

# ANTERO RESOURCES CORPORATION

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

Slot: Slot #02  
 Well: Bill Unit 1H ST01  
 Wellbore: Bill Unit 1H ST01 PWB



API: 47-085-10240-0000  
 BHI Job #: 109402670A  
 Rig: H&P 519  
 Duration: 09/24/2018-09/28/2018

Plot reference wellpath is Bill Unit 1H ST01 PWP Rev-B.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 #02): -1220.5 feet	Created by: delaset on 2018-10-05
Coordinates are in feet referenced to Slot	Database: WA_MPL_EasternUS_Defn



Gyrodata SS Gyro <17-1/2"> (50°-581') : 0.17° Inc, 50.00ft MD, 50.00ft TVD, 0.01ft VS

WFT EM <12-1/4"> (581')(659°-2581') : 1.20° Inc, 659.00ft MD, 658.99ft TVD, -1.72ft 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 #02	-1.08	-60.54	1668263.476	14269434.728	39°17'42.730"N	80°54'05.660"W
H&P 519 (RKB) to Ground level (At Slot: Slot #02)			30ft			
Mean Sea Level to Ground level (At Slot: Slot #02)			-1220.5ft			
H&P 519 (RKB) to Mean Sea Level			1250.5ft			

WFT EM <8-3/4"> (2581')(2669°-6215') : 17.20° Inc, 2669.00ft MD, 2602.16ft TVD, -155.97ft VS

Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	4846.00	20.590	237.780	4663.23	-724.37	-928.65	0.38
Est. Top Of Cement	4915.00	20.800	236.000	4727.78	-737.69	-949.07	0.96
ST KOP	5015.00	20.750	233.500	4821.28	-758.16	-978.03	0.89
End of 3D Arc	5136.86	16.000	230.000	4936.90	-781.81	-1008.27	4.00
Curve KOP	6040.36	16.000	230.000	5805.40	-941.88	-1199.04	0.00
POE	7054.66	75.438	339.124	6549.00	-496.00	-1540.00	8.00
Landing Pt.	7236.62	90.000	340.200	6572.00	-327.21	-1602.54	8.02
BHL	13316.62	90.000	340.200	6572.00	5393.35	-3662.06	0.00

BHI AT Curve <8-1/2"> (4846')(4931°-13342') : 15.96° Inc, 4931.00ft MD, 4743.92ft TVD, -372.56ft VS

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #02	Bill Unit 1H	Bill Unit 1H AWB	Bill Unit 1H AWP Proj: 13361'
Slot #02	Bill Unit 1H ST01	Bill Unit 1H ST01 AWB	Bill Unit 1H ST01 AWP Proj: 13366'
Slot #02	Bill Unit 1H ST01	Bill Unit 1H ST01 PWB	Bill Unit 1H ST01 PWP Rev-B.0

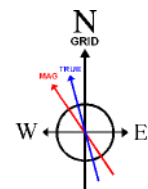
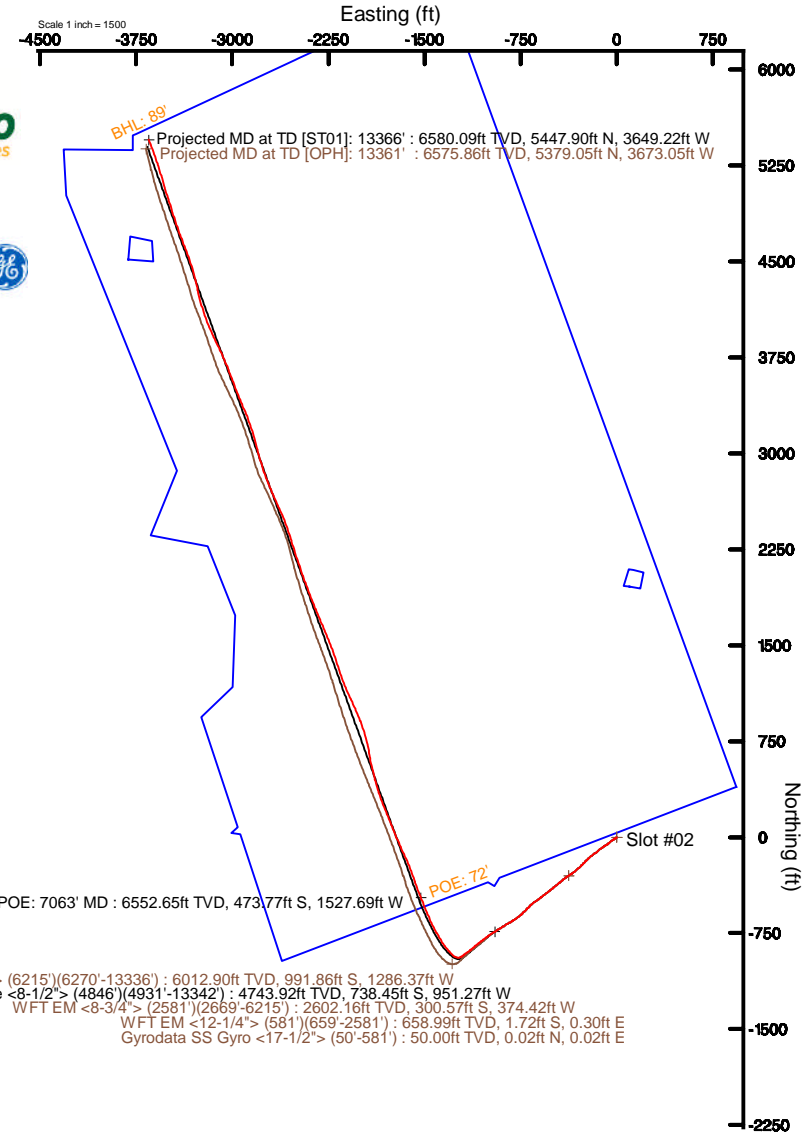
BH AT Curve <8-1/2"> (6215')(6270°-13336') : 19.53° Inc, 6270.00ft MD, 6012.90ft TVD, -497.48ft VS

Marcellus POE: 7063' MD : 75.89° Inc, 7063.00ft MD, 6552.65ft TVD, 71.73ft VS

Projected MD at TD [OPH]: 13361' : 90.18° Inc, 13361.00ft MD, 6575.86ft TVD, 6305.25ft VS  
 Projected MD at TD [ST01]: 13366' : 90.00° Inc, 13366.00ft MD, 6580.09ft TVD, 6361.96ft VS

Vertical Section (ft)  
 Azimuth 340.20° with reference 0.00 N, 0.00 E

Scale 1 inch = 1500



User specified (HDGM) Dip: 66.42° Field: 51844 nT  
 Magnetic North is 7.68 degrees West of True North (at 10/Sep/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 7.74 degrees



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

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	05/Oct/2018 at 16:47
Convergence at slot	0.06° East	Database/Source file	WA_MPL_EasternUS_Defn/Bill_Unit_1H_ST01_AWP_Proj_13366_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-1.08	-60.54	1668263.48	14269434.73	39°17'42.730"N	80°54'05.660"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 #02)	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	340.20°



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

## WELLPATH DATA (178 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	45.140	0.00	0.00	0.00	0.00	1668263.48	14269434.73	39°17'42.730"N	80°54'05.660"W	0.00	0.000	0.00	0.00	0.00	
30.00	0.000	45.140	30.00	0.00	0.00	0.00	1668263.48	14269434.73	39°17'42.730"N	80°54'05.660"W	0.00	0.000	0.00	0.00	0.00	
50.00	0.170	45.140	50.00	0.01	0.02	0.02	1668263.50	14269434.75	39°17'42.730"N	80°54'05.660"W	0.03	45.140	0.85	0.85	225.70	Gyrodata SS Gyro <17-1/2"> (50'-581')
75.00	0.110	30.650	75.00	0.04	0.07	0.06	1668263.54	14269434.80	39°17'42.731"N	80°54'05.659"W	0.09	41.323	0.28	-0.24	-57.96	
100.00	0.050	187.970	100.00	0.05	0.08	0.07	1668263.55	14269434.81	39°17'42.731"N	80°54'05.659"W	0.10	42.173	0.63	-0.24	629.28	
125.00	0.090	153.700	125.00	0.02	0.05	0.08	1668263.55	14269434.78	39°17'42.730"N	80°54'05.659"W	0.09	57.593	0.22	0.16	-137.08	
150.00	0.080	170.550	150.00	-0.02	0.01	0.09	1668263.57	14269434.74	39°17'42.730"N	80°54'05.659"W	0.09	80.841	0.11	-0.04	67.40	
175.00	0.090	189.320	175.00	-0.05	-0.02	0.09	1668263.57	14269434.71	39°17'42.730"N	80°54'05.659"W	0.09	104.072	0.12	0.04	75.08	
200.00	0.110	177.420	200.00	-0.09	-0.07	0.09	1668263.56	14269434.66	39°17'42.729"N	80°54'05.659"W	0.11	127.134	0.11	0.08	-47.60	
225.00	0.060	133.550	225.00	-0.13	-0.10	0.10	1668263.57	14269434.63	39°17'42.729"N	80°54'05.659"W	0.14	135.409	0.31	-0.20	-175.48	
250.00	0.050	220.230	250.00	-0.14	-0.12	0.10	1668263.58	14269434.61	39°17'42.729"N	80°54'05.659"W	0.15	139.325	0.30	-0.04	346.72	
275.00	0.030	55.530	275.00	-0.15	-0.12	0.10	1668263.57	14269434.61	39°17'42.729"N	80°54'05.659"W	0.16	140.898	0.32	-0.08	-658.80	
300.00	0.060	195.720	300.00	-0.16	-0.13	0.10	1668263.58	14269434.60	39°17'42.729"N	80°54'05.659"W	0.16	142.362	0.34	0.12	560.76	
325.00	0.140	154.680	325.00	-0.20	-0.17	0.11	1668263.59	14269434.56	39°17'42.728"N	80°54'05.659"W	0.20	147.199	0.41	0.32	-164.16	
350.00	0.090	197.400	350.00	-0.24	-0.22	0.12	1668263.59	14269434.51	39°17'42.728"N	80°54'05.659"W	0.25	151.653	0.38	-0.20	170.88	
375.00	0.030	170.230	375.00	-0.26	-0.24	0.11	1668263.59	14269434.49	39°17'42.728"N	80°54'05.659"W	0.27	155.136	0.26	-0.24	-108.68	
400.00	0.110	176.520	400.00	-0.29	-0.27	0.11	1668263.59	14269434.46	39°17'42.727"N	80°54'05.659"W	0.29	157.169	0.32	0.32	25.16	
425.00	0.100	158.400	425.00	-0.34	-0.32	0.12	1668263.60	14269434.41	39°17'42.727"N	80°54'05.658"W	0.34	158.592	0.14	-0.04	-72.48	
450.00	0.090	177.410	450.00	-0.38	-0.36	0.13	1668263.61	14269434.37	39°17'42.726"N	80°54'05.658"W	0.38	159.536	0.13	-0.04	76.04	
475.00	0.130	145.330	475.00	-0.43	-0.40	0.15	1668263.63	14269434.33	39°17'42.726"N	80°54'05.658"W	0.43	159.411	0.29	0.16	-128.32	
500.00	0.250	145.560	500.00	-0.51	-0.47	0.20	1668263.67	14269434.26	39°17'42.725"N	80°54'05.658"W	0.51	157.154	0.48	0.48	0.92	
525.00	0.260	142.150	525.00	-0.61	-0.56	0.26	1668263.74	14269434.17	39°17'42.724"N	80°54'05.657"W	0.62	154.766	0.07	0.04	-13.64	
550.00	0.470	135.260	550.00	-0.76	-0.67	0.37	1668263.85	14269434.05	39°17'42.723"N	80°54'05.655"W	0.77	151.289	0.86	0.84	-27.56	
575.00	0.390	133.670	575.00	-0.93	-0.81	0.50	1668263.98	14269433.92	39°17'42.722"N	80°54'05.654"W	0.95	148.027	0.32	-0.32	-6.36	
581.00	0.430	133.060	581.00	-0.97	-0.84	0.53	1668264.01	14269433.89	39°17'42.722"N	80°54'05.653"W	0.99	147.398	0.67	0.67	-10.17	
659.00	1.200	212.870	658.99	-1.72	-1.72	0.30	1668263.78	14269433.01	39°17'42.713"N	80°54'05.656"W	1.75	169.956	1.54	0.99	102.32	WFT EM <12-1/4"> (581')(659'-2581')
749.00	3.570	237.440	748.91	-2.91	-4.02	-2.57	1668260.91	14269430.71	39°17'42.690"N	80°54'05.693"W	4.77	212.570	2.81	2.63	27.30	
840.00	5.390	236.940	839.63	-4.52	-7.88	-8.54	1668254.94	14269426.85	39°17'42.652"N	80°54'05.769"W	11.62	227.307	2.00	2.00	-0.55	
934.00	6.760	236.360	933.10	-6.86	-13.35	-16.85	1668246.64	14269421.38	39°17'42.598"N	80°54'05.874"W	21.49	231.601	1.46	1.46	-0.62	
1029.00	8.460	236.260	1027.26	-9.88	-20.33	-27.31	1668236.17	14269414.41	39°17'42.529"N	80°54'06.008"W	34.05	233.337	1.79	1.79	-0.11	



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

## WELLPATH DATA (178 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
1123.00	9.810	233.670	1120.06	-13.82	-28.92	-39.51	1668223.98	14269405.82	39°17'42.445"N	80°54'06.163"W	48.96	233.804	1.50	1.44	-2.76	
1218.00	11.210	230.070	1213.47	-19.30	-39.64	-53.12	1668210.38	14269395.11	39°17'42.339"N	80°54'06.336"W	66.28	233.268	1.63	1.47	-3.79	
1312.00	11.100	232.030	1305.69	-25.27	-51.07	-67.26	1668196.25	14269383.68	39°17'42.226"N	80°54'06.516"W	84.45	232.789	0.42	-0.12	2.09	
1407.00	11.420	237.680	1398.87	-30.16	-61.72	-82.41	1668181.10	14269373.03	39°17'42.121"N	80°54'06.709"W	102.97	233.168	1.21	0.34	5.95	
1501.00	14.160	236.400	1490.52	-34.92	-73.07	-99.86	1668163.66	14269361.69	39°17'42.009"N	80°54'06.931"W	123.73	233.807	2.93	2.91	-1.36	
1596.00	18.260	233.880	1581.73	-41.88	-88.28	-121.57	1668141.96	14269346.49	39°17'41.859"N	80°54'07.208"W	150.24	234.015	4.38	4.32	-2.65	
1690.00	20.360	231.410	1670.44	-51.28	-107.16	-146.25	1668117.29	14269327.61	39°17'41.672"N	80°54'07.522"W	181.31	233.769	2.40	2.23	-2.63	
1785.00	20.290	231.660	1759.52	-61.84	-127.68	-172.09	1668091.46	14269307.09	39°17'41.470"N	80°54'07.851"W	214.28	233.425	0.12	-0.07	0.26	
1879.00	19.330	231.310	1847.96	-72.06	-147.52	-197.01	1668066.54	14269287.27	39°17'41.274"N	80°54'08.168"W	246.12	233.175	1.03	-1.02	-0.37	
1974.00	17.200	229.970	1938.17	-82.01	-166.39	-220.04	1668043.52	14269268.41	39°17'41.088"N	80°54'08.461"W	275.87	232.905	2.29	-2.24	-1.41	
2068.00	16.180	223.170	2028.22	-92.77	-184.88	-239.65	1668023.92	14269249.92	39°17'40.905"N	80°54'08.711"W	302.67	232.351	2.34	-1.09	-7.23	
2163.00	17.520	223.860	2119.14	-105.13	-204.84	-258.61	1668004.97	14269229.97	39°17'40.708"N	80°54'08.952"W	329.91	231.618	1.43	1.41	0.73	
2257.00	18.320	227.150	2208.58	-117.19	-225.09	-279.25	1667984.34	14269209.73	39°17'40.508"N	80°54'09.215"W	358.67	231.129	1.37	0.85	3.50	
2351.00	17.200	227.890	2298.10	-128.25	-244.46	-300.39	1667963.21	14269190.37	39°17'40.317"N	80°54'09.484"W	387.29	230.861	1.22	-1.19	0.79	
2446.00	16.560	228.890	2389.00	-138.51	-262.78	-321.01	1667942.59	14269172.05	39°17'40.136"N	80°54'09.747"W	414.85	230.696	0.74	-0.67	1.05	
2540.00	17.030	234.880	2479.00	-147.01	-279.51	-342.36	1667921.25	14269155.33	39°17'39.971"N	80°54'10.019"W	441.97	230.772	1.91	0.50	6.37	
2581.00	17.450	236.950	2518.16	-150.01	-286.32	-352.43	1667911.19	14269148.53	39°17'39.904"N	80°54'10.147"W	454.07	230.909	1.81	1.02	5.05	
2669.00	17.200	237.140	2602.16	-155.97	-300.57	-374.42	1667889.21	14269134.28	39°17'39.763"N	80°54'10.427"W	480.14	231.244	0.29	-0.28	0.22	WFT EM <8-3/4"> (2581')(2669'-6215')
2763.00	17.750	232.880	2691.83	-163.38	-316.76	-397.52	1667866.12	14269118.09	39°17'39.603"N	80°54'10.721"W	508.29	231.451	1.48	0.59	-4.53	
2858.00	18.820	229.640	2782.03	-173.07	-335.42	-420.74	1667842.90	14269099.44	39°17'39.419"N	80°54'11.016"W	538.08	231.438	1.55	1.13	-3.41	
2952.00	19.580	230.460	2870.81	-183.72	-355.27	-444.44	1667819.21	14269079.60	39°17'39.223"N	80°54'11.318"W	568.99	231.363	0.86	0.81	0.87	
3047.00	19.180	232.010	2960.42	-193.96	-375.01	-469.02	1667794.65	14269059.87	39°17'39.029"N	80°54'11.631"W	600.51	231.355	0.69	-0.42	1.63	
3141.00	19.210	230.220	3049.20	-204.07	-394.41	-493.07	1667770.60	14269040.48	39°17'38.837"N	80°54'11.937"W	631.41	231.344	0.63	0.03	-1.90	
3240.00	18.420	231.870	3142.91	-214.55	-414.49	-517.89	1667745.79	14269020.41	39°17'38.639"N	80°54'12.253"W	663.34	231.328	0.96	-0.80	1.67	
3334.00	18.430	233.100	3232.09	-223.59	-432.58	-541.46	1667722.24	14269002.32	39°17'38.460"N	80°54'12.553"W	693.04	231.378	0.41	0.01	1.31	
3429.00	18.570	233.150	3322.18	-232.44	-450.67	-565.57	1667698.13	14268984.24	39°17'38.282"N	80°54'12.860"W	723.17	231.451	0.15	0.15	0.05	
3523.00	18.670	232.620	3411.26	-241.38	-468.78	-589.50	1667674.21	14268966.14	39°17'38.103"N	80°54'13.165"W	753.17	231.508	0.21	0.11	-0.56	
3618.00	18.950	232.680	3501.19	-250.61	-487.36	-613.85	1667649.87	14268947.56	39°17'37.920"N	80°54'13.475"W	783.80	231.553	0.30	0.29	0.06	
3712.00	19.560	233.200	3589.93	-259.81	-506.04	-638.59	1667625.14	14268928.89	39°17'37.735"N	80°54'13.789"W	814.79	231.606	0.67	0.65	0.55	
3807.00	18.310	229.320	3679.79	-269.78	-525.30	-662.64	1667601.10	14268909.64	39°17'37.545"N	80°54'14.096"W	845.60	231.595	1.87	-1.32	-4.08	



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

## WELLPATH DATA (178 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
3901.00	17.000	224.720	3769.36	-280.95	-544.69	-683.51	1667580.24	14268890.26	39°17'37.354"N	80°54'14.361"W	874.00	231.449	2.03	-1.39	-4.89	
3995.00	17.470	224.690	3859.14	-292.94	-564.48	-703.11	1667560.65	14268870.47	39°17'37.158"N	80°54'14.611"W	901.66	231.241	0.50	0.50	-0.03	
4090.00	17.820	226.510	3949.67	-304.92	-584.62	-723.68	1667540.09	14268850.34	39°17'36.959"N	80°54'14.873"W	930.32	231.067	0.69	0.37	1.92	
4186.00	17.550	228.100	4041.14	-316.27	-604.40	-745.11	1667518.67	14268830.57	39°17'36.764"N	80°54'15.146"W	959.42	230.953	0.58	-0.28	1.66	
4279.00	17.380	230.910	4129.85	-326.13	-622.52	-766.33	1667497.46	14268812.46	39°17'36.585"N	80°54'15.416"W	987.32	230.912	0.92	-0.18	3.02	
4374.00	17.210	236.000	4220.56	-334.27	-639.33	-788.99	1667474.80	14268795.66	39°17'36.419"N	80°54'15.704"W	1015.50	230.982	1.60	-0.18	5.36	
4468.00	19.310	239.280	4309.83	-340.63	-655.05	-813.89	1667449.92	14268779.94	39°17'36.264"N	80°54'16.021"W	1044.75	231.172	2.49	2.23	3.49	
4563.00	21.050	240.170	4398.99	-346.57	-671.56	-842.19	1667421.62	14268763.44	39°17'36.101"N	80°54'16.381"W	1077.16	231.431	1.86	1.83	0.94	
4657.00	21.280	238.260	4486.65	-353.04	-688.93	-871.34	1667392.48	14268746.08	39°17'35.930"N	80°54'16.752"W	1110.79	231.668	0.77	0.24	-2.03	
4751.00	20.840	238.510	4574.37	-359.96	-706.64	-900.11	1667363.73	14268728.38	39°17'35.755"N	80°54'17.118"W	1144.35	231.866	0.48	-0.47	0.27	
4846.00	20.590	237.780	4663.23	-366.98	-724.37	-928.65	1667335.20	14268710.65	39°17'35.580"N	80°54'17.482"W	1177.75	232.045	0.38	-0.26	-0.77	
4931.00	15.960	238.520	4743.92	-372.56	-738.45	-951.27	1667312.58	14268696.58	39°17'35.441"N	80°54'17.770"W	1204.25	232.179	5.45	-5.45	0.87	BHI AT Curve <8-1/2"> (4846')(4931'-13342')
5026.00	16.200	236.680	4835.20	-378.30	-752.55	-973.49	1667290.38	14268682.48	39°17'35.302"N	80°54'18.052"W	1230.45	232.294	0.59	0.25	-1.94	
5120.00	16.160	235.110	4925.48	-384.77	-767.23	-995.17	1667268.70	14268667.80	39°17'35.157"N	80°54'18.328"W	1256.59	232.369	0.47	-0.04	-1.67	
5215.00	16.190	233.560	5016.72	-392.01	-782.66	-1016.67	1667247.21	14268652.38	39°17'35.005"N	80°54'18.602"W	1283.04	232.410	0.46	0.03	-1.63	
5310.00	16.030	231.860	5107.99	-399.93	-798.63	-1037.64	1667226.25	14268636.42	39°17'34.848"N	80°54'18.869"W	1309.39	232.416	0.52	-0.17	-1.79	
5404.00	15.660	232.140	5198.42	-407.94	-814.43	-1057.87	1667206.03	14268620.62	39°17'34.692"N	80°54'19.126"W	1335.06	232.408	0.40	-0.39	0.30	
5499.00	16.190	233.540	5289.77	-415.72	-830.17	-1078.64	1667185.27	14268604.89	39°17'34.536"N	80°54'19.391"W	1361.12	232.416	0.69	0.56	1.47	
5593.00	16.360	229.670	5380.01	-424.12	-846.53	-1099.27	1667164.64	14268588.54	39°17'34.375"N	80°54'19.653"W	1387.45	232.401	1.17	0.18	-4.12	
5688.00	16.440	229.250	5471.14	-433.61	-863.96	-1119.66	1667144.27	14268571.11	39°17'34.203"N	80°54'19.913"W	1414.24	232.345	0.15	0.08	-0.44	
5783.00	16.350	231.380	5562.28	-442.73	-881.08	-1140.29	1667123.64	14268554.00	39°17'34.034"N	80°54'20.176"W	1441.03	232.307	0.64	-0.09	2.24	
5877.00	16.460	233.720	5652.46	-450.78	-897.22	-1161.36	1667102.58	14268537.87	39°17'33.874"N	80°54'20.444"W	1467.57	232.312	0.71	0.12	2.49	
5972.00	16.310	234.940	5743.60	-458.11	-912.85	-1183.13	1667080.82	14268522.25	39°17'33.720"N	80°54'20.721"W	1494.35	232.348	0.40	-0.16	1.28	
6066.00	16.310	234.890	5833.82	-465.07	-928.02	-1204.73	1667059.23	14268507.08	39°17'33.570"N	80°54'20.996"W	1520.73	232.392	0.01	0.00	-0.05	
6114.00	15.960	238.770	5879.93	-468.16	-935.32	-1215.89	1667048.07	14268499.78	39°17'33.498"N	80°54'21.138"W	1534.02	232.431	2.36	-0.73	8.08	
6161.00	15.230	254.730	5925.22	-468.95	-940.30	-1227.38	1667036.59	14268494.81	39°17'33.449"N	80°54'21.284"W	1546.16	232.544	9.23	-1.55	33.96	
6209.00	15.690	274.980	5971.51	-465.73	-941.40	-1239.93	1667024.04	14268493.71	39°17'33.439"N	80°54'21.444"W	1556.81	232.793	11.23	0.96	42.19	
6256.00	17.170	289.770	6016.61	-458.64	-938.50	-1252.80	1667011.18	14268496.61	39°17'33.467"N	80°54'21.607"W	1565.34	233.162	9.41	3.15	31.47	
6304.00	18.290	301.970	6062.35	-448.21	-932.11	-1265.86	1666998.12	14268502.99	39°17'33.531"N	80°54'21.773"W	1572.02	233.634	8.07	2.33	25.42	
6350.00	19.800	310.640	6105.84	-435.76	-923.21	-1277.90	1666986.09	14268511.89	39°17'33.619"N	80°54'21.926"W	1576.50	234.154	6.96	3.28	18.85	



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

## WELLPATH DATA (178 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
6398.00	23.610	315.500	6150.43	-419.95	-911.06	-1290.81	1666973.18	14268524.04	39°17'33.739"N	80°54'22.090"W	1579.94	234.786	8.77	7.94	10.13	
6445.00	27.750	318.540	6192.78	-401.22	-896.14	-1304.66	1666959.34	14268538.95	39°17'33.887"N	80°54'22.266"W	1582.78	235.516	9.24	8.81	6.47	
6493.00	32.280	320.680	6234.33	-378.74	-877.83	-1320.19	1666943.82	14268557.25	39°17'34.068"N	80°54'22.464"W	1585.40	236.379	9.70	9.44	4.46	
6540.00	36.360	322.730	6273.14	-353.61	-857.03	-1336.59	1666927.43	14268578.04	39°17'34.273"N	80°54'22.672"W	1587.75	237.332	9.02	8.68	4.36	
6587.00	40.200	326.120	6310.04	-325.59	-833.34	-1353.49	1666910.53	14268601.72	39°17'34.508"N	80°54'22.887"W	1589.46	238.380	9.31	8.17	7.21	
6634.00	43.430	328.090	6345.06	-295.08	-807.02	-1370.49	1666893.54	14268628.03	39°17'34.768"N	80°54'23.103"W	1590.45	239.508	7.42	6.87	4.19	
6681.00	47.610	329.070	6377.99	-262.24	-778.41	-1387.96	1666876.08	14268656.63	39°17'35.051"N	80°54'23.324"W	1591.33	240.715	9.02	8.89	2.09	
6690.00†	48.383	329.391	6384.01	-255.67	-772.66	-1391.38	1666872.66	14268662.38	39°17'35.108"N	80°54'23.368"W	1591.52	240.956	8.98	8.58	3.57	Middlesex: 6690' MD
6729.00	51.740	330.700	6409.04	-226.24	-746.75	-1406.30	1666857.74	14268688.27	39°17'35.364"N	80°54'23.557"W	1592.27	242.031	8.98	8.61	3.36	
6776.00	55.600	333.120	6436.89	-188.78	-713.35	-1424.10	1666839.94	14268721.66	39°17'35.694"N	80°54'23.783"W	1592.78	243.393	9.20	8.21	5.15	
6823.00	59.380	334.520	6462.14	-149.40	-677.78	-1441.58	1666822.48	14268757.22	39°17'36.046"N	80°54'24.005"W	1592.96	244.819	8.43	8.04	2.98	
6870.00	63.500	335.800	6484.61	-108.29	-640.33	-1458.91	1666805.16	14268794.66	39°17'36.416"N	80°54'24.225"W	1593.24	246.303	9.09	8.77	2.72	
6888.00†	64.557	336.127	6492.49	-92.15	-625.55	-1465.50	1666798.57	14268809.43	39°17'36.563"N	80°54'24.309"W	1593.42	246.885	6.09	5.87	1.82	Burkett: 6888' MD
6918.00	66.320	336.660	6504.96	-64.92	-600.55	-1476.42	1666787.65	14268834.42	39°17'36.810"N	80°54'24.447"W	1593.89	247.866	6.09	5.88	1.78	
6965.00	69.080	337.690	6522.79	-21.50	-560.47	-1493.29	1666770.79	14268874.48	39°17'37.206"N	80°54'24.661"W	1595.00	249.427	6.21	5.87	2.19	
6972.00†	69.500	337.794	6525.27	-14.96	-554.41	-1495.77	1666768.31	14268880.54	39°17'37.266"N	80°54'24.693"W	1595.21	249.663	6.16	6.00	1.48	Tully: 6972' MD
7013.00	71.960	338.390	6538.80	23.71	-518.51	-1510.20	1666753.88	14268916.43	39°17'37.621"N	80°54'24.876"W	1596.74	251.051	6.16	6.00	1.45	
7060.00	75.630	338.880	6551.91	68.82	-476.48	-1526.64	1666737.45	14268958.44	39°17'38.037"N	80°54'25.084"W	1599.27	252.666	7.87	7.81	1.04	
7063.00†	75.888	338.894	6552.65	71.73	-473.77	-1527.69	1666736.40	14268961.15	39°17'38.063"N	80°54'25.098"W	1599.47	252.770	8.61	8.60	0.48	Marcellus POE: 7063' MD
7107.00	79.670	339.100	6561.96	114.71	-433.63	-1543.10	1666721.00	14269001.27	39°17'38.460"N	80°54'25.293"W	1602.87	254.304	8.61	8.60	0.47	
7154.00	84.670	339.450	6568.36	161.25	-390.10	-1559.57	1666704.53	14269044.79	39°17'38.891"N	80°54'25.502"W	1607.62	255.957	10.66	10.64	0.74	
7202.00	88.800	341.020	6571.10	209.16	-345.01	-1575.77	1666688.34	14269089.86	39°17'39.337"N	80°54'25.708"W	1613.10	257.650	9.20	8.60	3.27	
7296.00	90.710	339.370	6571.50	303.15	-256.57	-1607.62	1666656.51	14269178.26	39°17'40.211"N	80°54'26.111"W	1627.96	260.932	2.69	2.03	-1.76	
7391.00	89.880	335.760	6571.01	398.04	-168.78	-1643.86	1666620.27	14269266.01	39°17'41.079"N	80°54'26.571"W	1652.51	264.138	3.90	-0.87	-3.80	
7486.00	89.850	335.800	6571.23	492.75	-82.14	-1682.84	1666581.31	14269352.62	39°17'41.936"N	80°54'27.066"W	1684.84	267.205	0.05	-0.03	0.04	
7581.00	89.820	336.870	6571.51	587.54	4.87	-1720.97	1666543.20	14269439.59	39°17'42.796"N	80°54'27.550"W	1720.98	270.162	1.13	-0.03	1.13	
7675.00	90.400	338.230	6571.33	681.43	91.74	-1756.86	1666507.32	14269526.43	39°17'43.655"N	80°54'28.005"W	1759.26	272.989	1.57	0.62	1.45	
7770.00	89.850	337.340	6571.12	776.35	179.69	-1792.78	1666471.41	14269614.34	39°17'44.525"N	80°54'28.461"W	1801.76	275.723	1.10	-0.58	-0.94	
7864.00	89.850	338.500	6571.37	870.27	266.79	-1828.12	1666436.09	14269701.41	39°17'45.386"N	80°54'28.909"W	1847.48	278.303	1.23	0.00	1.23	
7959.00	90.150	342.910	6571.37	965.24	356.43	-1859.50	1666404.72	14269791.02	39°17'46.272"N	80°54'29.307"W	1893.35	280.851	4.65	0.32	4.64	



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

## WELLPATH DATA (178 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
8054.00	90.250	344.640	6571.03	1060.05	447.64	-1886.04	1666378.19	14269882.19	39°17'47.174"N	80°54'29.644"W	1938.44	283.352	1.82	0.11	1.82	
8148.00	89.940	347.730	6570.88	1153.53	538.91	-1908.48	1666355.76	14269973.43	39°17'48.076"N	80°54'29.928"W	1983.11	285.768	3.30	-0.33	3.29	
8243.00	89.380	350.200	6571.44	1247.41	632.15	-1926.67	1666337.58	14270066.62	39°17'48.998"N	80°54'30.158"W	2027.72	288.165	2.67	-0.59	2.60	
8337.00	89.850	347.890	6572.07	1340.28	724.43	-1944.53	1666319.73	14270158.86	39°17'49.910"N	80°54'30.384"W	2075.09	290.433	2.51	0.50	-2.46	
8432.00	89.630	342.450	6572.50	1434.89	816.23	-1968.83	1666295.43	14270250.63	39°17'50.818"N	80°54'30.692"W	2131.32	292.518	5.73	-0.23	-5.73	
8527.00	89.660	338.830	6573.09	1529.87	905.84	-2000.32	1666263.96	14270340.20	39°17'51.704"N	80°54'31.091"W	2195.87	294.363	3.81	0.03	-3.81	
8621.00	89.570	336.260	6573.73	1623.76	992.70	-2036.22	1666228.07	14270427.03	39°17'52.563"N	80°54'31.547"W	2265.32	295.990	2.74	-0.10	-2.73	
8716.00	89.480	335.170	6574.51	1718.46	1079.29	-2075.29	1666189.02	14270513.59	39°17'53.419"N	80°54'32.043"W	2339.17	297.477	1.15	-0.09	-1.15	
8811.00	89.110	336.630	6575.68	1813.19	1166.00	-2114.08	1666150.25	14270600.26	39°17'54.276"N	80°54'32.535"W	2414.31	298.879	1.59	-0.39	1.54	
8905.00	89.820	341.080	6576.56	1907.13	1253.65	-2147.98	1666116.36	14270687.87	39°17'55.143"N	80°54'32.965"W	2487.05	300.270	4.79	0.76	4.73	
9000.00	90.220	342.390	6576.53	2002.10	1343.86	-2177.75	1666086.60	14270778.05	39°17'56.035"N	80°54'33.343"W	2559.01	301.678	1.44	0.42	1.38	
9094.00	90.340	340.550	6576.07	2096.07	1432.98	-2207.62	1666056.74	14270867.13	39°17'56.916"N	80°54'33.722"W	2631.92	302.988	1.96	0.13	-1.96	
9189.00	90.090	338.510	6575.71	2191.06	1521.97	-2240.84	1666023.53	14270956.09	39°17'57.796"N	80°54'34.143"W	2708.83	304.184	2.16	-0.26	-2.15	
9284.00	89.880	336.990	6575.74	2285.97	1609.90	-2276.81	1665987.58	14271043.98	39°17'58.665"N	80°54'34.599"W	2788.49	305.264	1.62	-0.22	-1.60	
9378.00	89.880	337.130	6575.93	2379.82	1696.46	-2313.45	1665950.95	14271130.51	39°17'59.521"N	80°54'35.064"W	2868.81	306.253	0.15	0.00	0.15	
9473.00	89.850	337.140	6576.16	2474.69	1784.00	-2350.36	1665914.05	14271218.01	39°18'00.387"N	80°54'35.533"W	2950.74	307.200	0.03	-0.03	0.01	
9567.00	89.880	339.180	6576.38	2568.62	1871.25	-2385.33	1665879.10	14271305.22	39°18'01.249"N	80°54'35.977"W	3031.73	308.114	2.17	0.03	2.17	
9662.00	89.820	339.830	6576.63	2663.62	1960.23	-2418.59	1665845.85	14271394.17	39°18'02.129"N	80°54'36.399"W	3113.22	309.024	0.69	-0.06	0.68	
9756.00	90.030	340.410	6576.75	2757.61	2048.63	-2450.56	1665813.90	14271482.54	39°18'03.003"N	80°54'36.804"W	3194.08	309.895	0.66	0.22	0.62	
9851.00	89.690	341.550	6576.98	2852.60	2138.44	-2481.52	1665782.95	14271572.31	39°18'03.891"N	80°54'37.197"W	3275.80	310.753	1.25	-0.36	1.20	
9945.00	90.000	342.490	6577.24	2946.55	2227.85	-2510.53	1665753.95	14271661.68	39°18'04.775"N	80°54'37.565"W	3356.50	311.586	1.05	0.33	1.00	
10040.00	90.890	342.770	6576.50	3041.47	2318.51	-2538.89	1665725.60	14271752.31	39°18'05.672"N	80°54'37.924"W	3438.24	312.402	0.98	0.94	0.29	
10134.00	91.480	340.710	6574.55	3135.41	2407.76	-2568.34	1665696.17	14271841.52	39°18'06.554"N	80°54'38.298"W	3520.46	313.152	2.28	0.63	-2.19	
10229.00	90.890	338.300	6572.59	3230.37	2496.72	-2601.59	1665662.93	14271930.44	39°18'07.433"N	80°54'38.720"W	3605.81	313.822	2.61	-0.62	-2.54	
10324.00	88.830	334.160	6572.82	3325.12	2583.64	-2639.87	1665624.66	14272017.33	39°18'08.293"N	80°54'39.205"W	3693.79	314.383	4.87	-2.17	-4.36	
10418.00	88.920	336.480	6574.67	3418.75	2669.03	-2679.11	1665585.44	14272102.68	39°18'09.137"N	80°54'39.704"W	3781.71	314.892	2.47	0.10	2.47	
10513.00	88.400	338.420	6576.89	3513.61	2756.73	-2715.53	1665549.03	14272190.36	39°18'10.005"N	80°54'40.166"W	3869.59	315.431	2.11	-0.55	2.04	
10607.00	88.180	340.090	6579.69	3607.55	2844.60	-2748.81	1665515.77	14272278.18	39°18'10.873"N	80°54'40.588"W	3955.72	315.981	1.79	-0.23	1.78	
10702.00	89.140	344.610	6581.92	3702.44	2935.08	-2777.60	1665486.99	14272368.63	39°18'11.768"N	80°54'40.953"W	4041.01	316.579	4.86	1.01	4.76	
10797.00	90.220	345.890	6582.45	3797.06	3026.94	-2801.78	1665462.82	14272460.46	39°18'12.676"N	80°54'41.260"W	4124.61	317.212	1.76	1.14	1.35	



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

## WELLPATH DATA (178 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
10891.00	90.740	343.640	6581.66	3890.75	3117.63	-2826.48	1665438.13	14272551.11	39°18'13.573"N	80°54'41.573"W	4208.16	317.804	2.46	0.55	-2.39	
10986.00	90.890	341.330	6580.31	3985.66	3208.21	-2855.07	1665409.55	14272641.65	39°18'14.468"N	80°54'41.935"W	4294.65	318.333	2.44	0.16	-2.43	
11081.00	89.970	337.780	6579.60	4080.64	3297.21	-2888.25	1665376.39	14272730.61	39°18'15.348"N	80°54'42.356"W	4383.33	318.783	3.86	-0.97	-3.74	
11175.00	90.000	337.720	6579.62	4174.55	3384.21	-2923.84	1665340.81	14272817.58	39°18'16.208"N	80°54'42.808"W	4472.33	319.174	0.07	0.03	-0.06	
11270.00	90.030	337.970	6579.60	4269.47	3472.19	-2959.67	1665305.00	14272905.53	39°18'17.078"N	80°54'43.263"W	4562.43	319.556	0.27	0.03	0.26	
11364.00	89.690	339.040	6579.82	4363.43	3559.65	-2994.11	1665270.57	14272992.95	39°18'17.943"N	80°54'43.700"W	4651.43	319.932	1.19	-0.36	1.14	
11459.00	90.680	339.290	6579.52	4458.41	3648.44	-3027.90	1665236.79	14273081.70	39°18'18.821"N	80°54'44.128"W	4741.23	320.310	1.07	1.04	0.26	
11554.00	91.110	336.740	6578.03	4553.32	3736.51	-3063.45	1665201.25	14273169.74	39°18'19.692"N	80°54'44.580"W	4831.80	320.653	2.72	0.45	-2.68	
11648.00	89.970	333.530	6577.15	4646.94	3821.78	-3102.97	1665161.75	14273254.98	39°18'20.535"N	80°54'45.081"W	4922.85	320.926	3.62	-1.21	-3.41	
11743.00	89.780	334.990	6577.36	4741.42	3907.35	-3144.23	1665120.51	14273340.52	39°18'21.381"N	80°54'45.605"W	5015.34	321.177	1.55	-0.20	1.54	
11838.00	89.690	337.630	6577.79	4836.20	3994.34	-3182.39	1665082.36	14273427.47	39°18'22.241"N	80°54'46.089"W	5107.09	321.455	2.78	-0.09	2.78	
11932.00	89.720	340.880	6578.28	4930.17	4082.23	-3215.69	1665049.08	14273515.32	39°18'23.110"N	80°54'46.512"W	5196.66	321.772	3.46	0.03	3.46	
12027.00	89.380	344.520	6579.03	5025.06	4172.92	-3243.93	1665020.85	14273605.97	39°18'24.007"N	80°54'46.870"W	5285.48	322.139	3.85	-0.36	3.83	
12121.00	89.570	347.120	6579.89	5118.60	4264.04	-3266.95	1664997.83	14273697.06	39°18'24.908"N	80°54'47.162"W	5371.69	322.542	2.77	0.20	2.77	
12216.00	90.030	346.680	6580.22	5212.95	4356.57	-3288.49	1664976.31	14273789.55	39°18'25.822"N	80°54'47.435"W	5458.37	322.953	0.67	0.48	-0.46	
12311.00	90.550	343.740	6579.74	5307.57	4448.41	-3312.73	1664952.07	14273881.35	39°18'26.730"N	80°54'47.742"W	5546.40	323.325	3.14	0.55	-3.09	
12405.00	89.940	339.820	6579.34	5401.52	4537.68	-3342.12	1664922.70	14273970.59	39°18'27.613"N	80°54'48.115"W	5635.63	323.627	4.22	-0.65	-4.17	
12500.00	90.220	338.920	6579.20	5496.50	4626.58	-3375.59	1664889.24	14274059.46	39°18'28.492"N	80°54'48.540"W	5727.12	323.885	0.99	0.29	-0.95	
12595.00	89.910	339.660	6579.09	5591.49	4715.45	-3409.19	1664855.66	14274148.28	39°18'29.370"N	80°54'48.966"W	5818.76	324.134	0.84	-0.33	0.78	
12689.00	89.660	341.270	6579.45	5685.49	4804.03	-3440.62	1664824.24	14274236.83	39°18'30.246"N	80°54'49.365"W	5909.02	324.390	1.73	-0.27	1.71	
12784.00	89.910	343.010	6579.80	5780.43	4894.45	-3469.75	1664795.12	14274327.21	39°18'31.140"N	80°54'49.734"W	5999.57	324.667	1.85	0.26	1.83	
12879.00	89.820	342.060	6580.03	5875.35	4985.07	-3498.26	1664766.62	14274417.80	39°18'32.036"N	80°54'50.096"W	6090.05	324.941	1.00	-0.09	-1.00	
12974.00	89.970	343.490	6580.20	5970.25	5075.80	-3526.39	1664738.50	14274508.50	39°18'32.933"N	80°54'50.453"W	6180.55	325.211	1.51	0.16	1.51	
13069.00	90.060	343.830	6580.18	6065.08	5166.97	-3553.12	1664711.78	14274599.62	39°18'33.835"N	80°54'50.791"W	6270.74	325.485	0.37	0.09	0.36	
13163.00	89.880	341.630	6580.23	6158.98	5256.72	-3581.02	1664683.89	14274689.34	39°18'34.722"N	80°54'51.145"W	6360.57	325.736	2.35	-0.19	-2.34	
13258.00	90.150	340.590	6580.20	6253.97	5346.61	-3611.78	1664653.14	14274779.19	39°18'35.611"N	80°54'51.536"W	6452.22	325.960	1.13	0.28	-1.09	
13342.00	90.000	339.160	6580.09	6337.96	5425.47	-3640.68	1664624.26	14274858.03	39°18'36.390"N	80°54'51.902"W	6533.78	326.137	1.71	-0.18	-1.70	
13366.00	90.000	339.160	6580.09	6361.96	5447.90	-3649.22	1664615.72	14274880.45	39°18'36.612"N	80°54'52.011"W	6557.17	326.184	0.00	0.00	0.00	Projected MD at TD [ST01]: 13366'





# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

## HOLE & CASING SECTIONS - Ref Wellbore: Bill Unit 1H ST01 AWB Ref Wellpath: Bill Unit 1H ST01 AWP Proj: 13366'

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	0.07	0.07
17.5in Open Hole	110.00	608.80	498.80	110.00	608.80	0.07	0.07	-1.04	0.60
13.375in Casing Surface	30.00	608.80	578.80	30.00	608.80	0.00	0.00	-1.04	0.60
12.25in Open Hole	608.80	2675.00	2066.20	608.80	2607.90	-1.04	0.60	-301.54	-375.91
9.625in Casing Intermediate	30.00	2675.00	2645.00	30.00	2607.90	0.00	0.00	-301.54	-375.91
8.75in Open Hole	2675.00	4846.00	2171.00	2607.90	4663.23	-301.54	-375.91	-724.37	-928.65
8.5in Open Hole	4846.00	13366.00	8520.00	4663.23	6580.09	-724.37	-928.65	5447.90	-3649.22
5.5in Casing Production	30.00	13366.00	13336.00	30.00	6580.09	0.00	0.00	5447.90	-3649.22

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Bill Unit 1H ST01 POE Rev-2	6549.00	-496.00	-1540.00	1666724.09	14268938.93	39°17'37.844"N	80°54'25.255"W	point
Bill Unit 1H ST01 BHL Rev-2	6572.00	5393.35	-3662.06	1664602.88	14274825.91	39°18'36.073"N	80°54'52.175"W	point
Bill Unit 1H ST01 LP Rev-3	6572.00	-327.21	-1602.54	1666661.58	14269107.65	39°17'39.513"N	80°54'26.048"W	point



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

WELLPATH COMPOSITION - Ref Wellbore: Bill Unit 1H ST01 AWB Ref Wellpath: Bill Unit 1H ST01 AWP Proj: 13366'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
30.00	581.00	Gyrodata standard - Single-shot	01_Gyrodata SS Gyro <17-1/2">(50'-581')	Bill Unit 1H AWB
581.00	2581.00	ISCWSA MWD, Rev. 4 (Standard)	02_WFT EM <12-1/4">(581')(659'-2581')	Bill Unit 1H AWB
2581.00	4846.00	ISCWSA MWD, Rev. 4 (Standard)	03_WFT EM <8-3/4">(2581')(2669'-6215;)	Bill Unit 1H AWB
4846.00	13342.00	BHI AutoTrak Curve (Standard)	05_BH AT Curve <8-1/2">(4846')(4931'-13342')	Bill Unit 1H ST01 AWB
13342.00	13366.00	Blind Drilling (std)	Projection to bit	Bill Unit 1H ST01 AWB



# Actual Wellpath Report

Bill Unit 1H ST01 AWP Proj: 13366'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Bill Unit 1H ST01
Field	Ritchie	Wellbore	Bill Unit 1H ST01 AWB
Facility	Bison Pad	Sidetrack from	Bill Unit 1H AWP Proj: 13361' at 4846.00 MD

COMMENTS
<p><b>Wellpath general comments</b>            API: 47-085-10240-0000            BHI Job #: 109402670A            Rig: H&amp;P 519            Duration: 09/24/2018-09/28/2018            BHI AT Curve &lt;8-1/2"&gt; (4846')(4931'-13342')            Middlesex: 6690' MD            Burkett: 6888' MD            Tully: 6972' MD            Marcellus POE: 7063' MD            Projected MD at TD [ST01]: 13366'            API: 47-085-10240-0000            BHI Job #: 109402670            Rig: H&amp;P 519            Duration: 09/11/2018-09/19/2018            Gyrodata SS Gyro &lt;17-1/2"&gt; (50'-581')            WFT EM &lt;12-1/4"&gt; (581')(659'-2581')            WFT EM &lt;8-3/4"&gt; (2581')(2669'-6215')            BHI AT Curve &lt;8-1/2"&gt; (6215')(6270'-13336')            Middlesex: 6709' MD            Burkett: 6911' MD            Tully: 7006' MD            Marcellus POE: 7111' MD            Projected MD at TD [OPH] : 13361'</p>