.00†	0.000	232.440	0.00	0.00	0.00	0.00	1665703.92	14294788.03	39°21'53.440"N	80°54'37.910"W	0.00	0.000	0.00	0.00	0.00	
25.50	0.000	232.440	25.50	0.00	0.00	0.00	1665703.92	14294788.03	39°21'53.440"N	80°54'37.910"W	0.00	0.000	0.00	0.00	0.00	
60.50	0.470	232.440	60.50	-0.04	-0.09	-0.11	1665703.81	14294787.94	39°21'53.439"N	80°54'37.911"W	0.14	232.440	1.34	1.34	-364.466	Gyrodata MS Gyro <17.1/2">(60.490)
85.50	0.510	229.560	85.50	-0.11	-0.22	-0.28	1665703.64	14294787.81	39°21'53.438"N	80°54'37.914"W	0.36	231.543	0.19	0.16	-11.52	
110.50	0.430	227.140	110.50	-0.19	-0.36	-0.43	1665703.49	14294787.67	39°21'53.436"N	80°54'37.916"W	0.56	230.417	0.33	-0.32	-9.68	
135.50	0.580	224.930	135.50	-0.28	-0.51	-0.59	1665703.33	14294787.52	39°21'53.435"N	80°54'37.918"W	0.78	229.137	0.60	0.60	-8.84	
160.50	0.570	228.930	160.50	-0.38	-0.68	-0.77	1665703.15	14294787.35	39°21'53.433"N	80°54'37.920"W	1.03	228.597	0.17	-0.04	16.00	
185.50	0.560	218.220	185.49	-0.49	-0.86	-0.94	1665702.98	14294787.17	39°21'53.432"N	80°54'37.922"W	1.28	227.642	0.42	-0.04	-42.84	
210.50	0.560	218.390	210.49	-0.62	-1.05	-1.10	1665702.83	14294786.98	39°21'53.430"N	80°54'37.924"W	1.52	226.147	0.01	0.00	0.68	
235.50	0.430	191.830	235.49	-0.76	-1.24	-1.19	1665702.73	14294786.79	39°21'53.428"N	80°54'37.925"W	1.72	223.833	1.04	-0.52	-106.24	
260.50	0.460	202.670	260.49	-0.92	-1.42	-1.25	1665702.68	14294786.61	39°21'53.426"N	80°54'37.926"W	1.89	221.232	0.36	0.12	43.36	
285.50	0.550	201.070	285.49	-1.08	-1.63	-1.33	1665702.59	14294786.40	39°21'53.424"N	80°54'37.927"W	2.10	219.234	0.36	0.36	-6.40	
310.50	0.540	200.160	310.49	-1.26	-1.85	-1.41	1665702.51	14294786.18	39°21'53.422"N	80°54'37.928"W	2.33	217.367	0.05	-0.04	-3.64	
335.50	0.580	192.020	335.49	-1.46	-2.09	-1.48	1665702.44	14294785.95	39°21'53.419"N	80°54'37.929"W	2.56	215.373	0.36	0.16	-32.56	
360.50	0.590	194.310	360.49	-1.68	-2.33	-1.54	1665702.39	14294785.70	39°21'53.417"N	80°54'37.930"W	2.80	213.386	0.10	0.04	9.16	
385.50	0.600	199.870	385.49	-1.88	-2.58	-1.61	1665702.31	14294785.45	39°21'53.414"N	80°54'37.931"W	3.05	212.020	0.23	0.04	21.44	
410.50	0.780	199.870	410.48	-2.12	-2.87	-1.72	1665702.21	14294785.17	39°21'53.412"N	80°54'37.932"W	3.34	210.926	0.72	0.72	0.80	
435.50	0.960	200.260	435.48	-2.41	-3.22	-1.85	1665702.08	14294784.81	39°21'53.408"N	80°54'37.934"W	3.71	209.824	0.72	0.72	1.56	
460.50	1.000	196.820	460.48	-2.74	-3.63	-1.98	1665701.94	14294784.40	39°21'53.404"N	80°54'37.935"W	4.13	208.661	0.28	0.16	-13.76	
485.50	1.070	197.660	485.47	-3.10	-4.06	-2.12	1665701.81	14294783.97	39°21'53.400"N	80°54'37.937"W	4.58	207.543	0.29	0.28	-3.36	
500.50	1.070	197.170	500.47	-3.33	-4.33	-2.20	1665701.72	14294783.71	39°21'53.397"N	80°54'37.938"W	4.85	206.962	0.06	0.00	-3.27	
551.50	1.420	161.730	551.46	-4.34	-5.38	-2.14	1665701.78	14294782.65	39°21'53.387"N	80°54'37.937"W	5.79	201.715	1.62	0.69	-69.49	MFT EM <12.1/4">(490)(541-.2506)
644.50	3.680	150.340	644.36	-8.43	-9.07	-0.30	1665703.62	14294778.97	39°21'53.350"N	80°54'37.914"W	9.07	181.923	2.48	2.43	-12.25	
737.50	5.140	149.300	737.08	-15.46	-15.25	3.30	1665707.22	14294772.79	39°21'53.289"N	80°54'37.868"W	15.60	167.788	1.57	1.57	-1.12	
830.50	5.850	150.610	829.66	-24.23	-22.96	7.75	1665711.67	14294765.08	39°21'53.213"N	80°54'37.812"W	24.23	161.341	0.78	0.76	-1.41	
926.50	5.920	151.120	925.15	-33.94	-31.55	12.54	1665716.46	14294756.49	39°21'53.128"N	80°54'37.751"W	33.96	158.320	0.09	0.07	0.53	
1046.50	5.510	157.190	1044.55	-45.80	-42.28	17.77	1665717.68	14294745.76	39°21'53.022"N	80°54'37.684"W	45.86	157.209	0.61	-0.34	5.06	
1141.50	5.550	163.140	1139.11	-54.94	-50.88	20.87	1665724.78	14294737.17	39°21'52.937"N	80°54'37.608"W	55.00	157.702	0.60	0.04	6.26	
1236.50	5.780	160.270	1233.65	-64.32	-59.78	23.81	1665727.73	14294728.27	39°21'52.849"N	80°54'37.608"W	64.35	158.280	0.38	0.24	-3.02	
1331.50	5.010	160.630	1328.23	-73.25	-68.20	26.81	1665730.72	14294719.86	39°21'52.766"N	80°54'37.570"W	73.28	158.543	0.81	-0.81	0.38	

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REFERENCE WELLPATH IDENTIFICATION				Operator	ANTERO RESOURCES CORPORATION	Slot #05
Area	Ritchie County, WV	Well	Well	Master Unit 2H		
Field	Ritchie	Wellbore	Wellbore	Master Unit 2H AWP		
Facility	Lettie Pad					

WELLPATH DATA (224 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	ft	ft	ft	ft	ft	ft	ft/100ft	ft/100ft	ft/100ft	
1426.50	2.710	165.680	1423.01	-9.63	-74.29	128.74	1665732.65	14294713.77	39°21'52.705"N	80°54'37.545"W	79.65	158.853	2.45	-2.42	5.32	
1520.50	0.860	193.800	1516.96	-82.43	-77.13	29.12	1665733.03	14294710.93	39°21'52.677"N	80°54'37.540"W	82.44	159.317	2.12	-1.97	29.91	
1615.50	1.780	247.420	1611.94	-83.07	-78.20	28.05	1665731.96	14294709.87	39°21'52.667"N	80°54'37.554"W	83.07	160.270	1.01	0.34	56.44	
1710.50	0.950	236.940	1706.93	-83.30	-79.00	26.48	1665730.40	14294709.06	39°21'52.659"N	80°54'37.574"W	83.32	161.469	0.32	-0.24	-11.03	
1805.50	0.860	202.650	1801.92	-84.01	-80.09	25.55	1665729.46	14294707.97	39°21'52.646"N	80°54'37.586"W	84.07	162.308	0.57	-0.09	-36.09	
1899.50	0.720	213.590	1895.91	-84.88	-81.23	24.95	1665728.86	14294706.83	39°21'52.637"N	80°54'37.593"W	84.98	162.927	0.22	-0.15	-11.64	
1994.50	0.870	208.680	1990.90	-85.72	-82.36	24.27	1665728.19	14294705.70	39°21'52.628"N	80°54'37.602"W	85.87	163.580	0.17	0.16	-5.17	
2089.50	0.840	208.640	2085.89	-86.66	-83.61	23.59	1665727.51	14294704.46	39°21'52.613"N	80°54'37.611"W	86.87	164.242	0.03	-0.03	-0.04	
2184.50	0.770	215.980	2180.88	-87.48	-84.73	22.88	1665726.80	14294703.33	39°21'52.602"N	80°54'37.620"W	87.77	164.887	0.13	-0.07	7.73	
2278.50	1.060	223.930	2274.87	-88.22	-85.87	21.91	1665725.83	14294702.19	39°21'52.591"N	80°54'37.632"W	88.62	165.667	0.34	0.31	8.46	
2373.50	1.110	225.680	2369.85	-88.99	-87.15	20.64	1665724.56	14294700.92	39°21'52.578"N	80°54'37.648"W	89.56	166.675	0.06	0.05	1.84	
2468.50	0.690	229.250	2464.84	-89.58	-88.16	19.55	1665723.47	14294699.90	39°21'52.568"N	80°54'37.662"W	90.31	167.497	0.45	-0.44	3.76	
2516.50	0.330	228.180	2512.84	-89.74	-88.44	18.23	1665723.14	14294699.62	39°21'52.566"N	80°54'37.666"W	90.51	167.735	0.75	-0.75	-2.23	
2634.50	0.200	211.980	2630.83	-89.99	-88.85	18.87	1665722.78	14294699.22	39°21'52.562"N	80°54'37.671"W	90.83	168.012	0.13	-0.11	-13.73	WFT-EM <-8-3/4"-(2506)-(2624--5947)
2728.50	0.180	179.770	2724.83	-90.23	-89.13	18.78	1665722.70	14294698.93	39°21'52.559"N	80°54'37.672"W	91.09	168.102	0.11	-0.02	-34.27	
2823.50	1.480	198.740	2819.82	-91.33	-90.44	18.39	1665722.30	14294697.62	39°21'52.546"N	80°54'37.677"W	92.29	168.509	1.38	1.37	19.97	
2918.50	3.280	195.550	2914.74	-94.51	-94.22	17.26	1665721.18	14294693.84	39°21'52.509"N	80°54'37.691"W	95.79	169.618	1.90	1.89	-3.36	
3018.50	5.540	191.540	3014.43	-100.97	-101.71	15.53	1665719.45	14294686.36	39°21'52.435"N	80°54'37.714"W	102.89	171.319	2.28	2.26	-4.01	
3113.50	7.110	189.390	3108.85	-110.03	-112.00	13.65	1665717.57	14294676.07	39°21'52.333"N	80°54'37.738"W	112.83	173.050	1.67	1.65	-2.26	
3208.50	8.720	187.430	3202.94	-121.57	-124.95	11.76	1665715.68	14294663.13	39°21'52.205"N	80°54'37.762"W	125.50	174.622	1.72	1.69	-2.06	
3302.50	8.550	185.390	3295.88	-134.23	-138.97	10.18	1665714.11	14294649.12	39°21'52.066"N	80°54'37.782"W	139.34	175.808	0.37	-0.18	-2.17	
3397.50	9.460	184.860	3389.71	-147.72	-153.78	8.86	1665712.78	14294634.31	39°21'51.920"N	80°54'37.799"W	154.03	176.703	0.96	0.96	-0.56	
3492.50	9.380	183.720	3483.43	-161.92	-169.28	7.70	1665711.62	14294618.81	39°21'51.767"N	80°54'37.814"W	169.46	177.397	0.21	-0.08	-1.20	
3587.50	9.040	182.200	3577.20	-175.94	-184.47	6.91	1665710.63	14294603.64	39°21'51.617"N	80°54'37.824"W	184.60	177.855	0.44	-0.36	-1.60	
3682.50	9.140	179.970	3671.01	-189.96	-199.47	6.63	1665710.55	14294588.64	39°21'51.468"N	80°54'37.828"W	199.58	178.098	0.39	0.11	-2.35	
3777.50	9.050	182.760	3764.82	-203.97	-214.48	6.27	1665710.19	14294573.64	39°21'51.320"N	80°54'37.833"W	214.57	178.326	0.47	-0.09	2.94	
3871.50	8.970	180.480	3857.66	-217.67	-229.19	5.85	1665709.77	14294558.33	39°21'51.175"N	80°54'37.838"W	229.27	178.537	0.39	-0.09	-2.43	
3966.50	9.720	184.130	3951.40	-231.96	-244.60	5.21	1665709.13	14294543.93	39°21'51.022"N	80°54'37.847"W	244.65	178.779	1.01	0.79	3.84	
4061.50	9.850	182.670	4045.01	-246.80	-260.71	4.26	1665708.18	14294527.42	39°21'50.863"N	80°54'37.859"W	260.75	179.065	0.29	0.14	-1.54	
4156.50	10.200	179.400	4138.56	-262.26	-277.24	3.97	1665707.89	14294510.90	39°21'50.700"N	80°54'37.863"W	277.27	179.180	0.70	0.37	-3.44	

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Area	Ritchie County, WV								
Field	Ritchie								
Facility	Lettie Pad								

WELLPATH DATA (224 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	
4251.50	9.490	183.170	4232.16	-277.41	-293.47	3.62	1665707.64	142944494.68	39°21'50.539"N	80°54'37.868"W	293.49	179.293	1.01	-0.75	3.97	
4345.50	9.720	184.520	4324.85	-291.78	-309.12	2.57	1665706.49	142944479.04	39°21'50.385"N	80°54'37.881"W	309.13	179.524	0.34	0.24	1.44	
4440.50	10.090	181.910	4418.43	-306.83	-325.43	1.66	1665705.58	142944462.73	39°21'50.224"N	80°54'37.893"W	325.43	179.708	0.61	0.39	-2.75	
4535.50	9.420	186.810	4512.06	-321.52	-341.47	0.46	1665704.38	142944446.70	39°21'50.065"N	80°54'37.908"W	341.47	179.923	1.12	-0.71	5.16	
4630.50	9.800	186.600	4605.73	-335.71	-357.22	-1.39	1665702.53	142944430.96	39°21'49.909"N	80°54'37.932"W	357.22	180.223	0.40	0.40	-0.22	
4725.50	9.140	186.030	4699.43	-349.75	-372.75	-3.11	1665700.81	142944415.43	39°21'49.756"N	80°54'37.954"W	372.77	180.479	0.70	-0.69	-0.60	
4820.50	9.400	182.730	4793.19	-363.71	-388.01	-4.28	1665699.65	142944400.18	39°21'49.605"N	80°54'37.969"W	388.03	180.632	0.62	0.27	-3.47	
4915.50	8.760	184.030	4887.00	-377.50	-402.97	-5.15	1665698.77	14294385.22	39°21'49.457"N	80°54'37.981"W	403.00	180.733	0.71	-0.67	1.37	
5010.50	8.800	184.640	4980.89	-390.74	-417.43	-6.25	1665697.68	14294370.77	39°21'49.314"N	80°54'37.995"W	417.48	180.858	0.11	0.04	0.64	
5105.50	9.670	183.620	5074.65	-404.68	-432.64	-7.34	1665696.58	14294355.57	39°21'49.164"N	80°54'38.009"W	432.70	180.972	0.93	0.92	-1.07	
5199.50	9.010	182.950	5167.41	-418.72	-447.87	-8.22	1665695.71	14294340.34	39°21'49.014"N	80°54'38.020"W	447.94	181.051	0.71	-0.70	-0.71	
5294.50	9.300	181.150	5261.20	-432.75	-462.97	-8.76	1665694.92	14294325.25	39°21'48.864"N	80°54'38.031"W	463.05	181.084	0.43	0.31	-1.89	
5389.50	8.760	180.790	5355.02	-446.69	-477.88	-9.01	1665694.92	14294310.34	39°21'48.717"N	80°54'38.031"W	477.96	181.080	0.57	-0.57	-0.38	
5484.50	9.740	178.030	5448.78	-461.12	-493.14	-8.83	1665695.09	14294295.08	39°21'48.566"N	80°54'38.029"W	493.22	181.026	1.13	1.03	-2.91	
5547.50	8.690	182.960	5510.97	-470.58	-503.22	-8.90	1665695.03	14294285.01	39°21'48.466"N	80°54'38.030"W	503.30	181.013	2.08	-1.67	7.83	
5579.50	5.950	198.140	5542.71	-474.12	-507.21	-9.54	1665694.39	14294281.02	39°21'48.427"N	80°54'38.038"W	507.30	181.077	10.41	-8.56	47.44	
5610.50	4.630	226.980	5573.58	-475.89	-509.60	-10.95	1665692.98	14294278.64	39°21'48.403"N	80°54'38.056"W	509.71	181.231	9.44	-4.26	93.03	
5624.50	4.280	259.670	5605.49	-476.20	-510.69	-13.07	1665690.86	14294272.54	39°21'48.393"N	80°54'38.083"W	510.86	181.466	7.90	-1.09	102.16	
5673.50	4.470	295.420	5636.41	-475.15	-510.38	-15.30	1665688.63	14294277.86	39°21'48.396"N	80°54'38.111"W	510.61	181.717	8.68	0.61	115.32	
5705.50	6.320	327.670	5668.27	-472.55	-508.36	-17.37	1665686.56	14294272.88	39°21'48.416"N	80°54'38.138"W	508.65	181.957	10.88	5.78	100.78	
5737.50	9.090	342.890	5699.98	-468.30	-504.45	-19.06	1665684.87	14294283.78	39°21'48.454"N	80°54'38.159"W	504.81	182.164	10.68	8.66	47.56	
5768.50	11.930	351.610	5730.46	-462.72	-498.94	-20.25	1665683.69	14294289.29	39°21'48.509"N	80°54'38.174"W	499.35	182.324	10.48	9.16	28.13	
5800.50	14.590	355.490	5761.60	-455.58	-491.65	-21.05	1665682.89	14294296.58	39°21'48.581"N	80°54'38.184"W	492.10	182.451	8.76	8.31	12.12	
5831.50	17.110	357.940	5791.42	-447.47	-483.20	-21.52	1665682.42	14294305.03	39°21'48.664"N	80°54'38.190"W	483.68	182.550	8.41	8.13	7.90	
5863.50	19.370	358.000	5821.81	-437.93	-473.19	-21.87	1665682.06	14294315.03	39°21'48.763"N	80°54'38.194"W	473.69	182.646	7.06	7.06	0.19	
5895.50	21.680	355.630	5851.78	-427.18	-461.99	-22.51	1665681.43	14294326.23	39°21'48.874"N	80°54'38.202"W	462.54	182.789	7.67	-7.41	-7.41	
5926.50	23.300	352.900	5880.42	-415.67	-450.19	-23.70	1665680.23	14294338.02	39°21'48.911"N	80°54'38.217"W	450.82	183.014	6.22	5.23	-8.81	
5957.50	25.310	352.840	5908.67	-403.22	-437.53	-25.28	1665678.65	14294350.67	39°21'49.116"N	80°54'38.237"W	438.26	183.307	6.48	6.48	-0.19	
6011.00	28.570	355.210	5956.36	-379.70	-413.43	-27.78	1665676.16	14294374.76	39°21'49.354"N	80°54'38.269"W	414.36	183.844	6.41	6.09	4.43	BH AT Curve <-8-1/2"> (5957.5)(6011-17443)
6058.00	31.020	356.000	5997.15	-357.18	-390.15	-29.56	1665674.37	14294398.04	39°21'49.584"N	80°54'38.291"W	391.27	184.333	5.28	5.21	1.68	

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Actual Wellpath Report

Master Unit 2H AWP Proj: 17467'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #05
Operator	ANTERO RESOURCES CORPORATION	Well	Master Unit 2H
Area	Ritchie County, WV	Wellbore	Master Unit 2H AWP
Field	Ritchie		
Facility	Lettie Pad		

WELLPATH DATA (224 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	
6106.00	33.810	355.890	6037.66	-332.41	-364.48	-31.38	1665672.55	14294423.69	39°21'49.838"N	80°54'38.314"W	365.83	184.921	5.81	5.81	-0.23	
6153.00	37.160	355.870	6075.93	-306.14	-337.28	-33.34	1665670.59	14294450.89	39°21'50.107"N	80°54'38.339"W	338.92	185.646	7.13	7.13	-0.04	
6201.00	39.860	356.140	6113.49	-277.38	-307.46	-35.42	1665668.52	14294480.69	39°21'50.401"N	80°54'38.365"W	309.50	186.572	5.64	5.62	0.56	
6248.00	43.220	356.450	6148.66	-247.44	-276.37	-37.43	1665666.51	14294511.78	39°21'50.709"N	80°54'38.390"W	278.89	187.714	7.16	7.15	0.66	
6274.00†	45.587	356.545	6167.23	-229.97	-258.21	-38.54	1665665.40	14294529.93	39°21'50.888"N	80°54'38.404"W	261.07	188.490	9.11	9.10	0.37	Middlesex: 6274' MD
6296.00	47.590	356.620	6182.35	-214.64	-242.26	-39.50	1665664.44	14294545.87	39°21'51.046"N	80°54'38.416"W	245.46	189.260	9.11	9.10	0.34	
6343.00	52.460	356.940	6212.54	-180.12	-206.31	-41.52	1665662.43	14294581.81	39°21'51.401"N	80°54'38.441"W	210.44	191.378	10.37	10.36	0.68	
6390.00	57.120	356.760	6239.63	-143.33	-167.97	-43.63	1665660.31	14294620.12	39°21'51.780"N	80°54'38.468"W	173.55	194.560	9.92	9.91	-0.38	
6437.00	61.740	356.420	6263.53	-104.51	-127.59	-46.04	1665657.91	14294660.49	39°21'52.179"N	80°54'38.498"W	135.64	199.840	9.85	9.83	-0.72	
6452.00†	63.024	356.353	6270.48	-91.75	-114.33	-46.87	1665657.07	14294673.75	39°21'52.311"N	80°54'38.508"W	123.56	202.294	8.57	8.56	-0.45	Burkett: 6452' MD
6485.00	65.850	356.210	6284.72	-63.14	-84.62	-48.81	1665655.14	14294703.44	39°21'52.604"N	80°54'38.532"W	97.69	209.974	8.57	8.56	-0.43	
6532.00	70.430	356.450	6302.21	-21.24	-41.10	-51.60	1665652.35	14294746.95	39°21'53.034"N	80°54'38.567"W	65.97	231.458	9.76	9.74	0.51	
6539.00†	70.980	356.423	6304.53	-14.89	-34.51	-52.01	1665651.94	14294753.54	39°21'53.099"N	80°54'38.573"W	62.41	236.434	7.86	7.85	-0.38	Tully: 6539' MD
6580.00	74.200	356.270	6316.79	22.69	-4.53	-54.50	1665649.45	14294792.56	39°21'53.485"N	80°54'38.604"W	54.69	274.750	7.86	7.85	-0.37	
6627.00	78.570	355.920	6327.85	66.62	50.09	-57.61	1665646.34	14294838.10	39°21'53.936"N	80°54'38.643"W	76.34	311.006	9.33	9.30	-0.74	
6639.00†	79.040	355.890	6330.18	77.95	61.83	-58.45	1665645.50	14294849.84	39°21'54.052"N	80°54'38.653"W	85.09	316.610	9.32	9.32	-0.25	Marcellus POE: 6639' MD
6675.00	80.450	355.800	6336.59	112.07	97.16	-61.02	1665642.93	14294885.16	39°21'54.401"N	80°54'38.686"W	114.73	327.872	3.92	3.92	-0.25	
6722.00	82.440	354.290	6343.58	157.00	143.46	-65.03	1665638.92	14294931.44	39°21'54.859"N	80°54'38.736"W	157.51	335.615	5.29	5.29	-3.21	
6769.00	85.100	353.260	6348.68	202.42	189.90	-70.10	1665633.85	14294977.86	39°21'55.318"N	80°54'38.800"W	202.43	339.739	6.06	6.06	-2.19	
6816.00	88.400	352.020	6351.35	248.24	236.44	-76.11	1665627.84	14295024.97	39°21'55.778"N	80°54'38.876"W	248.38	342.156	7.50	7.50	-2.64	
6864.00	90.030	350.490	6352.01	295.35	283.87	-83.41	1665620.55	14295071.79	39°21'56.246"N	80°54'38.966"W	295.87	343.626	4.66	4.66	-3.19	
6959.00	90.430	345.820	6351.63	389.42	376.82	-102.90	1665601.06	14295164.70	39°21'57.165"N	80°54'39.215"W	390.62	344.726	4.93	4.93	-4.92	
7054.00	90.220	341.170	6351.09	484.24	467.88	-129.88	1665574.09	14295255.72	39°21'58.066"N	80°54'39.558"W	485.57	344.485	4.90	4.90	-0.22	
7149.00	89.880	339.260	6351.00	579.24	557.27	-162.04	1665541.95	14295345.07	39°21'58.949"N	80°54'39.966"W	580.35	343.787	2.04	2.04	-0.36	-2.01
7244.00	90.060	338.970	6351.05	674.22	646.03	-195.91	1665508.10	14295433.80	39°21'59.827"N	80°54'40.396"W	675.08	343.130	0.36	0.36	-0.19	-0.31
7338.00	89.940	338.690	6351.05	768.19	733.68	-229.85	1665474.16	14295521.42	39°22'00.664"N	80°54'40.827"W	768.84	342.605	0.32	0.32	-0.13	-0.30
7433.00	90.030	338.440	6351.08	863.15	822.11	-264.57	1665439.46	14295609.81	39°22'01.599"N	80°54'41.266"W	863.63	342.161	0.28	0.28	-0.09	-0.26
7528.00	90.000	336.830	6351.05	958.05	909.96	-300.72	1665403.33	14295697.63	39°22'02.437"N	80°54'41.727"W	958.36	341.713	1.70	1.70	-0.03	-1.69
7623.00	90.030	336.890	6351.03	1052.88	997.32	-338.05	1665366.01	14295784.95	39°22'03.300"N	80°54'42.202"W	1053.05	341.275	0.07	0.07	0.03	0.06
7718.00	90.090	338.240	6350.93	1147.78	1085.13	-374.30	1665329.77	14295872.72	39°22'04.169"N	80°54'42.662"W	1147.87	340.969	1.42	1.42	0.06	1.42

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Actual Wellpath Report

Master Unit 2H AWP Proj: 17467'
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REFERENCE WELLPATH IDENTIFICATION										
Operator	ANTERO RESOURCES CORPORATION									
Area	Ritchie County, WV									
Field	Ritchie									
Facility	Lettie Pad									
Slot	Master Unit 2H									
Well	Wellbores									
Wellbore	Master Unit 2H AWB									

WELLPATH DATA (224 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 ft/100ft	Build Rate ft/100ft	Turn Rate ft/100ft	Comments
7813.00	89.970	341.590	6350.88	1242.76	1174.34	-406.92	1665297.16	14295961.90	39°22'05.051"N	80°54'43.076"W	1242.84	340.888	3.53	-0.13	3.53	
7908.00	89.880	344.740	6351.00	1337.62	1265.25	-434.43	1665269.66	14296052.78	39°22'05.949"N	80°54'43.426"W	1337.76	341.050	3.32	-0.09	3.32	
8002.00	90.220	346.840	6350.92	1431.18	1356.37	-457.51	1665246.60	14296143.96	39°22'06.850"N	80°54'43.718"W	1431.45	341.361	2.26	0.36	2.23	
8097.00	90.060	348.770	6350.69	1525.35	1449.22	-477.57	1665226.54	14296236.67	39°22'07.768"N	80°54'43.973"W	1525.88	341.761	2.04	-0.17	2.03	
8192.00	90.340	348.090	6350.36	1619.38	1542.29	-496.63	1665207.50	14296329.70	39°22'08.688"N	80°54'44.214"W	1620.28	342.151	0.77	0.29	-0.72	
8287.00	90.030	344.840	6350.05	1713.80	1634.64	-518.86	1665185.27	14296422.01	39°22'09.601"N	80°54'44.496"W	1715.01	342.390	3.44	-0.33	-3.42	
8382.00	90.090	341.390	6349.95	1808.67	1725.53	-546.45	1665157.70	14296512.87	39°22'10.500"N	80°54'44.846"W	1809.99	342.428	3.63	0.06	-3.63	
8476.00	90.160	337.060	6349.75	1902.63	1813.40	-579.78	1665124.38	14296600.70	39°22'11.368"N	80°54'45.269"W	1903.83	342.270	4.61	0.06	-4.61	
8571.00	90.460	337.170	6349.25	1997.49	1900.82	-616.72	1665087.45	14296688.19	39°22'12.234"N	80°54'45.739"W	1998.46	342.025	0.35	0.33	0.12	
8666.00	90.860	335.630	6348.15	2092.27	1987.96	-654.75	1665049.43	14296775.20	39°22'13.095"N	80°54'46.222"W	2093.01	341.770	1.67	0.42	-1.62	
8761.00	90.180	332.190	6347.29	2186.67	2073.27	-696.52	1665007.68	14296860.47	39°22'13.938"N	80°54'46.753"W	2187.14	341.430	3.69	-0.72	-3.62	
8856.00	90.030	333.240	6347.12	2280.85	2157.70	-740.07	1664964.15	14296944.86	39°22'14.773"N	80°54'47.306"W	2281.09	341.068	1.12	-0.16	1.11	
8950.00	90.250	334.480	6346.89	2374.27	2242.08	-781.49	1664922.75	14297029.21	39°22'15.607"N	80°54'47.833"W	2374.37	340.784	1.34	0.23	1.32	
9045.00	89.850	334.960	6346.80	2468.82	2327.98	-822.05	1664882.20	14297115.08	39°22'16.457"N	80°54'48.348"W	2468.86	340.551	0.66	-0.42	0.51	
9140.00	89.820	338.510	6347.08	2563.63	2415.24	-859.57	1664844.70	14297202.30	39°22'17.320"N	80°54'48.825"W	2563.64	340.410	3.74	-0.03	3.74	
9235.00	89.000	341.210	6347.23	2658.62	2504.43	-892.28	1664812.00	14297291.45	39°22'18.201"N	80°54'49.240"W	2658.63	340.390	2.85	0.19	2.84	
9330.00	89.850	340.460	6347.35	2753.61	2594.16	-923.47	1664780.83	14297381.15	39°22'19.088"N	80°54'49.636"W	2753.63	340.405	0.81	-0.16	-0.79	
9425.00	89.750	340.150	6347.68	2848.61	2683.60	-955.48	1664748.83	14297470.56	39°22'19.973"N	80°54'50.043"W	2848.62	340.402	0.34	-0.11	-0.33	
9520.00	89.820	338.430	6348.04	2943.60	2772.46	-989.08	1664715.25	14297559.38	39°22'20.851"N	80°54'50.469"W	2943.60	340.366	1.81	0.07	-1.81	
9614.00	89.820	338.780	6348.34	3037.56	2859.98	-1023.37	1664680.97	14297646.86	39°22'21.717"N	80°54'50.905"W	3037.56	340.312	0.37	0.00	0.37	
9709.00	89.780	341.920	6348.67	3132.54	2949.44	-1055.31	1664649.04	14297736.28	39°22'22.601"N	80°54'51.311"W	3132.55	340.313	3.31	-0.04	3.31	
9804.00	89.880	343.410	6348.95	3227.46	3040.12	-1083.61	1664620.75	14297826.93	39°22'23.496"N	80°54'51.670"W	3227.47	340.382	1.57	0.11	1.57	
9899.00	89.880	341.800	6349.15	3322.37	3130.77	-1112.01	1664592.36	14297917.54	39°22'24.394"N	80°54'52.031"W	3322.39	340.446	1.69	0.00	-1.69	
9994.00	90.060	342.510	6349.20	3417.32	3221.20	-1141.13	1664563.26	14298007.94	39°22'25.288"N	80°54'52.400"W	3417.35	340.493	0.77	0.19	0.75	
10089.00	89.940	347.440	6349.20	3511.96	3312.92	-1165.75	1664538.65	14298099.62	39°22'26.195"N	80°54'52.713"W	3512.04	340.614	5.19	-0.13	5.19	
10184.00	90.000	344.910	6349.25	3606.45	3405.16	-1188.44	1664515.96	14298191.83	39°22'27.107"N	80°54'53.000"W	3606.60	340.760	2.66	0.06	-2.66	
10278.00	89.910	337.920	6349.32	3700.37	3494.21	-1218.39	1664486.03	14298280.83	39°22'27.987"N	80°54'53.381"W	3700.53	340.777	7.44	-0.10	-7.44	
10373.00	89.940	336.180	6349.45	3795.22	3581.68	-1253.43	1664449.00	14298368.28	39°22'28.852"N	80°54'53.851"W	3795.33	340.684	1.83	0.03	-1.83	
10468.00	89.880	337.950	6349.60	3890.07	3669.17	-1292.45	1664412.00	14298455.73	39°22'29.717"N	80°54'54.322"W	3890.14	340.595	1.86	-0.06	1.86	
10563.00	89.690	338.890	6349.95	3985.02	3757.51	-1327.39	1664377.07	14298544.03	39°22'30.590"N	80°54'54.766"W	3985.08	340.544	1.01	-0.20	0.99	

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Actual Wellpath Report

Master Unit 2H AWP Proj: 17467'
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REFERENCE WELLPATH IDENTIFICATION											
Operator	ANTERO RESOURCES CORPORATION										
Area	Ritchie County, WV										
Field	Ritchie										
Facility	Lettie Pad										

WELLPATH DATA (224 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 ft/100ft	Build Rate ft/100ft	Turn Rate ft/100ft	Comments
10658.00	89.570	340.320	6350.57	4080.01	3846.55	-1360.49	1664343.98	14298633.04	39°22'31.47"N	80°54'55.186"W	4080.06	340.522	1.51	-0.13	1.51	
10753.00	89.850	342.150	6351.05	4174.99	3936.49	-1391.05	1664313.43	14298822.95	39°22'32.360"N	80°54'55.574"W	4175.05	340.538	1.95	0.29	1.93	
10848.00	89.850	342.880	6351.29	4269.91	4027.10	-1419.59	1664284.90	142988013.52	39°22'33.256"N	80°54'55.936"W	4269.99	340.582	0.77	0.00	0.77	
10943.00	90.460	346.700	6351.04	4364.60	4118.76	-1444.51	1664259.99	14298895.14	39°22'34.162"N	80°54'56.253"W	4364.72	340.673	4.07	0.64	4.02	
11037.00	90.280	348.780	6350.43	4457.78	4210.61	-1464.47	1664240.04	14298996.95	39°22'35.070"N	80°54'56.506"W	4458.01	340.822	2.22	-0.19	2.21	
11132.00	90.580	346.190	6349.72	4552.02	4303.34	-1485.05	1664219.47	14299089.64	39°22'35.987"N	80°54'56.767"W	4552.38	340.961	2.74	0.32	-2.73	
11227.00	90.220	343.730	6349.05	4646.68	4395.08	-1509.70	1664194.83	14299181.34	39°22'36.893"N	80°54'57.080"W	4647.14	341.042	2.62	-0.38	-2.59	
11322.00	89.780	341.320	6349.05	4741.60	4485.69	-1538.23	1664166.31	14299271.92	39°22'37.789"N	80°54'57.442"W	4742.10	341.072	2.58	-0.46	-2.54	
11417.00	90.090	342.570	6349.16	4836.56	4576.01	-1567.67	1664136.88	14299362.20	39°22'38.682"N	80°54'57.816"W	4837.09	341.089	1.36	0.33	1.32	
11511.00	90.520	343.350	6348.66	4930.45	4665.88	-1595.22	1664109.35	14299452.04	39°22'39.571"N	80°54'58.165"W	4931.04	341.125	0.95	0.46	0.83	
11606.00	90.180	338.270	6348.08	5025.41	4755.57	-1626.43	1664078.14	14299541.69	39°22'40.457"N	80°54'58.562"W	5026.00	341.119	5.36	-0.36	-5.35	
11701.00	90.060	334.930	6347.88	5120.21	4842.74	-1664.16	1664040.44	14299628.83	39°22'41.319"N	80°54'59.041"W	5120.70	341.035	3.52	-0.13	-3.52	
11796.00	90.030	336.650	6347.81	5214.92	4929.38	-1703.11	1664001.50	14299715.43	39°22'42.176"N	80°54'59.536"W	5215.30	340.940	1.81	-0.03	-1.81	
11891.00	90.120	336.150	6347.68	5309.70	5016.44	-1741.15	1663963.48	14299802.45	39°22'43.037"N	80°55'00.020"W	5310.01	340.859	0.53	0.09	-0.53	
11986.00	90.120	335.480	6347.48	5404.42	5103.10	-1780.07	1663924.57	14299889.08	39°22'43.894"N	80°55'00.514"W	5404.65	340.770	0.71	0.00	-0.71	
12081.00	90.180	339.330	6347.24	5499.28	5190.79	-1816.56	1663888.09	14299976.74	39°22'44.761"N	80°55'00.978"W	5499.47	340.712	4.05	0.06	4.05	
12175.00	91.320	343.500	6346.00	5593.23	5279.86	-1846.51	1663858.16	14300065.77	39°22'45.641"N	80°55'01.358"W	5593.43	340.724	4.60	1.21	4.44	
12270.00	90.430	341.300	6344.55	5688.15	5370.39	-1875.23	1663829.45	14300156.27	39°22'46.536"N	80°55'01.723"W	5688.37	340.752	2.50	-0.94	-2.32	
12365.00	90.460	338.370	6343.82	5783.13	5459.56	-1907.97	1663796.72	14300245.40	39°22'47.418"N	80°55'02.139"W	5783.35	340.737	3.08	0.03	-3.08	
12460.00	90.430	338.080	6343.08	5878.07	5547.78	-1943.21	1663761.49	14300333.68	39°22'48.290"N	80°55'02.587"W	5878.26	340.696	0.31	-0.03	-0.31	
12555.00	90.220	338.320	6342.54	5973.01	5635.98	-1978.49	1663726.23	14300421.75	39°22'49.162"N	80°55'03.035"W	5973.17	340.657	0.34	-0.22	0.25	
12650.00	90.310	337.700	6342.10	6067.94	5724.07	-2014.06	1663690.67	14300509.80	39°22'50.033"N	80°55'03.487"W	6068.07	340.615	0.66	0.09	-0.65	
12745.00	90.550	337.560	6341.39	6162.83	5811.92	-2050.22	1663654.53	14300597.62	39°22'50.902"N	80°55'03.946"W	6162.94	340.569	0.29	0.25	-0.15	
12840.00	90.460	338.490	6340.55	6257.76	5900.01	-2085.77	1663619.00	14300685.67	39°22'51.773"N	80°55'04.398"W	6257.84	340.531	0.98	-0.09	0.98	
12934.00	89.880	335.930	6340.27	6351.62	5986.66	-2122.17	1663582.60	14300772.29	39°22'52.630"N	80°55'04.861"W	6351.67	340.481	2.79	-0.62	-2.72	
13029.00	90.120	334.640	6340.27	6446.26	6072.96	-2161.89	1663542.90	14300858.55	39°22'53.483"N	80°55'05.365"W	6446.29	340.405	1.38	0.25	-1.36	
13124.00	89.970	340.000	6340.20	6541.10	6160.58	-2198.51	1663506.30	14300946.14	39°22'54.349"N	80°55'05.831"W	6541.12	340.360	5.64	-0.16	5.64	
13219.00	90.030	343.200	6340.20	6636.06	6250.71	-2228.49	1663476.33	14301036.24	39°22'55.240"N	80°55'06.212"W	6636.08	340.378	3.37	0.06	3.37	
13314.00	90.090	341.080	6340.10	6731.01	6341.13	-2257.63	1663447.20	14301126.62	39°22'56.134"N	80°55'06.562"W	6731.03	340.403	2.23	0.06	-2.23	
13409.00	90.030	339.030	6340.00	6826.00	6430.43	-2290.03	1663414.81	14301215.88	39°22'57.017"N	80°55'06.993"W	6826.03	340.398	2.16	-0.06	-2.16	

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Actual Wellpath Report

Master Unit 2H AWP Proj: 17467'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Ritchie County, WV	Well	Master Unit 2H
Field	Ritchie	Wellbore	Master Unit 2H AWP
Facility	Lettie Pad		

WELLPATH DATA (224 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/l	°	°	ft/l	ft/l	ft/l	ft/l	US ft/l	US ft/l			ft/l	°	ft/100ft	ft/100ft	ft/100ft	
13504.00	89.970	337.800	6340.00	6920.95	6518.76	-2324.98	1663379.88	14301304.18	39°22'57.890"N	80°55'07.437"W	6920.97	340.371	1.30	-0.06	-1.29	
13599.00	90.030	337.410	6340.00	7015.85	6606.60	-2361.17	1663343.70	14301391.98	39°22'58.759"N	80°55'07.897"W	7015.86	340.333	0.42	0.06	-0.41	
13693.00	89.570	337.780	6340.32	7109.75	6693.50	-2397.00	1663307.88	14301478.85	39°22'59.618"N	80°55'08.352"W	7109.75	340.297	0.63	-0.49	0.39	
13788.00	89.850	338.440	6340.81	7204.68	6781.65	-2432.42	1663272.48	14301566.96	39°23'00.490"N	80°55'08.803"W	7204.68	340.268	0.75	0.29	0.69	
13883.00	90.000	342.730	6340.93	7299.66	6871.23	-2463.99	1663240.92	14301656.50	39°23'01.375"N	80°55'09.204"W	7299.66	340.272	4.52	0.16	4.52	
13978.00	89.540	343.510	6341.31	7394.54	6962.13	-2491.57	1663213.35	14301747.37	39°23'02.274"N	80°55'09.554"W	7394.54	340.309	0.95	-0.48	0.82	
14073.00	89.540	343.250	6342.07	7489.39	7053.16	-2518.75	1663186.19	14301838.36	39°23'03.174"N	80°55'09.899"W	7489.40	340.348	0.27	0.00	-0.27	
14168.00	89.660	341.650	6342.74	7584.31	7143.73	-2547.39	1663157.56	14301928.90	39°23'04.066"N	80°55'10.263"W	7584.33	340.374	1.69	0.13	-1.68	
14263.00	89.510	340.060	6343.43	7679.30	7233.47	-2578.55	1663126.41	14302018.60	39°23'04.937"N	80°55'10.658"W	7679.33	340.380	1.68	-0.16	-1.67	
14357.00	89.540	342.580	6344.20	7773.28	7322.51	-2608.65	1663096.32	14302107.60	39°23'05.837"N	80°55'11.041"W	7773.30	340.392	2.68	0.03	2.68	
14452.00	89.690	339.320	6344.84	7868.25	7412.30	-2639.65	1663065.33	14302197.35	39°23'06.724"N	80°55'11.435"W	7868.28	340.398	3.44	0.16	-3.43	
14547.00	89.600	338.490	6345.43	7963.22	7500.93	-2673.84	1663031.16	14302285.95	39°23'07.607"N	80°55'11.869"W	7963.25	340.380	0.88	-0.09	-0.87	
14642.00	90.180	337.770	6345.61	8058.16	7589.09	-2709.23	1662995.78	14302374.07	39°23'08.472"N	80°55'12.319"W	8058.17	340.354	0.97	0.61	-0.76	
14737.00	90.060	337.220	6345.42	8153.05	7676.85	-2745.59	1662959.43	14302461.80	39°23'09.340"N	80°55'12.781"W	8153.06	340.321	0.59	-0.13	-0.58	
14832.00	90.090	338.240	6345.29	8247.96	7764.77	-2781.58	1662923.45	14302549.68	39°23'10.209"N	80°55'13.238"W	8247.96	340.291	1.07	0.03	1.07	
14927.00	90.000	338.230	6345.22	8342.90	7852.99	-2816.82	1662888.24	14302637.87	39°23'11.082"N	80°55'13.686"W	8342.90	340.267	0.10	-0.09	-0.01	
15021.00	89.940	338.450	6345.27	8436.85	7940.36	-2851.51	1662853.55	14302725.20	39°23'11.945"N	80°55'14.127"W	8436.85	340.246	0.24	-0.06	0.23	
15116.00	90.090	339.100	6345.24	8531.82	8028.91	-2886.91	1662818.18	14302813.72	39°23'12.821"N	80°55'14.564"W	8531.82	340.230	0.70	0.16	0.68	
15211.00	90.340	338.730	6344.88	8626.79	8117.55	-2920.02	1662785.01	14302902.32	39°23'13.697"N	80°55'14.998"W	8626.79	340.215	0.47	0.26	-0.39	
15305.00	90.620	336.310	6344.10	8720.67	8204.04	-2956.08	1662749.09	14302989.14	39°23'14.566"N	80°55'15.455"W	8720.68	340.186	2.59	0.30	-2.57	
15400.00	90.120	337.760	6343.48	8815.52	8291.86	-2993.09	1662712.04	14303076.57	39°23'15.421"N	80°55'15.926"W	8815.53	340.152	1.61	-0.53	1.53	
15495.00	89.910	342.730	6343.46	8910.49	8381.24	-3025.19	1662679.95	14303165.91	39°23'16.304"N	80°55'16.334"W	8910.50	340.153	5.24	-0.22	5.23	
15590.00	90.030	346.740	6343.51	9005.18	8472.87	-3050.19	1662654.96	14303257.50	39°23'17.210"N	80°55'16.651"W	9005.18	340.201	4.22	0.13	4.22	
15685.00	90.180	350.000	6343.33	9099.21	8565.91	-3069.34	1662635.82	14303350.50	39°23'18.130"N	80°55'16.894"W	9099.21	340.286	3.44	0.16	3.43	
15780.00	90.180	349.840	6343.04	9192.66	8659.44	-3085.97	1662619.20	14303444.00	39°23'19.055"N	80°55'17.105"W	9192.89	340.385	0.17	0.00	-0.17	
15874.00	89.910	347.880	6343.96	9285.79	8751.67	-3104.13	1662601.04	14303536.19	39°23'19.966"N	80°55'17.335"W	9285.87	340.471	2.10	-0.29	-2.09	
15969.00	89.910	345.040	6343.11	9380.22	8844.02	-3126.47	1662587.81	14303628.50	39°23'20.879"N	80°55'17.617"W	9380.34	340.531	2.99	0.00	-2.99	
16064.00	90.030	340.750	6343.16	9475.10	8934.79	-3154.30	1662560.89	14303713.24	39°23'21.777"N	80°55'17.972"W	9475.24	340.555	4.52	0.13	-4.52	
16159.00	90.060	338.510	6343.09	9570.09	9023.85	-3187.37	1662517.83	14303808.26	39°23'22.657"N	80°55'18.392"W	9570.22	340.546	2.36	0.03	-2.36	
16254.00	90.060	336.350	6342.99	9664.97	9111.57	-3223.83	1662481.39	14303895.94	39°23'23.524"N	80°55'18.856"W	9665.08	340.515	2.27	0.00	-2.27	

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #05
Operator	ANTERO RESOURCES CORPORATION	Well	Master Unit 2H
Area	Ritchie County, WV	Wellbore	Master Unit 2H AWP
Field	Ritchie		
Facility	Lettie Pad		

WELLPATH DATA (224 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	D/S	Build Rate	Turn Rate	Comments
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(ft/100ft)	(ft/100ft)	(°/100ft)	
16348.00	90.120	333.510	6342.84	9758.55	9196.70	-3263.65	1662444.58	14303981.04	39°23'24.366"N	80°55'19.362"W	9758.63	340.462	3.02	0.06	-3.02	
16443.00	89.970	330.760	6342.76	9852.59	9280.68	-3308.05	1662397.20	14304064.99	39°23'25.197"N	80°55'19.927"W	9852.63	340.382	2.90	-0.16	-2.88	
16538.00	90.000	330.190	6342.79	9946.22	9363.34	-3354.87	1662350.40	14304147.62	39°23'26.014"N	80°55'20.522"W	9946.22	340.287	0.60	0.03	-0.60	
16633.00	89.970	334.360	6342.81	10040.28	9447.42	-3399.06	1662306.23	14304231.66	39°23'26.845"N	80°55'21.084"W	10040.28	340.212	4.39	-0.03	-4.39	
16728.00	89.910	335.400	6342.91	10134.86	9533.43	-3439.38	1662265.92	14304317.64	39°23'27.696"N	80°55'21.597"W	10134.87	340.162	1.10	-0.06	-1.09	
16823.00	89.880	339.620	6343.09	10229.73	9621.19	-3475.71	1662229.60	14304405.36	39°23'28.563"N	80°55'22.059"W	10229.75	340.137	4.44	-0.03	-4.44	
16917.00	89.940	342.330	6343.24	10323.72	9710.04	-3506.35	1662198.98	14304494.18	39°23'29.442"N	80°55'22.448"W	10323.73	340.145	2.88	0.06	2.88	
17012.00	90.030	342.970	6343.26	10418.63	9800.72	-3534.68	1662170.66	14304584.82	39°23'30.338"N	80°55'22.808"W	10418.64	340.168	0.68	0.09	0.67	
17107.00	89.940	343.720	6343.28	10513.49	9891.73	-3561.91	1662143.44	14304675.80	39°23'31.238"N	80°55'23.153"W	10513.50	340.197	0.80	-0.09	-0.79	
17202.00	89.880	344.300	6343.43	10608.29	9983.06	-3588.08	1662117.28	14304767.08	39°23'32.141"N	80°55'23.486"W	10608.29	340.231	0.61	-0.06	-0.61	
17297.00	90.060	347.060	6343.48	10702.85	10075.10	-3611.58	1662093.80	14304859.09	39°23'33.051"N	80°55'23.784"W	10702.85	340.279	2.91	0.19	2.91	
17392.00	90.000	348.800	6343.49	10796.99	10167.99	-3631.44	1662073.94	14304951.94	39°23'33.969"N	80°55'24.036"W	10797.01	340.346	1.83	-0.06	-1.83	
17443.00	89.880	348.220	6343.48	10847.46	10241.97	-3641.60	1662063.79	14305001.90	39°23'34.463"N	80°55'24.165"W	10847.50	340.384	1.16	-0.24	-1.14	
17467.00	89.880	348.220	6343.54	10871.23	10241.47	-3646.50	1662058.89	14305025.39	39°23'34.695"N	80°55'24.227"W	10871.27	340.402	0.00	0.00	0.00	Projected MD at TD: 17467'

HOLE & CASING SECTIONS - Ref Wellbore: Master Unit 2H AWP Ref Wellpath: Master Unit 2H AWP Proj: 17467'													
String/Diameter	Start MID	End MID	Interval	Start TVD	End TVD	Start N/S	Start E/W	End N/S	End E/W				
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
20in Conductor	25.50	105.50	80.00	25.50	105.50	0.00	0.00	-0.33	-0.41				
17.5in Open Hole	105.50	516.50	411.00	105.50	516.47	-0.33	-0.41	-4.63	-2.26				
13.375in Casing Surface	25.50	516.50	491.00	25.50	516.47	0.00	0.00	-4.63	-2.26				
12.25in Open Hole	516.50	2597.50	2081.00	516.47	2593.83	-4.63	-2.26	-88.73	18.95				
9.625in Casing Intermediate	25.50	2597.50	2572.00	25.50	2593.83	0.00	0.00	-88.73	18.95				
8.75in Open Hole	2597.50	6029.50	3432.00	2593.83	5972.54	-88.73	18.95	-404.48	-28.50				
8.5in Open Hole	6029.50	17467.00	11437.50	5972.54	6343.54	-404.48	-28.50	10241.47	-3646.50				
5.5in Casing Production	25.50	17467.00	17441.50	25.50	6343.54	0.00	0.00	10241.47	-3646.50				

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Actual Wellpath Report

Master Unit 2H AWP Proj: 17467'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Ritchie County, WV	Well	Master Unit 2H
Field	Ritchie	Wellbore	Master Unit 2H AWB
Facility	Lettie Pad		

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Master Unit 2H POE Rev-2	6331.00	38.53	-58.53	1665645.42	14294826.54	39°21'53.821"N	80°54'38.655"W	point
Master Unit 2H BHL Rev-2	6354.00	10264.65	-3658.13	1662047.26	14305048.56	39°23'34.925"N	80°55'24.375"W	point
Master Unit 2H LP Rev-2	6354.00	206.24	-83.59	1665620.36	14294994.19	39°21'55.479"N	80°54'38.972"W	point

WELLPATH COMPOSITION - Ref Wellbore: Master Unit 2H AWB				Ref Wellpath: Master Unit 2H AWP Proj: 17467'			
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore			
25.50	500.50	Gyrodala standard - Drop gyro or Multi-shot	01 Gyrodala MS Gyro <17'-1/2">(50'-490')	Master Unit 2H AWB			
500.50	2516.50	ISCWSA MWD, Rev 4 (Standard)	02 WFT EM <12-1/4">(480')(541'-2506')	Master Unit 2H AWB			
2516.50	5957.50	ISCWSA MWD, Rev 4 (Standard)	03 WFT EM <8-3/4">(2506')(2624'-5947')	Master Unit 2H AWB			
5957.50	17443.00	BH AutoTrak Curve (Short)	04 BH AT Curve <8-1/2">(5957.5')(6011'-17443')	Master Unit 2H AWB			
17443.00	17467.00	Blind Drilling (std)	Projection to bit	Master Unit 2H AWB			

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Ritchie County, WV	Well	Master Unit 2H
Field	Ritchie	Wellbore	Master Unit 2H AWB
Facility	Lettie Pad		

COMMENTS	
Wellpath general comments	
API: 47-085-10322-0000	
BHI Job #: 109546857	
Rig: H&P 317	
Duration: 12/07/2018-12/10/2018	
Gyrodama MS Gyro <17-1/2">(50-490)	
WFT EM <12-1/4">(490)(541-2506)	
WFT EM <8-3/4">(2506)(2624-5947)	
BH AT Curve <8-1/2"> (5957.5)(6011-17443)	
Middlesex: 6274' MD	
Burkett: 6452' MD	
Tully: 6539' MD	
Marcellus POE: 6639' MD	
Projected MD at TD: 17467'	

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