

ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
 Field: Tyler
 Facility: McKim Pad

Slot: Slot #04
 Well: Haga Unit 1H
 Wellbore: Haga Unit 1H PWB

Grid System: NAD27 UTM Zone 17 North, US feet
 North Reference: Grid north
 Scale: True distance
 Depths are in feet
 Created by: delbert on 2019-01-07
 Database: WA_MPL_EasternUS_Datn

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 E (ft)	Local N (ft)	Longitude
Slot #04	-28.33	8.65	80°57'04.970"W
Frontier 32 (RKB) to Ground level (At Slot: Slot #04)	32ft		
Mean Sea Level to Ground level (At Slot: Slot #04)	-1172ft		
Frontier 32 (RKB) to Mean Sea Level	1204ft		

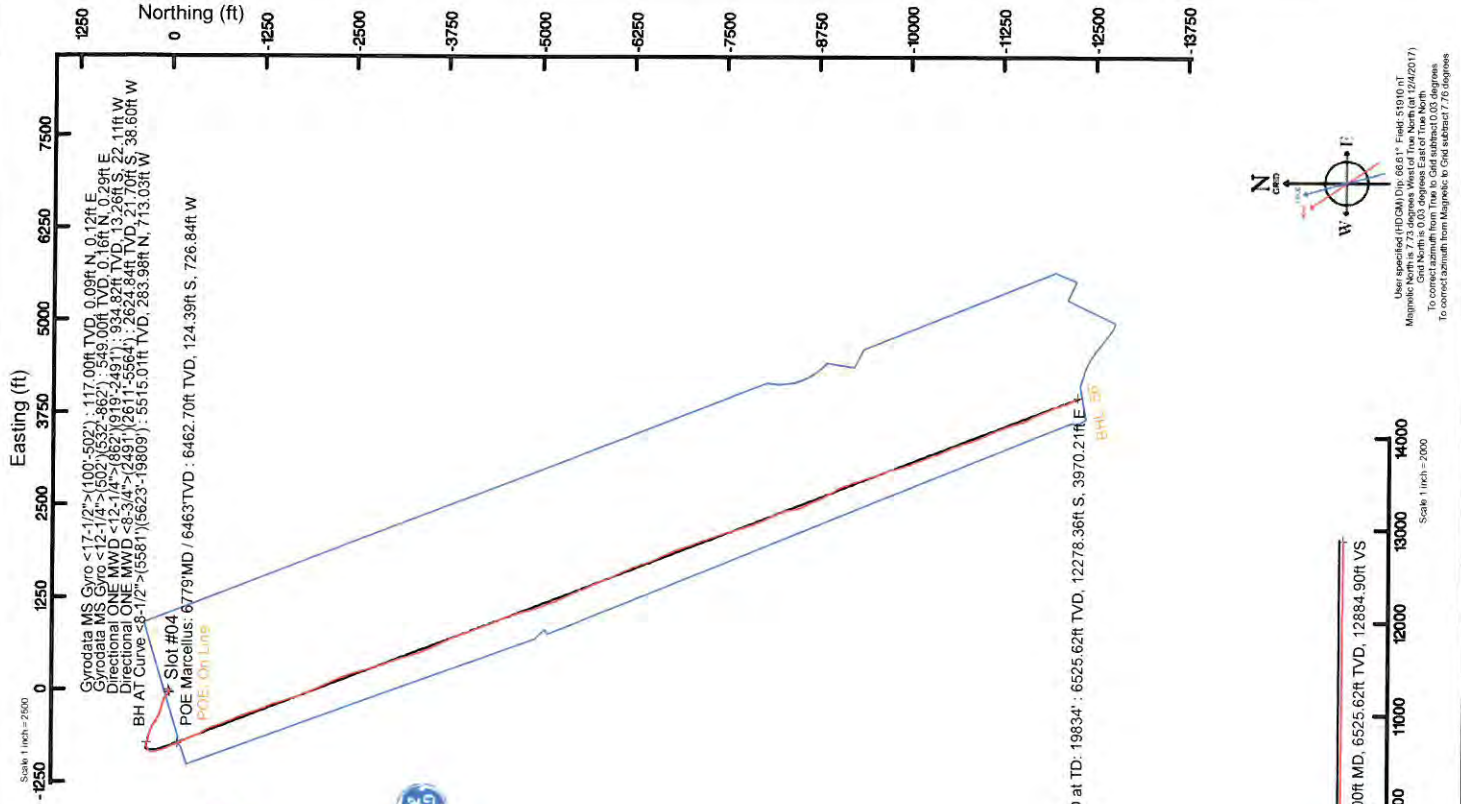
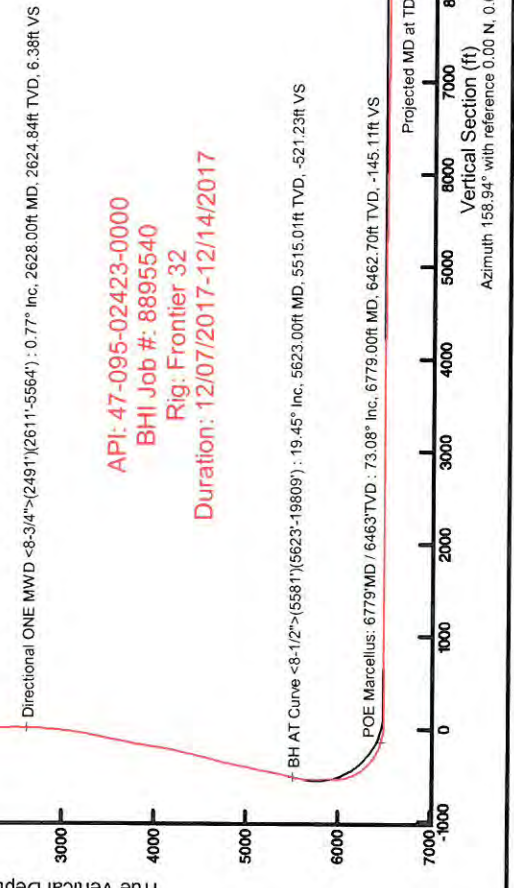
Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	Local N (ft)	DLS (*/100ft)	VS (ft)
The Oh	5581.00	19.600	289.350	5475.43	279.37	-699.77	0.31	-512.17
Proj. To Bottom	5664.00	19.600	289.350	5553.62	289.59	-726.04	0.00	-530.21
Curve KOP	5731.00	19.600	289.350	5616.74	296.04	-747.25	0.00	-544.78
End of 3D Arc	6643.97	59.209	157.883	6387.87	-67.09	-743.58	3.00	-204.59
POE	6807.70	72.275	158.942	6455.00	-205.62	-688.84	8.00	-55.64
Landing Pt.	7029.28	90.000	158.942	6489.00	-409.12	-610.49	8.00	162.41
BHL	19761.12	90.000	158.942	6489.00	-12290.67	3964.28	0.00	12894.25

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #04	Haga Unit 1H	Haga Unit 1H AWP	Haga Unit 1H AWP Proj: 19834
Slot #04	Haga Unit 1H	Haga Unit 1H PWB	Haga Unit 1H PWP Rev-A-0

Gyrodata MS Gyro <17-1/2>(100-502) : 0.20° Inc, 117.00ft MD, 117.00ft TVD, -0.04ft VS
 Gyrodata MS Gyro <12-1/4>(602)(532-862) : 0.32° Inc, 549.00ft MD, 549.00ft TVD, -0.05ft VS
 Directional ONE MWD <12-1/4>(662)(919-2491) : 6.60° Inc, 936.00ft MD, 934.82ft TVD, 4.43ft VS
 Directional ONE MWD <8-3/4>(2491)(2611-5564) : 0.77° Inc, 2628.00ft MD, 2624.84ft TVD, 6.38ft VS

API: 47-095-02423-0000
 BHI Job #: 8895540
 Rig: Frontier 32
 Duration: 12/07/2017-12/14/2017

BH AT Curve <8-1/2>(6581)(5623-19809) : 19.45° Inc, 5623.00ft MD, 5515.01ft TVD, -521.23ft VS
 POE Marcellus: 6779MD / 6463TVD : 73.08° Inc, 6779.00ft MD, 6462.70ft TVD, -145.11ft VS
 Projected MD at TD: 19834 : 90.03° Inc, 19834.00ft MD, 6525.62ft TVD, 12884.90ft VS



User specified UTM Data: 6661° East, 51910.7
 Magnetic North is 7.73 degrees West of True North (at 12/6/2017)
 To convert from Magnetic North to True North, add 7.73 degrees
 To convert from True North to Magnetic North, subtract 7.73 degrees

Scale 1 inch = 200

Vertical Section (ft)
 Azimuth 159.94° with reference 0.00 N, 0.00 E



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot #04	
Area	Tyler County, WV	Well	Haga Unit 1H
Field	Tyler	Wellbore	Haga Unit 1H AWB
Facility	McKim Pad		

REPORT SETUP INFORMATION

Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WeilArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999600	Report Generated	1/5/2019 at 3:16:12 PM
Convergence at slot	0.03° East	Database/Source file	WA_MPL_EasternUS_Defn/Haga_Unit_1H_AWP_Proj_19834_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-28.33	8.65	1654154.21	14302302.81	39°23'07.830"N	80°57'04.970"W
Facility Reference Pt			1654145.56	14302331.12	39°23'08.110"N	80°57'05.080"W
Field Reference Pt			0.00	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 #04)	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 1H AWP Proj: 19834'
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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	McKim Pad
Slot	Slot #04
Well	Haga Unit 1H
Wellbore	Haga Unit 1H AWB

WELLPATH DATA (239 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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
0.00	0.00	51.560	0.00	0.00	0.00	0.00	1654154.21	14302302.81	39°23'07.830"N	80°57'04.970"W	0.00	0.000	0.00	0.00	0.00	
32.00	0.00	51.560	32.00	0.00	0.00	0.00	1654154.21	14302302.81	39°23'07.830"N	80°57'04.970"W	0.00	0.000	0.00	0.00	0.00	
117.00	0.200	51.560	117.00	-0.04	0.09	0.12	1654154.32	14302302.90	39°23'07.831"N	80°57'04.969"W	0.15	51.560	0.24	0.24	60.66	Gyrodata MS Gyro <17-1/2">(100'-502')
217.00	0.100	123.560	217.00	-0.03	0.15	0.33	1654154.53	14302302.96	39°23'07.832"N	80°57'04.966"W	0.36	64.906	0.19	-0.10	72.00	
317.00	0.160	340.370	317.00	-0.09	0.24	0.35	1654154.56	14302303.04	39°23'07.832"N	80°57'04.966"W	0.42	56.144	0.25	0.06	-143.19	
417.00	0.080	193.720	417.00	-0.18	0.30	0.29	1654154.49	14302303.11	39°23'07.833"N	80°57'04.966"W	0.42	43.880	0.23	-0.08	-146.65	
517.00	0.010	304.610	517.00	-0.13	0.24	0.26	1654154.47	14302303.05	39°23'07.832"N	80°57'04.967"W	0.35	48.159	0.08	-0.07	110.89	
549.00	0.320	162.350	549.00	-0.05	0.16	0.29	1654154.49	14302303.07	39°23'07.832"N	80°57'04.967"W	0.35	48.104	0.20	0.00	1157.50	
639.00	1.580	212.660	638.99	0.94	-1.12	-0.31	1654153.90	14302301.68	39°23'07.819"N	80°57'04.974"W	1.17	195.189	1.55	1.40	55.90	
729.00	4.030	240.350	728.87	2.15	-3.73	-3.72	1654150.48	14302299.08	39°23'07.793"N	80°57'05.017"W	5.27	224.920	3.03	2.72	30.77	
879.00	6.550	243.500	878.19	3.80	-10.34	-16.27	1654137.94	14302292.48	39°23'07.728"N	80°57'05.177"W	19.28	237.582	1.39	1.38	1.76	
936.00	6.600	243.280	934.82	4.43	-13.26	-22.11	1654132.10	14302289.56	39°23'07.699"N	80°57'05.252"W	25.78	239.050	0.10	0.09	-0.39	Directional ONE MWD <12-1/4">(862')(919'-2491')
1024.00	6.460	246.360	1022.25	5.15	-17.52	-31.16	1654123.06	14302285.30	39°23'07.657"N	80°57'05.367"W	35.75	240.658	0.43	-0.16	3.50	
1113.00	5.700	254.320	1110.75	4.96	-20.72	-40.00	1654114.22	14302282.10	39°23'07.625"N	80°57'05.480"W	45.05	242.618	1.27	-0.85	8.94	
1201.00	2.710	272.210	1198.50	3.73	-21.82	-46.29	1654107.93	14302281.00	39°23'07.615"N	80°57'05.560"W	51.18	244.762	3.67	-3.40	20.33	
1290.00	1.690	281.050	1287.44	2.20	-21.49	-49.68	1654104.54	14302282.67	39°23'07.631"N	80°57'05.603"W	54.13	246.611	1.20	-1.15	9.93	
1378.00	1.550	336.810	1375.51	0.32	-20.15	-51.43	1654102.80	14302281.33	39°23'07.618"N	80°57'05.625"W	55.23	248.607	1.73	-0.16	63.36	
1466.00	2.660	6.880	1463.35	-2.67	-17.02	-51.65	1654102.58	14302285.79	39°23'07.662"N	80°57'05.628"W	54.38	251.757	1.74	1.26	34.17	
1555.00	3.180	12.520	1552.23	-6.55	-12.56	-50.87	1654103.36	14302290.25	39°23'07.706"N	80°57'05.618"W	52.40	256.126	0.67	0.58	6.34	
1643.00	1.880	54.260	1640.15	-8.95	-9.34	-49.17	1654105.06	14302293.48	39°23'07.738"N	80°57'05.596"W	50.04	259.246	2.47	-1.48	47.43	
1731.00	1.470	82.760	1728.11	-9.05	-8.35	-46.87	1654107.35	14302294.46	39°23'07.748"N	80°57'05.567"W	47.61	259.897	1.04	-0.47	32.39	
1819.00	1.930	84.910	1816.08	-8.37	-8.08	-44.28	1654109.95	14302294.73	39°23'07.750"N	80°57'05.534"W	45.01	259.660	0.53	0.52	2.44	
1908.00	1.160	126.260	1905.04	-7.20	-8.48	-42.06	1654112.16	14302294.33	39°23'07.746"N	80°57'05.506"W	42.91	258.603	1.47	-0.87	46.46	
1996.00	1.690	179.100	1993.02	-5.23	-10.30	-41.32	1654112.90	14302292.51	39°23'07.728"N	80°57'05.496"W	42.59	256.000	1.54	0.60	60.05	
2084.00	2.090	180.940	2080.97	-2.53	-13.20	-41.33	1654112.90	14302289.61	39°23'07.700"N	80°57'05.496"W	43.38	252.280	0.46	0.45	2.09	
2173.00	1.570	175.720	2169.93	0.14	-16.04	-41.26	1654112.96	14302286.77	39°23'07.672"N	80°57'05.496"W	44.27	248.753	0.61	-0.58	-5.87	
2261.00	1.400	165.190	2257.90	2.37	-18.28	-40.90	1654113.32	14302284.53	39°23'07.650"N	80°57'05.491"W	44.80	245.911	0.36	-0.19	-11.97	
2349.00	1.650	160.860	2345.87	4.70	-20.52	-40.21	1654114.01	14302282.30	39°23'07.627"N	80°57'05.482"W	45.14	242.961	0.31	0.28	-4.92	



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Mckim Pad
Slot	Slot #04
Well	Haga Unit 1H
Wellbore	Haga Unit 1H AWB

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 ft/100ft	Build Rate ft/100ft	Turn Rate ft/100ft	Comments
2438.00	0.770	150.320	2434.85	6.57	-22.25	-39.49	1654114.73	14302280.57	39°23'07.610"N	80°57'05.473"W	45.33	240.601	1.02	-0.99	-11.84	
2508.00	0.260	61.740	2504.84	7.02	-22.58	-39.12	1654115.10	14302280.23	39°23'07.607"N	80°57'05.468"W	45.17	240.001	1.15	-0.73	-126.54	
2628.00	0.770	19.820	2624.84	6.38	-21.70	-38.60	1654115.62	14302281.12	39°23'07.616"N	80°57'05.462"W	44.28	240.663	0.50	0.42	-34.93	Directional ONE MWD -8-3/4"-(2491)-(2611-5564)
2716.00	3.270	306.460	2712.78	3.81	-19.65	-40.42	1654113.80	14302283.17	39°23'07.636"N	80°57'05.485"W	44.95	244.077	3.57	2.84	-83.36	
2805.00	5.600	315.780	2801.51	-2.32	-15.03	-45.49	1654108.73	14302287.79	39°23'07.682"N	80°57'05.550"W	47.91	251.721	2.73	2.62	10.47	
2893.00	5.440	313.830	2889.11	-10.05	-9.06	-51.50	1654102.73	14302293.75	39°23'07.741"N	80°57'05.626"W	52.29	260.020	0.28	-0.18	-2.22	
2981.00	6.430	310.060	2976.63	-18.14	-3.00	-58.28	1654095.95	14302299.81	39°23'07.801"N	80°57'05.712"W	58.36	267.052	1.21	1.12	-4.28	
3069.00	8.420	308.700	3063.89	-28.02	4.20	-67.08	1654087.15	14302307.01	39°23'07.872"N	80°57'05.824"W	67.21	273.582	2.27	2.26	-1.55	
3158.00	10.460	311.650	3151.68	-40.83	13.64	-78.20	1654076.03	14302316.45	39°23'07.965"N	80°57'05.966"W	79.38	279.896	2.35	2.29	3.31	
3246.00	11.250	306.290	3238.11	-55.16	24.03	-91.09	1654063.15	14302326.83	39°23'08.068"N	80°57'06.130"W	94.21	284.780	1.46	0.90	-6.09	
3334.00	12.940	303.670	3324.15	-70.43	34.58	-106.21	1654048.04	14302337.37	39°23'08.172"N	80°57'06.322"W	111.70	288.033	2.02	1.92	-2.98	
3423.00	14.390	302.900	3410.63	-87.51	46.11	-123.79	1654030.46	14302348.90	39°23'08.286"N	80°57'06.546"W	132.10	290.429	1.64	1.63	-0.87	
3511.00	15.990	296.600	3495.64	-105.10	57.35	-143.55	1654010.72	14302360.13	39°23'08.398"N	80°57'06.798"W	154.58	291.776	2.30	1.36	-7.16	
3599.00	15.950	288.650	3580.34	-121.57	66.51	-165.58	1653988.69	14302369.29	39°23'08.488"N	80°57'07.078"W	178.44	291.884	2.49	0.41	-9.03	
3688.00	17.180	287.500	3665.64	-137.57	74.37	-189.70	1653964.58	14302377.15	39°23'08.566"N	80°57'07.386"W	203.76	291.407	1.43	1.38	-1.29	
3776.00	17.600	285.340	3749.62	-153.57	81.80	-214.93	1653939.36	14302384.58	39°23'08.640"N	80°57'07.707"W	229.97	290.836	0.88	0.48	-2.45	
3864.00	16.910	280.350	3833.66	-168.13	87.62	-240.35	1653913.95	14302390.39	39°23'08.697"N	80°57'08.030"W	255.82	290.029	1.86	-0.78	-5.67	
3952.00	16.270	284.360	3918.00	-181.95	92.97	-264.88	1653889.43	14302395.75	39°23'08.750"N	80°57'08.343"W	280.73	289.341	1.49	-0.73	4.56	
4040.00	16.190	284.060	4002.50	-196.15	99.01	-288.73	1653865.60	14302401.78	39°23'08.810"N	80°57'08.647"W	305.23	288.928	0.13	-0.09	-0.34	
4129.00	15.770	283.310	4088.06	-210.12	104.81	-312.53	1653841.80	14302407.58	39°23'08.868"N	80°57'08.950"W	329.64	288.539	0.53	-0.47	-0.84	
4217.00	15.720	293.150	4172.77	-225.18	112.25	-335.13	1653819.21	14302415.02	39°23'08.941"N	80°57'09.237"W	353.43	288.518	3.03	-0.06	11.18	
4306.00	16.310	298.520	4258.32	-243.11	122.96	-357.20	1653797.15	14302425.72	39°23'09.047"N	80°57'09.518"W	377.77	288.985	1.79	0.66	6.03	
4393.00	16.640	301.230	4341.75	-262.26	135.25	-378.59	1653775.77	14302438.01	39°23'09.169"N	80°57'09.791"W	402.02	289.659	0.96	0.38	3.11	
4482.00	16.720	302.830	4427.01	-282.69	148.80	-400.24	1653754.12	14302445.55	39°23'09.303"N	80°57'10.066"W	427.01	290.394	0.52	0.09	1.80	
4570.00	16.400	301.700	4511.36	-302.80	162.19	-421.45	1653732.93	14302464.93	39°23'09.435"N	80°57'10.336"W	451.58	291.049	0.92	-0.36	-1.28	
4658.00	17.300	302.230	4595.58	-323.18	175.70	-443.09	1653711.30	14302478.44	39°23'09.569"N	80°57'10.612"W	476.65	291.630	1.04	1.02	0.60	
4746.00	18.560	302.170	4679.30	-344.89	190.13	-466.01	1653688.38	14302492.86	39°23'09.712"N	80°57'10.904"W	503.31	292.195	1.43	1.43	-0.07	
4835.00	17.740	298.850	4763.88	-366.61	204.22	-489.88	1653664.52	14302506.94	39°23'09.851"N	80°57'11.208"W	530.74	292.630	1.48	-0.92	-3.73	
4923.00	15.970	292.640	4848.10	-385.23	215.35	-512.80	1653641.61	14302518.07	39°23'09.961"N	80°57'11.500"W	556.18	292.780	2.87	-2.01	-7.06	
5011.00	14.730	289.640	4932.96	-400.89	223.77	-534.51	1653619.91	14302526.49	39°23'10.044"N	80°57'11.776"W	579.46	292.716	1.67	-1.41	-3.41	



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'
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Area	Tyler County, WV	Wellbore	Haga Unit 1H AWB
Field	Tyler		
Facility	McKim Pad		

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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
5099.00	16.230	290.190	5017.76	-416.30	231.77	-556.59	1653597.84	14302534.49	39°23'10.124"N	80°57'12.057"W	602.92	292.608	1.71	1.70	0.63	
5188.00	18.220	292.630	5102.77	-434.11	241.42	-581.11	1653573.33	14302544.13	39°23'10.219"N	80°57'12.369"W	629.26	292.560	2.38	2.24	2.74	
5276.00	17.980	289.320	5186.42	-452.42	251.21	-606.62	1653547.83	14302553.92	39°23'10.316"N	80°57'12.694"W	656.58	292.495	1.20	-0.27	-3.76	
5364.00	17.570	284.200	5270.22	-468.88	258.96	-632.32	1653522.14	14302563.67	39°23'10.393"N	80°57'13.021"W	683.29	292.271	1.84	-0.47	-5.82	
5452.00	18.990	285.330	5363.78	-485.05	266.00	-659.00	1653495.47	14302568.71	39°23'10.462"N	80°57'13.361"W	710.67	291.981	1.66	1.61	1.28	
5540.00	19.690	289.620	5436.82	-503.21	274.77	-686.78	1653467.70	14302577.47	39°23'10.549"N	80°57'13.715"W	739.70	291.805	1.80	0.80	4.88	
5581.00	19.600	289.350	5475.43	-512.17	279.37	-699.77	1653454.71	14302582.06	39°23'10.595"N	80°57'13.880"W	753.48	291.763	0.31	-0.22	-0.66	
5623.00	19.450	288.020	5515.01	-521.23	283.98	-713.03	1653441.46	14302586.67	39°23'10.640"N	80°57'14.049"W	767.90	291.716	0.44	-0.36	-0.79	BH AT Curve <-8-1/2"> [5581'] [6623'-19809']
5670.00	18.670	288.370	5569.44	-531.05	288.90	-727.57	1653426.93	14302591.59	39°23'10.689"N	80°57'14.234"W	782.83	291.657	1.72	-1.66	-1.38	
5718.00	17.210	288.260	5605.10	-540.43	293.55	-741.60	1653412.90	14302596.24	39°23'10.735"N	80°57'14.413"W	797.59	291.595	3.04	-3.04	-0.23	
5765.00	14.970	279.010	5650.27	-547.88	296.68	-754.21	1653400.30	14302599.37	39°23'10.766"N	80°57'14.574"W	810.46	291.473	7.23	-4.77	-19.68	
5813.00	12.530	257.360	5696.92	-551.75	296.51	-765.42	1653389.09	14302599.20	39°23'10.765"N	80°57'14.716"W	820.84	291.175	11.77	-5.08	-45.10	
5907.00	11.730	228.880	5742.87	-551.31	292.58	-774.40	1653380.12	14302595.27	39°23'10.726"N	80°57'14.831"W	827.82	290.697	10.17	-1.11	-47.87	
5954.00	10.860	235.870	5834.96	-545.84	280.99	-789.26	1653365.26	14302583.69	39°23'10.611"N	80°57'15.020"W	837.79	289.597	3.45	-1.85	14.87	
6001.00	10.260	242.990	5881.16	-544.41	276.61	-796.65	1653357.87	14302579.31	39°23'10.568"N	80°57'15.114"W	843.31	289.148	3.05	-1.28	15.15	
6048.00	9.650	244.020	5927.46	-543.63	272.98	-803.93	1653350.60	14302575.68	39°23'10.532"N	80°57'15.207"W	849.01	288.755	1.35	-1.30	2.19	
6096.00	10.400	239.060	5974.72	-542.54	268.99	-811.26	1653343.27	14302565.56	39°23'10.432"N	80°57'15.300"W	854.69	288.344	2.38	1.56	-10.33	
6143.00	14.240	226.870	6020.64	-539.64	262.85	-819.12	1653335.42	14302555.68	39°23'10.325"N	80°57'15.401"W	860.26	287.791	9.83	8.17	-25.94	
6192.00	18.920	211.870	6067.61	-532.58	251.98	-827.72	1653326.82	14302554.88	39°23'10.325"N	80°57'15.510"W	865.22	286.931	12.87	9.55	-30.61	
6239.00	22.390	201.520	6111.60	-521.39	237.17	-835.03	1653319.51	14302539.88	39°23'10.178"N	80°57'15.603"W	868.06	285.856	10.69	7.38	-22.02	
6286.00	26.330	191.190	6154.43	-505.97	218.60	-840.34	1653314.20	14302521.32	39°23'09.995"N	80°57'15.671"W	868.31	284.581	12.32	8.38	-21.98	
6333.00	29.630	181.030	6195.95	-486.37	196.74	-842.58	1653311.97	14302499.47	39°23'09.779"N	80°57'15.700"W	865.24	283.143	12.31	7.02	-21.62	
6380.00	34.080	172.490	6235.88	-462.78	172.04	-841.06	1653313.48	14302474.78	39°23'09.535"N	80°57'15.681"W	858.48	281.561	13.46	9.47	-18.17	
6391.00†	35.255	171.013	6244.93	-456.68	165.85	-840.16	1653314.38	14302468.59	39°23'09.474"N	80°57'15.669"W	856.38	281.167	13.13	10.68	-13.43	Sycamore: 6391'IMD / 6245'TVD
6427.00	39.210	166.730	6273.59	-435.24	144.50	-835.93	1653318.61	14302447.25	39°23'09.263"N	80°57'15.615"W	848.32	279.807	13.13	10.99	-11.90	
6475.00	44.210	162.190	6309.42	-403.47	113.78	-827.32	1653327.22	14302416.54	39°23'08.959"N	80°57'15.506"W	835.11	277.830	12.16	10.42	-9.46	
6514.00†	48.338	160.012	6336.37	-375.31	87.13	-818.18	1653336.36	14302389.90	39°23'08.695"N	80°57'15.390"W	822.80	276.078	11.33	10.59	-5.58	Middlesex: 6514'IMD / 6336'TVD
6522.00	49.190	159.600	6341.65	-369.30	81.48	-816.10	1653338.44	14302384.26	39°23'08.640"N	80°57'15.363"W	820.16	275.702	11.33	10.65	-5.15	
6570.00	53.730	158.980	6371.55	-331.77	46.37	-802.82	1653351.71	14302349.16	39°23'08.292"N	80°57'15.194"W	804.16	273.306	9.51	9.46	-1.28	



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #04
Operator	ANTERO RESOURCES CORPORATION	Well	Haga Unit 1H
Area	Tyler County, WV	Wellbore	Haga Unit 1H 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 JUS ft	Grid North JUS ft	Latitude	Longitude	Closure Dist ft	Closure Dir °	DLS %/100ft	Build Rate %/100ft	Turn Rate %/100ft	Comments
6617.00	58.610	156.660	6397.71	-292.75	10.24	-788.06	1653366.46	143022313.05	39°23'07.935"N	80°57'15.007"W	788.13	270.745	11.16	10.38	-4.94	
6665.00	63.300	155.090	6421.01	-250.86	-28.04	-770.91	1653383.61	14302274.78	39°23'07.557"N	80°57'14.788"W	771.42	267.917	10.18	9.77	-3.27	
6679.00H	64.676	155.072	6427.14	-238.30	-39.45	-765.61	1653388.91	14302263.38	39°23'07.444"N	80°57'14.721"W	766.62	267.051	9.83	9.83	-0.13	Burket: 6679MD / 6427TVD
6712.00	67.920	155.030	6440.41	-208.16	-66.84	-752.86	1653401.65	14302236.00	39°23'07.173"N	80°57'14.559"W	755.82	264.927	9.83	9.83	-0.13	
6743.00H	70.386	155.995	6451.44	-179.25	-93.16	-740.76	1653413.74	14302209.69	39°23'06.913"N	80°57'14.405"W	746.60	262.832	8.14	7.96	1.82	Tully: 6743MD / 6451TVD
6759.00	71.660	155.880	6456.64	-164.15	-106.95	-734.55	1653419.95	14302195.90	39°23'06.777"N	80°57'14.326"W	742.29	261.716	8.14	7.96	1.78	
6779.00H	73.080	156.443	6462.70	-145.11	-124.39	-726.84	1653427.65	14302178.47	39°23'06.604"N	80°57'14.228"W	737.41	260.289	7.59	7.10	2.82	POE Marcellus: 6779MD / 6463TVD
6853.00	78.380	157.140	6480.94	-73.46	-190.40	-698.88	1653455.61	14302112.49	39°23'05.952"N	80°57'13.872"W	731.80	258.312	7.59	7.11	2.77	
6900.00	83.310	157.000	6488.42	-27.10	-233.12	-680.80	1653473.67	14302069.78	39°23'05.529"N	80°57'13.642"W	724.35	254.761	7.19	7.19	-0.11	
6947.00	87.040	157.110	6492.37	19.70	-276.24	-662.55	1653491.92	14302026.68	39°23'05.103"N	80°57'13.410"W	719.61	251.098	10.49	10.49	-0.30	
6994.00	90.250	157.880	6493.48	66.67	-319.64	-644.57	1653509.90	14301983.30	39°23'04.674"N	80°57'13.181"W	717.83	247.367	7.94	7.94	0.23	
7042.00	90.340	157.360	6493.23	114.66	-364.03	-626.29	1653528.16	14301938.93	39°23'04.235"N	80°57'12.949"W	724.40	239.833	1.10	0.19	-1.08	
7137.00	91.230	152.910	6491.93	209.41	-450.19	-586.36	1653568.08	14301852.80	39°23'03.384"N	80°57'12.441"W	739.25	232.484	4.78	0.94	-4.68	
7231.00	89.910	152.930	6491.00	302.89	-533.88	-543.57	1653610.85	14301769.15	39°23'02.556"N	80°57'11.896"W	761.90	225.516	1.40	-1.40	0.02	
7327.00	89.940	158.400	6491.12	398.69	-621.32	-504.03	1653650.38	14301681.74	39°23'01.692"N	80°57'11.393"W	800.05	219.050	5.70	0.03	5.70	
7422.00	90.120	159.080	6491.07	493.69	-709.85	-469.58	1653684.81	14301593.25	39°23'00.817"N	80°57'10.955"W	851.11	213.486	0.74	0.19	0.72	
7517.00	90.000	159.100	6490.97	588.69	-798.59	-435.68	1653718.70	14301504.54	39°22'59.939"N	80°57'10.524"W	909.71	208.615	0.13	-0.13	0.02	
7612.00	90.220	156.500	6490.79	683.67	-886.54	-399.78	1653754.58	14301416.62	39°22'59.070"N	80°57'10.068"W	972.52	204.273	2.75	0.23	-2.74	
7706.00	89.940	156.980	6490.66	777.60	-972.90	-362.66	1653791.69	14301330.30	39°22'58.216"N	80°57'09.595"W	1038.30	200.444	0.59	-0.30	0.51	
7801.00	89.970	162.810	6490.73	872.54	-1062.07	-330.02	1653824.32	14301241.16	39°22'57.335"N	80°57'09.180"W	1112.17	197.262	6.14	0.03	6.14	
7895.00	91.080	161.760	6489.87	966.37	-1151.61	-301.42	1653852.90	14301151.66	39°22'56.450"N	80°57'08.817"W	1190.40	194.668	1.63	1.18	-1.12	
7990.00	90.740	158.920	6488.36	1061.32	-1241.05	-269.47	1653884.85	14301062.26	39°22'55.565"N	80°57'08.410"W	1269.97	192.250	3.01	-0.36	-2.99	
8084.00	89.780	156.090	6487.94	1155.28	-1327.89	-233.51	1653920.79	14300975.45	39°22'54.707"N	80°57'07.953"W	1348.26	189.973	3.18	-1.02	-3.01	
8178.00	90.460	160.690	6487.74	1249.25	-1415.26	-198.90	1653955.39	14300888.12	39°22'53.843"N	80°57'07.513"W	1429.17	188.000	4.95	0.72	4.89	
8273.00	90.000	164.180	6487.36	1344.06	-1505.81	-170.23	1653984.04	14300797.60	39°22'52.948"N	80°57'07.148"W	1515.41	186.450	3.71	-0.48	3.67	
8368.00	90.250	161.390	6487.15	1438.84	-1596.55	-142.12	1654012.14	14300706.90	39°22'52.051"N	80°57'06.791"W	1602.86	185.087	2.95	0.26	-2.94	
8462.00	89.940	163.720	6487.00	1532.64	-1686.22	-113.94	1654040.31	14300617.27	39°22'51.165"N	80°57'06.433"W	1690.06	183.866	2.50	-0.33	2.48	
8557.00	90.620	157.460	6486.53	1627.55	-1775.77	-82.39	1654071.85	14300525.75	39°22'50.279"N	80°57'06.031"W	1777.68	182.656	6.63	0.72	-6.59	
8652.00	89.660	157.310	6486.30	1722.52	-1863.47	-45.86	1654108.37	14300440.09	39°22'49.413"N	80°57'05.567"W	1864.03	181.410	1.02	-1.01	-0.16	



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'
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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	McKim Pad
Slot	Slot #04
Well	Haga Unit 1H
Wellbore	Haga Unit 1H AWB

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
8747.00	90.090	158.710	6488.51	1817.50	-1951.55	-10.29	1654143.92	14300352.04	39°22'48.542"N	80°57'05.114"W	1951.58	180.302	1.54	0.45	1.47	
8842.00	90.280	155.650	6488.20	1912.45	-2039.11	26.55	1654180.75	14300264.52	39°22'47.676"N	80°57'04.646"W	2039.28	179.254	3.23	0.20	-3.22	
8936.00	89.720	153.510	6488.20	2006.17	-2124.00	66.90	1654221.08	14300179.66	39°22'46.837"N	80°57'04.133"W	2125.05	178.196	2.35	-0.60	-2.28	
9031.00	89.720	154.900	6488.66	2100.84	-2209.53	108.24	1654262.40	14300094.17	39°22'45.991"N	80°57'03.607"W	2212.18	177.195	1.46	0.00	1.46	
9126.00	89.850	157.240	6487.02	2195.71	-2296.36	146.77	1654300.92	14300007.37	39°22'45.133"N	80°57'03.117"W	2301.04	176.343	2.47	0.14	2.46	
9221.00	89.780	160.020	6487.33	2290.70	-2384.82	181.38	1654335.52	14299918.95	39°22'44.259"N	80°57'02.676"W	2391.71	175.651	2.93	-0.07	2.93	
9315.00	89.540	163.580	6487.89	2384.57	-2474.10	210.74	1654364.86	14299829.70	39°22'43.376"N	80°57'02.303"W	2483.06	175.131	3.80	-0.26	3.79	
9410.00	89.750	164.080	6488.47	2479.22	-2565.34	237.19	1654391.38	14299738.50	39°22'42.474"N	80°57'01.967"W	2576.28	174.717	0.57	0.22	0.53	
9505.00	89.940	162.160	6488.73	2573.96	-2656.24	264.78	1654418.88	14299647.63	39°22'41.575"N	80°57'01.616"W	2669.41	174.307	2.03	0.20	-2.02	
9599.00	90.090	162.070	6488.71	2667.82	-2745.70	293.65	1654447.73	14299558.21	39°22'40.691"N	80°57'01.249"W	2761.36	173.896	0.19	0.16	-0.10	
9694.00	90.030	162.520	6488.51	2762.66	-2836.20	322.54	1654476.61	14299467.75	39°22'39.797"N	80°57'00.882"W	2854.48	173.512	0.48	-0.06	0.47	
9788.00	90.090	159.930	6488.51	2856.57	-2925.19	352.79	1654506.85	14299378.79	39°22'38.917"N	80°57'00.498"W	2946.39	173.123	2.76	0.06	-2.76	
9882.00	90.120	160.520	6488.34	2950.55	-3013.65	384.59	1654538.84	14299290.37	39°22'38.042"N	80°57'00.093"W	3038.09	172.727	0.63	0.03	0.63	
9977.00	89.940	161.340	6488.29	3045.49	-3103.43	415.63	1654569.67	14299200.62	39°22'37.155"N	80°56'59.699"W	3131.14	172.372	0.88	-0.19	0.86	
10072.00	89.850	163.360	6488.46	3140.32	-3193.95	444.43	1654598.46	14299110.14	39°22'36.260"N	80°56'59.332"W	3224.73	172.078	2.13	-0.09	2.13	
10167.00	89.880	163.870	6488.68	3235.00	-3285.10	471.23	1654625.25	14299019.03	39°22'35.359"N	80°56'58.992"W	3318.72	171.837	0.54	0.03	0.54	
10262.00	90.000	161.930	6488.78	3329.77	-3375.89	499.16	1654653.17	14298928.27	39°22'34.461"N	80°56'58.637"W	3412.60	171.589	2.05	0.13	-2.04	
10357.00	90.000	156.940	6488.78	3424.74	-3464.81	532.52	1654686.51	14298839.39	39°22'33.582"N	80°56'58.213"W	3505.49	171.262	5.25	0.00	-5.25	
10453.00	89.910	154.520	6488.86	3520.58	-3552.32	571.98	1654725.96	14298751.92	39°22'32.717"N	80°56'57.711"W	3598.07	170.853	2.52	-0.09	-2.52	
10548.00	90.030	154.990	6488.91	3615.32	-3638.25	612.50	1654766.46	14298666.03	39°22'31.868"N	80°56'57.195"W	3689.44	170.444	0.51	0.13	0.49	
10642.00	89.820	153.150	6489.03	3708.98	-3722.78	653.60	1654807.54	14298581.53	39°22'31.032"N	80°56'56.673"W	3779.72	170.042	1.97	-0.22	-1.96	
10736.00	89.820	155.180	6489.33	3802.65	-3807.38	694.56	1654848.49	14298496.96	39°22'30.196"N	80°56'56.152"W	3870.21	169.662	2.16	0.00	2.16	
10831.00	89.820	157.650	6489.63	3897.55	-3894.44	732.57	1654886.48	14298409.94	39°22'29.335"N	80°56'55.668"W	3962.74	169.347	2.80	0.00	2.80	
10926.00	90.520	161.860	6489.34	3992.52	-3983.55	765.43	1654919.33	14298320.86	39°22'28.454"N	80°56'55.250"W	4056.42	169.123	4.49	0.74	4.43	
11022.00	89.970	160.720	6488.93	4088.43	-4074.47	796.23	1654950.11	14298229.98	39°22'27.555"N	80°56'54.859"W	4151.54	168.943	1.32	-0.57	-1.19	
11117.00	88.280	157.070	6490.38	4183.40	-4163.07	830.42	1654984.29	14298141.41	39°22'26.679"N	80°56'54.424"W	4245.08	168.719	4.23	-1.78	-3.84	
11212.00	89.850	158.660	6491.93	4278.37	-4251.05	866.21	1655020.07	14298053.47	39°22'25.810"N	80°56'53.969"W	4338.40	168.483	2.35	1.65	1.67	
11307.00	90.060	159.670	6492.01	4373.37	-4339.84	900.00	1655053.84	14297964.72	39°22'24.932"N	80°56'53.559"W	4432.18	168.284	1.09	0.22	1.06	
11403.00	89.510	156.810	6492.37	4469.35	-4428.99	935.58	1655089.41	14297875.60	39°22'24.051"N	80°56'53.087"W	4526.72	168.072	3.03	-0.57	-2.98	
11497.00	89.880	156.710	6492.87	4563.28	-4515.36	972.67	1655126.49	14297789.27	39°22'23.197"N	80°56'52.615"W	4618.93	167.843	0.41	0.39	-0.11	



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	McKim Pad
Slot	Slot #04
Well	Haga Unit 1H
Wellbore	Haga Unit 1H AWB

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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
11591.00	89.940	161.580	6493.02	4657.25	-4603.17	1006.13	1655159.93	14297701.49	39°22'22.329"N	80°56'52.190"W	4711.85	167.671	5.18	0.06	5.18	
11685.00	89.970	163.390	6493.09	4751.07	-4692.81	1034.42	1655188.21	14297761.88	39°22'21.443"N	80°56'51.830"W	4805.46	167.569	1.93	0.03	1.93	
11781.00	89.480	164.700	6493.55	4846.68	-4785.11	1060.80	1655214.58	14297519.62	39°22'20.530"N	80°56'51.495"W	4901.28	167.500	1.46	-0.51	1.36	
11875.00	89.380	164.460	6494.49	4940.22	-4875.72	1085.80	1655239.57	14297429.05	39°22'19.634"N	80°56'51.177"W	4995.16	167.445	0.28	-0.11	-0.26	
11969.00	89.660	161.270	6495.28	5033.99	-4965.53	1113.49	1655267.24	14297339.27	39°22'18.747"N	80°56'50.826"W	5088.85	167.361	3.41	0.30	-3.39	
12063.00	89.420	157.810	6496.03	5127.96	-5053.59	1146.34	1655300.08	14297251.25	39°22'17.876"N	80°56'50.408"W	5181.97	167.219	3.69	-0.26	-3.68	
12158.00	89.480	158.470	6496.94	5222.95	-5141.75	1181.71	1655335.44	14297163.12	39°22'17.005"N	80°56'49.958"W	5275.80	167.057	0.70	0.06	0.69	
12252.00	89.480	157.800	6497.80	5316.94	-5228.99	1216.71	1655370.43	14297075.92	39°22'16.142"N	80°56'49.513"W	5368.68	166.901	0.71	0.00	-0.71	
12347.00	89.450	157.070	6498.68	5411.90	-5316.71	1253.17	1655406.87	14296988.24	39°22'15.275"N	80°56'47.594"W	5462.40	166.737	0.77	-0.03	-0.77	
12442.00	89.450	155.400	6499.59	5506.78	-5403.65	1291.45	1655445.13	14296901.33	39°22'14.415"N	80°56'48.563"W	5555.83	166.559	1.76	0.00	-1.76	
12537.00	89.380	156.230	6500.56	5601.64	-5490.30	1330.37	1655484.04	14296814.71	39°22'12.706"N	80°56'48.068"W	5649.19	166.379	0.88	-0.07	0.87	
12631.00	89.480	156.440	6502.27	5791.48	-5576.60	1367.63	1655521.28	14296728.45	39°22'12.706"N	80°56'47.594"W	5741.85	166.221	0.90	0.17	0.88	
12727.00	89.510	156.960	6503.11	5886.41	-5664.80	1405.52	1655559.16	14296640.29	39°22'11.834"N	80°56'47.112"W	5836.56	166.065	0.65	-0.06	-0.65	
12822.00	89.480	157.880	6503.95	5981.37	-5752.05	1443.10	1655596.72	14296553.07	39°22'10.971"N	80°56'46.634"W	5930.31	165.916	0.55	0.03	0.55	
12917.00	89.450	156.690	6504.83	6076.32	-5839.76	1479.57	1656033.18	14296465.40	39°22'10.104"N	80°56'46.171"W	6024.28	165.783	0.97	-0.03	0.97	
13012.00	89.450	156.690	6505.74	6170.17	-5927.39	1516.25	1656069.85	14296377.81	39°22'09.238"N	80°56'45.704"W	6118.24	165.651	1.25	-0.03	-1.25	
13106.00	89.450	154.860	6506.62	6264.97	-6013.10	1554.82	1656108.40	14296292.13	39°22'08.390"N	80°56'45.214"W	6210.86	165.502	1.95	0.00	-1.95	
13201.00	89.480	155.640	6507.50	6359.73	-6099.37	1594.59	1656148.16	14296205.89	39°22'07.537"N	80°56'44.708"W	6304.37	165.349	0.82	0.03	0.82	
13297.00	89.660	156.870	6507.34	6454.84	-6187.24	1633.25	1656186.80	14296118.06	39°22'06.669"N	80°56'44.217"W	6399.17	165.213	1.29	0.19	1.28	
13391.00	89.690	159.640	6507.88	6549.84	-6274.54	1668.07	1656221.60	14296030.79	39°22'05.806"N	80°56'43.774"W	6492.48	165.112	2.95	0.03	2.95	
13487.00	89.690	161.780	6508.40	6644.74	-6365.14	1699.78	1656253.30	14295940.22	39°22'04.910"N	80°56'43.371"W	6588.19	165.048	2.23	0.00	2.23	
13581.00	89.780	159.470	6508.83	6739.73	-6453.81	1730.96	1656284.47	14295851.59	39°22'04.033"N	80°56'42.975"W	6681.91	164.986	2.46	0.10	-2.46	
13676.00	89.750	157.340	6509.22	6834.62	-6542.14	1765.92	1656319.42	14295763.30	39°22'03.160"N	80°56'42.530"W	6776.29	164.894	2.24	-0.03	-2.24	
13771.00	89.630	155.180	6509.73	6929.09	-6630.09	1804.16	1656355.30	14295676.38	39°22'02.301"N	80°56'42.044"W	6870.22	164.775	2.28	-0.13	-2.27	
13866.00	89.720	155.370	6510.27	7023.28	-6715.38	1843.90	1656390.36	14295589.12	39°22'01.448"N	80°56'41.539"W	6963.93	164.646	0.22	0.09	0.20	
13960.00	89.660	156.160	6510.78	7119.23	-6801.10	1882.48	1656425.93	14295504.44	39°22'00.600"N	80°56'41.048"W	7056.82	164.528	0.84	-0.06	0.84	
14056.00	89.630	162.230	6511.38	7213.04	-6890.79	1916.56	1656461.78	14295414.78	39°21'59.713"N	80°56'40.615"W	7152.36	164.457	6.32	-0.03	6.32	
14150.00	89.690	162.790	6511.93	7307.97	-6980.45	1944.81	1656498.24	14295325.17	39°21'58.827"N	80°56'40.256"W	7246.30	164.432	0.60	0.06	0.60	
14245.00	89.780	159.170	6512.37	7403.97	-7070.24	1975.77	1656535.41	14295235.41	39°21'57.939"N	80°56'39.862"W	7341.12	164.387	3.81	0.09	-3.81	
14341.00	89.660	159.210	6512.84	7500.88	-7159.98	2009.88	1656571.71	14295145.71	39°21'57.052"N	80°56'39.429"W	7436.73	164.320	0.13	-0.12	0.04	



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Tyler County, WV	Well	Haga Unit 1H
Field	Tyler	Wellbore	Haga Unit 1H AWB
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
14435.00	89.750	160.060	6513.33	7497.96	-7248.10	2042.59	1656195.97	14295057.62	39°21'56.181"N	80°56'39.013"W	7530.41	164.262	0.91	0.10	0.90	
14529.00	89.630	160.210	6513.84	7591.93	-7336.51	2074.53	1656227.90	14294969.25	39°21'55.307"N	80°56'38.607"W	7624.17	164.211	0.20	-0.13	0.16	
14624.00	89.690	161.230	6514.40	7686.89	-7426.18	2105.89	1656259.25	14294879.62	39°21'54.421"N	80°56'38.208"W	7719.00	164.168	1.08	0.06	1.07	
14719.00	89.720	163.150	6514.89	7781.73	-7516.62	2134.95	1656288.30	14294789.21	39°21'53.527"N	80°56'37.839"W	7813.93	164.144	2.02	0.03	2.02	
14814.00	89.660	163.410	6515.40	7876.45	-7607.60	2162.28	1656315.62	14294698.27	39°21'52.627"N	80°56'37.492"W	7908.92	164.133	0.28	-0.06	0.27	
14910.00	89.630	163.080	6516.00	7972.18	-7699.52	2189.95	1656343.28	14294606.38	39°21'51.719"N	80°56'37.140"W	8004.91	164.123	0.35	-0.03	-0.34	
15005.00	89.910	161.970	6516.38	8066.99	-7790.14	2218.48	1656371.80	14294515.80	39°21'50.823"N	80°56'36.778"W	8099.87	164.104	1.21	0.29	-1.17	
15099.00	89.970	159.980	6516.48	8160.93	-7879.00	2249.12	1656402.42	14294426.98	39°21'49.944"N	80°56'36.388"W	8193.73	164.068	2.12	0.06	-2.12	
15195.00	90.030	157.190	6516.48	8256.92	-7968.36	2284.17	1656437.46	14294337.65	39°21'49.061"N	80°56'35.943"W	8289.28	164.005	2.91	0.06	-2.91	
15290.00	89.850	154.880	6516.58	8351.79	-8055.17	2322.75	1656476.03	14294250.88	39°21'48.203"N	80°56'35.452"W	8383.37	163.915	2.44	-0.19	-2.43	
15385.00	89.850	154.710	6516.83	8446.54	-8141.12	2363.21	1656516.47	14294164.96	39°21'47.353"N	80°56'34.938"W	8477.18	163.813	0.18	0.00	-0.18	
15479.00	90.340	158.720	6516.67	8540.45	-8227.45	2400.36	1656553.60	14294078.67	39°21'46.500"N	80°56'34.466"W	8570.45	163.735	4.30	0.52	4.27	
15575.00	90.460	165.830	6516.00	8636.22	-8318.83	2429.57	1656582.80	14293987.32	39°21'45.596"N	80°56'34.094"W	8666.35	163.719	7.41	0.13	7.41	
15669.00	89.850	170.230	6515.74	8729.02	-8410.76	2449.06	1656602.28	14293895.43	39°21'44.687"N	80°56'33.847"W	8760.07	163.765	4.73	-0.65	4.68	
15763.00	90.180	162.440	6515.72	8822.17	-8502.03	2471.25	1656624.46	14293804.20	39°21'43.785"N	80°56'33.565"W	8853.90	163.793	8.29	0.35	-8.29	
15858.00	90.120	156.230	6515.47	8917.12	-8590.87	2504.76	1656657.96	14293715.39	39°21'42.907"N	80°56'33.139"W	8948.57	163.745	6.54	-0.06	-6.54	
15952.00	90.060	155.940	6515.32	9011.00	-8676.80	2542.86	1656696.05	14293629.49	39°21'42.057"N	80°56'32.655"W	9041.74	163.666	0.32	-0.06	-0.31	
16047.00	90.250	154.920	6515.07	9105.82	-8763.20	2582.37	1656735.53	14293543.13	39°21'41.203"N	80°56'32.153"W	9135.77	163.581	1.09	0.20	-1.07	
16142.00	90.180	151.700	6514.71	9200.35	-8848.07	2625.03	1656778.18	14293458.30	39°21'40.364"N	80°56'31.610"W	9229.25	163.476	3.39	-0.07	-3.39	
16237.00	90.030	151.270	6514.54	9294.54	-8931.54	2670.38	1656823.51	14293374.86	39°21'39.539"N	80°56'31.033"W	9322.20	163.354	0.48	-0.16	-0.45	
16333.00	90.180	151.530	6514.36	9389.71	-9015.83	2716.34	1656869.45	14293290.60	39°21'38.706"N	80°56'30.449"W	9416.14	163.233	0.31	0.18	0.27	
16427.00	90.220	157.030	6514.03	9483.37	-9100.48	2757.11	1656910.21	14293205.99	39°21'37.869"N	80°56'29.931"W	9508.97	163.145	5.85	0.04	5.85	
16521.00	90.180	159.170	6513.70	9577.35	-9187.69	2792.17	1656959.26	14293120.99	39°21'37.006"N	80°56'29.485"W	9602.60	163.096	2.28	-0.04	2.28	
16615.00	90.220	161.980	6513.37	9671.30	-9276.33	2823.43	1656976.50	14293030.20	39°21'36.130"N	80°56'29.088"W	9696.50	163.071	2.99	0.04	2.99	
16710.00	89.750	163.020	6513.40	9766.12	-9366.93	2852.00	1657005.06	14292939.64	39°21'35.234"N	80°56'28.725"W	9791.49	163.066	1.20	-0.48	1.09	
16805.00	89.850	162.740	6513.73	9860.89	-9457.72	2879.96	1657033.01	14292848.89	39°21'34.337"N	80°56'28.370"W	9886.49	163.064	0.31	0.11	-0.29	
16899.00	89.720	161.090	6514.08	9954.76	-9547.08	2909.14	1657062.18	14292759.57	39°21'33.454"N	80°56'27.999"W	9980.47	163.053	1.76	-0.14	-1.76	
16993.00	89.720	155.990	6514.54	10048.73	-9634.53	2943.52	1657096.54	14292672.15	39°21'32.589"N	80°56'27.562"W	10074.15	163.011	5.43	0.00	-5.43	
17087.00	89.850	162.180	6514.90	10142.68	-9722.29	2977.06	1657130.07	14292584.42	39°21'31.721"N	80°56'27.136"W	10167.88	162.975	6.59	0.14	6.59	
17182.00	89.820	165.060	6515.17	10237.35	-9813.43	3003.85	1657156.85	14292493.33	39°21'30.821"N	80°56'26.795"W	10262.87	162.981	3.03	-0.03	3.03	



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Tyler County, WV	Well	Haga Unit 1H
Field	Tyler	Wellbore	Haga Unit 1H AWB
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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
17276.00	89.800	165.400	6515.65	10330.79	-9904.32	3027.81	1657180.80	14292402.47	39°21'29.922"N	80°56'26.491"W	10356.79	163.001	0.43	-0.23	0.36	
17371.00	89.890	159.360	6516.24	10425.57	-9994.82	3056.55	1657209.93	14292312.01	39°21'29.027"N	80°56'26.126"W	10451.74	162.996	6.36	0.09	-6.36	
17465.00	89.540	158.020	6516.87	10519.56	-10082.39	3090.71	1657243.68	14292224.47	39°21'28.162"N	80°56'25.692"W	10545.47	162.957	1.43	-0.16	-1.43	
17560.00	89.510	159.970	6517.65	10614.56	-10171.07	3124.76	1657277.71	14292135.83	39°21'27.285"N	80°56'25.289"W	10640.24	162.922	2.05	-0.03	2.05	
17655.00	89.510	159.210	6518.47	10709.55	-10260.10	3157.89	1657310.83	14292046.83	39°21'26.405"N	80°56'24.838"W	10735.08	162.892	0.80	0.00	-0.80	
17750.00	89.540	159.140	6519.25	10804.54	-10348.89	3191.66	1657344.59	14291958.08	39°21'25.527"N	80°56'24.409"W	10829.88	162.860	0.08	0.03	-0.07	
17844.00	89.600	157.300	6519.96	10898.53	-10436.17	3226.54	1657379.45	14291870.83	39°21'24.664"N	80°56'23.965"W	10923.57	162.820	1.96	0.06	-1.96	
17939.00	89.480	156.520	6520.72	10993.46	-10523.56	3263.80	1657416.69	14291783.47	39°21'23.800"N	80°56'23.492"W	11018.06	162.769	0.83	-0.13	-0.82	
18034.00	89.540	157.960	6521.54	11088.42	-10611.16	3300.55	1657453.43	14291695.92	39°21'22.934"N	80°56'23.025"W	11112.62	162.722	1.52	0.06	1.52	
18129.00	89.690	159.780	6521.97	11183.41	-10698.76	3334.79	1657487.66	14291607.34	39°21'22.058"N	80°56'22.590"W	11207.40	162.689	1.96	0.42	1.92	
18223.00	89.780	164.950	6522.20	11277.21	-10789.32	3369.26	1657516.11	14291517.83	39°21'21.173"N	80°56'22.228"W	11301.36	162.687	5.50	-0.17	5.50	
18317.00	89.690	161.840	6522.63	11370.91	-10879.38	3399.12	1657542.96	14291427.80	39°21'20.282"N	80°56'21.887"W	11395.35	162.692	3.31	-0.10	-3.31	
18412.00	89.850	155.400	6523.01	11465.86	-10967.80	3424.73	1657577.56	14291339.42	39°21'19.408"N	80°56'21.447"W	11490.06	162.659	6.78	0.17	-6.78	
18507.00	89.820	155.040	6523.29	11550.66	-11054.05	3464.55	1657617.36	14291253.20	39°21'18.556"N	80°56'20.941"W	11584.26	162.598	0.38	-0.03	-0.38	
18601.00	89.780	155.220	6523.61	11634.45	-11139.33	3504.50	1657656.88	14291167.95	39°21'17.712"N	80°56'20.438"W	11677.47	162.538	0.20	-0.04	0.19	
18696.00	89.750	157.830	6524.00	11719.36	-11226.46	3541.92	1657694.70	14291080.86	39°21'16.851"N	80°56'19.957"W	11771.94	162.490	2.75	-0.03	2.75	
18790.00	90.090	160.950	6524.14	11843.35	-11314.44	3575.00	1657727.77	14290992.92	39°21'15.981"N	80°56'19.537"W	11865.80	162.465	3.34	0.36	3.32	
18886.00	90.000	165.070	6524.06	11939.08	-11406.23	3603.05	1657755.81	14290901.17	39°21'15.074"N	80°56'19.181"W	11961.77	162.469	4.29	-0.09	4.29	
18980.00	89.940	162.930	6524.11	12032.71	-11496.58	3628.96	1657781.71	14290810.85	39°21'14.181"N	80°56'18.852"W	12055.73	162.481	2.28	-0.06	-2.28	
19075.00	89.780	153.420	6524.34	12127.59	-11584.67	3664.24	1657816.97	14290722.80	39°21'13.310"N	80°56'18.403"W	12150.36	162.448	10.01	-0.17	-10.01	
19169.00	89.910	154.260	6524.60	12221.22	-11669.04	3705.68	1657858.40	14290638.46	39°21'12.476"N	80°56'17.876"W	12243.31	162.382	0.90	0.14	0.89	
19264.00	89.910	156.230	6524.75	12316.02	-11755.30	3745.46	1657898.16	14290552.23	39°21'11.623"N	80°56'17.371"W	12337.57	162.327	2.07	0.00	2.07	
19359.00	89.880	156.510	6524.92	12410.92	-11842.34	3783.54	1657936.22	14290465.23	39°21'10.762"N	80°56'16.887"W	12432.06	162.282	0.30	-0.03	0.29	
19454.00	89.850	157.660	6525.14	12505.87	-11929.84	3820.52	1657973.20	14290377.76	39°21'09.897"N	80°56'16.417"W	12526.67	162.242	1.21	-0.03	1.21	
19548.00	89.970	161.920	6525.29	12599.84	-12018.03	3852.99	1658005.65	14290289.61	39°21'09.025"N	80°56'16.004"W	12620.56	162.224	4.53	0.13	4.53	
19643.00	89.880	157.770	6525.42	12694.80	-12107.20	3885.72	1658038.36	14290200.48	39°21'08.144"N	80°56'15.588"W	12715.46	162.206	4.37	-0.09	-4.37	
19739.00	89.910	153.100	6525.59	12790.60	-12194.48	3925.61	1658078.24	14290113.23	39°21'07.281"N	80°56'15.081"W	12810.77	162.156	4.86	0.03	-4.86	
19809.00	90.030	151.360	6525.63	12860.12	-12256.42	3958.23	1658110.84	14290005.32	39°21'06.669"N	80°56'14.667"W	12879.73	162.102	2.49	0.17	-2.49	
19834.00	90.030	151.360	6525.62	12884.90	-12278.36	3970.21	1658122.82	14290029.38	39°21'06.452"N	80°56'14.514"W	12904.29	162.081	0.00	0.00	0.00	Projected MD at TD: 19834'

HOLE & CASING SECTIONS - Ref Wellbore: Haga Unit 1H AWB

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	0.00	0.10
17.5in Open Hole	112.00	550.60	438.60	112.00	550.60	0.08	0.10	0.15	0.29
13.375in Casing Surface	32.00	550.60	518.60	32.00	550.60	0.00	0.00	0.15	0.29
12.25in Open Hole	550.60	2581.80	2031.20	550.60	2578.64	0.15	0.29	-22.19	-38.81
9.625in Casing Intermediate	32.00	2581.80	2549.80	32.00	2578.64	0.00	0.00	-22.19	-38.81
8.75in Open Hole	2581.80	5664.00	3082.20	2578.64	5553.75	-22.19	-38.81	288.29	-725.74
8.5in Open Hole	5664.00	19834.00	14170.00	5653.75	6525.62	288.29	-725.74	-12278.36	3970.21
5.5in Casing Production	32.00	19834.00	19802.00	32.00	6525.62	0.00	0.00	-12278.36	3970.21

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TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Haga Unit 1H POE - Rev-2	6455.00	-205.62	-688.84	1653465.64	14302097.27	39°23'05.801"N	80°57'13.744"W	point
Haga Unit 1H BHL - Rev-1	6489.00	-12290.67	3964.28	1658116.89	14290017.08	39°21'06.330"N	80°56'14.590"W	point
Haga Unit 1H LP - Rev-1	6489.00	-409.12	-610.49	1653543.96	14301893.86	39°23'03.790"N	80°57'12.748"W	point



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Tyler County, WV	Well	Haga Unit 1H
Field	Tyler	Wellbore	Haga Unit 1H AWB
Facility	McKim Pad		

WELLPATH COMPOSITION - Ref Wellbore: Haga Unit 1H AWB Ref Wellpath: Haga Unit 1H AWP Proj: 19834'			
Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment
32.00	519.00	Gyrodata standard - Drop gyro or Multi-shot	01 Gyrodata MS Gyro <17-1/2">(100-502')
519.00	879.00	Gyrodata standard - Drop gyro or Multi-shot	02 Gyrodata MS Gyro <12-1/4">(502)(632'-862')
879.00	2508.00	ISCWSA MWD, Rev. 4 (Standard)	03 Directional ONE MWD <12-1/4">(662)(919'-2491')
2508.00	5581.00	ISCWSA MWD, Rev. 4 (Standard)	04 Directional ONE MWD <8-3/4">(2491)(2611'-5564')
5581.00	19809.00	BHI AutoTrak Curve (Short)	05 BH AT Curve <8-1/2">(5581)(5623'-19809')
19809.00	19834.00	Blind Drilling (std)	Projection to bit
			Haga Unit 1H AWB
			Haga Unit 1H AWB
			Haga Unit 1H AWB
			Haga Unit 1H AWB
			Haga Unit 1H AWB



Actual Wellpath Report

Haga Unit 1H AWP Proj: 19834'
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REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #04
ANTERO RESOURCES CORPORATION	Well	Haga Unit 1H
Tyler County, WV	Wellbore	Haga Unit 1H AWB
Tyler		
McKim Pad		

COMMENTS

Wellpath general comments

API: 47-095-02423-0000
 BH Job #: 8895540
 Rig: Frontier 32
 Duration: 12/07/17 - 12/14/17
 Gyrodata MS Gyro <17-1/2">(100'-502')
 Gyrodata MS Gyro <12-1/4">(502')(532'-862')
 Directional ONE MWD <12-1/4">(862')(919'-2491')
 Directional ONE MWD <8-3/4">(2491')(2611'-5564')
 BH AT Curve <8-1/2">(5581')(5623'-19809')
 Sycamore: 6391'MD / 6245'TVD
 Middlesex: 6514'MD / 6336'TVD
 Burket: 6679'MD / 6427'TVD
 Tully: 6743'MD / 6451'TVD
 POE Marcellus: 6779'MD / 6463'TVD
 Projected MD at TD: 19834'