

ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
 Field: Tyler
 Facility: McKim Pad
 Slot: Slot #05
 Well: Haga Unit 2H
 Wellbore: Haga Unit 2H PWB

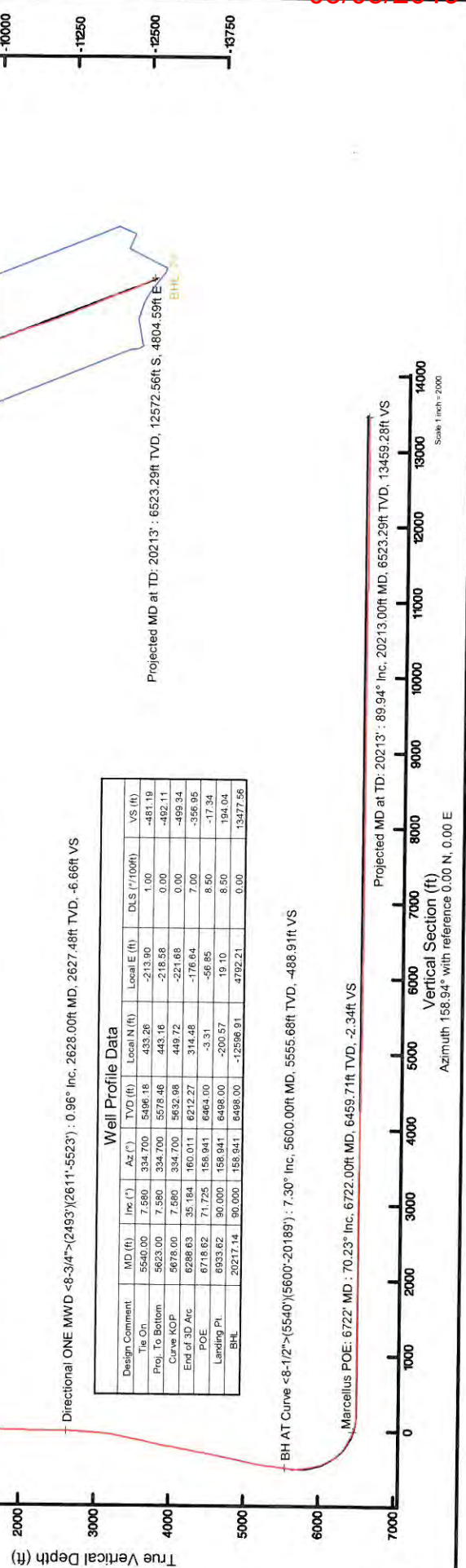
Plot reference wellpath is Haga Unit 2H PWP Rev-A.0
 True vertical depths are referenced to Frontier 32 (RKB)
 Measured depths are referenced to Frontier 32 (RKB)
 Frontier 32 (RKB) to Mean Sea Level: 1204 feet
 Mean Sea Level to Ground level (At Slot Slot #05): -1172 feet
 Coordinates are in feet referenced to Slot

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
McKim Pad	1654145.557	14302331.123	80° 57' 05.080" W
Slot	Local N (ft)	Grid North (US ft)	Longitude
Slot #05	-38.44	11,011	80° 57' 04.540" W
Frontier 32 (RKB) to Ground level (At Slot Slot #05)	1654156.566	1430232.697	32ft
Mean Sea Level to Ground level (At Slot Slot #05)			-1172ft
Frontier 32 (RKB) to Mean Sea Level			1204ft

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #05	Haga Unit 2H	Haga Unit 2H PWB	Haga Unit 2H AWP Proj. 2013
Slot #05	Haga Unit 2H	Haga Unit 2H PWB	Haga Unit 2H PWP Rev-A.0

API: 47-095-02424-0000
 BHI Job #: 8907862
 Rig: Frontier 32
 Duration: 12/18/2017-12/22/2017

Gyrodata MS Gyro <17-1/2>(100°-506') : 0.33° Inc, 117.00ft MD, 117.00ft TVD, -0.11ft VS
 Gyrodata MS Gyro <12-1/4>(506')(539-752) : 0.24° Inc, 556.00ft MD, 556.00ft TVD, -0.34ft VS
 Directional ONE MWD <12-1/4>(752)(922-2493) : 1.75° Inc, 939.00ft MD, 938.93ft TVD, 2.73ft VS
 Directional ONE MWD <8-3/4>(2611-5523) : 0.96° Inc, 2628.00ft MD, 2627.48ft TVD, -6.66ft VS



Well Profile Data						
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	DLS (°/100ft)
The On	5540.00	7.590	334.700	5496.16	-213.80	1.00
Proj. To Bottom	5623.00	7.590	334.700	5578.46	-443.16	0.00
Curve KOP	4978.00	7.680	334.700	5632.98	-221.68	0.00
End of 3D Arc	6288.63	35.184	160.011	6212.27	-314.48	0.00
POE	6718.62	71.725	158.941	6464.00	-56.85	9.50
Landing PL	6933.62	90.000	158.941	6498.00	-200.57	8.50
BHL	20217.14	90.000	158.941	6498.00	-12596.91	4792.21
						0.00
						13477.56

BH AT Curve <8-1/2>(5540)(5600-20189) : 7.30° Inc, 5600.00ft MD, 5555.68ft TVD, -488.91ft VS
 Marcellus POE: 6722' MD : 70.23° Inc, 6722.00ft MD, 6459.71ft TVD, -2.34ft VS
 Projected MD at TD: 20213' : 89.94° Inc, 20213.00ft MD, 6523.29ft TVD, 13459.28ft VS

Use specified WGS84 Dir. 88.61° Field. 51919.97
 Magnetic North is 7.71 degrees West of True North (at 12/15/2017)
 Grid North is 0.03 degrees East of True North
 To correct azimuth from True to Grid subtract 0.03 degrees
 To correct azimuth from Magnetic to Grid subtract 7.74 degrees

Vertical Section (ft)
 Azimuth 158.94° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000



Actual Wellpath Report

Haga Unit 2H AWP Proj: 20213'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Tyler County, WV	Well	Haga Unit 2H
Field	Tyler	Wellbore	Haga Unit 2H AWB
Facility	McKim Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999600	Report Generated	1/5/2019 at 4:30:13 PM
Convergence at slot	0.03° East	Database/Source file	WA_MPL_EasternUS_Defn/Haga_Unit_2H_AWP_Proj_20213_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Northing[US ft]	Latitude	Longitude	
Slot Location	-38.44	11.01	14302292.70	39°23'07.730"N	80°57'04.940"W	
Facility Reference Pt			1654145.56	39°23'08.110"N	80°57'05.080"W	
Field Reference Pt			0.00	0°00'00.000"	85°29'19.301"W	

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 32 (RKB) to Facility Vertical Datum	32.00ft
Horizontal Reference Pt	Slot	Frontier 32 (RKB) to Mean Sea Level	1204.00ft
Vertical Reference Pt	Frontier 32 (RKB)	Frontier 32 (RKB) to Ground Level at Slot (Slot #05)	32.00ft
MD Reference Pt	Frontier 32 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	158.94°



Actual Wellpath Report

Haga Unit 2H AWP Proj: 20213'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #05
Operator	ANTERO RESOURCES CORPORATION	Well	Haga Unit 2H
Area	Tyler County, WV	Wellbore	Haga Unit 2H AWB
Field	Tyler		
Facility	McKim Pad		

WELLPATH DATA (239 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	0.00	42.360	0.00	0.00	0.00	0.00	1654156.57	14302292.70	39°23'07.730"N	80°57'04.940"W	0.00	0.000	0.00	0.00	0.00	
32.00	0.000	42.360	32.00	0.00	0.00	0.00	1654156.57	14302292.70	39°23'07.730"N	80°57'04.940"W	0.00	0.000	0.00	0.00	0.00	
117.00	0.330	42.360	117.00	-0.11	0.18	0.16	1654156.73	14302292.88	39°23'07.732"N	80°57'04.938"W	0.24	42.360	0.39	0.39	49.84	Gyrodata MS Gyro <17-1/2">(100'-506')
317.00	0.080	23.180	317.00	-0.23	0.47	0.58	1654157.02	14302293.10	39°23'07.734"N	80°57'04.934"W	0.61	48.540	0.26	-0.22	42.87	
417.00	0.110	335.000	417.00	-0.38	0.62	0.56	1654157.13	14302293.32	39°23'07.736"N	80°57'04.933"W	0.75	50.646	0.10	-0.03	-62.05	
517.00	0.070	178.220	517.00	-0.42	0.65	0.53	1654157.09	14302293.35	39°23'07.736"N	80°57'04.933"W	0.84	42.098	0.08	0.03	-48.18	
523.00	0.070	173.760	523.00	-0.41	0.64	0.53	1654157.09	14302293.34	39°23'07.736"N	80°57'04.933"W	0.83	39.285	0.09	0.00	-74.33	
556.00	0.240	197.060	556.00	-0.34	0.56	0.51	1654157.07	14302293.25	39°23'07.736"N	80°57'04.937"W	0.75	42.364	0.21	0.12	33.98	
769.00	1.350	242.620	768.98	0.21	-0.73	-1.31	1654155.25	14302291.97	39°23'07.723"N	80°57'04.937"W	1.50	241.036	0.83	0.81	12.18	
939.00	1.750	186.630	938.93	2.73	-4.23	-3.39	1654153.17	14302288.47	39°23'07.688"N	80°57'04.983"W	5.42	218.748	0.88	0.24	-32.94	
1028.00	1.690	171.610	1027.89	5.21	-6.88	-3.36	1654153.21	14302285.82	39°23'07.662"N	80°57'04.983"W	7.65	206.030	0.51	-0.07	-16.88	
1116.00	1.470	150.550	1115.86	7.59	-9.14	-2.61	1654153.95	14302283.56	39°23'07.640"N	80°57'04.973"W	9.51	195.954	0.70	-0.25	-23.93	
1205.00	1.540	128.040	1204.83	9.75	-10.87	-1.11	1654155.46	14302281.83	39°23'07.623"N	80°57'04.954"W	10.93	185.830	0.66	0.08	-25.29	
1293.00	1.180	96.780	1292.80	11.19	-11.71	0.72	1654157.29	14302280.99	39°23'07.614"N	80°57'04.931"W	11.73	176.477	0.92	-0.41	-35.52	
1381.00	1.420	88.580	1380.78	11.98	-11.79	2.71	1654159.28	14302280.91	39°23'07.613"N	80°57'04.906"W	12.10	167.050	0.34	0.27	-9.32	
1469.00	1.520	61.860	1468.75	12.20	-11.21	4.83	1654161.39	14302281.49	39°23'07.619"N	80°57'04.879"W	12.21	156.693	0.78	0.11	-30.36	
1558.00	1.880	29.740	1557.71	11.13	-9.39	6.60	1654163.16	14302283.31	39°23'07.637"N	80°57'04.856"W	11.47	144.908	1.13	0.40	-36.09	
1646.00	1.820	8.080	1645.67	9.00	-6.75	7.51	1654164.07	14302285.95	39°23'07.663"N	80°57'04.844"W	10.10	131.958	0.79	-0.07	-24.61	
1734.00	1.710	353.240	1733.63	6.50	-4.06	7.55	1654164.11	14302288.64	39°23'07.690"N	80°57'04.844"W	8.57	118.285	0.53	-0.13	-16.86	
1823.00	1.640	350.750	1822.59	3.97	-1.49	7.19	1654163.75	14302291.21	39°23'07.715"N	80°57'04.848"W	7.34	101.685	0.11	-0.08	-2.80	
1911.00	0.740	354.440	1910.57	2.19	0.32	6.93	1654163.49	14302293.02	39°23'07.733"N	80°57'04.852"W	6.94	87.341	1.03	-1.02	4.19	
1999.00	0.910	331.710	1998.56	0.95	1.50	6.54	1654163.11	14302294.20	39°23'07.745"N	80°57'04.857"W	6.71	77.068	0.42	0.19	-25.83	
2087.00	1.190	330.450	2086.55	-0.65	2.91	5.76	1654162.33	14302295.61	39°23'07.759"N	80°57'04.867"W	6.46	63.184	0.32	0.32	-1.43	
2176.00	0.940	323.580	2175.53	-2.27	4.30	4.87	1654161.44	14302297.00	39°23'07.773"N	80°57'04.878"W	6.50	48.548	0.31	-0.28	-7.72	
2264.00	0.990	294.320	2263.52	-3.50	5.20	3.75	1654160.32	14302297.89	39°23'07.781"N	80°57'04.892"W	6.41	35.822	0.56	0.06	-33.25	
2353.00	0.740	282.970	2352.51	-4.37	5.64	2.49	1654159.06	14302298.34	39°23'07.786"N	80°57'04.908"W	6.17	23.819	0.34	-0.28	-12.75	
2441.00	0.810	287.380	2440.50	-5.08	5.96	1.34	1654157.91	14302298.65	39°23'07.789"N	80°57'04.923"W	6.11	12.715	0.10	0.08	5.01	
2510.00	0.900	278.760	2509.49	-5.65	6.19	0.34	1654156.91	14302298.88	39°23'07.791"N	80°57'04.936"W	6.20	3.175	0.23	0.13	-12.49	



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Haga Unit 2H AWP Proj: 20213'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #05
Operator	ANTERO RESOURCES CORPORATION	Well	Haga Unit 2H
Area	Tyler County, WV	Wellbore	Haga Unit 2H AWB
Field	Tyler		
Facility	McKim Pad		

WELLPATH DATA (239 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
2628.00	0.960	282.880	2627.48	-6.66	6.55	-1.54	1654155.03	14302299.24	39°23'07.795"N	80°57'04.960"W	6.72	346.793	0.08	0.05	3.49	Directional ONE MWD <8-3/4">(2493')(2611'-5623')
2716.00	2.550	326.430	2715.44	-8.98	8.34	-3.34	1654153.23	14302301.04	39°23'07.812"N	80°57'04.982"W	8.99	338.195	2.24	1.81	49.49	
2804.00	4.420	333.170	2803.27	-14.27	13.00	-9.95	1654150.62	14302305.69	39°23'07.859"N	80°57'05.016"W	14.30	335.404	2.17	2.12	7.66	
2893.00	4.120	333.460	2892.02	-20.86	18.92	-8.93	1654147.64	14302311.61	39°23'07.917"N	80°57'05.054"W	20.92	334.741	0.34	-0.34	0.33	
2981.00	3.780	332.420	2979.81	-26.89	24.32	-11.68	1654144.89	14302317.01	39°23'07.970"N	80°57'05.089"W	26.98	334.941	0.39	-0.39	-1.18	
3069.00	5.130	332.740	3067.55	-33.69	30.39	-14.83	1654141.74	14302323.07	39°23'08.030"N	80°57'05.129"W	33.81	333.990	1.53	1.53	0.36	
3158.00	7.060	337.820	3156.04	-43.11	38.99	-18.72	1654137.86	14302331.67	39°23'08.115"N	80°57'05.178"W	43.25	334.359	2.25	2.17	5.71	
3246.00	9.810	338.640	3243.08	-56.02	50.98	-23.49	1654133.09	14302337.42	39°23'08.234"N	80°57'05.239"W	56.13	335.264	3.13	3.12	0.93	
3334.00	11.140	334.260	3329.61	-71.99	65.62	-29.91	1654126.67	14302338.29	39°23'08.379"N	80°57'05.321"W	72.12	335.496	1.76	1.51	-4.98	
3422.00	12.300	334.700	3415.78	-89.81	81.76	-37.61	1654118.97	14302342.42	39°23'08.538"N	80°57'05.418"W	89.99	335.297	1.32	1.32	0.50	
3511.00	11.440	332.320	3502.87	-108.04	98.16	-45.73	1654110.85	14302390.81	39°23'08.700"N	80°57'05.522"W	108.29	335.018	1.09	-0.97	-2.45	
3599.00	11.720	330.350	3589.08	-125.54	113.67	-54.18	1654102.41	14302406.32	39°23'08.854"N	80°57'05.629"W	125.92	334.514	0.59	0.32	-2.47	
3688.00	12.710	327.450	3676.07	-144.08	129.78	-63.92	1654092.67	14302422.42	39°23'09.013"N	80°57'05.753"W	144.66	333.777	1.31	1.11	-3.26	
3776.00	11.520	328.810	3762.11	-162.22	145.45	-73.68	1654082.91	14302438.09	39°23'09.168"N	80°57'05.877"W	163.05	333.135	1.39	-1.35	1.55	
3864.00	10.540	329.460	3848.48	-178.80	159.90	-82.32	1654074.28	14302452.54	39°23'09.311"N	80°57'05.987"W	179.85	332.759	1.12	-1.11	0.74	
3953.00	10.420	330.920	3935.99	-194.80	173.95	-90.37	1654066.23	14302466.58	39°23'09.450"N	80°57'06.090"W	196.02	332.547	0.33	-0.13	1.64	
4041.00	10.700	338.470	4022.51	-210.85	188.50	-97.24	1654059.37	14302481.12	39°23'09.594"N	80°57'06.177"W	212.10	332.714	1.60	0.32	8.58	
4129.00	10.410	340.540	4109.02	-226.97	203.60	-102.88	1654053.72	14302496.21	39°23'09.743"N	80°57'06.249"W	228.12	333.191	0.54	-0.33	2.35	
4217.00	9.510	338.360	4195.69	-242.19	217.85	-108.21	1654048.40	14302510.46	39°23'09.884"N	80°57'06.317"W	243.25	333.585	1.11	-1.02	-2.48	
4306.00	10.380	338.220	4283.35	-257.56	232.13	-113.90	1654042.71	14302524.74	39°23'10.026"N	80°57'06.389"W	258.57	333.864	0.98	0.98	-0.16	
4394.00	11.680	336.240	4369.73	-274.38	247.65	-120.43	1654036.18	14302540.24	39°23'10.178"N	80°57'06.472"W	275.38	334.066	1.54	1.48	-2.25	
4482.00	10.870	331.850	4456.03	-291.51	263.12	-127.93	1654028.68	14302555.71	39°23'10.331"N	80°57'06.568"W	292.57	334.070	1.34	-0.92	-4.99	
4570.00	10.680	330.970	4542.48	-307.82	277.56	-135.81	1654020.81	14302570.15	39°23'10.474"N	80°57'06.668"W	309.01	333.928	0.29	-0.22	-1.00	
4658.00	10.770	329.860	4628.94	-324.02	291.80	-143.83	1654012.73	14302584.38	39°23'10.615"N	80°57'06.771"W	325.35	333.752	0.26	0.10	-1.26	
4747.00	10.390	330.620	4716.43	-340.17	305.99	-152.00	1654004.62	14302598.56	39°23'10.755"N	80°57'06.874"W	341.66	333.583	0.45	-0.43	0.85	
4835.00	11.410	334.510	4802.84	-356.70	320.76	-159.64	1653996.99	14302613.33	39°23'10.901"N	80°57'06.971"W	358.29	333.540	1.43	1.16	4.42	
4923.00	13.020	337.040	4888.85	-375.29	337.75	-167.26	1653989.38	14302630.31	39°23'11.069"N	80°57'07.068"W	376.89	333.655	1.93	1.83	2.88	
5011.00	12.290	332.590	4974.71	-394.51	355.19	-175.44	1653981.20	14302647.74	39°23'11.241"N	80°57'07.172"W	396.15	333.714	1.38	-0.83	-5.06	
5100.00	12.080	331.160	5061.70	-413.15	371.76	-184.29	1653972.35	14302664.30	39°23'11.405"N	80°57'07.285"W	414.93	333.631	0.41	-0.24	-1.61	
5188.00	11.330	330.700	5147.87	-430.83	387.36	-192.96	1653963.68	14302678.90	39°23'11.560"N	80°57'07.395"W	432.76	333.520	0.86	-0.85	-0.52	



Actual Wellpath Report

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Area	Tyler County, WV	Wellbore	Haga Unit 2H AWB
Field	Tyler		
Facility	McKim Pad		

WELLPATH DATA (239 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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
5276.00	7.720	332.110	5234.65	-445.25	400.13	-199.96	1653956.69	14302692.66	39°23'11.686"N	80°57'07.484"W	447.31	333.447	4.11	-4.10	1.60	
5364.00	7.820	337.740	5321.84	-457.11	410.89	-204.99	1653951.66	14302703.42	39°23'11.792"N	80°57'07.548"W	459.19	333.486	0.87	0.11	6.40	
5452.00	8.040	340.240	5409.00	-469.25	422.22	-209.34	1653947.31	14302714.75	39°23'11.904"N	80°57'07.603"W	471.27	333.628	0.46	0.25	2.84	
5540.00	7.580	334.700	5496.18	-481.19	433.26	-213.90	1653942.75	14302725.79	39°23'12.013"N	80°57'07.661"W	483.19	333.725	1.00	-0.52	-6.30	
5600.00	7.300	331.330	5555.68	-488.91	440.19	-217.42	1653939.23	14302732.71	39°23'12.082"N	80°57'07.706"W	490.95	333.714	0.86	-0.47	-5.62	BH AT Curve <8-1/2">(5540'-20189')
5619.00	7.180	330.930	5574.53	-491.28	442.28	-218.58	1653938.08	14302734.80	39°23'12.102"N	80°57'07.721"W	493.34	333.701	0.69	-0.63	-2.11	
5666.00	5.780	330.970	5621.23	-496.54	446.92	-221.95	1653935.50	14302739.44	39°23'12.148"N	80°57'07.754"W	498.64	333.672	2.98	-2.98	0.09	
5715.00	2.840	327.990	5670.08	-500.17	450.11	-222.99	1653933.66	14302743.29	39°23'12.186"N	80°57'07.777"W	502.32	333.645	6.02	-6.00	-6.08	
5762.00	0.810	166.120	5717.07	-500.99	450.77	-223.53	1653933.12	14302743.29	39°23'12.186"N	80°57'07.777"W	503.15	333.624	7.70	-4.32	-344.40	
5809.00	4.450	156.240	5764.01	-498.83	448.78	-222.72	1653933.94	14302741.30	39°23'12.167"N	80°57'07.773"W	501.00	333.606	7.78	7.74	-21.02	
5856.00	6.990	157.160	5810.77	-494.15	444.47	-220.87	1653935.78	14302736.99	39°23'12.124"N	80°57'07.750"W	496.33	333.576	5.41	5.40	1.96	
5903.00	9.190	158.720	5857.30	-487.54	438.34	-218.40	1653938.25	14302730.86	39°23'12.064"N	80°57'07.719"W	489.74	333.516	4.70	4.68	3.32	
5950.00	12.150	160.750	5903.48	-478.84	430.17	-215.41	1653941.25	14302722.70	39°23'11.983"N	80°57'07.680"W	481.09	333.401	6.35	6.30	4.32	
5998.00	14.390	160.360	5950.20	-467.83	419.78	-211.73	1653944.92	14302712.31	39°23'11.880"N	80°57'07.634"W	470.16	333.234	4.67	4.67	-0.81	
6045.00	16.260	158.550	5995.53	-455.41	408.16	-207.37	1653949.28	14302700.89	39°23'11.765"N	80°57'07.578"W	457.81	333.067	4.11	3.98	-3.85	
6093.00	19.490	157.850	6041.20	-440.68	394.48	-201.89	1653954.76	14302687.02	39°23'11.630"N	80°57'07.509"W	443.14	332.898	6.74	6.73	-1.46	
6140.00	22.840	160.050	6085.03	-423.72	378.64	-195.82	1653960.83	14302671.19	39°23'11.473"N	80°57'07.431"W	426.28	332.654	7.32	7.13	4.68	
6188.00	26.690	160.100	6128.60	-403.62	359.74	-188.97	1653967.68	14302652.29	39°23'11.287"N	80°57'07.344"W	406.35	332.288	8.02	8.02	0.10	
6235.00	31.030	160.120	6169.76	-380.94	338.42	-181.25	1653975.39	14302630.98	39°23'11.076"N	80°57'07.246"W	383.90	331.827	9.23	9.23	0.04	
6282.00	35.010	158.840	6209.16	-355.34	314.44	-172.26	1653984.37	14302607.01	39°23'10.839"N	80°57'07.132"W	358.53	331.285	8.60	8.47	-2.72	
6329.00	39.750	159.000	6246.49	-326.81	287.82	-162.00	1653994.63	14302580.40	39°23'10.576"N	80°57'07.001"W	330.28	330.627	10.09	10.09	0.34	
6377.00	43.930	159.540	6282.25	-294.80	257.88	-150.68	1654005.95	14302550.47	39°23'10.280"N	80°57'06.857"W	298.68	329.703	8.74	8.71	1.12	
6424.00	48.610	159.640	6314.73	-260.85	226.06	-138.84	1654017.78	14302518.67	39°23'09.965"N	80°57'06.707"W	265.29	328.443	9.96	9.96	0.21	
6451.00†	51.348	159.014	6332.09	-240.18	206.72	-131.54	1654025.08	14302499.33	39°23'09.774"N	80°57'06.614"W	245.02	327.531	10.30	10.14	-2.32	Middlesex: 6451' MD
6472.00	53.480	158.560	6344.90	-223.54	191.20	-125.52	1654031.10	14302483.82	39°23'09.620"N	80°57'06.537"W	228.72	326.717	10.30	10.15	-2.16	
6519.00	56.800	157.670	6371.07	-184.53	155.01	-110.96	1654045.65	14302447.64	39°23'09.263"N	80°57'06.352"W	190.63	324.402	11.43	11.32	-1.89	
6567.00	62.000	157.360	6394.78	-142.81	116.45	-95.00	1654061.60	14302409.10	39°23'08.881"N	80°57'06.149"W	150.29	320.791	6.69	6.67	-0.65	
6614.00	63.060	156.670	6416.46	-101.13	78.06	-78.72	1654077.88	14302370.73	39°23'08.502"N	80°57'05.942"W	110.86	314.759	2.60	2.26	-1.47	
6631.00†	64.058	156.457	6424.03	-85.92	64.09	-72.66	1654083.93	14302356.77	39°23'08.364"N	80°57'05.865"W	96.89	311.414	5.98	5.87	-1.25	Burkett: 6631' MD
6661.00	65.820	156.090	6436.74	-58.78	39.22	-61.73	1654094.86	14302331.90	39°23'08.118"N	80°57'05.726"W	73.13	302.428	5.98	5.87	-1.22	



Actual Wellpath Report

Haga Unit 2H AWP Proj: 20213'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #05
Operator	ANTERO RESOURCES CORPORATION	Well	Haga Unit 2H
Area	Tyler County, WV	Wellbore	Haga Unit 2H AWB
Field	Tyler		
Facility	McKim Pad		

WELLPATH DATA (239 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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
6689.00	67.66	156.282	6447.79	-33.09	15.68	-51.34	1654105.24	143022308.37	39°23'07.885"N	80°57'05.594"W	53.69	286.986	6.60	6.57	0.69	Tully: 6689' MD
6708.00	68.91	156.410	6454.82	-15.45	-0.49	-44.26	1654112.32	143022280.21	39°23'07.725"N	80°57'05.504"W	44.26	269.372	6.60	6.57	0.67	
6722.00	70.229	156.805	6459.71	-2.34	-12.53	-39.05	1654117.53	143022280.18	39°23'07.606"N	80°57'05.437"W	41.01	252.217	9.78	9.42	2.82	Marcellus POE: 6722' MD
6755.00	73.340	157.710	6470.03	28.98	-41.43	-26.94	1654129.64	143022251.28	39°23'07.321"N	80°57'05.283"W	49.42	213.032	9.78	9.43	2.74	
6802.00	77.060	159.150	6482.03	74.41	-83.68	-10.24	1654146.33	143022209.05	39°23'06.903"N	80°57'05.071"W	84.31	186.977	8.45	7.91	3.06	
6849.00	82.500	160.180	6490.37	120.65	-127.04	5.82	1654162.39	14302165.71	39°23'06.474"N	80°57'04.867"W	127.17	177.376	11.77	11.57	2.19	
6899.00	87.910	160.190	6494.54	170.44	-173.90	22.71	1654179.26	14302118.87	39°23'06.011"N	80°57'04.652"W	175.37	172.561	10.82	10.82	0.02	
6944.00	90.060	160.800	6495.34	215.41	-216.31	37.73	1654194.28	14302076.48	39°23'05.592"N	80°57'04.461"W	219.57	170.106	4.97	4.78	1.36	
7039.00	90.090	161.450	6495.22	310.34	-306.20	68.46	1654225.00	14301986.62	39°23'04.703"N	80°57'04.070"W	313.76	167.397	0.68	0.03	0.68	
7133.00	90.220	164.210	6494.96	404.12	-396.00	96.21	1654252.73	14301896.86	39°23'03.816"N	80°57'03.717"W	407.52	166.345	2.94	0.14	2.94	
7228.00	90.180	162.260	6494.63	498.85	-486.96	123.61	1654280.12	14301805.94	39°23'02.916"N	80°57'03.369"W	502.40	165.757	2.05	-0.04	-2.05	
7323.00	90.090	159.540	6494.41	593.78	-576.72	154.69	1654311.19	14301716.21	39°23'02.029"N	80°57'02.974"W	597.10	164.985	2.86	-0.09	-2.86	
7418.00	90.220	163.950	6494.15	688.64	-666.91	184.44	1654340.93	14301626.05	39°23'01.138"N	80°57'02.596"W	691.95	164.541	4.64	0.14	4.64	
7514.00	90.180	165.930	6493.81	784.11	-759.61	209.38	1654365.87	14301533.39	39°23'00.221"N	80°57'02.279"W	787.94	164.589	2.06	-0.04	2.06	
7608.00	90.250	163.110	6493.46	877.66	-850.19	234.47	1654390.94	14301442.85	39°22'59.326"N	80°57'01.960"W	881.93	164.582	3.00	0.07	-3.00	
7703.00	90.430	159.100	6492.90	972.57	-940.05	265.23	1654421.69	14301353.02	39°22'58.438"N	80°57'01.569"W	976.75	164.244	4.23	0.19	-4.22	
7797.00	90.030	154.630	6492.52	1066.48	-1026.47	302.15	1654458.60	14301266.84	39°22'57.583"N	80°57'01.099"W	1070.02	163.598	4.77	-0.43	-4.76	
7892.00	90.060	153.960	6492.45	1161.17	-1112.07	343.36	1654499.78	14301181.08	39°22'56.737"N	80°57'00.575"W	1163.87	162.842	0.71	0.03	-0.71	
7986.00	90.000	153.760	6492.40	1254.80	-1196.45	384.77	1654541.18	14301096.72	39°22'55.903"N	80°57'00.048"W	1256.80	162.173	0.22	-0.06	-0.21	
8080.00	90.090	152.550	6492.32	1348.32	-1280.32	427.22	1654583.61	14301012.89	39°22'55.074"N	80°56'59.508"W	1349.72	161.547	1.29	0.10	-1.29	
8175.00	89.880	152.910	6492.35	1442.76	-1364.76	470.74	1654627.12	14300928.48	39°22'54.239"N	80°56'58.954"W	1443.67	160.969	0.44	-0.22	0.38	
8270.00	90.090	152.900	6492.37	1537.24	-1449.34	514.01	1654670.37	14300843.94	39°22'53.403"N	80°56'58.404"W	1537.79	160.473	0.22	0.22	-0.01	
8364.00	89.420	152.820	6492.77	1630.71	-1532.99	556.89	1654713.23	14300760.33	39°22'52.576"N	80°56'57.858"W	1631.00	160.035	0.72	-0.71	-0.09	
8459.00	89.880	155.560	6493.35	1725.37	-1618.50	598.25	1654754.57	14300674.85	39°22'51.730"N	80°56'57.332"W	1725.53	159.714	2.92	0.48	2.88	
8553.00	90.000	158.420	6493.45	1819.30	-1705.01	634.99	1654791.30	14300588.37	39°22'50.875"N	80°56'56.865"W	1819.42	159.573	3.05	0.13	3.04	
8648.00	90.060	159.970	6493.40	1914.30	-1793.81	668.73	1654825.03	14300499.80	39°22'49.997"N	80°56'56.436"W	1914.41	159.555	1.63	0.06	1.63	
8744.00	89.750	160.390	6493.56	2010.28	-1884.13	701.28	1654857.57	14300409.33	39°22'49.104"N	80°56'56.022"W	2010.40	159.584	0.54	-0.32	0.44	
8838.00	89.850	160.450	6493.89	2104.25	-1972.69	732.78	1654889.05	14300320.80	39°22'48.229"N	80°56'55.622"W	2104.39	159.822	0.12	0.11	0.06	
8933.00	89.970	158.880	6494.04	2199.23	-2061.77	765.79	1654922.05	14300231.76	39°22'47.348"N	80°56'55.202"W	2199.39	159.624	1.66	0.13	-1.65	
9027.00	89.820	157.470	6494.21	2293.22	-2149.03	800.74	1654956.98	14300144.53	39°22'46.486"N	80°56'54.757"W	2293.36	159.564	1.51	-0.16	-1.50	



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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #05
Operator	ANTERO RESOURCES CORPORATION	Well	Haga Unit 2H
Area	Tyler County, WV	Wellbore	Haga Unit 2H AWB
Field	Tyler		
Facility	McKim Pad		

WELLPATH DATA (239 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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
9123.00	90.120	159.020	6494.26	2389.21	-2238.19	836.32	1654992.55	14300055.41	39°22'45.604"N	80°56'54.305"W	2389.33	159.511	1.64	0.31	1.61	
9217.00	89.940	162.060	6494.21	2483.17	-2326.81	867.63	1655023.85	14299966.83	39°22'44.728"N	80°56'53.907"W	2483.31	159.550	3.24	-0.19	3.23	
9311.00	89.850	163.720	6494.39	2576.94	-2416.64	895.29	1655051.49	14299877.03	39°22'43.840"N	80°56'53.555"W	2577.15	159.672	1.77	-0.10	1.77	
9406.00	89.940	163.780	6494.56	2671.60	-2507.85	921.87	1655078.07	14299785.86	39°22'42.938"N	80°56'53.218"W	2671.92	159.817	0.11	0.09	0.06	
9501.00	89.690	164.270	6494.87	2766.23	-2599.18	948.02	1655104.20	14299694.56	39°22'42.036"N	80°56'52.885"W	2766.67	159.961	0.58	-0.28	0.52	
9596.00	90.060	165.550	6495.07	2860.71	-2690.90	972.75	1655128.92	14299602.88	39°22'41.129"N	80°56'52.571"W	2861.32	160.125	1.40	0.39	1.35	
9690.00	89.910	165.250	6495.10	2954.12	-2781.86	996.44	1655152.61	14299511.95	39°22'40.230"N	80°56'52.270"W	2954.94	160.293	0.36	-0.16	-0.32	
9785.00	89.820	163.200	6495.32	3048.71	-2873.28	1022.27	1655178.42	14299420.57	39°22'39.326"N	80°56'51.942"W	3049.72	160.415	2.16	-0.09	-2.16	
9879.00	89.850	159.490	6495.59	3142.61	-2962.33	1052.33	1655208.47	14299331.56	39°22'38.446"N	80°56'51.560"W	3143.69	160.443	3.95	0.03	-3.95	
9973.00	89.540	155.440	6496.09	3236.55	-3049.13	1088.35	1655244.48	14299244.79	39°22'37.588"N	80°56'51.102"W	3237.54	160.357	4.32	-0.33	-4.31	
10068.00	89.910	151.450	6496.55	3331.10	-3134.09	1130.81	1655286.92	14299159.87	39°22'36.748"N	80°56'49.949"W	3331.85	160.160	4.22	0.39	-4.20	
10164.00	89.420	148.300	6497.11	3425.88	-3217.11	1178.98	1655335.07	14299076.88	39°22'35.927"N	80°56'49.949"W	3426.34	159.874	3.32	-0.51	-3.28	
10258.00	90.090	149.750	6497.51	3518.48	-3297.70	1227.36	1655383.43	14298996.32	39°22'35.130"N	80°56'48.727"W	3518.70	159.585	1.70	0.71	1.54	
10354.00	89.910	150.710	6497.51	3613.37	-3381.03	1275.02	1655431.08	14298913.02	39°22'34.306"N	80°56'48.727"W	3613.46	159.338	1.02	-0.19	1.00	
10449.00	89.570	154.150	6497.94	3707.74	-3465.23	1318.98	1655475.02	14298828.86	39°22'33.474"N	80°56'48.168"W	3707.77	159.161	3.64	-0.36	3.62	
10544.00	89.350	160.040	6498.84	3802.65	-3552.70	1355.94	1655511.96	14298741.43	39°22'32.609"N	80°56'47.698"W	3802.66	159.110	6.20	-0.23	6.20	
10638.00	89.320	164.860	6499.93	3896.43	-3642.29	1384.28	1655540.29	14298651.87	39°22'31.723"N	80°56'47.338"W	3896.47	159.190	5.13	-0.03	5.13	
10733.00	89.420	163.510	6500.98	3991.03	-3733.69	1410.17	1655566.16	14298560.51	39°22'30.820"N	80°56'47.009"W	3991.11	159.309	1.42	0.11	-1.42	
10827.00	89.480	160.650	6501.88	4084.87	-3823.11	1439.08	1655595.07	14298471.12	39°22'29.936"N	80°56'46.641"W	4084.99	159.373	3.04	0.06	-3.04	
10923.00	89.110	158.060	6503.06	4180.86	-3912.93	1472.93	1655628.90	14298381.34	39°22'29.048"N	80°56'46.211"W	4180.97	159.372	2.73	-0.38	-2.70	
11018.00	89.630	159.650	6504.11	4275.85	-4001.53	1507.19	1655666.15	14298292.78	39°22'28.172"N	80°56'45.715"W	4275.96	159.361	1.76	0.55	1.67	
11113.00	89.540	160.430	6504.79	4370.83	-4090.82	1539.62	1655695.57	14298203.52	39°22'27.289"N	80°56'45.363"W	4370.95	159.376	0.83	-0.09	0.82	
11208.00	89.380	161.990	6505.69	4465.74	-4180.75	1570.22	1655726.15	14298113.63	39°22'26.400"N	80°56'44.974"W	4465.90	159.415	1.65	-0.17	1.64	
11303.00	89.820	164.620	6506.35	4560.46	-4271.73	1597.51	1655753.43	14298022.68	39°22'25.501"N	80°56'44.627"W	4560.67	159.496	2.81	0.46	2.77	
11399.00	89.940	164.640	6506.55	4655.98	-4364.30	1622.95	1655778.86	14297930.15	39°22'24.586"N	80°56'44.304"W	4656.29	159.601	0.13	0.12	0.02	
11493.00	89.880	162.890	6506.70	4749.65	-4454.55	1649.23	1655805.13	14297839.94	39°22'23.684"N	80°56'43.970"W	4750.05	159.684	1.86	-0.06	-1.86	
11587.00	89.510	159.730	6507.20	4843.55	-4543.58	1679.35	1655835.24	14297750.94	39°22'22.814"N	80°56'43.587"W	4844.00	159.715	3.38	-0.38	-3.36	
11682.00	88.610	155.810	6508.76	4938.50	-4631.49	1715.28	1655871.15	14297663.07	39°22'21.945"N	80°56'43.130"W	4938.91	159.678	4.23	-0.89	-4.13	
11777.00	89.260	158.370	6510.53	5033.43	-4718.97	1752.25	1655908.11	14297575.62	39°22'21.080"N	80°56'42.660"W	5033.79	159.629	2.78	0.68	2.69	
11871.00	89.750	163.080	6511.34	5127.35	-4807.67	1783.27	1655939.12	14297486.96	39°22'20.203"N	80°56'42.266"W	5127.74	159.649	5.04	0.52	5.01	



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Haga Unit 2H AWP Proj: 20213'
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REFERENCE WELLPATH IDENTIFICATION

Operator	Antero Resources Corporation	Slot	Slot #05
Area	Tyler County, WV	Well	Haga Unit 2H
Field	Tyler	Wellbore	Haga Unit 2H AWB
Facility	McKim Pad		

WELLPATH DATA (239 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
11965.00	89.750	162.780	6511.75	5221.12	-4897.53	1810.86	1655966.70	14297397.13	39°22'19.315"N	80°56'41.915"W	5221.59	159.708	0.32	0.00	-0.32	
12059.00	89.720	160.920	6512.18	5315.00	-4986.85	1840.14	1655995.97	14297307.85	39°22'18.432"N	80°56'41.543"W	5315.52	159.746	1.98	-0.03	-1.98	
12154.00	89.720	159.230	6512.65	5409.97	-5076.16	1872.51	1656028.33	14297218.58	39°22'17.549"N	80°56'41.131"W	5410.52	159.752	1.78	0.00	-1.78	
12249.00	89.660	156.300	6513.16	5504.94	-5164.08	1908.46	1656064.26	14297130.69	39°22'16.680"N	80°56'40.674"W	5505.45	159.718	3.08	-0.06	-3.08	
12344.00	89.630	154.880	6513.75	5599.77	-5250.59	1947.72	1656103.50	14297044.22	39°22'15.824"N	80°56'40.175"W	5600.20	159.648	1.50	-0.03	-1.49	
12438.00	89.690	155.230	6514.31	5693.56	-5335.82	1987.36	1656143.13	14296959.02	39°22'14.982"N	80°56'39.671"W	5693.90	159.572	0.38	0.06	0.37	
12533.00	89.480	159.640	6515.00	5788.50	-5423.52	2023.80	1656179.56	14296871.36	39°22'14.115"N	80°56'39.208"W	5788.81	159.537	4.65	-0.22	4.64	
12628.00	89.600	159.270	6515.76	5883.49	-5512.47	2057.14	1656212.88	14296782.44	39°22'13.235"N	80°56'38.784"W	5883.81	159.535	0.41	0.13	-0.39	
12723.00	89.720	157.680	6516.32	5978.48	-5600.84	2092.00	1656247.72	14296694.10	39°22'12.362"N	80°56'38.341"W	5978.79	159.519	1.68	0.13	-1.67	
12818.00	89.750	155.990	6516.76	6073.41	-5688.18	2129.37	1656285.08	14296606.80	39°22'11.498"N	80°56'37.866"W	6073.68	159.477	1.78	0.03	-1.78	
12914.00	89.780	156.610	6517.16	6169.31	-5776.08	2167.95	1656323.65	14296518.93	39°22'10.629"N	80°56'37.375"W	6169.53	159.427	0.65	0.03	0.65	
13008.00	89.750	155.700	6517.54	6263.20	-5862.06	2205.95	1656361.63	14296432.99	39°22'09.779"N	80°56'36.892"W	6263.38	159.378	0.97	-0.03	-0.97	
13103.00	89.690	154.750	6518.01	6358.00	-5948.31	2245.76	1656401.43	14296346.77	39°22'08.927"N	80°56'36.386"W	6358.13	159.316	1.00	-0.06	-1.00	
13198.00	89.970	153.900	6518.29	6452.69	-6033.93	2286.92	1656442.57	14296261.19	39°22'08.080"N	80°56'35.862"W	6452.78	159.243	0.94	0.29	-0.89	
13293.00	89.850	154.850	6518.44	6547.38	-6119.59	2328.01	1656483.64	14296175.57	39°22'07.233"N	80°56'35.340"W	6547.44	159.172	1.01	-0.13	1.00	
13388.00	89.780	159.170	6518.74	6642.31	-6207.02	2365.10	1656520.72	14296088.17	39°22'06.369"N	80°56'34.868"W	6642.35	159.141	4.55	-0.07	4.55	
13483.00	89.880	161.860	6519.03	6737.26	-6296.57	2396.79	1656552.39	14295998.66	39°22'05.484"N	80°56'34.466"W	6737.31	159.161	2.83	0.11	2.83	
13578.00	90.000	162.440	6519.13	6832.11	-6387.00	2425.91	1656581.50	14295908.27	39°22'04.590"N	80°56'34.095"W	6832.18	159.202	0.62	0.13	0.61	
13672.00	90.000	160.560	6519.13	6926.02	-6476.14	2455.73	1656611.31	14295819.16	39°22'03.708"N	80°56'33.716"W	6926.11	159.233	2.00	0.00	-2.00	
13767.00	90.000	160.310	6519.13	7020.98	-6565.65	2487.55	1656643.11	14295729.68	39°22'02.823"N	80°56'33.312"W	7021.09	159.250	0.26	0.00	-0.26	
13862.00	89.880	161.000	6519.23	7115.94	-6655.29	2519.01	1656674.57	14295640.08	39°22'01.937"N	80°56'32.912"W	7116.06	159.268	0.74	-0.13	0.73	
13956.00	89.850	160.910	6519.45	7209.88	-6744.14	2549.69	1656705.23	14295551.27	39°22'01.059"N	80°56'32.522"W	7210.02	159.290	0.10	-0.03	-0.10	
14050.00	90.000	160.170	6519.57	7305.84	-6834.66	2581.67	1656737.20	14295460.79	39°22'00.164"N	80°56'32.116"W	7305.99	159.307	0.79	0.16	-0.77	
14147.00	89.820	160.310	6519.72	7400.82	-6924.06	2613.79	1656769.30	14295371.42	39°21'59.280"N	80°56'31.708"W	7400.98	159.319	0.24	-0.19	0.15	
14241.00	89.970	161.370	6519.89	7494.77	-7012.85	2644.64	1656800.14	14295282.66	39°21'58.403"N	80°56'31.316"W	7494.95	159.338	1.14	0.16	1.13	
14337.00	89.970	162.290	6519.99	7590.64	-7104.06	2674.57	1656830.07	14295191.49	39°21'57.501"N	80°56'30.935"W	7590.86	159.369	0.96	-0.06	0.96	
14431.00	89.880	162.660	6520.17	7684.46	-7193.70	2702.88	1656858.36	14295101.89	39°21'56.615"N	80°56'30.575"W	7684.72	159.407	0.39	-0.03	0.39	
14526.00	90.000	163.260	6520.27	7779.23	-7284.53	2730.72	1656886.19	14295011.09	39°21'55.717"N	80°56'30.222"W	7779.54	159.451	0.64	0.13	0.63	
14621.00	90.060	159.400	6520.22	7874.13	-7374.51	2761.12	1656916.58	14294921.15	39°21'54.827"N	80°56'29.835"W	7874.47	159.473	4.06	0.06	-4.06	
14716.00	90.000	154.950	6520.17	7969.06	-7462.05	2797.97	1656953.41	14294833.64	39°21'53.962"N	80°56'29.367"W	7969.37	159.446	4.68	-0.06	-4.68	



Actual Wellpath Report

Haga Unit 2H AWP Proj: 20213'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Tyler County, WV	Well	Haga Unit 2H
Field	Tyler	Wellbore	Haga Unit 2H AWB
Facility	McKim Pad		

WELLPATH DATA (239 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (IUS ft)	Grid North (IUS ft)	Latitude (ft)	Longitude (ft)	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
17653.00	89.970	157.170	6523.96	10901.48	-10192.77	3866.87	1658021.88	14292104.02	39°21'26.965"N	80°56'15.782"W	10901.62	159.225	0.21	0.06	-0.20	
17474.00	90.000	160.340	6523.98	10995.47	-10280.37	3900.93	1658055.92	14292016.46	39°21'26.099"W	80°56'15.349"W	10995.60	159.221	3.37	0.03	3.37	
17842.00	90.060	160.670	6523.93	11090.43	-10369.93	3932.63	1658087.62	14291926.94	39°21'25.214"N	80°56'14.946"W	11090.58	159.232	0.35	0.06	0.35	
17937.00	89.630	161.990	6524.19	11185.35	-10459.92	3963.04	1658118.01	14291836.98	39°21'24.324"N	80°56'14.560"W	11185.51	159.249	1.46	-0.45	1.39	
18032.00	89.790	161.780	6524.68	11280.25	-10550.06	3993.05	1658148.01	14291746.88	39°21'23.433"N	80°56'14.178"W	11280.43	159.269	0.87	0.16	-0.85	
18126.00	89.850	162.190	6524.98	11374.14	-10639.29	4022.59	1658177.54	14291657.68	39°21'22.551"N	80°56'13.803"W	11374.35	159.289	1.08	0.07	1.07	
18220.00	89.850	160.810	6525.23	11468.04	-10728.43	4052.41	1658207.35	14291568.57	39°21'21.670"N	80°56'13.424"W	11468.28	159.307	1.47	0.00	-1.47	
18315.00	89.970	159.860	6525.43	11563.01	-10817.89	4084.38	1658239.31	14291479.15	39°21'20.786"N	80°56'13.018"W	11563.26	159.316	1.00	0.06	-1.00	
18410.00	89.940	157.920	6525.55	11658.01	-10906.51	4118.60	1658273.51	14291390.57	39°21'19.909"N	80°56'12.583"W	11658.25	159.312	2.04	0.03	-2.04	
18509.00	89.750	158.960	6525.75	11752.00	-10993.93	4153.14	1658308.03	14291303.18	39°21'19.045"N	80°56'12.144"W	11752.24	159.305	1.11	-0.13	1.11	
18599.00	89.750	160.860	6526.11	11846.98	-11083.15	4185.77	1658340.65	14291214.00	39°21'18.163"N	80°56'11.730"W	11847.23	159.310	2.00	-0.07	2.00	
18693.00	89.940	159.230	6526.36	11940.96	-11171.50	4217.85	1658372.72	14291125.68	39°21'17.290"N	80°56'11.322"W	11941.22	159.316	1.75	0.20	-1.73	
18788.00	89.910	154.590	6526.49	12035.88	-11258.87	4255.09	1658409.95	14291038.35	39°21'16.426"N	80°56'10.849"W	12036.11	159.297	4.88	-0.03	-4.88	
18883.00	89.970	158.700	6526.58	12130.78	-11346.06	4292.75	1658447.59	14290951.19	39°21'15.564"N	80°56'10.370"W	12130.99	159.276	4.33	0.06	4.33	
18977.00	89.970	157.630	6526.61	12224.78	-11433.81	4326.47	1658481.30	14290863.48	39°21'14.696"N	80°56'09.942"W	12224.99	159.274	0.99	0.03	0.98	
19072.00	89.970	157.630	6526.63	12319.77	-11522.16	4361.38	1658516.19	14290775.17	39°21'13.823"N	80°56'09.498"W	12319.97	159.267	1.71	-0.03	-1.71	
19167.00	89.940	156.320	6526.71	12414.71	-11609.59	4398.54	1658553.34	14290687.78	39°21'12.959"N	80°56'09.026"W	12414.90	159.250	1.38	-0.03	-1.38	
19262.00	89.120	156.650	6526.66	12509.63	-11696.70	4436.44	1658591.22	14290600.70	39°21'11.207"N	80°56'08.544"W	12509.79	159.229	0.40	0.19	0.35	
19357.00	89.940	158.210	6526.61	12604.59	-11784.42	4472.90	1658627.67	14290513.01	39°21'11.207"N	80°56'08.081"W	12604.74	159.215	1.68	-0.19	1.64	
19451.00	90.120	159.180	6526.56	12698.59	-11871.99	4507.05	1658661.81	14290425.47	39°21'10.364"N	80°56'07.647"W	12698.73	159.211	1.05	0.19	1.03	
19546.00	89.970	160.780	6526.54	12793.57	-11961.25	4539.58	1658694.32	14290336.25	39°21'09.482"N	80°56'07.234"W	12793.72	159.217	1.70	-0.22	1.68	
19641.00	89.940	160.390	6526.66	12888.53	-12050.85	4571.16	1658725.88	14290246.69	39°21'08.596"N	80°56'06.832"W	12888.69	159.227	0.41	0.03	-0.41	
19736.00	92.590	158.850	6524.24	12983.49	-12139.87	4604.23	1658758.94	14290157.71	39°21'07.716"N	80°56'06.412"W	12983.66	159.230	3.23	2.79	-1.62	
19831.00	89.690	155.980	6522.67	13078.42	-12227.55	4640.70	1658795.40	14290070.06	39°21'06.849"N	80°56'05.949"W	13078.57	159.217	4.29	-3.05	-3.02	
19925.00	89.880	155.270	6523.02	13172.26	-12313.17	4679.49	1658834.18	14289984.48	39°21'06.003"N	80°56'05.456"W	13172.38	159.191	0.78	0.20	-0.76	
20021.00	89.910	154.720	6523.20	13268.03	-12400.17	4720.07	1658874.74	14289897.51	39°21'05.142"N	80°56'04.940"W	13268.13	159.161	0.57	0.03	-0.57	
20116.00	90.030	153.700	6523.25	13362.71	-12485.70	4761.40	1658916.05	14289812.01	39°21'04.297"N	80°56'04.415"W	13362.78	159.126	1.08	0.13	-1.07	
20189.00	89.940	153.480	6523.27	13456.39	-12551.09	4793.87	1658948.51	14289746.65	39°21'03.650"N	80°56'04.002"W	13456.44	159.096	0.33	-0.12	-0.30	
20213.00	89.940	153.480	6523.29	13459.28	-12572.56	4804.59	1658959.22	14289725.19	39°21'03.438"N	80°56'03.866"W	13459.32	159.086	0.00	0.00	0.00	Projected MD at TD: 20213'

HOLE & CASING SECTIONS - Ref Wellbore: Haga Unit 2H AWB Ref Wellpath: Haga Unit 2H AWP Proj: 20213'

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	32.00	112.00	80.00	32.00	112.00	0.00	0.00	0.16	0.15
17.5in Open Hole	112.00	550.40	438.40	112.00	550.40	0.16	0.15	0.58	0.51
13.375in Casing Surface	32.00	550.40	518.40	32.00	550.40	0.00	0.00	0.58	0.51
12.25in Open Hole	550.40	2581.10	2030.70	550.40	2580.58	0.58	0.51	6.38	-0.78
9.625in Casing Intermediate	32.00	2581.10	2549.10	32.00	2580.58	0.00	0.00	6.38	-0.78
8.75in Open Hole	2581.10	5623.00	3041.90	2580.58	5578.50	6.38	-0.78	442.72	-218.82
8.5in Open Hole	5623.00	20213.00	14590.00	5578.50	6523.29	442.72	-218.82	-12572.56	4804.59
5.5in Casing Production	32.00	20213.00	20181.00	32.00	6523.29	0.00	0.00	-12572.56	4804.59

05/03/2019

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Haga Unit 2H POE - Rev-1	6464.00	-3.31	-56.85	1654099.74	14302289.39	39°23'07.698"N	80°57'05.664"W	point
Haga Unit 2H BHL - Rev-2	6498.00	-12596.91	4792.21	1658946.85	14289700.84	39°21'03.197"N	80°56'04.023"W	point
Haga Unit 2H LP - Rev-1	6488.00	-200.57	19.11	1654175.66	14302092.21	39°23'05.748"N	80°57'04.698"W	point



Actual Wellpath Report

Haga Unit 2H AWP Proj: 20213'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Tyler County, WV	Well	Haga Unit 2H
Field	Tyler	Wellbore	Haga Unit 2H AWB
Facility	McKim Pad		

WELLPATH COMPOSITION - Ref Wellbore: Haga Unit 2H AWB Ref Wellpath: Haga Unit 2H AWP Proj: 20213'			
Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment
32.00	523.00	Gyrodata standard - Drop gyro or Multi-shot	01 Gyrodata MS Gyro <17-1/2">(100'-506')
523.00	769.00	Gyrodata standard - Drop gyro or Multi-shot	02 Gyrodata MS Gyro <12-1/4">(506')539'-752')
769.00	2510.00	ISCWSA MWD, Rev. 4 (Standard)	03 Directional ONE MWD <12-1/4">(752')922'-2493')
2510.00	5540.00	ISCWSA MWD, Rev. 4 (Standard)	04 Directional ONE MWD <8-3/4">(2493')2611'-5523')
5540.00	20189.00	BHI AutoTrak Curve (Short)	05 BH AT Curve <8-1/2">(5540')5600'-20189)
20189.00	20213.00	Blind Drilling (std)	Projection to bit
			Haga Unit 2H AWB



Actual Wellpath Report

Haga Unit 2H AWP Proj: 20213'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #05
Area	Tyler County, WV	Well	Haga Unit 2H
Field	Tyler	Wellbore	Haga Unit 2H AWB
Facility	McKim Pad		

COMMENTS

Wellpath general comments

API: 47-095-02424-0000
 BHI Job #: 8907862
 Rig: Frontier 32
 Duration: 12/18/2017-12/22/2017
 Gyrodatta MS Gyro <17-1/2">(100'-506')
 Gyrodatta MS Gyro <12-1/4">(506')(539'-752')
 Directional ONE MWD <12-1/4">(752')(922'-2493')
 Directional ONE MWD <8-3/4">(2493')(2611'-5523')
 BH AT Curve <8-1/2">(5540')(5600'-20189')
 Middlesex: 6451' MD
 Burkett: 6631' MD
 Tully: 6689' MD
 Marcellus POE: 6722' MD
 Projected MD at TD: 20213'