

# ANTERO RESOURCES CORPORATION

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

Slot: Slot #10  
 Well: Waldo Unit 2H  
 Wellbore: Waldo Unit 2H PWB

API: 47-085-10355-0000  
 BHI Job #: 109469996  
 Rig: H&P 519  
 Duration: 10/29/2018-11/02/2018

Plot reference wellpath is Waldo Unit 2H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to H&P 519 (RKB)	North Reference: Grid north
Measured depths are referenced to H&P 519 (RKB)	Scale: True distance
H&P 519 (RKB) to Mean Sea Level: 1250.5 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #10): -1220.5 feet	Created by: delaset on 2018-11-14
Coordinates are in feet referenced to Slot	Database: WA_MPL_EasternUS_Defn



Gyrodata MS Gyro <17-1/2">(100'-627') : 0.22° Inc, 100.00ft MD, 100.00ft TVD, 0.13ft VS

WFT EM <12-1/4">(627')(646'-2502') : 0.14° Inc, 646.00ft MD, 646.00ft TVD, 0.86ft VS

Location Information						
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Bison Pad		1668323.988	14269435.805	39°17'42.740"N	80°54'04.890"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #10	0.02	19.65	1668343.635	14269435.827	39°17'42.740"N	80°54'04.640"W
H&P 519 (RKB) to Ground level (At Slot: Slot #10)					30ft	
Mean Sea Level to Ground level (At Slot: Slot #10)					-1220.5ft	
H&P 519 (RKB) to Mean Sea Level					1250.5ft	

WFT EM <8-3/4">(2502')(2585'-6336') : 1.80° Inc, 2585.00ft MD, 2583.47ft TVD, -28.83ft VS

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	6336.00	30.410	213.950	6077.51	23.68	-1288.25	7.42	-420.61
Proj. To Bottom	6430.00	31.350	206.250	6158.22	-18.00	-1312.36	4.32	-388.42
End of 3D Arc	6674.81	43.596	181.984	6353.18	-160.78	-1343.73	7.76	-262.32
POE	7065.49	74.552	161.997	6553.00	-484.70	-1288.46	9.00	62.82
Landing Pt.	7237.14	90.000	161.997	6576.00	-645.97	-1236.05	9.00	232.40
BHL	17969.14	90.000	161.997	6576.00	-10852.56	2080.79	0.00	10964.40

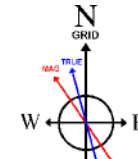
Well Data			
Slot	Well	Wellbore	Wellpath
Slot #10	Waldo Unit 2H	Waldo Unit 2H AWB	Waldo Unit 2H AWP Proj: 18017'
Slot #10	Waldo Unit 2H	Waldo Unit 2H PWB	Waldo Unit 2H PWP Rev-A.0

BH AT Curve <8-1/2">(6336')(6405'-17992') : 30.41° Inc, 6336.00ft MD, 6077.51ft TVD, -420.61ft VS

Marcellus POE: 7070' MD : 74.38° Inc, 7070.00ft MD, 6549.31ft TVD, 72.09ft VS

User specified Dip: 66.40° Field: 51830 nT  
 Magnetic North is 7.67 degrees West of True North (at 26/Oct/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 7.73 degrees

Projected MD at TD: 18017' : 89.48° Inc, 18017.00ft MD, 6617.87ft TVD, 10996.54ft VS



Scale 1 inch = 1500

True Vertical Depth (ft)

Vertical Section (ft)

Azimuth 162.00° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000

Easting (ft)

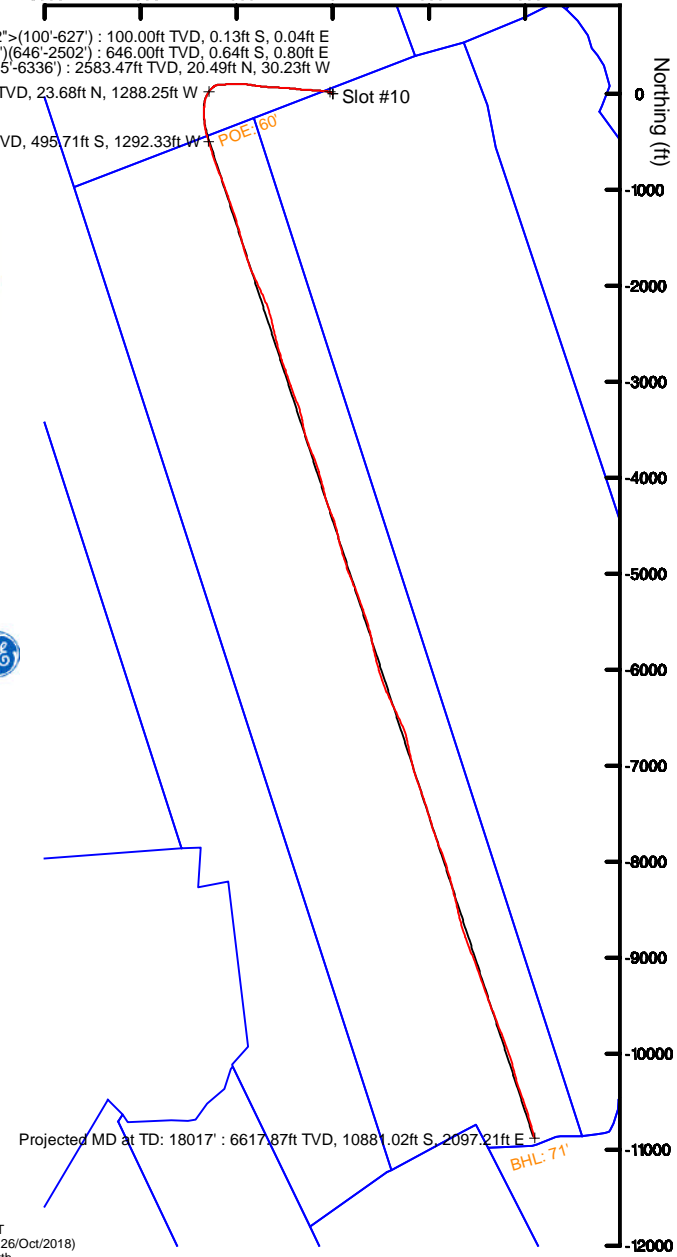
Northing (ft)

Gyrodata MS Gyro <17-1/2">(100'-627') : 100.00ft TVD, 0.13ft S, 0.04ft E  
 WFT EM <12-1/4">(627')(646'-2502') : 646.00ft TVD, 0.64ft S, 0.80ft E  
 WFT EM <8-3/4">(2502')(2585'-6336') : 2583.47ft TVD, 20.49ft N, 30.23ft W

BH AT Curve <8-1/2">(6336')(6405'-17992') : 6077.51ft TVD, 23.68ft N, 1288.25ft W Slot #10

Marcellus POE: 7070' MD : 6549.31ft TVD, 495.71ft S, 1292.33ft W

Projected MD at TD: 18017' : 6617.87ft TVD, 10881.02ft S, 2097.21ft E BHL: 71'





# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison 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	14/Nov/2018 at 16:18
Convergence at slot	0.06° East	Database/Source file	WA_MPL_EasternUS_Defn/Waldo_Unit_2H_AWP_Proj_18017_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.02	19.65	1668343.64	14269435.83	39°17'42.740"N	80°54'04.640"W
Facility Reference Pt			1668323.99	14269435.81	39°17'42.740"N	80°54'04.890"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 519 (RKB) to Facility Vertical Datum	30.00ft
Horizontal Reference Pt	Slot	H&P 519 (RKB) to Mean Sea Level	1250.50ft
Vertical Reference Pt	H&P 519 (RKB)	H&P 519 (RKB) to Ground Level at Slot (Slot #10)	30.00ft
MD Reference Pt	H&P 519 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	162.00°



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'  
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## REFERENCE WELLPATH IDENTIFICATION

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Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

## WELLPATH DATA (214 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†	0.000	162.590	0.00	0.00	0.00	0.00	1668343.63	14269435.83	39°17'42.740"N	80°54'04.640"W	0.00	0.000	0.00	0.00	0.00	
30.00	0.000	162.590	30.00	0.00	0.00	0.00	1668343.63	14269435.83	39°17'42.740"N	80°54'04.640"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.220	162.590	100.00	0.13	-0.13	0.04	1668343.68	14269435.70	39°17'42.739"N	80°54'04.639"W	0.13	162.590	0.31	0.31	232.27	Gyrodata MS Gyro <17-1/2">(100'-627')
200.00	0.140	118.160	200.00	0.41	-0.37	0.21	1668343.84	14269435.46	39°17'42.736"N	80°54'04.637"W	0.42	150.907	0.15	-0.08	-44.43	
300.00	0.180	127.540	300.00	0.63	-0.52	0.44	1668344.07	14269435.30	39°17'42.735"N	80°54'04.634"W	0.68	140.049	0.05	0.04	9.38	
400.00	0.090	41.620	400.00	0.72	-0.56	0.61	1668344.25	14269435.27	39°17'42.734"N	80°54'04.632"W	0.83	132.322	0.20	-0.09	-85.92	
500.00	0.070	145.100	500.00	0.74	-0.55	0.70	1668344.34	14269435.28	39°17'42.735"N	80°54'04.631"W	0.89	128.141	0.13	-0.02	103.48	
540.00	0.130	178.200	540.00	0.81	-0.62	0.72	1668344.35	14269435.21	39°17'42.734"N	80°54'04.631"W	0.95	130.683	0.20	0.15	82.75	
627.00	0.120	60.160	627.00	0.88	-0.67	0.80	1668344.43	14269435.16	39°17'42.733"N	80°54'04.630"W	1.04	129.963	0.25	-0.01	-135.68	
646.00	0.140	315.950	646.00	0.86	-0.64	0.80	1668344.43	14269435.18	39°17'42.734"N	80°54'04.630"W	1.03	128.785	1.08	0.11	-548.47	WFT EM <12-1/4">(627')(646'-2502')
734.00	1.220	287.620	733.99	0.22	-0.28	-0.17	1668343.47	14269435.54	39°17'42.737"N	80°54'04.642"W	0.33	210.706	1.25	1.23	-32.19	
822.00	2.630	289.770	821.94	-1.57	0.68	-2.96	1668340.68	14269436.51	39°17'42.747"N	80°54'04.678"W	3.04	283.017	1.60	1.60	2.44	
916.00	3.160	292.550	915.82	-4.57	2.41	-7.38	1668336.26	14269438.23	39°17'42.764"N	80°54'04.734"W	7.77	288.061	0.58	0.56	2.96	
1010.00	3.630	313.240	1009.66	-8.86	5.44	-11.94	1668331.70	14269441.26	39°17'42.794"N	80°54'04.792"W	13.12	294.487	1.39	0.50	22.01	
1105.00	3.960	315.930	1104.45	-14.45	9.86	-16.42	1668327.23	14269445.68	39°17'42.838"N	80°54'04.849"W	19.15	300.982	0.39	0.35	2.83	
1199.00	4.380	312.480	1198.20	-20.49	14.61	-21.32	1668322.32	14269450.43	39°17'42.885"N	80°54'04.911"W	25.85	304.426	0.52	0.45	-3.67	
1294.00	3.650	301.140	1292.97	-25.93	18.63	-26.58	1668317.06	14269454.45	39°17'42.924"N	80°54'04.978"W	32.46	305.017	1.13	-0.77	-11.94	
1388.00	2.250	277.260	1386.84	-28.98	20.41	-30.98	1668312.67	14269456.23	39°17'42.942"N	80°54'05.034"W	37.09	303.377	1.95	-1.49	-25.40	
1483.00	1.660	244.420	1481.79	-29.60	20.05	-34.07	1668309.58	14269455.87	39°17'42.939"N	80°54'05.073"W	39.53	300.477	1.31	-0.62	-34.57	
1578.00	1.130	212.130	1576.76	-28.81	18.66	-35.81	1668307.84	14269454.48	39°17'42.925"N	80°54'05.095"W	40.38	297.527	0.98	-0.56	-33.99	
1672.00	1.600	168.600	1670.74	-26.92	16.59	-36.04	1668307.61	14269452.41	39°17'42.904"N	80°54'05.098"W	39.68	294.717	1.17	0.50	-46.31	
1767.00	1.070	136.150	1765.71	-24.80	14.65	-35.16	1668308.49	14269450.47	39°17'42.885"N	80°54'05.087"W	38.09	292.618	0.95	-0.56	-34.16	
1861.00	1.220	58.120	1859.70	-24.25	14.55	-33.71	1668309.94	14269450.37	39°17'42.884"N	80°54'05.069"W	36.71	293.343	1.54	0.16	-83.01	
1956.00	2.170	30.890	1954.66	-25.67	16.62	-31.92	1668311.72	14269452.44	39°17'42.905"N	80°54'05.046"W	35.99	297.507	1.28	1.00	-28.66	
2050.00	1.440	4.500	2048.61	-27.94	19.33	-30.92	1668312.73	14269455.15	39°17'42.931"N	80°54'05.033"W	36.46	302.012	1.16	-0.78	-28.07	
2144.00	1.160	282.000	2142.60	-29.50	20.70	-31.76	1668311.89	14269456.52	39°17'42.945"N	80°54'05.044"W	37.91	303.103	1.84	-0.30	-87.77	
2239.00	1.370	224.140	2237.58	-29.45	20.09	-33.49	1668310.16	14269455.91	39°17'42.939"N	80°54'05.066"W	39.05	300.959	1.30	0.22	-60.91	
2333.00	1.380	159.600	2331.56	-27.80	18.22	-33.88	1668309.77	14269454.04	39°17'42.920"N	80°54'05.071"W	38.46	298.275	1.56	0.01	-68.66	
2428.00	1.480	83.630	2426.53	-26.41	17.28	-32.26	1668311.39	14269453.10	39°17'42.911"N	80°54'05.050"W	36.60	298.185	1.85	0.11	-79.97	
2502.00	1.640	36.030	2500.51	-26.84	18.25	-30.68	1668312.96	14269454.07	39°17'42.921"N	80°54'05.030"W	35.70	300.739	1.71	0.22	-64.32	



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #10
Area	Ritchie County, WV		Well	Waldo Unit 2H
Field	Ritchie		Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad			

WELLPATH DATA (214 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
2585.00	1.800	349.030	2583.47	-28.83	20.49	-30.23	1668313.41	14269456.31	39°17'42.943"N	80°54'05.024"W	36.52	304.123	1.66	0.19	-56.63	WFT EM <8-3/4">(2502')(2585'-6336')
2648.00	1.950	329.820	2646.44	-30.86	22.39	-30.96	1668312.69	14269458.20	39°17'42.962"N	80°54'05.033"W	38.21	305.868	1.02	0.24	-30.49	
2743.00	5.650	275.240	2741.24	-34.28	24.21	-36.43	1668307.22	14269460.03	39°17'42.980"N	80°54'05.103"W	43.74	303.605	5.04	3.89	-57.45	
2837.00	6.050	272.150	2834.75	-37.82	24.82	-45.99	1668297.66	14269460.64	39°17'42.986"N	80°54'05.225"W	52.26	298.354	0.54	0.43	-3.29	
2935.00	7.470	272.990	2932.07	-41.88	25.35	-57.51	1668286.14	14269461.16	39°17'42.991"N	80°54'05.371"W	62.85	293.782	1.45	1.45	0.86	
3029.00	9.330	274.990	3025.05	-47.04	26.33	-71.21	1668272.45	14269462.14	39°17'43.001"N	80°54'05.545"W	75.92	290.290	2.00	1.98	2.13	
3124.00	11.290	275.760	3118.51	-53.80	27.93	-88.13	1668255.54	14269463.75	39°17'43.017"N	80°54'05.761"W	92.45	287.584	2.07	2.06	0.81	
3218.00	13.320	276.670	3210.35	-61.85	29.92	-108.07	1668235.61	14269465.74	39°17'43.037"N	80°54'06.014"W	112.13	285.478	2.16	2.16	-0.10	
3313.00	14.940	276.150	3302.47	-71.26	32.32	-131.13	1668212.55	14269468.13	39°17'43.061"N	80°54'06.308"W	135.06	283.844	1.71	1.71	0.51	
3407.00	14.540	275.140	3393.38	-80.85	34.67	-154.93	1668188.76	14269470.49	39°17'43.084"N	80°54'06.610"W	158.77	282.614	0.51	-0.43	-1.07	
3501.00	15.860	273.160	3484.09	-90.13	36.44	-179.51	1668164.20	14269472.25	39°17'43.102"N	80°54'06.923"W	183.17	281.474	1.51	1.40	-2.11	
3596.00	17.540	273.110	3575.08	-99.97	37.93	-206.77	1668136.95	14269473.74	39°17'43.117"N	80°54'07.269"W	210.22	280.395	1.77	1.77	-0.05	
3690.00	18.630	274.220	3664.43	-110.75	39.80	-235.89	1668107.84	14269475.61	39°17'43.136"N	80°54'07.640"W	239.22	279.578	1.22	1.16	1.18	
3785.00	20.900	272.730	3753.83	-122.49	41.73	-267.95	1668075.79	14269477.54	39°17'43.155"N	80°54'08.048"W	271.18	278.851	2.45	2.39	-1.57	
3880.00	21.960	271.800	3842.26	-134.50	43.09	-302.63	1668041.12	14269478.90	39°17'43.169"N	80°54'08.489"W	305.68	278.104	1.17	1.12	-0.98	
3974.00	25.370	278.130	3928.36	-149.33	46.49	-340.15	1668003.62	14269482.30	39°17'43.203"N	80°54'08.966"W	343.31	277.783	4.52	3.63	6.73	
4068.00	25.410	277.070	4013.28	-166.75	51.82	-380.10	1667963.69	14269487.63	39°17'43.256"N	80°54'09.474"W	383.62	277.764	0.49	0.04	-1.13	
4163.00	24.610	274.920	4099.38	-183.09	56.03	-420.04	1667923.77	14269491.83	39°17'43.298"N	80°54'09.982"W	423.76	277.598	1.27	-0.84	-2.26	
4257.00	25.010	275.680	4184.70	-198.69	59.67	-459.31	1667884.51	14269495.48	39°17'43.335"N	80°54'10.481"W	463.17	277.403	0.54	0.43	0.81	
4352.00	24.480	273.820	4270.98	-214.07	62.97	-498.93	1667844.90	14269498.77	39°17'43.368"N	80°54'10.985"W	502.89	277.194	0.99	-0.56	-1.96	
4446.00	23.810	271.460	4356.76	-227.63	64.75	-537.34	1667806.51	14269500.56	39°17'43.386"N	80°54'11.474"W	541.22	276.872	1.25	-0.71	-2.51	
4541.00	23.870	271.610	4443.65	-240.47	65.78	-575.72	1667768.15	14269501.58	39°17'43.396"N	80°54'11.962"W	579.47	276.518	0.09	0.06	0.16	
4635.00	24.880	274.330	4529.27	-254.37	67.81	-614.45	1667729.43	14269503.61	39°17'43.417"N	80°54'12.455"W	618.18	276.298	1.61	1.07	2.89	
4730.00	23.900	271.920	4615.80	-268.52	69.96	-653.61	1667690.28	14269505.76	39°17'43.438"N	80°54'12.953"W	657.35	276.110	1.47	-1.03	-2.54	
4824.00	25.160	276.170	4701.32	-283.19	72.75	-692.52	1667651.40	14269508.55	39°17'43.466"N	80°54'13.447"W	696.33	275.997	2.31	1.34	4.52	
4919.00	25.120	276.400	4787.32	-299.79	77.17	-732.63	1667611.30	14269512.96	39°17'43.511"N	80°54'13.958"W	736.68	276.013	0.11	-0.04	0.24	
5013.00	24.250	274.750	4872.73	-315.50	80.99	-771.70	1667572.25	14269516.79	39°17'43.549"N	80°54'14.455"W	775.94	275.991	1.18	-0.93	-1.76	
5107.00	24.760	279.230	4958.27	-331.97	85.75	-810.37	1667533.59	14269521.54	39°17'43.596"N	80°54'14.946"W	814.89	276.040	2.05	0.54	4.77	
5202.00	25.030	279.630	5044.44	-350.39	92.30	-849.82	1667494.16	14269528.09	39°17'43.661"N	80°54'15.448"W	854.82	276.199	0.33	0.28	0.42	
5296.00	24.390	278.210	5129.83	-368.19	98.40	-888.63	1667455.36	14269534.19	39°17'43.722"N	80°54'15.942"W	894.07	276.319	0.93	-0.68	-1.51	



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

## WELLPATH DATA (214 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
5391.00	25.410	273.250	5216.01	-384.24	102.36	-928.40	1667415.60	14269538.14	39°17'43.761"N	80°54'16.447"W	934.03	276.291	2.45	1.07	-5.22	
5485.00	25.140	270.010	5301.02	-397.72	103.50	-968.51	1667375.52	14269539.29	39°17'43.773"N	80°54'16.958"W	974.02	276.100	1.50	-0.29	-3.45	
5580.00	24.840	268.950	5387.12	-409.78	103.14	-1008.64	1667335.40	14269538.93	39°17'43.770"N	80°54'17.468"W	1013.90	275.839	0.57	-0.32	-1.12	
5674.00	24.250	268.200	5472.63	-420.92	102.17	-1047.67	1667296.38	14269537.96	39°17'43.761"N	80°54'17.965"W	1052.64	275.570	0.71	-0.63	-0.80	
5769.00	23.250	265.920	5559.58	-430.87	100.23	-1085.88	1667258.19	14269536.01	39°17'43.742"N	80°54'18.450"W	1090.49	275.273	1.43	-1.05	-2.40	
5863.00	24.160	268.480	5645.65	-440.80	98.39	-1123.61	1667220.47	14269534.18	39°17'43.724"N	80°54'18.931"W	1127.91	275.005	1.46	0.97	2.72	
5958.00	24.020	266.970	5732.38	-451.30	96.86	-1162.36	1667181.74	14269532.64	39°17'43.710"N	80°54'19.423"W	1166.39	274.763	0.67	-0.15	-1.59	
6003.00	23.790	265.710	5773.52	-455.82	95.69	-1180.55	1667163.55	14269531.48	39°17'43.698"N	80°54'19.655"W	1184.43	274.634	1.24	-0.51	-2.80	
6052.00	22.000	259.360	5818.67	-459.34	93.26	-1199.43	1667144.68	14269529.05	39°17'43.674"N	80°54'19.895"W	1203.05	274.446	6.22	-3.65	-12.96	
6097.00	20.560	249.830	5860.61	-460.12	88.98	-1215.14	1667128.98	14269524.77	39°17'43.632"N	80°54'20.095"W	1218.39	274.188	8.31	-3.20	-21.18	
6147.00	20.750	238.860	5907.41	-457.77	81.37	-1230.97	1667113.16	14269517.16	39°17'43.557"N	80°54'20.296"W	1233.65	273.782	7.74	0.38	-21.94	
6192.00	23.150	230.850	5949.16	-452.77	71.66	-1244.66	1667099.48	14269507.45	39°17'43.461"N	80°54'20.470"W	1246.72	273.295	8.52	5.33	-17.80	
6241.00	25.880	226.070	5993.74	-444.62	58.15	-1259.83	1667084.31	14269493.96	39°17'43.328"N	80°54'20.664"W	1261.17	272.643	6.88	5.57	-9.76	
6286.00	28.010	219.750	6033.86	-434.68	43.21	-1273.67	1667070.48	14269479.02	39°17'43.180"N	80°54'20.840"W	1274.40	271.943	7.93	4.73	-14.04	
6336.00	30.410	213.950	6077.51	-420.61	23.68	-1288.25	1667055.91	14269459.50	39°17'42.988"N	80°54'21.026"W	1288.46	271.053	7.42	4.80	-11.60	BH AT Curve <8-1/2">(6336')(6405'-17992')
6405.00	31.840	208.520	6136.59	-397.32	-6.81	-1306.69	1667037.47	14269429.02	39°17'42.686"N	80°54'21.261"W	1306.71	269.702	4.56	2.07	-7.87	
6448.00	33.290	203.950	6172.83	-380.73	-27.56	-1316.90	1667027.26	14269408.28	39°17'42.481"N	80°54'21.391"W	1317.19	268.801	6.64	3.37	-10.63	
6495.00	35.430	195.560	6211.65	-359.77	-52.49	-1325.80	1667018.37	14269383.36	39°17'42.235"N	80°54'21.504"W	1326.84	267.733	11.05	4.55	-17.85	
6543.00	37.710	188.710	6250.21	-335.05	-80.42	-1331.76	1667012.41	14269355.44	39°17'41.959"N	80°54'21.580"W	1334.18	266.544	9.73	4.75	-14.27	
6590.00	38.960	185.650	6287.08	-308.67	-109.34	-1335.39	1667008.78	14269326.53	39°17'41.673"N	80°54'21.627"W	1339.86	265.319	4.83	2.66	-6.51	
6637.00	40.490	184.510	6323.23	-281.04	-139.26	-1338.04	1667006.13	14269296.63	39°17'41.378"N	80°54'21.661"W	1345.27	264.058	3.61	3.26	-2.43	
6684.00	45.170	181.580	6357.69	-251.22	-171.15	-1339.70	1667004.47	14269264.75	39°17'41.063"N	80°54'21.683"W	1350.59	262.720	10.82	9.96	-6.23	
6715.00†	47.001	180.451	6379.19	-230.11	-193.47	-1340.10	1667004.08	14269242.43	39°17'40.842"N	80°54'21.688"W	1353.99	261.785	6.46	5.91	-3.64	Middlesex: 6715' MD
6732.00	48.010	179.860	6390.68	-218.20	-206.01	-1340.13	1667004.04	14269229.90	39°17'40.718"N	80°54'21.688"W	1355.87	261.261	6.46	5.93	-3.48	
6779.00	53.090	176.620	6420.54	-183.36	-242.26	-1338.98	1667005.19	14269193.66	39°17'40.360"N	80°54'21.674"W	1360.72	259.744	12.05	10.81	-6.89	
6826.00	55.860	176.550	6447.84	-146.35	-280.44	-1336.70	1667007.47	14269155.50	39°17'39.982"N	80°54'21.646"W	1365.80	258.151	5.89	5.89	-0.15	
6873.00	59.250	175.440	6473.06	-107.86	-320.00	-1333.92	1667010.25	14269115.95	39°17'39.591"N	80°54'21.611"W	1371.77	256.510	7.48	7.21	-2.36	
6909.00†	61.972	171.794	6490.72	-77.15	-351.16	-1330.42	1667013.75	14269084.81	39°17'39.283"N	80°54'21.567"W	1375.99	255.214	11.62	7.56	-10.13	Burkett: 6909' MD
6921.00	62.900	170.620	6496.28	-66.65	-361.67	-1328.80	1667015.37	14269074.30	39°17'39.179"N	80°54'21.546"W	1377.14	254.774	11.62	7.74	-9.78	
6968.00	67.460	164.160	6516.02	-24.21	-403.25	-1319.45	1667024.72	14269032.73	39°17'38.768"N	80°54'21.428"W	1379.70	253.006	15.80	9.70	-13.74	



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

## WELLPATH DATA (214 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
6984.00†	68.577	163.991	6522.01	-9.39	-417.52	-1315.38	1667028.78	14269018.47	39°17'38.627"N	80°54'21.376"W	1380.05	252.390	7.05	6.98	-1.06	Tully: 6984' MD
7016.00	70.810	163.660	6533.11	20.61	-446.34	-1307.02	1667037.14	14268989.66	39°17'38.342"N	80°54'21.271"W	1381.13	251.145	7.05	6.98	-1.03	
7063.00	73.810	163.270	6547.39	65.36	-489.26	-1294.27	1667049.88	14268946.76	39°17'37.918"N	80°54'21.109"W	1383.66	249.292	6.43	6.38	-0.83	
7070.00†	74.376	163.232	6549.31	72.09	-495.71	-1292.33	1667051.82	14268940.32	39°17'37.854"N	80°54'21.084"W	1384.14	249.014	8.10	8.08	-0.55	Marcellus POE: 7070' MD
7111.00	77.690	163.010	6559.21	111.87	-533.78	-1280.78	1667063.37	14268902.26	39°17'37.478"N	80°54'20.938"W	1387.56	247.376	8.10	8.08	-0.54	
7158.00	82.220	162.600	6567.40	158.13	-577.98	-1267.10	1667077.04	14268858.08	39°17'37.041"N	80°54'20.765"W	1392.70	245.480	9.68	9.64	-0.87	
7205.00	86.120	162.260	6572.17	204.88	-622.54	-1252.99	1667091.15	14268813.53	39°17'36.600"N	80°54'20.586"W	1399.12	243.580	8.33	8.30	-0.72	
7252.00	89.940	161.740	6573.79	251.84	-667.21	-1238.48	1667105.65	14268768.89	39°17'36.159"N	80°54'20.402"W	1406.77	241.687	8.20	8.13	-1.11	
7300.00	89.910	160.890	6573.85	299.84	-712.68	-1223.10	1667121.02	14268723.43	39°17'35.709"N	80°54'20.207"W	1415.59	239.771	1.77	-0.06	-1.77	
7395.00	89.970	159.220	6573.95	394.78	-801.98	-1190.70	1667153.42	14268634.17	39°17'34.826"N	80°54'19.796"W	1435.59	236.038	1.76	0.06	-1.76	
7490.00	89.910	158.900	6574.05	489.65	-890.70	-1156.74	1667187.35	14268545.48	39°17'33.949"N	80°54'19.365"W	1459.93	232.403	0.34	-0.06	-0.34	
7585.00	90.060	158.280	6574.08	584.49	-979.15	-1122.07	1667222.02	14268457.07	39°17'33.074"N	80°54'18.925"W	1489.21	228.891	0.67	0.16	-0.65	
7679.00	90.030	161.070	6574.00	678.40	-1067.28	-1089.42	1667254.65	14268368.97	39°17'32.203"N	80°54'18.511"W	1525.10	225.588	2.97	-0.03	2.97	
7774.00	89.290	161.310	6574.57	773.39	-1157.21	-1058.79	1667285.27	14268279.08	39°17'31.314"N	80°54'18.123"W	1568.49	222.457	0.82	-0.78	0.25	
7868.00	89.780	162.410	6575.33	867.38	-1246.53	-1029.52	1667314.52	14268189.79	39°17'30.431"N	80°54'17.752"W	1616.71	219.554	1.28	0.52	1.17	
7963.00	89.690	162.280	6575.77	962.38	-1337.06	-1000.71	1667343.32	14268099.31	39°17'29.536"N	80°54'17.386"W	1670.07	216.813	0.17	-0.09	-0.14	
8057.00	89.600	165.390	6576.35	1056.32	-1427.33	-974.55	1667369.48	14268009.07	39°17'28.643"N	80°54'17.055"W	1728.30	214.324	3.31	-0.10	3.31	
8152.00	89.690	164.800	6576.94	1151.18	-1519.13	-950.11	1667393.90	14267917.31	39°17'27.735"N	80°54'16.745"W	1791.78	212.023	0.63	0.09	-0.62	
8246.00	89.750	164.630	6577.40	1245.07	-1609.80	-925.33	1667418.67	14267826.67	39°17'26.839"N	80°54'16.431"W	1856.80	209.891	0.19	0.06	-0.18	
8341.00	89.480	162.060	6578.04	1340.03	-1700.81	-898.11	1667445.89	14267735.70	39°17'25.939"N	80°54'16.086"W	1923.37	207.836	2.72	-0.28	-2.71	
8435.00	89.690	159.220	6578.72	1433.99	-1789.48	-866.95	1667477.03	14267647.06	39°17'25.062"N	80°54'15.691"W	1988.43	205.849	3.03	0.22	-3.02	
8530.00	89.690	155.950	6579.23	1528.70	-1877.29	-830.73	1667513.24	14267559.29	39°17'24.194"N	80°54'15.232"W	2052.88	203.870	3.44	0.00	-3.44	
8624.00	89.690	154.930	6579.74	1622.08	-1962.78	-791.66	1667552.29	14267473.83	39°17'23.349"N	80°54'14.736"W	2116.42	201.966	1.09	0.00	-1.09	
8719.00	89.600	155.370	6580.33	1716.40	-2048.98	-751.74	1667592.20	14267387.66	39°17'22.496"N	80°54'14.229"W	2182.53	200.147	0.47	-0.09	0.46	
8813.00	89.660	156.690	6580.94	1809.89	-2134.87	-713.55	1667630.37	14267301.81	39°17'21.647"N	80°54'13.745"W	2250.97	198.481	1.41	0.06	1.40	
8908.00	89.570	160.290	6581.58	1904.69	-2223.24	-678.73	1667665.18	14267213.48	39°17'20.773"N	80°54'13.303"W	2324.54	196.977	3.79	-0.09	3.79	
9002.00	89.600	164.470	6582.26	1998.67	-2312.81	-650.28	1667693.62	14267123.95	39°17'19.888"N	80°54'12.943"W	2402.49	195.704	4.45	0.03	4.45	
9097.00	89.600	167.240	6582.92	2093.44	-2404.92	-627.07	16677031.87	14267031.87	39°17'18.977"N	80°54'12.649"W	2485.32	194.614	2.92	0.00	2.92	
9191.00	89.660	166.870	6583.53	2187.07	-2496.53	-606.01	1667737.87	14266940.30	39°17'18.072"N	80°54'12.382"W	2569.03	193.644	0.40	0.06	-0.39	
9286.00	89.480	166.700	6584.24	2281.74	-2589.01	-584.29	1667759.58	14266847.86	39°17'17.157"N	80°54'12.107"W	2654.12	192.718	0.26	-0.19	-0.18	



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #10
Area	Ritchie County, WV		Well	Waldo Unit 2H
Field	Ritchie		Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad			

WELLPATH DATA (214 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	
9381.00	89.570	163.790	6585.03	2376.57	-2680.86	-560.10	1667783.76	14266756.04	39°17'16.249"N	80°54'11.801"W	2738.75	191.801	3.06	0.09	-3.06		
9475.00	89.510	160.470	6585.78	2470.56	-2770.31	-531.26	1667812.59	14266666.63	39°17'15.365"N	80°54'11.435"W	2820.79	190.856	3.53	-0.06	-3.53		
9570.00	89.510	160.100	6586.60	2565.51	-2859.74	-499.21	1667844.62	14266577.23	39°17'14.480"N	80°54'11.029"W	2902.99	189.902	0.39	0.00	-0.39		
9664.00	89.380	161.910	6587.51	2659.49	-2948.61	-468.62	1667875.20	14266488.40	39°17'13.602"N	80°54'10.641"W	2985.62	189.030	1.93	-0.14	1.93		
9759.00	89.600	161.830	6588.35	2754.48	-3038.89	-439.06	1667904.75	14266398.15	39°17'12.709"N	80°54'10.266"W	3070.45	188.221	0.25	0.23	-0.08		
9853.00	88.460	159.020	6589.94	2848.42	-3127.44	-407.57	1667936.22	14266309.64	39°17'11.834"N	80°54'09.867"W	3153.88	187.425	3.23	-1.21	-2.99		
9948.00	88.650	157.950	6592.34	2943.21	-3215.79	-372.75	1667971.04	14266221.33	39°17'10.960"N	80°54'09.425"W	3237.32	186.612	1.14	0.20	-1.13		
10043.00	89.820	163.490	6593.61	3038.14	-3305.42	-341.39	1668002.38	14266131.74	39°17'10.074"N	80°54'09.028"W	3323.00	185.897	5.96	1.23	5.83		
10138.00	89.910	169.720	6593.83	3132.79	-3397.79	-319.40	1668024.37	14266039.40	39°17'09.161"N	80°54'08.749"W	3412.77	185.370	6.56	0.09	6.56		
10232.00	89.510	169.280	6594.31	3225.98	-3490.21	-302.27	1668041.49	14265947.02	39°17'08.247"N	80°54'08.533"W	3503.28	184.950	0.63	-0.43	-0.47		
10327.00	89.600	162.590	6595.05	3320.70	-3582.31	-279.19	1668064.55	14265854.96	39°17'07.336"N	80°54'08.240"W	3593.17	184.456	7.04	0.09	-7.04		
10421.00	89.350	157.660	6595.91	3414.62	-3670.68	-247.25	1668096.49	14265766.62	39°17'06.463"N	80°54'07.835"W	3679.00	183.853	5.25	-0.27	-5.24		
10516.00	89.540	157.680	6596.83	3509.34	-3758.55	-211.16	1668132.56	14265678.78	39°17'05.594"N	80°54'07.378"W	3764.48	183.216	0.20	0.20	0.02		
10611.00	89.320	160.470	6597.77	3604.20	-3847.27	-177.23	1668166.47	14265590.10	39°17'04.717"N	80°54'06.947"W	3851.35	182.638	2.95	-0.23	2.94		
10705.00	89.690	162.910	6598.59	3698.19	-3936.50	-147.70	1668195.99	14265500.90	39°17'03.834"N	80°54'06.573"W	3939.27	182.149	2.63	0.39	2.60		
10800.00	89.660	164.690	6599.13	3793.14	-4027.72	-121.20	1668222.48	14265409.72	39°17'02.932"N	80°54'06.237"W	4029.55	181.724	1.87	-0.03	1.87		
10895.00	90.340	166.960	6599.13	3887.92	-4119.83	-97.94	1668245.73	14265317.65	39°17'02.022"N	80°54'05.943"W	4120.99	181.362	2.49	0.72	2.39		
10989.00	89.940	166.180	6598.90	3981.62	-4211.25	-76.11	1668267.56	14265226.26	39°17'01.118"N	80°54'05.666"W	4211.94	181.035	0.93	-0.43	-0.83		
11084.00	89.260	158.650	6599.56	4076.55	-4301.75	-47.43	1668296.23	14265135.81	39°17'00.223"N	80°54'05.303"W	4302.01	180.632	7.96	-0.72	-7.93		
11178.00	89.940	156.460	6600.22	4170.26	-4388.62	-11.54	1668332.10	14265048.97	39°16'59.364"N	80°54'04.848"W	4388.63	180.151	2.44	0.72	-2.33		
11273.00	89.880	163.710	6600.37	4265.14	-4477.88	20.80	1668364.42	14264959.75	39°16'58.482"N	80°54'04.438"W	4477.93	179.734	7.63	-0.06	7.63		
11367.00	89.880	166.810	6600.56	4358.98	-4568.77	44.71	1668388.33	14264868.89	39°16'57.583"N	80°54'04.135"W	4568.99	179.439	3.30	0.00	3.30		
11462.00	90.090	166.710	6600.59	4453.65	-4661.25	66.47	1668410.08	14264776.45	39°16'56.669"N	80°54'03.859"W	4661.72	179.183	0.24	0.22	-0.11		
11557.00	90.000	164.010	6600.51	4548.48	-4753.15	90.48	1668434.07	14264684.58	39°16'55.760"N	80°54'03.555"W	4754.01	178.910	2.84	-0.09	-2.84		
11652.00	90.310	163.710	6600.26	4643.43	-4844.41	116.88	1668460.47	14264593.36	39°16'54.858"N	80°54'03.221"W	4845.82	178.618	0.45	0.33	-0.32		
11746.00	89.600	161.520	6600.33	4737.41	-4934.11	144.97	1668488.55	14264503.70	39°16'53.971"N	80°54'02.865"W	4936.24	178.317	2.45	-0.76	-2.33		
11841.00	89.970	158.600	6600.69	4832.35	-5023.40	177.36	1668520.93	14264414.44	39°16'53.088"N	80°54'02.454"W	5026.53	177.978	3.10	0.39	-3.07		
11935.00	89.750	156.940	6600.92	4926.09	-5110.41	212.92	1668556.47	14264327.46	39°16'52.228"N	80°54'02.003"W	5114.85	177.614	1.78	-0.23	-1.77		
12030.00	89.820	157.970	6601.27	5020.79	-5198.15	249.35	1668592.88	14264239.76	39°16'51.360"N	80°54'01.541"W	5204.13	177.254	1.09	0.07	1.08		
12125.00	89.570	159.730	6601.78	5115.64	-5286.75	283.62	1668627.14	14264151.20	39°16'50.484"N	80°54'01.107"W	5294.35	176.929	1.87	-0.26	1.85		



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

## WELLPATH DATA (214 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
12220.00	89.600	161.030	6602.47	5210.60	-5376.23	315.52	1668659.03	14264061.76	39°16'49.599"N	80°54'00.702"W	5385.48	176.641	1.37	0.03	1.37	
12314.00	89.510	162.450	6603.20	5304.59	-5465.49	344.97	1668688.47	14263972.53	39°16'48.717"N	80°54'00.329"W	5476.36	176.388	1.51	-0.10	1.51	
12409.00	89.510	164.990	6604.01	5399.54	-5556.67	371.60	1668715.09	14263881.39	39°16'47.815"N	80°53'59.992"W	5569.08	176.174	2.67	0.00	2.67	
12503.00	89.630	167.560	6604.71	5493.26	-5647.97	393.90	1668737.38	14263790.12	39°16'46.913"N	80°53'59.709"W	5661.69	176.011	2.74	0.13	2.73	
12598.00	89.660	168.030	6605.30	5587.78	-5740.82	413.98	1668757.45	14263697.30	39°16'45.995"N	80°53'59.455"W	5755.73	175.875	0.50	0.03	0.49	
12692.00	89.570	167.080	6605.93	5681.33	-5832.61	434.24	1668777.70	14263605.55	39°16'45.087"N	80°53'59.199"W	5848.76	175.742	1.02	-0.10	-1.01	
12787.00	89.780	165.250	6606.47	5776.08	-5924.85	456.96	1668800.41	14263513.35	39°16'44.175"N	80°53'58.911"W	5942.45	175.590	1.94	0.22	-1.93	
12882.00	90.030	164.110	6606.63	5870.97	-6016.47	482.06	1668825.50	14263421.77	39°16'43.270"N	80°53'58.593"W	6035.75	175.419	1.23	0.26	-1.20	
12976.00	90.150	162.010	6606.48	5964.95	-6106.39	509.44	1668852.87	14263331.89	39°16'42.381"N	80°53'58.246"W	6127.60	175.231	2.24	0.13	-2.23	
13071.00	89.880	157.360	6606.46	6059.85	-6195.46	542.42	1668885.83	14263242.86	39°16'41.500"N	80°53'57.828"W	6219.16	174.996	4.90	-0.28	-4.89	
13165.00	89.750	154.590	6606.76	6153.32	-6281.30	580.68	1668924.08	14263157.04	39°16'40.651"N	80°53'57.343"W	6308.09	174.718	2.95	-0.14	-2.95	
13260.00	89.820	154.660	6607.12	6247.53	-6367.14	621.39	1668964.78	14263071.24	39°16'39.802"N	80°53'56.826"W	6397.39	174.426	0.10	0.07	0.07	
13355.00	89.540	155.790	6607.65	6341.86	-6453.39	661.20	1669004.57	14262985.02	39°16'38.949"N	80°53'56.321"W	6487.18	174.150	1.23	-0.29	1.19	
13449.00	89.290	153.810	6608.61	6435.11	-6538.44	701.22	1669044.58	14262900.01	39°16'38.108"N	80°53'55.814"W	6575.93	173.879	2.12	-0.27	-2.11	
13544.00	89.230	158.980	6609.84	6529.62	-6625.45	739.25	1669082.59	14262813.03	39°16'37.248"N	80°53'55.331"W	6666.56	173.633	5.44	-0.06	5.44	
13638.00	90.090	167.480	6610.40	6623.51	-6715.37	766.34	1669109.67	14262723.15	39°16'36.359"N	80°53'54.988"W	6758.95	173.490	9.09	0.91	9.04	
13733.00	90.520	167.850	6609.89	6718.04	-6808.17	786.64	1669129.96	14262630.38	39°16'35.441"N	80°53'54.731"W	6853.47	173.409	0.60	0.45	0.39	
13827.00	90.150	168.520	6609.34	6811.49	-6900.18	805.88	1669149.19	14262538.41	39°16'34.532"N	80°53'54.488"W	6947.08	173.339	0.81	-0.39	0.71	
13922.00	89.910	166.010	6609.29	6906.08	-6992.84	826.82	1669170.13	14262445.80	39°16'33.616"N	80°53'54.223"W	7041.55	173.257	2.65	-0.25	-2.64	
14016.00	89.880	162.210	6609.46	7000.00	-7083.23	852.55	1669195.85	14262355.44	39°16'32.722"N	80°53'53.897"W	7134.35	173.137	4.04	-0.03	-4.04	
14111.00	90.030	159.470	6609.54	7094.97	-7172.96	883.73	1669227.01	14262265.75	39°16'31.835"N	80°53'53.502"W	7227.19	172.976	2.89	0.16	-2.88	
14206.00	89.940	160.070	6609.56	7189.90	-7262.10	916.58	1669259.85	14262176.64	39°16'30.953"N	80°53'53.086"W	7319.71	172.806	0.64	-0.09	0.63	
14300.00	90.920	161.620	6608.86	7283.88	-7350.88	947.42	1669290.68	14262087.89	39°16'30.075"N	80°53'52.695"W	7411.69	172.656	1.95	1.04	1.65	
14395.00	90.830	164.220	6607.41	7378.84	-7441.68	975.32	1669318.56	14261997.14	39°16'29.178"N	80°53'52.341"W	7505.32	172.533	2.74	-0.09	2.74	
14489.00	91.050	163.060	6605.86	7472.79	-7531.86	1001.79	1669345.03	14261906.99	39°16'28.286"N	80°53'52.006"W	7598.19	172.424	1.26	0.23	-1.23	
14584.00	90.950	162.450	6604.21	7567.77	-7622.57	1029.95	1669373.17	14261816.31	39°16'27.389"N	80°53'51.649"W	7691.84	172.305	0.65	-0.11	-0.64	
14678.00	90.490	161.050	6603.02	7661.76	-7711.83	1059.39	1669402.60	14261727.09	39°16'26.507"N	80°53'51.276"W	7784.26	172.178	1.57	-0.49	-1.49	
14773.00	90.060	159.370	6602.57	7756.71	-7801.22	1091.55	1669434.75	14261637.74	39°16'25.623"N	80°53'50.868"W	7877.21	172.035	1.83	-0.45	-1.77	
14856.00	89.820	159.160	6602.66	7839.61	-7878.84	1120.93	1669464.12	14261560.14	39°16'24.855"N	80°53'50.496"W	7958.18	171.903	0.38	-0.29	-0.25	
14951.00	89.720	160.480	6603.04	7934.54	-7968.01	1153.71	1669496.88	14261471.01	39°16'23.974"N	80°53'50.081"W	8051.10	171.761	1.39	-0.11	1.39	





# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

## WELLPATH DATA (214 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
15045.00	89.780	162.350	6603.45	8028.53	-8057.10	1183.66	1669526.82	14261381.96	39°16'23.093"N	80°53'49.701"W	8143.58	171.642	1.99	0.06	1.99	
15140.00	89.780	163.940	6603.81	8123.51	-8148.02	1211.21	1669554.36	14261291.08	39°16'22.194"N	80°53'49.352"W	8237.55	171.545	1.67	0.00	1.67	
15235.00	89.820	166.370	6604.14	8218.36	-8239.84	1235.54	1669578.68	14261199.29	39°16'21.286"N	80°53'49.044"W	8331.96	171.472	2.56	0.04	2.56	
15329.00	89.750	166.400	6604.50	8312.08	-8331.20	1257.67	1669600.80	14261107.97	39°16'20.383"N	80°53'48.764"W	8425.59	171.415	0.08	-0.07	0.03	
15424.00	89.780	167.250	6604.89	8406.74	-8423.69	1279.32	1669622.45	14261015.51	39°16'19.468"N	80°53'48.490"W	8520.29	171.364	0.90	0.03	0.89	
15518.00	89.780	167.270	6605.25	8500.35	-8515.38	1300.05	1669643.17	14260923.86	39°16'18.562"N	80°53'48.228"W	8614.05	171.320	0.02	0.00	0.02	
15613.00	89.510	165.790	6605.84	8595.04	-8607.76	1322.18	1669665.29	14260831.52	39°16'17.649"N	80°53'47.948"W	8708.72	171.267	1.58	-0.28	-1.56	
15708.00	89.540	162.840	6606.62	8689.95	-8699.21	1347.86	1669690.96	14260740.11	39°16'16.744"N	80°53'47.622"W	8803.01	171.193	3.11	0.03	-3.11	
15802.00	89.630	160.610	6607.30	8783.94	-8788.46	1377.34	1669720.42	14260650.89	39°16'15.862"N	80°53'47.249"W	8895.74	171.093	2.37	0.10	-2.37	
15897.00	89.570	159.400	6607.97	8878.88	-8877.73	1409.82	1669752.89	14260561.66	39°16'14.979"N	80°53'46.837"W	8988.98	170.977	1.28	-0.06	-1.27	
15992.00	89.450	157.490	6608.78	8973.69	-8966.08	1444.72	1669787.77	14260473.34	39°16'14.106"N	80°53'46.395"W	9081.73	170.847	2.01	-0.13	-2.01	
16086.00	89.850	158.490	6609.35	9067.46	-9053.23	1479.94	1669822.99	14260386.23	39°16'13.244"N	80°53'45.948"W	9173.39	170.716	1.15	0.43	1.06	
16181.00	89.850	160.150	6609.60	9162.35	-9142.10	1513.49	1669856.52	14260297.39	39°16'12.365"N	80°53'45.523"W	9266.54	170.600	1.75	0.00	1.75	
16275.00	89.780	162.350	6609.91	9256.34	-9231.11	1543.71	1669886.72	14260208.42	39°16'11.485"N	80°53'45.140"W	9359.29	170.506	2.34	-0.07	2.34	
16370.00	89.880	160.850	6610.19	9351.33	-9321.25	1573.69	1669916.69	14260118.32	39°16'10.594"N	80°53'44.760"W	9453.16	170.417	1.58	0.11	-1.58	
16464.00	89.820	159.820	6610.43	9445.29	-9409.76	1605.32	1669948.31	14260029.84	39°16'09.719"N	80°53'44.359"W	9545.72	170.318	1.10	-0.06	-1.10	
16559.00	89.780	158.990	6610.77	9540.19	-9498.69	1638.74	1669981.72	14259940.95	39°16'08.839"N	80°53'43.936"W	9639.01	170.212	0.87	-0.04	-0.87	
16654.00	89.880	158.810	6611.05	9635.05	-9587.32	1672.94	1670015.90	14259852.35	39°16'07.963"N	80°53'43.502"W	9732.19	170.102	0.22	0.11	-0.19	
16748.00	89.750	159.020	6611.35	9728.91	-9675.03	1706.76	1670049.71	14259764.68	39°16'07.096"N	80°53'43.073"W	9824.42	169.995	0.26	-0.14	0.22	
16843.00	89.780	158.500	6611.74	9823.76	-9763.57	1741.17	1670084.11	14259676.17	39°16'06.220"N	80°53'42.637"W	9917.61	169.889	0.55	0.03	-0.55	
16938.00	89.750	159.100	6612.13	9918.61	-9852.14	1775.53	1670118.45	14259587.64	39°16'05.344"N	80°53'42.202"W	10010.85	169.784	0.63	-0.03	0.63	
17033.00	89.820	158.110	6612.49	10013.44	-9940.59	1810.18	1670153.09	14259499.22	39°16'04.470"N	80°53'41.762"W	10104.07	169.680	1.04	0.07	-1.04	
17127.00	89.940	161.430	6612.68	10107.36	-10028.78	1842.68	1670185.58	14259411.07	39°16'03.598"N	80°53'41.350"W	10196.66	169.589	3.53	0.13	3.53	
17222.00	89.690	167.170	6612.99	10202.24	-10120.20	1868.38	1670211.26	14259319.69	39°16'02.694"N	80°53'41.025"W	10291.22	169.540	6.05	-0.26	6.04	
17317.00	89.750	165.830	6613.46	10296.95	-10212.57	1890.55	1670233.43	14259227.35	39°16'01.781"N	80°53'40.744"W	10386.09	169.512	1.41	0.06	-1.41	
17412.00	89.850	162.340	6613.79	10391.87	-10303.92	1916.60	1670259.47	14259136.04	39°16'00.878"N	80°53'40.415"W	10480.65	169.463	3.68	0.11	-3.67	
17507.00	89.750	160.190	6614.12	10486.85	-10393.88	1947.11	1670289.96	14259046.12	39°15'59.988"N	80°53'40.028"W	10574.68	169.390	2.27	-0.11	-2.26	
17602.00	89.780	160.360	6614.51	10581.81	-10483.30	1979.17	1670322.01	14258956.73	39°15'59.104"N	80°53'39.622"W	10668.49	169.309	0.18	0.03	0.18	
17696.00	89.450	162.220	6615.14	10675.80	-10572.33	2009.32	1670352.15	14258867.74	39°15'58.224"N	80°53'39.240"W	10761.57	169.239	2.01	-0.35	1.98	
17790.00	89.570	163.990	6615.94	10769.77	-10662.26	2036.64	1670379.46	14258777.84	39°15'57.334"N	80°53'38.894"W	10855.03	169.186	1.89	0.13	1.88	



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

## WELLPATH DATA (214 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
17885.00	89.480	164.250	6616.73	10864.70	-10753.63	2062.63	1670405.44	14258686.51	39°15'56.431"N	80°53'38.564"W	10949.66	169.142	0.29	-0.09	0.27	
17979.00	89.540	165.230	6617.54	10958.59	-10844.32	2087.37	1670430.17	14258595.86	39°15'55.534"N	80°53'38.251"W	11043.38	169.105	1.04	0.06	1.04	
17992.00	89.480	164.950	6617.65	10971.57	-10856.88	2090.72	1670433.51	14258583.30	39°15'55.410"N	80°53'38.209"W	11056.35	169.100	2.20	-0.46	-2.15	
18017.00	89.480	164.950	6617.87	10996.54	-10881.02	2097.21	1670440.00	14258559.17	39°15'55.171"N	80°53'38.127"W	11081.28	169.091	0.00	0.00	0.00	Projected MD at TD: 18017'

## HOLE & CASING SECTIONS - Ref Wellbore: Waldo Unit 2H AWB Ref Wellpath: Waldo Unit 2H AWP Proj: 18017'

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	30.00	110.00	80.00	30.00	110.00	0.00	0.00	-0.16	0.05
17.5in Open Hole	110.00	563.80	453.80	110.00	563.80	-0.16	0.05	-0.66	0.72
13.375in Casing Surface	30.00	563.80	533.80	30.00	563.80	0.00	0.00	-0.66	0.72
12.25in Open Hole	563.80	2562.50	1998.70	563.80	2560.99	-0.66	0.72	19.82	-30.17
9.625in Casing Intermediate	30.00	2562.50	2532.50	30.00	2560.99	0.00	0.00	19.82	-30.17
8.75in Open Hole	2562.50	6430.00	3867.50	2560.99	6157.73	19.82	-30.17	-18.68	-1312.78
8.5in Open Hole	6430.00	18017.00	11587.00	6157.73	6617.87	-18.68	-1312.78	-10881.02	2097.21
5.5in Casing Production	30.00	18017.00	17987.00	30.00	6617.87	0.00	0.00	-10881.02	2097.21



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Waldo Unit 2H POE Rev-2	6553.00	-484.70	-1288.46	1667055.69	14268951.32	39°17'37.963"N	80°54'21.035"W	point
Waldo Unit 2H BHL Rev-3	6576.00	-10852.56	2080.79	1670423.59	14258587.62	39°15'55.453"N	80°53'38.335"W	point
Waldo Unit 2H BHL Rev-2	6576.00	-10904.24	2097.58	1670440.37	14258535.96	39°15'54.942"N	80°53'38.122"W	point
Waldo Unit 2H LP Rev-2	6576.00	-645.97	-1236.05	1667108.08	14268790.11	39°17'36.368"N	80°54'20.371"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Waldo Unit 2H AWB Ref Wellpath: Waldo Unit 2H AWP Proj: 18017'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
30.00	627.00	Gyrodata standard - Drop gyro or Multi-shot	01_Gyrodata MS Gyro <17-1/2">(100'-627')	Waldo Unit 2H AWB
627.00	2502.00	ISCWSA MWD, Rev. 4 (Standard)	02_WFT EM <12-1/4">(627')(646'-2502')	Waldo Unit 2H AWB
2502.00	6336.00	ISCWSA MWD, Rev. 4 (Standard)	03_WFT EM <8-3/4">(2502')(2585'-6336')	Waldo Unit 2H AWB
6336.00	17992.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8-1/2">(6336')(6405'-17992')	Waldo Unit 2H AWB
17992.00	18017.00	Blind Drilling (std)	Projection to bit	Waldo Unit 2H AWB



# Actual Wellpath Report

Waldo Unit 2H AWP Proj: 18017'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Waldo Unit 2H
Field	Ritchie	Wellbore	Waldo Unit 2H AWB
Facility	Bison Pad		

COMMENTS
<p><b>Wellpath general comments</b> API: 47-085-10355-0000 BHI Job #: 109469996 Rig: H&amp;P 519 Duration: 10/29/2018-11/02/2018 Gyrodata MS Gyro &lt;17-1/2"&gt;(100'-627') WFT EM &lt;12-1/4"&gt;(627')(646'-2502') WFT EM &lt;8-3/4"&gt;(2502')(2585'-6336') BH AT Curve &lt;8-1/2"&gt;(6336')(6405'-17992') Middlesex: 6715' MD Burkett: 6909' MD Tully: 6984' MD Marcellus POE: 7070' MD Projected MD at TD: 18017'</p>