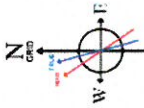


# ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV  
 Field: Ritchie  
 Facility: Bison Pad  
 Slot: Slot #11  
 Well: Waco Unit 1H  
 Wellbore: Waco Unit 1H PWB



User specified (NAD83) Dip: 66.40° Field: 51830 mT  
 Magnetics: 38.60° (38.60°) (38.60°) (38.60°)  
 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

Plot reference wellpath is Waco Unit 1H PWB 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 #11): -1220.5 feet	Created by: delatou on 2018-11-14	
Coordinates are in feet referenced to Slot	Database: WA, MPL, EastlmsUS_Defn	

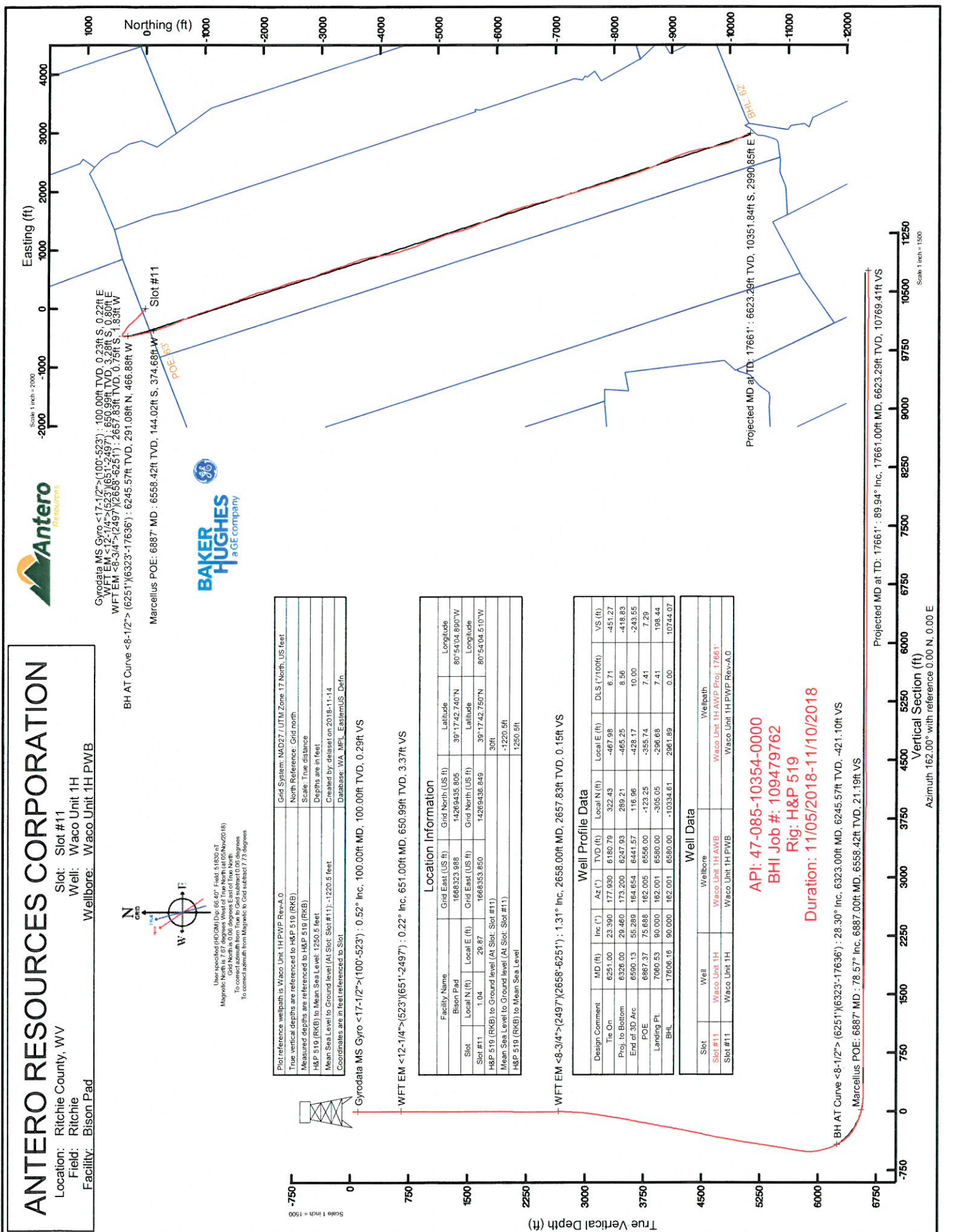
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude
Bison Pad	1668323.888	14269435.805	39°17'42.740"N
Slot	Local E (ft)	Grid North (US ft)	Latitude
Slot #11	1.04	1668353.850	39°17'42.750"N
H&P 519 (RKB) to Ground level (At Slot: Slot #11)			30ft
Mean Sea Level to Ground level (At Slot: Slot #11)			-1220.5ft
H&P 519 (RKB) to Mean Sea Level			1250.5ft

Well Profile Data					
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)
The On	6251.00	23.390	177.930	6180.779	322.43
Proj. to Bottom	6326.00	29.460	173.200	6247.93	289.21
End of 3D Arc	6590.13	55.289	164.654	6441.57	116.96
POE	6867.37	75.688	162.005	6556.00	-123.25
Landing Pt.	7060.53	90.000	162.001	6590.00	-305.05
BHL	17606.16	90.000	162.001	6590.00	-10334.61
					2961.99
					0.00
					10744.07

Well Data		
Well	Wellbore	Wellpath
Slot #11	Waco Unit 1H	Waco Unit 1H AWB
Slot #11	Waco Unit 1H	Waco Unit 1H PWB
Slot #11	Waco Unit 1H	Waco Unit 1H PWB Rev-A.0

API: 47-085-10354-0000  
 BHI Job #: 109479762  
 Rig: H&P 519  
 Duration: 11/05/2018-11/10/2018

Projected MD at TD: 17661' : 89.94° Inc. 17661.00ft MD, 6623.29ft TVD, 10769.41ft VS  
 BH AT Curve <8-1/2"> (6251')\{6323-17636\} : 28.30° Inc. 6323.00ft MD, 6245.57ft TVD, -421.10ft VS  
 Marcellus POE: 6887' MD : 78.57° Inc. 6887.00ft MD, 6558.42ft TVD, 21.19ft VS



Scale 1 inch = 2000  
 Scale 1 inch = 1500  
 Vertical Section (ft)  
 Azimuth 162.00° with reference 0.00 N, 0.00 E

REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Ritchie County, WV
Field	Ritchie
Facility	Bison Pad
Slot	Slot #11
Well	Waco Unit 1H
Wellbore	Waco 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	WellArchitect® 5.1
User	Delaset
Report Generated	14/Nov/2018 at 18:01
Database/Source file	WA_MPL_EasternUS_DefnWaco_Unit_1H_AWP_Proj_17661_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Northing[US ft]	Latitude	Longitude	
Slot Location	1.04	29.87	14269436.85	39°17'42.750"N	80°54'04.510"W	
Facility Reference Pt			1668323.99	39°17'42.740"N	80°54'04.890"W	
Field Reference Pt			0.00	0°00'00.000"	85°29'19.301"W	

WELLPATH DATUM		
Calculation method	Minimum curvature	
Horizontal Reference Pt	Slot	
Vertical Reference Pt	H&P 519 (RKB)	
MD Reference Pt	H&P 519 (RKB)	
Field Vertical Reference	Mean Sea Level	
	H&P 519 (RKB) to Facility Vertical Datum	30.00ft
	H&P 519 (RKB) to Mean Sea Level	1250.50ft
	H&P 519 (RKB) to Ground Level at Slot (Slot #11)	30.00ft
	Section Origin	N 0.00, E 0.00 ft
	Section Azimuth	162.00°



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #11
Operator	ANTERO RESOURCES CORPORATION	Well	Waco Unit 1H
Area	Ritchie County, WV	Wellbore	Waco Unit 1H AWB
Field	Ritchie		
Facility	Bison 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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
0.00	0.000	136.140	0.00	0.00	0.00	0.00	1688353.85	14289436.85	39°17'42.750"N	80°54'04.510"W	0.00	0.000	0.00	0.00	0.00	
30.00	0.000	136.140	30.00	0.00	0.00	0.00	1688353.85	14289436.85	39°17'42.750"N	80°54'04.510"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.520	136.140	100.00	0.29	-0.23	0.22	1688354.07	14289436.62	39°17'42.748"N	80°54'04.507"W	0.32	136.140	0.74	0.74	194.49	Cyrodatta MS Gyro <17-1/2">(100'-523')
125.00	0.500	130.520	125.00	0.48	-0.38	0.38	1688354.23	14289436.47	39°17'42.746"N	80°54'04.505"W	0.54	135.006	0.22	-0.08	-22.48	
150.00	0.620	130.650	150.00	0.69	-0.54	0.57	1688354.42	14289436.31	39°17'42.745"N	80°54'04.503"W	0.78	133.631	0.48	0.48	0.52	
175.00	0.500	143.440	175.00	0.91	-0.72	0.73	1688354.58	14289436.13	39°17'42.743"N	80°54'04.501"W	1.03	134.276	0.69	-0.48	51.16	
200.00	0.430	138.060	199.99	1.11	-0.88	0.87	1688354.72	14289435.97	39°17'42.741"N	80°54'04.499"W	1.24	135.404	0.19	-0.04	-21.52	
225.00	0.500	145.210	224.99	1.31	-1.05	1.00	1688354.85	14289435.80	39°17'42.740"N	80°54'04.497"W	1.46	136.330	0.25	0.04	28.60	
250.00	0.380	143.730	249.99	1.49	-1.21	1.12	1688354.97	14289435.64	39°17'42.738"N	80°54'04.496"W	1.65	137.288	0.48	-0.48	-5.92	
275.00	0.280	139.900	274.99	1.63	-1.32	1.21	1688355.06	14289435.53	39°17'42.737"N	80°54'04.495"W	1.79	137.678	0.37	-0.36	-15.32	
300.00	0.260	147.410	299.99	1.75	-1.42	1.28	1688355.13	14289435.43	39°17'42.736"N	80°54'04.494"W	1.91	138.039	0.19	-0.12	30.04	
325.00	0.230	186.070	324.99	1.85	-1.52	1.30	1688355.15	14289435.33	39°17'42.735"N	80°54'04.493"W	2.00	139.373	0.66	-0.12	154.64	
350.00	0.230	185.610	349.99	1.94	-1.62	1.29	1688355.14	14289435.23	39°17'42.734"N	80°54'04.494"W	2.07	141.386	0.01	0.00	-1.84	
375.00	0.260	194.270	374.99	2.03	-1.72	1.27	1688355.12	14289435.13	39°17'42.733"N	80°54'04.494"W	2.14	143.487	0.17	0.08	34.64	
400.00	0.280	177.440	399.99	2.14	-1.83	1.26	1688355.11	14289435.02	39°17'42.732"N	80°54'04.494"W	2.23	145.452	0.39	0.12	-67.32	
425.00	0.290	197.940	424.99	2.25	-1.96	1.25	1688355.10	14289434.89	39°17'42.731"N	80°54'04.494"W	2.32	147.491	0.41	0.04	82.00	
450.00	0.330	204.120	449.99	2.35	-2.08	1.20	1688355.05	14289434.77	39°17'42.729"N	80°54'04.495"W	2.40	150.090	0.21	0.16	24.72	
475.00	0.440	204.970	474.99	2.47	-2.23	1.13	1688354.98	14289434.62	39°17'42.728"N	80°54'04.496"W	2.50	153.223	0.44	0.44	3.40	
500.00	0.460	191.110	499.99	2.63	-2.42	1.07	1688354.92	14289434.43	39°17'42.726"N	80°54'04.496"W	2.65	156.192	0.44	0.08	-55.44	
523.00	0.460	187.240	522.99	2.80	-2.60	1.04	1688354.89	14289434.25	39°17'42.724"N	80°54'04.497"W	2.80	158.247	0.14	0.00	-16.83	
651.00	0.220	226.370	650.99	3.37	-3.28	0.80	1688354.65	14289433.57	39°17'42.718"N	80°54'04.500"W	3.38	166.370	0.25	-0.19	30.57	WFT EM <12-1/4">(523')(651'-2497')
740.00	0.330	205.580	739.99	3.63	-3.63	0.56	1688354.41	14289433.22	39°17'42.714"N	80°54'04.503"W	3.67	171.210	0.16	0.12	-23.36	
828.00	0.240	262.310	827.98	3.78	-3.88	0.27	1688354.12	14289432.97	39°17'42.712"N	80°54'04.507"W	3.89	176.034	0.32	-0.10	64.47	
923.00	0.420	287.740	922.98	3.54	-3.80	-0.26	1688353.59	14289433.05	39°17'42.712"N	80°54'04.513"W	3.81	183.902	0.24	0.19	26.77	
1017.00	0.630	298.550	1016.98	2.96	-3.45	-1.04	1688352.81	14289433.40	39°17'42.716"N	80°54'04.523"W	3.61	196.789	0.25	0.22	11.50	
1112.00	0.300	282.150	1111.98	2.46	-3.15	-1.74	1688352.11	14289433.70	39°17'42.719"N	80°54'04.532"W	3.60	208.961	0.37	-0.35	-17.26	
1206.00	0.200	272.550	1205.97	2.28	-3.09	-2.15	1688351.70	14289433.76	39°17'42.719"N	80°54'04.537"W	3.76	214.793	0.11	-0.11	-10.21	
1301.00	0.180	259.320	1300.97	2.20	-3.11	-2.46	1688351.39	14289433.74	39°17'42.719"N	80°54'04.541"W	3.97	218.332	0.05	-0.02	-13.93	
1395.00	0.240	242.630	1394.97	2.21	-3.23	-2.78	1688351.07	14289433.62	39°17'42.718"N	80°54'04.545"W	4.26	220.724	0.09	0.06	-17.76	
1490.00	0.480	251.330	1489.97	2.25	-3.45	-3.34	1688350.51	14289433.40	39°17'42.716"N	80°54'04.553"W	4.80	224.078	0.27	0.26	9.16	



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #11
Operator	ANTERO RESOURCES CORPORATION	Well	Waco Unit 1H
Area	Ritchie County, WV	Wellbore	Waco Unit 1H AWB
Field	Ritchie		
Facility	Bison Pad		

WELLPATH DATA (219 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	VertSect (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
1584.00	0.460	216.040	1583.97	2.48	-3.88	-3.94	1668349.91	14269432.97	39°17'42.712"N	80°54'04.560"W	5.54	225.437	0.31	-0.03	-37.54	
1679.00	0.750	209.880	1678.96	3.12	-4.73	-4.48	1668349.37	14269432.12	39°17'42.703"N	80°54'04.567"W	6.52	223.423	0.31	0.31	-6.48	
1773.00	0.220	87.970	1772.96	3.58	-5.26	-4.60	1668349.25	14269431.59	39°17'42.698"N	80°54'04.569"W	6.99	221.204	0.94	-0.56	-129.69	
1868.00	1.280	47.110	1867.95	3.18	-4.53	-3.65	1668350.21	14269432.32	39°17'42.705"N	80°54'04.566"W	5.81	218.818	1.18	1.12	-43.01	
1962.00	1.740	31.700	1961.92	1.82	-2.60	-2.13	1668351.73	14269434.25	39°17'42.724"N	80°54'04.537"W	3.36	219.251	0.65	0.49	-16.39	
2057.00	1.170	18.220	2056.89	0.10	-0.45	-1.06	1668352.79	14269436.40	39°17'42.746"N	80°54'04.524"W	1.16	246.931	0.70	-0.60	-14.19	
2151.00	0.620	330.400	2150.88	-1.17	0.90	-1.02	1668352.83	14269437.75	39°17'42.759"N	80°54'04.523"W	1.36	311.547	0.94	-0.59	-50.87	
2246.00	0.650	289.060	2245.87	-1.83	1.34	-1.81	1668352.04	14269438.19	39°17'42.763"N	80°54'04.533"W	2.25	306.502	0.68	0.03	-64.57	
2340.00	0.970	273.730	2339.86	-2.28	1.38	-3.14	1668350.72	14269438.23	39°17'42.764"N	80°54'04.550"W	3.43	293.775	0.35	0.34	4.97	
2435.00	0.160	232.160	2434.86	-2.54	1.35	-4.04	1668349.81	14269438.20	39°17'42.763"N	80°54'04.561"W	4.26	288.495	0.90	-0.85	-43.76	
2497.00	0.630	134.200	2496.86	-2.20	1.06	-3.87	1668349.98	14269437.91	39°17'42.761"N	80°54'04.559"W	4.01	285.352	1.08	0.76	-158.00	
2658.00	1.310	130.580	2657.83	0.15	-0.75	-1.83	1668352.02	14269436.10	39°17'42.743"N	80°54'04.533"W	1.98	247.692	0.42	0.42	-2.25	WFT EM <-8-3/4">(2497)(2658-6251)
2752.00	2.460	319.210	2751.81	-0.79	0.08	-2.34	1668351.51	14269436.93	39°17'42.751"N	80°54'04.540"W	2.34	271.862	4.00	1.22	-182.31	
2847.00	3.850	316.690	2846.66	-5.56	3.94	-5.86	1668348.00	14269440.79	39°17'42.789"N	80°54'04.584"W	7.06	303.935	1.47	1.46	-2.65	
2941.00	5.600	313.060	2940.34	-12.42	9.37	-11.37	1668342.48	14269446.21	39°17'42.843"N	80°54'04.655"W	14.73	309.482	1.89	1.86	-3.86	
3036.00	7.370	312.100	3034.73	-21.76	16.62	-19.28	1668334.58	14269453.48	39°17'42.914"N	80°54'04.755"W	25.45	310.760	1.87	1.86	-1.01	
3130.00	9.060	312.580	3127.76	-33.44	25.67	-29.20	1668324.66	14269462.51	39°17'43.004"N	80°54'04.881"W	38.88	311.314	1.80	1.80	0.51	
3224.00	10.730	314.380	3220.36	-47.64	36.80	-40.91	1668312.96	14269473.63	39°17'43.114"N	80°54'05.030"W	55.02	311.972	1.81	1.78	1.91	
3319.00	10.190	310.060	3313.78	-62.61	48.39	-53.66	1668300.21	14269485.22	39°17'43.229"N	80°54'05.192"W	72.26	312.044	1.00	-0.57	-4.55	
3413.00	11.520	308.990	3406.10	-77.53	59.65	-67.32	1668286.56	14269496.47	39°17'43.340"N	80°54'05.365"W	89.95	311.542	1.43	1.41	-1.14	
3512.00	11.340	313.450	3503.14	-94.37	72.56	-82.07	1668271.81	14269509.38	39°17'43.468"N	80°54'05.553"W	109.55	311.481	0.91	-0.18	4.51	
3607.00	12.430	314.760	3596.10	-111.67	86.19	-96.11	1668257.78	14269523.00	39°17'43.603"N	80°54'05.731"W	129.10	311.883	1.18	1.15	1.38	
3701.00	11.930	310.420	3687.99	-128.94	99.61	-110.69	1668243.20	14269536.42	39°17'43.736"N	80°54'05.917"W	148.91	311.983	1.11	-0.53	-4.62	
3796.00	12.220	313.120	3780.88	-146.11	112.85	-125.51	1668228.39	14269549.65	39°17'43.867"N	80°54'06.105"W	168.78	311.960	0.67	0.31	2.84	
3890.00	11.760	310.610	3872.83	-163.00	125.88	-140.04	1668213.87	14269562.68	39°17'43.996"N	80°54'06.290"W	188.30	311.953	0.74	-0.49	-2.67	
3985.00	12.350	315.190	3965.74	-180.33	139.39	-154.55	1668199.36	14269576.19	39°17'44.129"N	80°54'06.474"W	208.13	312.048	1.18	0.62	4.82	
4079.00	11.790	313.900	4057.66	-197.77	153.18	-168.56	1668185.36	14269589.97	39°17'44.266"N	80°54'06.652"W	227.76	312.265	0.66	-0.60	-1.37	
4174.00	12.600	317.360	4150.52	-215.75	167.54	-182.57	1668171.36	14269604.32	39°17'44.408"N	80°54'06.830"W	247.79	312.542	1.15	0.85	3.64	
4268.00	11.960	315.520	4242.37	-233.79	182.03	-196.34	1668157.59	14269618.80	39°17'44.551"N	80°54'07.005"W	267.74	312.834	0.80	-0.68	-1.96	
4363.00	12.260	318.680	4335.26	-251.86	196.63	-209.89	1668144.04	14269633.40	39°17'44.696"N	80°54'07.177"W	287.61	313.131	0.77	0.32	3.33	



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #11
Operator	ANTERO RESOURCES CORPORATION	Well	Waco Unit 1H
Area	Ritchie County, WV	Wellbore	Waco Unit 1H AWP
Field	Ritchie		
Facility	Bison 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 (1/100ft)	Build Rate (1/100ft)	Turn Rate (1/100ft)	Comments
4457.00	11.960	318.400	4427.16	-269.96	211.41	-222.95	1668130.99	14269648.17	39°17'44.842"N	80°54'07.343"W	307.25	313.478	0.33	-0.32	-0.30	
4552.00	13.110	319.090	4519.90	-288.90	226.91	-236.54	1668117.40	14269663.67	39°17'44.995"N	80°54'07.516"W	327.78	313.809	1.22	1.21	0.73	
4646.00	12.530	316.990	4611.55	-307.96	242.42	-250.48	1668103.47	14269679.18	39°17'45.149"N	80°54'07.693"W	348.58	314.064	0.79	-0.62	-2.23	
4740.00	12.310	316.290	4703.35	-326.23	257.12	-264.36	1668089.60	14269693.87	39°17'45.294"N	80°54'07.869"W	368.78	314.205	0.28	-0.23	-0.74	
4835.00	11.890	315.640	4796.24	-344.12	271.44	-278.20	1668075.76	14269708.18	39°17'45.436"N	80°54'08.045"W	388.68	314.295	0.46	-0.44	-0.68	
4929.00	11.710	311.030	4888.26	-360.98	284.63	-292.17	1668061.80	14269721.36	39°17'45.566"N	80°54'08.222"W	407.89	314.251	1.02	-0.19	-4.90	
5024.00	11.130	309.480	4981.38	-376.98	296.78	-306.52	1668047.46	14269733.51	39°17'45.687"N	80°54'08.405"W	426.65	314.076	0.69	-0.61	-1.63	
5118.00	10.890	310.050	5073.65	-392.16	308.27	-320.32	1668033.66	14269744.99	39°17'45.800"N	80°54'08.580"W	444.56	313.902	0.28	-0.26	0.61	
5213.00	11.140	299.930	5166.91	-406.59	318.62	-335.14	1668018.85	14269755.34	39°17'45.903"N	80°54'08.768"W	462.43	313.553	2.05	0.26	-10.65	
5307.00	10.680	299.100	5259.21	-419.71	327.39	-350.62	1668003.37	14269764.11	39°17'45.990"N	80°54'08.965"W	479.71	313.037	0.52	-0.49	-0.88	
5401.00	10.810	299.290	5351.56	-432.57	335.94	-365.92	1667988.08	14269772.65	39°17'46.074"N	80°54'09.160"W	496.74	312.554	0.14	0.14	0.20	
5496.00	11.400	307.520	5444.79	-446.86	346.01	-381.14	1667972.87	14269782.72	39°17'46.174"N	80°54'09.353"W	514.77	312.235	1.78	0.62	8.66	
5590.00	11.660	309.060	5536.89	-462.49	357.66	-395.88	1667958.13	14269794.36	39°17'46.289"N	80°54'09.541"W	533.52	312.096	0.43	0.28	1.64	
5685.00	12.560	304.410	5629.78	-478.73	369.54	-411.86	1667942.16	14269806.24	39°17'46.407"N	80°54'09.744"W	553.34	311.900	1.40	0.95	-4.89	
5779.00	10.780	311.470	5721.83	-494.40	381.14	-426.88	1667927.14	14269817.84	39°17'46.522"N	80°54'09.934"W	572.27	311.760	2.42	-1.89	7.51	
5826.00	9.860	305.080	5768.08	-501.40	386.37	-433.47	1667920.56	14269823.06	39°17'46.573"N	80°54'10.018"W	580.66	311.712	3.12	-1.96	-13.60	
5874.00	10.000	287.200	5815.37	-507.09	389.96	-440.81	1667913.22	14269826.65	39°17'46.609"N	80°54'10.112"W	588.54	311.497	6.40	0.29	-37.25	
5921.00	11.640	286.380	5861.55	-510.63	390.87	-449.45	1667904.58	14269827.56	39°17'46.618"N	80°54'10.221"W	595.63	311.012	8.96	3.49	-44.30	
5968.00	11.780	243.500	5907.59	-511.09	388.43	-458.48	1667895.56	14269825.12	39°17'46.594"N	80°54'10.336"W	600.90	310.272	9.82	0.30	-48.68	
6015.00	9.560	217.850	5953.80	-508.19	383.20	-465.17	1667888.87	14269819.90	39°17'46.542"N	80°54'10.421"W	602.68	309.481	11.03	-4.72	-54.57	
6063.00	8.930	185.910	6001.21	-502.54	376.34	-468.00	1667886.04	14269813.04	39°17'46.475"N	80°54'10.458"W	600.55	308.805	10.63	-1.31	-66.54	
6110.00	13.240	181.340	6047.33	-494.13	367.33	-468.50	1667885.54	14269804.03	39°17'46.386"N	80°54'10.464"W	595.34	308.098	9.35	9.17	-9.72	
6157.00	17.250	181.480	6092.66	-482.47	354.98	-468.81	1667885.23	14269791.69	39°17'46.264"N	80°54'10.468"W	588.04	307.133	8.53	8.53	0.30	
6204.00	20.240	177.620	6137.17	-468.07	339.89	-468.65	1667885.39	14269776.60	39°17'46.114"N	80°54'10.466"W	578.93	305.951	6.88	6.36	-8.21	
6251.00	23.390	177.930	6180.79	-451.27	322.43	-467.98	1667886.06	14269759.15	39°17'45.942"N	80°54'10.458"W	568.30	304.567	6.71	6.70	0.66	
6323.00	28.300	178.050	6245.57	-421.10	291.08	-466.88	1667887.16	14269727.81	39°17'45.632"N	80°54'10.444"W	550.18	301.942	6.82	6.82	0.17	BH AT Curve <8-1/2"> (6251)(6323-17636)
6366.00	30.980	176.950	6282.94	-400.61	269.83	-465.94	1667888.10	14269706.57	39°17'45.422"N	80°54'10.433"W	538.44	300.076	6.36	6.23	-2.56	
6413.00	35.570	173.180	6322.23	-375.50	244.17	-463.67	1667890.36	14269680.92	39°17'45.168"N	80°54'10.404"W	524.03	297.771	10.71	9.77	-8.02	
6461.00	40.900	171.090	6359.92	-346.26	214.76	-459.58	1667894.46	14269665.12	39°17'44.878"N	80°54'10.353"W	507.28	295.046	11.43	11.10	-4.35	
6498.00	45.244	169.877	6386.94	-321.28	189.85	-455.39	1667898.64	14269626.62	38°17'44.631"N	80°54'10.300"W	493.38	292.630	11.95	11.74	-3.28	Middlesex 6498' MD



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #11
ANTERO RESOURCES CORPORATION	Well	Waco Unit 1H
Ritchie County, WV	Wellbore	Waco Unit 1H AWB
Ritchie		
Bison Pad		

## WELLPATH DATA (219 stations) + = interpolated/extrapolated station

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	VertSect (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
6508.00	46.420	169.580	6393.91	-314.17	182.79	-454.11	1667899.92	14269619.56	39°17'44.561"N	80°54'10.284"W	489.52	291.926	11.95	11.76	-2.97	
6556.00	51.710	168.560	6425.35	-278.20	147.20	-447.23	1667906.80	14269583.99	39°17'44.210"N	80°54'10.196"W	470.83	288.218	11.14	11.02	-2.13	
6603.00	57.390	167.970	6452.60	-240.15	109.73	-439.44	1667914.59	14269546.53	39°17'43.839"N	80°54'10.098"W	452.93	284.020	12.13	12.09	-1.26	
6651.00	62.040	167.900	6476.80	-198.94	69.21	-430.77	1667923.25	14269506.03	39°17'43.439"N	80°54'09.988"W	436.30	279.127	9.69	9.69	-0.15	
6695.00†	65.438	167.356	6496.27	-159.67	30.67	-422.32	1667931.70	14269467.51	39°17'43.058"N	80°54'09.881"W	423.43	274.154	7.80	7.72	-1.24	Burkett: 6695' MD
6698.00	65.670	167.320	6497.51	-156.95	28.01	-421.72	1667932.30	14269464.84	39°17'43.031"N	80°54'09.874"W	422.65	273.799	7.80	7.73	-1.20	
6745.00	67.250	166.680	6516.28	-114.03	-13.98	-412.03	1667941.99	14269422.88	39°17'42.616"N	80°54'09.751"W	412.26	268.057	3.59	3.36	-1.36	
6787.00†	69.957	164.987	6531.60	-75.02	-51.89	-402.45	1667951.56	14269384.98	39°17'42.241"N	80°54'09.630"W	405.78	262.554	7.46	6.44	-4.03	Tully: 6787' MD
6792.00	70.280	164.790	6533.30	-70.32	-56.43	-401.23	1667952.79	14269380.45	39°17'42.197"N	80°54'09.614"W	405.17	261.995	7.46	6.47	-3.95	
6840.00	74.930	162.610	6547.65	-24.55	-100.37	-388.36	1667965.64	14269336.52	39°17'41.762"N	80°54'09.451"W	401.12	255.509	10.61	9.69	-4.54	
6887.00	78.570	162.570	6558.42	21.19	-144.02	-374.68	1667979.32	14269292.89	39°17'41.331"N	80°54'09.278"W	401.40	248.975	7.75	7.74	-0.09	Marcellus POE: 6887' MD
6934.00	80.160	163.520	6567.09	67.37	-188.20	-361.21	1667992.79	14269248.73	39°17'40.894"N	80°54'09.107"W	407.30	242.479	3.92	3.38	2.02	
6981.00	83.400	162.500	6573.81	113.87	-232.68	-347.62	1668006.37	14269204.26	39°17'40.454"N	80°54'08.935"W	418.30	236.203	7.22	6.89	-2.17	
7029.00	87.200	161.170	6577.74	161.70	-278.12	-332.70	1668021.28	14269158.84	39°17'40.005"N	80°54'08.746"W	433.84	230.106	6.38	7.92	-2.77	
7076.00	89.880	161.270	6578.94	208.68	-322.60	-317.58	1668036.40	14269114.38	39°17'39.565"N	80°54'08.554"W	452.89	224.550	5.71	5.70	0.21	
7124.00	89.850	160.540	6579.05	256.67	-367.96	-301.88	1668052.09	14269069.04	39°17'39.116"N	80°54'08.355"W	475.95	219.366	1.52	-0.06	-1.52	
7219.00	90.830	158.690	6578.49	351.58	-457.01	-268.79	1668085.17	14268980.03	39°17'38.236"N	80°54'07.935"W	530.19	210.462	2.20	1.03	-1.95	
7313.00	90.090	156.270	6577.74	445.27	-543.83	-232.79	1668121.15	14268893.24	39°17'37.377"N	80°54'07.478"W	591.56	203.174	2.69	-0.79	-2.57	
7408.00	89.510	156.320	6578.07	539.80	-630.81	-194.60	1668159.33	14268806.29	39°17'36.517"N	80°54'06.994"W	660.14	197.144	0.61	-0.61	0.05	
7503.00	89.480	158.460	6578.90	634.49	-718.50	-158.08	1668195.84	14268718.64	39°17'35.650"N	80°54'06.531"W	735.69	192.408	2.25	-0.03	2.25	
7598.00	89.540	159.400	6579.72	729.35	-807.15	-123.93	1668229.97	14268630.03	39°17'34.774"N	80°54'06.097"W	816.60	188.729	0.99	0.06	0.99	
7693.00	89.600	160.410	6580.43	824.28	-896.36	-91.29	1668262.60	14268540.85	39°17'33.892"N	80°54'05.684"W	901.00	185.815	1.07	0.06	1.06	
7787.00	89.720	161.740	6580.99	918.26	-985.27	-60.80	1668293.07	14268451.97	39°17'33.012"N	80°54'05.297"W	987.15	183.531	1.42	0.13	1.41	
7882.00	90.370	163.050	6580.91	1013.26	-1075.82	-32.07	1668321.79	14268361.46	39°17'32.117"N	80°54'04.933"W	1076.30	181.707	1.54	0.68	1.38	
7976.00	89.420	160.880	6581.09	1107.25	-1165.20	-2.97	1668350.88	14268272.12	39°17'31.234"N	80°54'04.564"W	1165.20	180.146	2.52	-1.01	-2.31	
8070.00	89.480	161.480	6581.99	1201.24	-1254.17	27.35	1668381.19	14268183.19	39°17'30.354"N	80°54'04.180"W	1254.47	178.751	0.64	0.06	0.64	
8165.00	89.880	162.510	6582.52	1296.23	-1344.51	56.72	1668410.54	14268092.88	39°17'29.461"N	80°54'03.807"W	1345.71	177.584	1.16	0.42	1.08	
8260.00	89.540	161.440	6583.00	1391.23	-1434.85	86.11	1668439.93	14268002.58	39°17'28.567"N	80°54'03.435"W	1437.43	176.566	1.18	-0.36	-1.13	
8354.00	90.250	159.960	6583.17	1485.20	-1523.56	117.18	1668470.98	14267913.00	39°17'27.690"N	80°54'03.041"W	1528.06	175.602	1.75	0.76	-1.57	
8448.00	89.290	158.600	6583.55	1579.09	-1611.48	150.43	1668504.22	14267826.02	39°17'26.821"N	80°54'02.619"W	1618.48	174.667	1.77	-1.02	-1.45	



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #11
Operator	ANTERO RESOURCES CORPORATION	Well	Waco Unit 1H
Area	Ritchie County, WV	Wellbore	Waco Unit 1H AWP
Field	Ritchie		
Facility	Bison Pad		

WELLPATH DATA (219 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (JUS ft)	Grid North (JUS ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (F/100ft)	Build Rate (F/100ft)	Turn Rate (F/100ft)	Comments
8543.00	89.630	158.060	6584.44	1673.89	-1699.76	185.51	1668539.29	14267737.77	39°17'25.948"N	80°54'02.174"W	1709.85	173.771	0.67	0.36	-0.57	
8637.00	88.890	156.920	6585.66	1767.59	-1786.59	221.50	1668575.26	14267650.98	39°17'25.089"N	80°54'01.718"W	1800.27	172.933	1.45	-0.79	-1.21	
8732.00	88.340	161.830	6587.96	1862.44	-1875.45	254.94	1668608.69	14267562.16	39°17'24.211"N	80°54'01.294"W	1892.69	172.259	5.20	-0.58	5.17	
8826.00	88.340	164.870	6590.68	1956.36	-1965.46	281.86	1668635.60	14267472.18	39°17'23.321"N	80°54'00.952"W	1985.56	171.839	3.23	0.00	3.23	
8921.00	89.660	166.350	6592.34	2051.15	-2057.46	305.46	1668665.19	14267380.22	39°17'22.411"N	80°54'00.654"W	2080.01	171.555	2.09	1.39	1.56	
9016.00	89.970	164.590	6592.64	2145.97	-2149.41	329.30	1668683.02	14267288.30	39°17'21.502"N	80°54'00.352"W	2174.49	171.290	1.88	0.33	-1.85	
9110.00	89.690	161.250	6592.92	2239.95	-2239.26	356.90	1668710.61	14267198.49	39°17'20.614"N	80°54'00.002"W	2267.52	170.944	3.57	-0.30	-3.55	
9205.00	89.690	159.710	6593.44	2334.91	-2328.79	388.64	1668747.34	14267108.99	39°17'19.729"N	80°53'59.599"W	2361.00	170.525	1.62	0.00	-1.62	
9299.00	89.380	159.750	6594.20	2428.83	-2416.97	421.21	1668774.89	14267020.85	39°17'18.857"N	80°53'59.187"W	2453.39	170.114	0.33	-0.33	0.04	
9394.00	89.540	162.270	6595.10	2523.81	-2506.79	452.12	1668805.79	14266931.07	39°17'17.969"N	80°53'58.795"W	2547.23	169.776	2.66	0.17	2.65	
9489.00	90.370	165.330	6595.17	2618.75	-2598.00	478.62	1668832.28	14266839.89	39°17'17.067"N	80°53'58.459"W	2641.72	169.562	3.34	0.87	3.22	
9583.00	90.890	170.390	6594.14	2712.22	-2689.86	498.38	1668852.03	14266748.06	39°17'16.159"N	80°53'58.209"W	2735.64	169.503	5.41	0.55	5.38	
9678.00	89.780	165.480	6593.58	2806.68	-2782.73	518.23	1668871.87	14266655.23	39°17'15.241"N	80°53'57.958"W	2830.58	169.451	5.30	-1.17	-5.17	
9772.00	89.750	159.410	6593.97	2900.63	-2872.31	546.57	1668900.20	14266565.69	39°17'14.355"N	80°53'57.599"W	2923.85	169.226	6.46	-0.03	-6.46	
9867.00	89.420	157.010	6594.65	2995.41	-2960.52	581.83	1668935.45	14266477.52	39°17'13.483"N	80°53'57.151"W	3017.15	168.881	2.55	-0.35	-2.53	
9962.00	89.690	159.060	6595.39	3090.18	-3048.61	617.36	1668970.96	14266389.46	39°17'12.612"N	80°53'56.701"W	3110.49	168.552	2.18	0.28	2.16	
10056.00	89.720	161.370	6595.88	3184.13	-3137.06	649.18	1669002.76	14266301.05	39°17'11.737"N	80°53'56.297"W	3203.52	168.308	2.46	0.03	2.46	
10151.00	89.880	162.140	6596.21	3279.12	-3227.28	678.92	1669032.50	14266210.86	39°17'10.845"N	80°53'55.920"W	3297.92	168.120	0.83	0.17	0.81	
10246.00	89.660	161.290	6596.59	3374.12	-3317.48	708.72	1669062.29	14266120.70	39°17'09.953"N	80°53'55.543"W	3392.94	167.941	0.92	-0.23	-0.89	
10340.00	90.000	160.680	6596.87	3468.10	-3406.35	739.35	1669092.90	14266031.86	39°17'09.075"N	80°53'55.154"W	3485.67	167.754	0.74	0.36	-0.65	
10435.00	88.830	159.240	6597.84	3563.03	-3495.59	771.90	1669125.44	14265942.66	39°17'08.192"N	80°53'54.742"W	3579.80	167.548	1.95	-1.23	-1.52	
10529.00	88.250	159.590	6600.23	3656.91	-3583.56	804.94	1669158.47	14265854.73	39°17'07.322"N	80°53'54.323"W	3672.85	167.340	0.72	-0.62	0.37	
10624.00	87.850	162.100	6603.47	3751.83	-3673.24	836.09	1669189.61	14265765.08	39°17'06.436"N	80°53'53.928"W	3767.19	167.177	2.67	-0.42	2.64	
10719.00	88.220	164.990	6606.72	3846.73	-3764.29	862.98	1669216.49	14265674.07	39°17'05.535"N	80°53'53.587"W	3861.94	167.088	3.07	0.39	3.04	
10813.00	88.400	168.630	6609.50	3940.34	-3855.75	884.42	1669237.91	14265582.64	39°17'04.631"N	80°53'53.316"W	3956.88	167.081	3.88	0.19	3.87	
10908.00	89.940	173.670	6610.87	4034.09	-3949.58	899.03	1669252.52	14265488.86	39°17'03.704"N	80°53'53.131"W	4050.61	167.177	5.55	1.62	5.31	
11003.00	90.120	173.170	6610.82	4127.20	-4043.95	909.91	1669263.40	14265394.52	39°17'02.771"N	80°53'52.994"W	4145.06	167.319	0.56	0.19	-0.53	
11097.00	90.650	170.460	6610.19	4219.82	-4136.98	923.29	1669276.77	14265301.53	39°17'01.851"N	80°53'52.825"W	4238.76	167.419	2.94	0.56	-2.88	
11192.00	91.020	166.430	6608.81	4314.19	-4230.03	942.32	1669295.79	14265208.52	39°17'00.931"N	80°53'52.585"W	4333.72	167.441	4.26	0.39	-4.24	
11286.00	92.160	164.220	6606.20	4407.99	-4320.92	966.12	1669319.58	14265117.66	39°17'00.033"N	80°53'52.284"W	4427.61	167.396	2.64	1.21	-2.35	



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Ritchie County, WV
Field	Ritchie
Facility	Bison Pad
Slot	Slot #11
Well	Waco Unit 1H
Wellbore	Waco Unit 1H AWB

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
11381.00	89.630	161.650	6604.72	4502.95	-4411.71	993.99	1669347.44	14265026.91	39°16'59.135"N	80°53'51.930"W	4522.30	167.303	3.80	-2.66	-2.71	
11475.00	90.090	162.210	6604.95	4596.95	-4501.07	1023.15	1669376.59	14264937.58	39°16'58.251"N	80°53'51.561"W	4615.90	167.194	0.77	0.49	0.60	
11570.00	89.630	160.470	6605.18	4691.93	-4591.08	1053.54	1669406.97	14264847.61	39°16'57.362"N	80°53'51.176"W	4710.41	167.076	1.89	-0.48	-1.83	
11665.00	90.250	158.430	6605.28	4786.84	-4680.03	1086.88	1669440.30	14264758.70	39°16'56.482"N	80°53'50.753"W	4804.58	166.925	2.24	0.65	-2.15	
11719.00	89.660	155.810	6605.35	4840.63	-4729.77	1107.88	1669461.28	14264708.97	39°16'55.990"N	80°53'50.487"W	4857.79	166.817	5.00	-1.20	-4.85	
11813.00	89.660	158.300	6605.95	4934.28	-4816.33	1144.52	1669497.91	14264622.45	39°16'55.134"N	80°53'50.022"W	4950.45	166.633	2.65	0.06	2.65	
11908.00	89.600	160.570	6606.57	5029.17	-4905.27	1177.89	1669531.27	14264533.55	39°16'54.255"N	80°53'49.599"W	5044.70	166.497	2.39	-0.06	2.39	
12003.00	89.570	160.650	6607.26	5124.14	-4994.87	1209.43	1669562.72	14264443.98	39°16'53.369"N	80°53'49.199"W	5139.21	166.389	0.99	-0.03	0.08	
12097.00	89.780	160.750	6607.79	5218.12	-5083.59	1240.49	1669593.85	14264355.30	39°16'52.492"N	80°53'48.805"W	5232.75	166.287	0.25	0.22	0.11	
12192.00	89.850	161.840	6608.10	5313.11	-5173.57	1270.96	1669624.30	14264265.35	39°16'51.602"N	80°53'48.419"W	5327.40	166.198	1.15	0.07	1.15	
12287.00	89.820	165.140	6608.37	5408.06	-5264.64	1297.95	1669651.28	14264174.32	39°16'50.701"N	80°53'48.077"W	5422.28	166.150	3.47	-0.03	3.47	
12381.00	89.540	166.670	6608.90	5501.84	-5355.81	1320.84	1669674.16	14264083.19	39°16'49.800"N	80°53'47.787"W	5516.28	166.146	1.65	-0.30	1.63	
12476.00	90.220	163.520	6609.09	5596.69	-5447.60	1345.28	1669698.59	14263991.44	39°16'48.893"N	80°53'47.478"W	5611.25	166.128	3.39	0.72	-3.32	
12570.00	89.720	159.310	6609.14	5690.66	-5536.68	1375.23	1669728.53	14263902.39	39°16'48.012"N	80°53'47.098"W	5704.91	166.051	4.51	-0.53	-4.48	
12665.00	89.630	155.950	6609.68	5785.37	-5624.51	1411.38	1669764.66	14263814.59	39°16'47.143"N	80°53'46.640"W	5798.89	165.913	3.54	-0.09	-3.54	
12760.00	89.540	155.000	6610.37	5879.75	-5710.94	1450.81	1669804.08	14263728.20	39°16'46.289"N	80°53'46.140"W	5892.34	165.746	1.00	-0.09	-1.00	
12854.00	90.000	155.520	6610.75	5973.10	-5796.31	1490.15	1669843.40	14263642.86	39°16'45.444"N	80°53'45.641"W	5984.79	165.582	0.74	0.49	0.55	
12949.00	89.910	160.590	6610.82	6067.84	-5884.40	1525.64	1669878.88	14263554.81	39°16'44.573"N	80°53'45.191"W	6078.96	165.465	5.34	-0.09	5.34	
13043.00	90.060	160.260	6610.85	6161.81	-5972.96	1557.13	1669910.36	14263466.28	39°16'43.698"N	80°53'44.792"W	6172.60	165.388	0.39	0.16	-0.35	
13138.00	89.910	157.500	6610.87	6256.66	-6061.57	1591.36	1669944.57	14263377.71	39°16'42.821"N	80°53'44.358"W	6266.99	165.290	2.91	-0.16	-2.91	
13233.00	90.400	155.370	6610.61	6351.20	-6148.65	1629.34	1669982.54	14263290.67	39°16'41.960"N	80°53'43.876"W	6360.86	165.158	2.30	0.52	-2.24	
13327.00	90.220	158.410	6610.11	6444.82	-6235.09	1666.23	1670019.41	14263204.26	39°16'41.106"N	80°53'43.408"W	6453.89	165.038	3.24	-0.19	3.23	
13422.00	90.250	162.160	6609.72	6539.76	-6324.51	1698.27	1670051.44	14263114.88	39°16'40.221"N	80°53'42.930"W	6548.55	164.969	3.95	0.03	3.95	
13517.00	90.340	164.140	6609.23	6634.73	-6415.42	1725.81	1670078.96	14263024.00	39°16'39.323"N	80°53'42.653"W	6643.50	164.943	2.09	0.09	2.08	
13611.00	89.660	164.820	6609.23	6728.64	-6505.99	1750.96	1670104.11	14262933.47	39°16'38.427"N	80°53'42.335"W	6737.49	164.937	1.02	-0.72	0.72	
13705.00	89.850	164.510	6609.63	6822.54	-6596.65	1775.82	1670128.96	14262842.85	39°16'37.531"N	80°53'42.020"W	6831.49	164.933	0.39	0.20	-0.33	
13800.00	90.030	165.570	6609.73	6917.41	-6688.42	1800.34	1670153.47	14262751.11	39°16'36.623"N	80°53'41.709"W	6926.49	164.935	1.13	0.19	1.12	
13895.00	90.000	166.390	6609.70	7012.18	-6780.59	1823.36	1670176.47	14262658.98	39°16'35.712"N	80°53'41.418"W	7021.47	164.949	0.86	-0.03	0.86	
13989.00	89.880	165.520	6609.80	7105.95	-6871.78	1846.17	1670199.28	14262567.82	39°16'34.811"N	80°53'41.129"W	7115.46	164.962	0.93	-0.13	-0.93	
14084.00	89.850	163.280	6610.03	7200.86	-6963.28	1871.71	1670224.81	14262476.37	39°16'33.906"N	80°53'40.806"W	7210.45	164.955	2.36	-0.03	-2.36	





# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #11
Operator	ANTERO RESOURCES CORPORATION	Well	Waco Unit 1H
Area	Ritchie County, WV	Wellbore	Waco Unit 1H AWB
Field	Ritchie		
Facility	Bison 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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
14178.00	89.780	162.310	6610.33	7294.85	-7053.07	1899.52	1670252.61	14262386.61	39°16'33.018"N	80°53'40.454"W	7304.38	164.927	1.03	-0.07	-1.03	
14273.00	89.820	162.670	6610.66	7389.85	-7143.67	1928.10	1670281.18	14262296.05	39°16'32.122"N	80°53'40.092"W	7399.29	164.896	0.38	0.04	0.38	
14367.00	89.600	164.580	6611.14	7483.80	-7233.85	1954.60	1670307.66	14262205.90	39°16'31.231"N	80°53'39.756"W	7493.26	164.880	2.05	-0.23	2.03	
14462.00	89.660	163.440	6611.75	7578.74	-7325.17	1980.77	1670333.82	14262114.62	39°16'30.328"N	80°53'39.424"W	7588.25	164.869	1.20	0.06	-1.20	
14556.00	89.600	162.810	6612.36	7672.72	-7415.12	2008.05	1670361.10	14262024.70	39°16'29.439"N	80°53'39.079"W	7682.20	164.847	0.67	-0.06	-0.67	
14651.00	89.600	163.410	6613.02	7767.71	-7505.83	2036.26	1670389.29	14261934.03	39°16'28.642"N	80°53'38.722"W	7777.14	164.822	0.17	0.00	-0.17	
14746.00	90.060	163.410	6613.30	7862.69	-7596.70	2063.98	1670417.01	14261843.20	39°16'27.643"N	80°53'38.370"W	7872.09	164.800	0.94	0.48	0.80	
14840.00	89.570	162.760	6613.61	7956.68	-7686.63	2091.33	1670444.34	14261753.30	39°16'26.754"N	80°53'38.024"W	7966.05	164.780	0.87	-0.52	-0.69	
14935.00	89.660	163.690	6614.24	8051.65	-7777.58	2118.75	1670471.75	14261662.39	39°16'25.855"N	80°53'37.677"W	8061.01	164.761	0.98	0.09	0.98	
15029.00	89.540	163.870	6614.90	8145.60	-7867.84	2145.01	1670498.00	14261572.17	39°16'24.962"N	80°53'37.344"W	8154.99	164.750	0.23	-0.13	0.19	
15124.00	89.540	163.030	6615.66	8240.57	-7958.90	2172.07	1670525.04	14261481.14	39°16'24.062"N	80°53'37.001"W	8249.97	164.735	0.88	0.00	-0.88	
15219.00	89.570	162.760	6616.40	8335.55	-8049.69	2200.01	1670552.97	14261390.38	39°16'23.164"N	80°53'36.648"W	8344.92	164.714	0.29	0.03	-0.28	
15314.00	89.660	161.280	6617.04	8430.55	-8140.05	2229.33	1670582.29	14261300.06	39°16'22.271"N	80°53'36.276"W	8439.81	164.684	1.56	0.09	-1.56	
15408.00	90.060	161.600	6617.27	8524.54	-8229.16	2259.25	1670612.19	14261210.99	39°16'21.390"N	80°53'35.897"W	8533.66	164.648	0.54	0.43	0.34	
15503.00	89.780	160.390	6617.40	8619.53	-8318.98	2290.19	1670643.12	14261121.21	39°16'20.502"N	80°53'35.505"W	8628.46	164.608	1.31	-0.29	-1.27	
15597.00	90.000	161.130	6617.58	8713.50	-8407.73	2321.16	1670674.08	14261032.49	39°16'19.624"N	80°53'35.112"W	8722.25	164.567	0.82	0.23	0.79	
15692.00	90.060	160.570	6617.53	8808.48	-8497.47	2352.32	1670705.23	14260942.79	39°16'18.737"N	80°53'34.717"W	8817.06	164.527	0.59	0.06	-0.59	
15787.00	90.060	158.930	6617.43	8903.41	-8586.60	2385.20	1670738.10	14260853.70	39°16'17.856"N	80°53'34.301"W	8911.73	164.476	1.73	0.00	-1.73	
15881.00	89.660	156.940	6617.66	8997.17	-8673.71	2420.51	1670773.39	14260766.62	39°16'16.994"N	80°53'33.853"W	9005.12	164.408	2.16	-0.43	-2.12	
15976.00	89.540	155.500	6618.33	9091.68	-8760.64	2458.82	1670811.68	14260679.72	39°16'16.135"N	80°53'33.367"W	9099.15	164.322	1.52	-0.13	-1.52	
16071.00	89.860	155.540	6618.81	9186.07	-8847.10	2498.18	1670851.03	14260593.30	39°16'15.280"N	80°53'32.868"W	9193.04	164.232	0.36	0.36	0.04	
16165.00	89.780	158.640	6619.09	9279.71	-8933.67	2534.77	1670887.61	14260506.76	39°16'14.423"N	80°53'32.404"W	9286.31	164.160	3.30	-0.11	3.30	
16260.00	89.600	157.340	6619.60	9374.48	-9021.74	2570.37	1670923.19	14260418.72	39°16'13.553"N	80°53'31.953"W	9380.76	164.097	1.38	-0.19	-1.37	
16354.00	89.600	158.010	6620.26	9468.21	-9108.70	2606.08	1670958.89	14260331.81	39°16'12.693"N	80°53'31.500"W	9474.17	164.034	0.71	0.00	0.71	
16449.00	89.600	160.910	6620.92	9563.10	-9197.64	2639.41	1670992.20	14260242.89	39°16'11.813"N	80°53'31.078"W	9568.86	163.988	3.05	0.00	3.05	
16543.00	89.420	163.200	6621.72	9657.09	-9287.06	2668.37	1671021.15	14260153.51	39°16'10.929"N	80°53'30.711"W	9662.80	163.970	2.44	-0.19	2.44	
16638.00	89.750	167.280	6622.41	9751.92	-9378.91	2692.56	1671045.33	14260061.71	39°16'10.021"N	80°53'30.405"W	9757.75	163.982	4.31	0.35	4.29	
16733.00	89.820	167.250	6622.77	9846.52	-9471.57	2713.51	1671066.27	14259969.08	39°16'09.105"N	80°53'30.140"W	9852.60	164.014	0.08	0.07	-0.03	
16827.00	89.940	167.190	6622.97	9940.13	-9563.24	2734.30	1671087.05	14259877.45	39°16'08.199"N	80°53'29.877"W	9946.45	164.044	0.14	0.13	-0.06	
16922.00	89.880	171.900	6623.11	10034.28	-9656.64	2751.53	1671108.28	14259784.09	39°16'07.275"N	80°53'29.659"W	10040.99	164.096	4.96	-0.06	4.96	



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot #11
ANTERO RESOURCES CORPORATION	Waco Unit 1H
Ritchie County, WV	Well
Ritchie	Wellbore
Bison Pad	Waco Unit 1H AWP

## 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
17017.00	89.820	169.030	6623.36	10128.23	-9750.31	2767.27	1671120.01	14259690.45	39°16'06.349"N	80°53'29.460"W	10135.40	164.155	3.02	-0.06	-3.02	
17112.00	89.750	167.450	6623.72	10222.66	-9843.32	2786.63	1671139.36	14259597.48	39°16'05.430"N	80°53'29.216"W	10230.16	164.193	1.66	-0.07	-1.66	
17207.00	90.220	162.090	6623.74	10317.52	-9934.94	2811.58	1671164.30	14259505.89	39°16'04.524"N	80°53'28.900"W	10325.12	164.199	5.66	0.49	-5.64	
17302.00	90.120	155.420	6623.46	10412.31	-10023.44	2845.98	1671198.69	14259417.43	39°16'03.649"N	80°53'28.464"W	10419.64	164.149	7.02	-0.11	-7.02	
17396.00	90.000	154.830	6623.36	10505.64	-10108.72	2885.52	1671238.21	14259332.19	39°16'02.805"N	80°53'27.962"W	10512.48	164.069	0.64	-0.13	-0.63	
17491.00	89.940	156.170	6623.41	10600.02	-10195.16	2924.92	1671277.59	14259245.78	39°16'01.951"N	80°53'27.463"W	10606.43	163.992	1.41	-0.06	1.41	
17586.00	90.180	157.290	6623.31	10694.62	-10282.43	2962.45	1671315.11	14259158.54	39°16'01.088"N	80°53'26.987"W	10700.68	163.928	1.21	0.25	1.18	
17636.00	89.940	157.970	6623.26	10744.47	-10328.67	2981.48	1671334.13	14259112.32	39°16'00.630"N	80°53'26.746"W	10750.38	163.899	1.44	-0.48	1.36	
17661.00	89.940	157.970	6623.29	10769.41	-10351.84	2990.85	1671343.50	14259089.16	39°16'00.401"N	80°53'26.627"W	10775.24	163.885	0.00	0.00	0.00	Projected MD at TD: 17661'

## HOLE & CASING SECTIONS - Ref Wellbore: Waco Unit 1H AWP Ref Wellpath: Waco Unit 1H AWP Proj: 17661'

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]	
	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
20in Conductor	30.00	110.00	110.00	80.00	80.00	110.00	30.00	110.00	110.00	110.00	0.00	0.00	-0.29	0.00	0.00	-0.29	0.00	0.28
17.5in Open Hole	110.00	556.50	556.50	446.50	446.50	556.50	110.00	556.49	556.49	556.49	-0.29	0.28	-2.85	0.28	0.28	-2.85	0.28	1.00
13.375in Casing Surface	30.00	556.50	556.50	526.50	526.50	556.50	30.00	556.49	556.49	556.49	0.00	0.00	-2.85	0.00	0.00	-2.85	0.00	1.00
12.25in Open Hole	556.50	2560.00	2560.00	2003.50	2003.50	2560.00	556.49	2559.85	2559.85	2559.85	-2.85	1.00	0.49	1.00	0.49	-3.25	0.49	-3.25
9.625in Casing Intermediate	30.00	2560.00	2560.00	2530.00	2530.00	2560.00	30.00	2559.85	2559.85	2559.85	0.00	0.00	0.49	0.00	0.49	322.43	0.49	-467.98
8.75in Open Hole	2560.00	6251.00	6251.00	3691.00	3691.00	6251.00	2559.85	6180.79	6180.79	6180.79	0.49	-3.25	-467.98	-3.25	-467.98	-10351.84	-10351.84	2990.85
8.5in Open Hole	6251.00	17661.00	17661.00	11410.00	11410.00	17661.00	6180.79	6623.29	6623.29	6623.29	0.00	0.00	-10351.84	0.00	-10351.84	-10351.84	2990.85	2990.85
5.5in Casing Production	30.00	17661.00	17661.00	17631.00	17631.00	17661.00	30.00	6623.29	6623.29	6623.29	0.00	0.00	-10351.84	0.00	-10351.84	-10351.84	2990.85	2990.85



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #11
Area	Ritchie County, WV	Well	Waco Unit 1H
Field	Ritchie	Wellbore	Waco Unit 1H AWB
Facility	Bison Pad		

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Waco Unit 1H POE Rev-2	6586.00	-123.25	-355.74	1667998.25	14269313.65	39°17'41.536"N	80°54'09.037"W	point
Waco Unit 1H BHL Rev-2	6580.00	-10334.61	2961.89	1671314.55	14259106.38	39°16'00.572"N	80°53'26.995"W	point
Waco Unit 1H LP Rev-2	6580.00	-305.05	-296.68	1668057.29	14269131.92	39°17'39.738"N	80°54'08.288"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Waco Unit 1H AWB Ref Wellpath: Waco Unit 1H AWP Proj: 17661'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
30.00	523.00	Gyrodata standard - Drop gyro or Multi-shot	01 Gyrodata MS Gyro <17-1/2">(100'-523')	Waco Unit 1H AWB
523.00	2497.00	ISCWSA MWD, Rev. 4 (Standard)	02 WFT EM <12-1/4">(523')(651'-2497')	Waco Unit 1H AWB
2497.00	6251.00	ISCWSA MWD, Rev. 4 (Standard)	03 WFT EM <8-3/4">(2497')(2658'-6251')	Waco Unit 1H AWB
6251.00	17636.00	BHI AutoTrak Curve (Short)	04 BH AT Curve <8-1/2">(6251')(6323'-17636')	Waco Unit 1H AWB
17636.00	17661.00	Blind Drilling (std)	Projection to bit	Waco Unit 1H AWB



# Actual Wellpath Report

Waco Unit 1H AWP Proj: 17661'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #11
Area	Ritchie County, WV	Well	Waco Unit 1H
Field	Ritchie	Wellbore	Waco Unit 1H AWB
Facility	Bison Pad		

COMMENTS
<p><b>Wellpath general comments</b>            API: 47-085-10354-0000            BHI Job #: 109479762            Rig: H&amp;P 519            Duration: 11/05/2018-11/10/2018            Gyrodatta MS Gyro &lt;17-1/2"&gt;(100'-523')            WFT EM &lt;12-1/4"&gt;(523')(651'-2497')            WFT EM &lt;8-3/4"&gt;(2497')(2658'-6251')            BH AT Curve &lt;8-1/2"&gt; (6251')(6323'-17636')            Middlesex: 6498' MD            Burkett: 6695' MD            Tully: 6787' MD            Marcellus POE: 6887' MD            Projected MD at TD: 17661'</p>