

ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV Slot: Slot #02
 Field: Ritchie Well: Hayhurst Unit 2H
 Facility: Black Forest Pad Wellbore: Hayhurst Unit 2H PWB

Plot reference wellpath is Hayhurst Unit 2H PWB Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to H&P 317 (RKB)	North Reference: Grid north
Measured depths are referenced to H&P 317 (RKB)	Scale: True distance
H&P 317 (RKB) to Mean Sea Level: 1108.5 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #02): -1083 feet	Created by: delaset on 2019-03-28
Coordinates are in feet referenced to Slot	Database: WA_MPL_EasternUS_Defn

Marcellus POE: 6492' MD : 6232.43ft TVD, 80.14ft S, 240.96ft W

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Black Forest Pad	1632416.484	14274630.346	39°18'34.240"N	81°01'41.820"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #02	0.00	0.00	1632416.484	14274630.346
H&P 317 (RKB) to Ground level (At Slot: Slot #02)			25.5ft	
Mean Sea Level to Ground level (At Slot: Slot #02)			-1083ft	
H&P 317 (RKB) to Mean Sea Level			1108.5ft	

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #02	Hayhurst Unit 2H	Hayhurst Unit 2H AWB	Hayhurst Unit 2H AWP Proj: 16519'
Slot #02	Hayhurst Unit 2H	Hayhurst Unit 2H PWB	Hayhurst Unit 2H PWP Rev-A.0

Scale 1 inch = 1500

True Vertical Depth (ft)

750

1500

2250

3000

3750

4500

5250

6000

6750



Gyrodatta MS Gyro <17-1/2">(100'-443') : 0.29° Inc, 110.50ft MD, 110.50ft TVD, -0.13ft VS

Panther EM <12-1/4">(443')(475'-2515') : 0.14° Inc, 485.50ft MD, 485.49ft TVD, -1.82ft VS

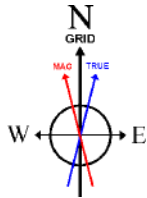
Panther EM <8-3/4">(2515')(2625'-5582') : 0.47° Inc, 2635.50ft MD, 2635.37ft TVD, 3.58ft VS

BH AT Curve <8-1/2"> (5592.5')(5644'-16495') : 18.54° Inc, 5644.00ft MD, 5591.05ft TVD, -468.32ft VS

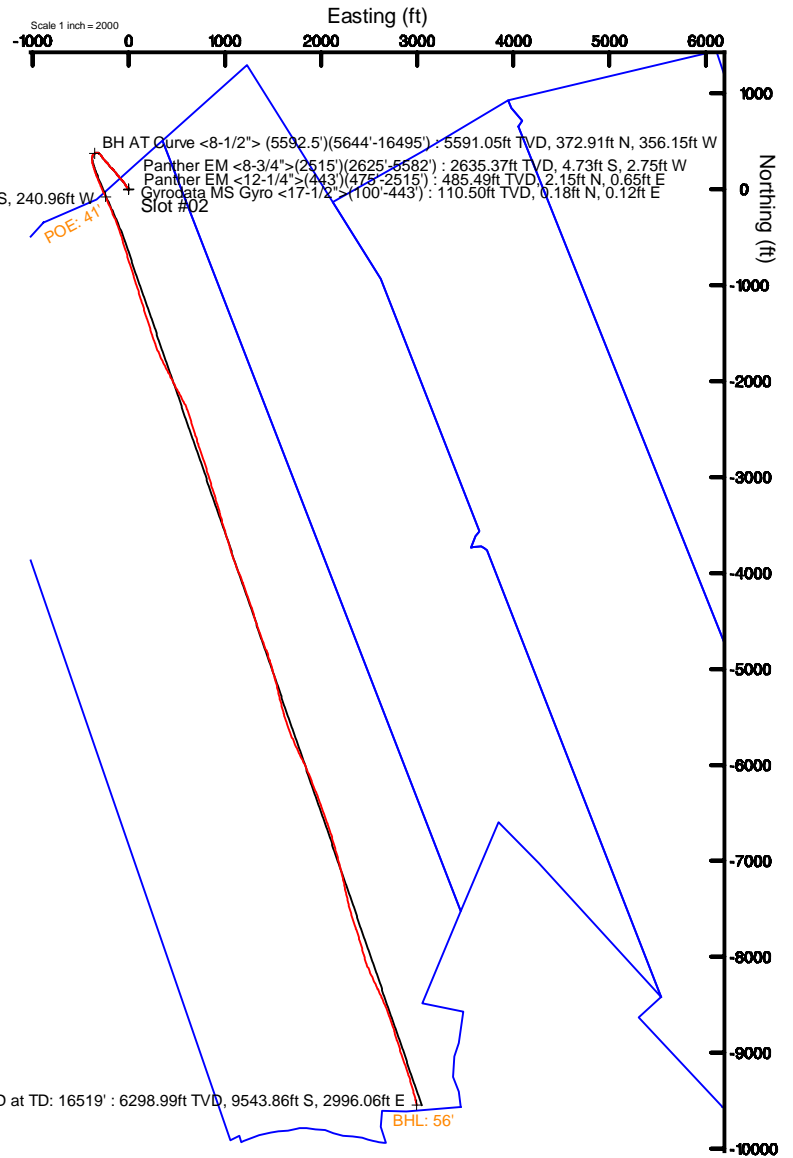
Marcellus POE: 6492' MD : 70.22° Inc, 6492.00ft MD, 6232.43ft TVD, -2.41ft VS

Projected MD at TD: 16519' : 89.75° Inc, 16519.00ft MD, 6298.99ft TVD, 9999.60ft VS

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	5592.50	15.780	252.160	5541.84	378.85	-342.22	10.62	-469.42
Proj. to Bottom	5656.50	15.700	233.210	5603.48	370.99	-357.45	8.00	-466.93
End of 3D Arc	5991.73	30.000	162.702	5916.48	261.55	-369.10	8.50	-367.19
POE	6490.06	69.585	156.159	6232.00	-85.08	-232.10	8.00	5.14
Landing Pt.	6745.34	90.000	156.160	6277.00	-313.67	-131.09	8.00	254.14
On Azimuth	6990.61	90.000	161.063	6277.00	-541.98	-41.67	2.00	499.11
BHL	16510.07	90.000	161.063	6277.00	-9546.18	3047.74	0.00	10018.57



User specified (HDGM) Dip: 66.35° Field: 51705 nT
 Magnetic North is 7.97 degrees West of True North (at 3/23/2019)
 Grid North is 0.02 degrees West of True North
 To correct azimuth from True to Grid add 0.02 degrees
 To correct azimuth from Magnetic to Grid subtract 7.95 degrees



API: 47-085-10377-0000
 BHI Job #: 109721817
 Rig: H&P 317
 Duration: 03/25/2019-03/27/2019

Vertical Section (ft)

Scale 1 inch = 1500

Azimuth 161.06° with reference 0.00 N, 0.00 E



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest 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	3/28/2019 at 5:03:42 PM
Convergence at slot	0.02° West	Database/Source file	WA_MPL_EasternUS_Defn/Hayhurst_Unit_2H_AWP_Proj_16519_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1632416.48	14274630.35	39°18'34.240"N	81°01'41.820"W
Facility Reference Pt			1632416.48	14274630.35	39°18'34.240"N	81°01'41.820"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 317 (RKB) to Facility Vertical Datum	25.50ft
Horizontal Reference Pt	Slot	H&P 317 (RKB) to Mean Sea Level	1108.50ft
Vertical Reference Pt	H&P 317 (RKB)	H&P 317 (RKB) to Ground Level at Slot (Slot #02)	25.50ft
MD Reference Pt	H&P 317 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	161.06°



Actual Wellpath Report

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Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

WELLPATH DATA (195 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	34.930	0.00	0.00	0.00	0.00	1632416.48	14274630.35	39°18'34.240"N	81°01'41.820"W	0.00	0.000	0.00	0.00	0.00	
25.50	0.000	34.930	25.50	0.00	0.00	0.00	1632416.48	14274630.35	39°18'34.240"N	81°01'41.820"W	0.00	0.000	0.00	0.00	0.00	
110.50	0.290	34.930	110.50	-0.13	0.18	0.12	1632416.61	14274630.52	39°18'34.242"N	81°01'41.818"W	0.22	34.930	0.34	0.34	41.09	Gyrodata MS Gyro <17-1/2">(100'-443')
210.50	0.530	11.650	210.50	-0.67	0.84	0.36	1632416.85	14274631.18	39°18'34.248"N	81°01'41.815"W	0.91	23.362	0.29	0.24	-23.28	
310.50	0.170	12.380	310.50	-1.20	1.43	0.49	1632416.97	14274631.78	39°18'34.254"N	81°01'41.814"W	1.51	18.737	0.36	-0.36	0.73	
410.50	0.320	7.440	410.49	-1.58	1.86	0.55	1632417.04	14274632.20	39°18'34.258"N	81°01'41.813"W	1.94	16.634	0.15	0.15	-4.94	
453.50	0.350	30.850	453.49	-1.77	2.09	0.64	1632417.12	14274632.43	39°18'34.261"N	81°01'41.812"W	2.18	16.976	0.32	0.07	54.44	
485.50	0.140	240.090	485.49	-1.82	2.15	0.65	1632417.14	14274632.50	39°18'34.261"N	81°01'41.812"W	2.25	16.893	1.49	-0.66	-471.12	Panther EM <12-1/4">(443')(475'-2515')
577.50	0.120	175.010	577.49	-1.71	2.00	0.56	1632417.05	14274632.35	39°18'34.260"N	81°01'41.813"W	2.08	15.762	0.15	-0.02	-70.74	
666.50	0.250	61.510	666.49	-1.65	2.00	0.74	1632417.23	14274632.35	39°18'34.260"N	81°01'41.811"W	2.13	20.387	0.36	0.15	-127.53	
756.50	0.330	44.750	756.49	-1.80	2.28	1.10	1632417.58	14274632.62	39°18'34.263"N	81°01'41.806"W	2.53	25.742	0.13	0.09	-18.62	
846.50	0.140	195.540	846.49	-1.82	2.36	1.25	1632417.73	14274632.70	39°18'34.263"N	81°01'41.804"W	2.67	27.974	0.51	-0.21	167.54	
938.50	0.330	305.440	938.49	-1.95	2.40	1.01	1632417.49	14274632.75	39°18'34.264"N	81°01'41.807"W	2.60	22.718	0.43	0.21	119.46	
1033.50	0.720	281.000	1033.49	-2.47	2.67	0.20	1632416.68	14274633.02	39°18'34.266"N	81°01'41.818"W	2.68	4.208	0.46	0.41	-25.73	
1128.50	0.900	302.060	1128.48	-3.34	3.18	-1.02	1632415.46	14274633.53	39°18'34.271"N	81°01'41.833"W	3.34	342.213	0.36	0.19	22.17	
1222.50	1.080	332.880	1222.46	-4.79	4.36	-2.05	1632414.43	14274634.71	39°18'34.283"N	81°01'41.846"W	4.82	334.830	0.59	0.19	32.79	
1316.50	0.290	281.800	1316.46	-5.79	5.20	-2.69	1632413.80	14274635.55	39°18'34.291"N	81°01'41.854"W	5.85	332.674	0.98	-0.84	-54.34	
1410.50	0.560	270.170	1410.45	-6.06	5.25	-3.38	1632413.11	14274635.60	39°18'34.292"N	81°01'41.863"W	6.25	327.235	0.30	0.29	-12.37	
1504.50	0.810	248.060	1504.45	-6.18	5.00	-4.46	1632412.03	14274635.35	39°18'34.289"N	81°01'41.877"W	6.70	318.322	0.38	0.27	-23.52	
1598.50	1.140	262.320	1598.43	-6.33	4.63	-6.00	1632410.49	14274634.98	39°18'34.286"N	81°01'41.896"W	7.58	307.672	0.43	0.35	15.17	
1692.50	0.660	210.040	1692.42	-6.16	4.04	-7.20	1632409.29	14274634.38	39°18'34.280"N	81°01'41.912"W	8.25	299.297	0.96	-0.51	-55.62	
1786.50	0.850	174.900	1786.42	-5.12	2.87	-7.41	1632409.08	14274633.22	39°18'34.268"N	81°01'41.914"W	7.94	291.216	0.52	0.20	-37.38	
1881.50	0.600	160.410	1881.41	-3.94	1.70	-7.18	1632409.31	14274632.05	39°18'34.257"N	81°01'41.911"W	7.38	283.360	0.32	-0.26	-15.25	
1975.50	0.560	153.250	1975.40	-2.99	0.83	-6.80	1632409.68	14274631.18	39°18'34.248"N	81°01'41.907"W	6.85	276.958	0.09	-0.04	-7.62	
2069.50	0.640	137.190	2069.40	-2.06	0.04	-6.24	1632410.25	14274630.38	39°18'34.240"N	81°01'41.899"W	6.24	270.322	0.20	0.09	-17.09	
2163.50	0.860	144.670	2163.39	-0.90	-0.93	-5.48	1632411.01	14274629.42	39°18'34.231"N	81°01'41.890"W	5.55	260.406	0.26	0.23	7.96	
2258.50	0.570	169.990	2258.38	0.25	-1.97	-4.98	1632411.50	14274628.37	39°18'34.220"N	81°01'41.883"W	5.36	248.397	0.44	-0.31	26.65	
2352.50	0.630	128.560	2352.38	1.15	-2.76	-4.50	1632411.99	14274627.59	39°18'34.213"N	81°01'41.877"W	5.27	238.501	0.46	0.06	-44.07	
2446.50	0.580	135.700	2446.37	2.01	-3.42	-3.76	1632412.73	14274626.93	39°18'34.206"N	81°01'41.868"W	5.08	227.728	0.10	-0.05	7.60	
2525.50	0.500	137.370	2525.37	2.69	-3.96	-3.25	1632413.24	14274626.39	39°18'34.201"N	81°01'41.861"W	5.12	219.368	0.10	-0.10	2.11	



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

WELLPATH DATA (195 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
2635.50	0.470	158.190	2635.37	3.58	-4.73	-2.75	1632413.73	14274625.62	39°18'34.193"N	81°01'41.855"W	5.47	210.215	0.16	-0.03	18.93	Panther EM <8-3/4">(2515')(2625'-5582')
2730.50	3.320	329.610	2730.32	1.27	-2.72	-4.00	1632412.48	14274627.63	39°18'34.213"N	81°01'41.871"W	4.84	235.818	3.98	3.00	180.44	
2824.50	4.280	329.290	2824.11	-4.83	2.65	-7.17	1632409.32	14274632.99	39°18'34.266"N	81°01'41.911"W	7.64	290.256	1.02	1.02	-0.34	
2918.50	6.200	340.980	2917.72	-13.34	10.46	-10.62	1632405.87	14274640.80	39°18'34.343"N	81°01'41.955"W	14.90	314.580	2.33	2.04	12.44	
3013.50	4.740	309.620	3012.30	-21.82	17.82	-15.31	1632401.18	14274648.16	39°18'34.416"N	81°01'42.015"W	23.49	319.322	3.44	-1.54	-33.01	
3107.50	6.440	321.610	3105.85	-30.11	24.43	-21.58	1632394.91	14274654.76	39°18'34.481"N	81°01'42.095"W	32.59	318.541	2.18	1.81	12.76	
3201.50	9.720	328.020	3198.91	-42.81	35.29	-29.06	1632387.44	14274665.62	39°18'34.589"N	81°01'42.190"W	45.71	320.534	3.61	3.49	6.82	
3300.50	13.240	326.970	3295.91	-61.96	51.89	-39.67	1632376.83	14274682.22	39°18'34.753"N	81°01'42.325"W	65.32	322.605	3.56	3.56	-1.06	
3394.50	11.630	323.030	3387.71	-81.41	68.49	-51.23	1632365.27	14274698.81	39°18'34.917"N	81°01'42.472"W	85.53	323.201	1.94	-1.71	-4.19	
3488.50	12.620	322.210	3479.61	-100.14	84.17	-63.22	1632353.29	14274714.48	39°18'35.072"N	81°01'42.625"W	105.27	323.089	1.07	1.05	-0.87	
3582.50	11.470	314.280	3571.55	-118.20	98.81	-76.21	1632340.31	14274729.12	39°18'35.216"N	81°01'42.790"W	124.79	322.359	2.14	-1.22	-8.44	
3677.50	11.060	318.160	3664.72	-135.03	112.20	-89.05	1632327.47	14274742.50	39°18'35.349"N	81°01'42.953"W	143.24	321.561	0.91	-0.43	4.08	
3771.50	11.520	321.830	3756.90	-152.20	126.29	-100.87	1632315.66	14274756.59	39°18'35.488"N	81°01'43.104"W	161.63	321.387	0.91	0.49	3.90	
3865.50	11.140	317.910	3849.07	-169.41	140.41	-112.75	1632303.78	14274770.70	39°18'35.627"N	81°01'43.255"W	180.08	321.235	0.91	-0.40	-4.17	
3959.50	11.440	326.630	3941.26	-186.79	154.94	-123.97	1632292.57	14274785.22	39°18'35.771"N	81°01'43.398"W	198.43	321.336	1.84	0.32	9.28	
4053.50	10.180	321.570	4033.59	-203.65	169.23	-134.26	1632282.28	14274799.51	39°18'35.912"N	81°01'43.529"W	216.02	321.573	1.68	-1.34	-5.38	
4147.50	11.410	320.990	4125.92	-220.21	182.96	-145.28	1632271.27	14274813.24	39°18'36.048"N	81°01'43.669"W	233.63	321.550	1.31	1.31	-0.62	
4241.50	12.100	318.130	4217.95	-238.02	197.53	-157.70	1632258.84	14274827.79	39°18'36.192"N	81°01'43.827"W	252.76	321.396	0.96	0.73	-3.04	
4335.50	10.790	310.340	4310.09	-254.66	210.56	-170.99	1632245.56	14274840.82	39°18'36.321"N	81°01'43.996"W	271.24	320.921	2.15	-1.39	-8.29	
4429.50	9.930	312.620	4402.55	-269.35	221.74	-183.66	1632232.90	14274852.00	39°18'36.431"N	81°01'44.157"W	287.92	320.367	1.01	-0.91	2.43	
4523.50	12.450	322.210	4494.77	-286.07	235.24	-195.84	1632220.73	14274865.49	39°18'36.564"N	81°01'44.312"W	306.09	320.223	3.32	2.68	10.20	
4617.50	13.590	324.740	4586.35	-306.26	252.27	-208.42	1632208.15	14274882.51	39°18'36.733"N	81°01'44.473"W	327.23	320.437	1.36	1.21	2.69	
4712.50	12.650	319.690	4678.87	-326.66	269.31	-221.59	1632194.98	14274899.55	39°18'36.901"N	81°01'44.640"W	348.76	320.552	1.56	-0.99	-5.32	
4806.50	11.240	314.460	4770.84	-344.44	283.58	-234.79	1632181.79	14274913.81	39°18'37.042"N	81°01'44.808"W	368.16	320.377	1.89	-1.50	-5.56	
4900.50	11.300	320.130	4863.03	-361.23	297.07	-247.23	1632169.35	14274927.29	39°18'37.175"N	81°01'44.967"W	386.49	320.231	1.18	0.06	6.03	
4994.50	11.670	317.250	4955.14	-378.53	311.12	-259.59	1632157.00	14274941.34	39°18'37.314"N	81°01'45.124"W	405.19	320.159	0.73	0.39	-3.06	
5089.50	11.730	327.700	5048.18	-396.72	326.34	-271.28	1632145.32	14274956.55	39°18'37.465"N	81°01'45.273"W	424.36	320.264	2.23	0.06	11.00	
5183.50	11.530	325.220	5140.25	-415.05	342.13	-281.74	1632134.86	14274972.34	39°18'37.621"N	81°01'45.406"W	443.20	320.529	0.57	-0.21	-2.64	
5277.50	11.060	319.070	5232.43	-432.45	356.66	-293.01	1632123.60	14274986.86	39°18'37.764"N	81°01'45.549"W	461.58	320.596	1.37	-0.50	-6.54	
5372.50	10.430	311.850	5325.77	-448.41	369.28	-305.38	1632111.22	14274999.48	39°18'37.889"N	81°01'45.707"W	479.19	320.410	1.56	-0.66	-7.60	



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'
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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
5466.50	9.130	302.110	5418.41	-461.63	378.92	-318.04	1632098.57	14275009.11	39°18'37.984"N	81°01'45.868"W	494.70	319.992	2.23	-1.38	-10.36	
5560.50	12.800	258.830	5510.83	-468.86	380.87	-334.60	1632082.02	14275011.06	39°18'38.003"N	81°01'46.078"W	506.97	318.700	9.30	3.90	-46.04	
5592.50	15.780	252.160	5541.84	-469.42	378.85	-342.22	1632074.40	14275009.05	39°18'37.983"N	81°01'46.175"W	510.53	317.908	10.62	9.31	-20.84	
5644.00	18.540	242.390	5591.05	-468.32	372.91	-356.15	1632060.48	14275003.11	39°18'37.925"N	81°01'46.353"W	515.66	316.317	7.73	5.36	-18.97	BH AT Curve <8-1/2"> (5592.5')(5644'-16495')
5691.00	17.490	225.800	5635.77	-464.18	364.52	-367.84	1632048.79	14274994.72	39°18'37.842"N	81°01'46.501"W	517.86	314.740	11.10	-2.23	-35.30	
5739.00	16.370	208.360	5681.72	-456.50	353.53	-376.23	1632040.40	14274983.73	39°18'37.733"N	81°01'46.608"W	516.27	313.218	10.79	-2.33	-36.33	
5786.00	16.420	192.440	5726.83	-446.34	341.21	-380.81	1632035.82	14274971.42	39°18'37.611"N	81°01'46.666"W	511.31	311.860	9.53	0.11	-33.87	
5834.00	17.930	183.530	5772.70	-433.71	327.20	-382.73	1632033.91	14274957.42	39°18'37.473"N	81°01'46.690"W	503.53	310.528	6.31	3.15	-18.56	
5881.00	20.250	179.360	5817.11	-419.30	311.85	-383.08	1632033.55	14274942.07	39°18'37.321"N	81°01'46.695"W	493.97	309.147	5.72	4.94	-8.87	
5930.00	23.380	173.820	5862.61	-401.76	293.70	-381.94	1632034.69	14274923.92	39°18'37.142"N	81°01'46.680"W	481.81	307.559	7.64	6.39	-11.31	
5977.00	27.400	168.620	5905.06	-381.94	273.81	-378.80	1632037.83	14274904.05	39°18'36.945"N	81°01'46.640"W	467.40	305.861	9.77	8.55	-11.06	
6025.00	31.050	166.230	5946.95	-358.65	250.95	-373.68	1632042.96	14274881.20	39°18'36.719"N	81°01'46.575"W	450.12	303.884	7.98	7.60	-4.98	
6072.00	35.140	163.220	5986.32	-333.05	226.22	-366.88	1632049.75	14274856.47	39°18'36.475"N	81°01'46.488"W	431.02	301.658	9.38	8.70	-6.40	
6120.00	39.190	161.500	6024.56	-304.07	198.60	-358.08	1632058.55	14274828.86	39°18'36.202"N	81°01'46.376"W	409.46	299.014	8.71	8.44	-3.58	
6167.00	43.040	160.240	6059.96	-273.17	169.41	-347.94	1632068.68	14274799.69	39°18'35.913"N	81°01'46.247"W	386.99	295.961	8.38	8.19	-2.68	
6215.00	47.130	159.010	6093.85	-239.20	137.56	-336.10	1632080.52	14274767.85	39°18'35.599"N	81°01'46.096"W	363.16	292.258	8.71	8.52	-2.56	
6247.00†	50.383	158.022	6114.94	-215.17	115.17	-327.28	1632089.34	14274745.47	39°18'35.377"N	81°01'45.984"W	346.95	289.387	10.43	10.16	-3.09	Middlesex: 6247' MD
6262.00	51.910	157.590	6124.35	-203.50	104.36	-322.87	1632093.75	14274734.66	39°18'35.270"N	81°01'45.928"W	339.31	287.912	10.43	10.18	-2.88	
6310.00	56.350	156.920	6152.47	-164.70	68.50	-307.83	1632108.78	14274698.82	39°18'34.916"N	81°01'45.736"W	315.36	282.545	9.32	9.25	-1.40	
6357.00	60.510	156.160	6177.07	-124.79	31.77	-291.88	1632124.72	14274662.11	39°18'34.553"N	81°01'45.533"W	293.61	276.213	8.96	8.85	-1.62	
6405.00	64.630	155.510	6199.18	-82.38	-7.09	-274.44	1632142.15	14274623.26	39°18'34.169"N	81°01'45.311"W	274.53	268.521	8.67	8.58	-1.35	
6434.00†	66.611	155.317	6211.15	-56.09	-31.10	-263.45	1632153.14	14274599.26	39°18'33.932"N	81°01'45.172"W	265.28	263.267	6.86	6.83	-0.67	Burkett: 6434' MD
6452.00	67.840	155.200	6218.12	-39.58	-46.18	-256.51	1632160.08	14274584.19	39°18'33.783"N	81°01'45.083"W	260.63	259.795	6.86	6.83	-0.65	
6492.00†	70.223	155.610	6232.43	-2.41	-80.14	-240.96	1632175.62	14274550.24	39°18'33.447"N	81°01'44.885"W	253.94	251.605	6.03	5.96	1.02	Marcellus POE: 6492' MD
6500.00	70.700	155.690	6235.11	5.09	-87.00	-237.85	1632178.72	14274543.38	39°18'33.379"N	81°01'44.846"W	253.27	249.908	6.03	5.96	1.01	
6547.00	74.130	156.830	6249.30	49.73	-128.01	-219.82	1632196.75	14274502.39	39°18'32.974"N	81°01'44.616"W	254.38	239.786	7.66	7.30	2.43	
6595.00	78.440	158.380	6260.68	96.27	-171.12	-202.07	1632214.50	14274459.30	39°18'32.548"N	81°01'44.390"W	264.79	229.741	9.51	8.98	3.23	
6642.00	82.130	156.870	6268.61	142.50	-213.94	-184.43	1632232.12	14274416.49	39°18'32.125"N	81°01'44.166"W	282.47	220.763	8.47	7.85	-3.21	
6690.00	85.750	156.760	6273.68	190.09	-257.81	-165.64	1632250.91	14274372.64	39°18'31.691"N	81°01'43.926"W	306.44	212.721	7.55	7.54	-0.23	
6737.00	87.850	157.930	6276.30	236.92	-301.12	-147.57	1632268.97	14274329.35	39°18'31.263"N	81°01'43.696"W	335.33	206.109	5.11	4.47	2.49	



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

WELLPATH DATA (195 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
6786.00	89.940	159.190	6277.25	285.86	-346.71	-129.67	1632286.87	14274283.77	39°18'30.813"N	81°01'43.468"W	370.17	200.505	4.98	4.27	2.57	
6881.00	89.820	161.290	6277.45	380.84	-436.12	-97.55	1632318.97	14274194.41	39°18'29.929"N	81°01'43.059"W	446.89	192.608	2.21	-0.13	2.21	
6976.00	89.690	162.470	6277.85	475.83	-526.40	-68.00	1632348.51	14274104.16	39°18'29.037"N	81°01'42.683"W	530.78	187.361	1.25	-0.14	1.24	
7071.00	89.510	163.180	6278.52	570.78	-617.16	-39.95	1632376.55	14274013.43	39°18'28.140"N	81°01'42.326"W	618.45	183.704	0.77	-0.19	0.75	
7166.00	89.820	163.170	6279.07	665.71	-708.09	-12.46	1632404.03	14273922.54	39°18'27.241"N	81°01'41.976"W	708.20	181.008	0.33	0.33	-0.01	
7261.00	89.600	162.120	6279.55	760.68	-798.77	15.88	1632432.36	14273831.90	39°18'26.345"N	81°01'41.615"W	798.92	178.861	1.13	-0.23	-1.11	
7356.00	89.570	161.830	6280.24	855.66	-889.10	45.28	1632461.74	14273741.60	39°18'25.453"N	81°01'41.240"W	890.25	177.085	0.31	-0.03	-0.31	
7451.00	89.940	162.940	6280.65	950.63	-979.65	74.02	1632490.48	14273651.09	39°18'24.558"N	81°01'40.874"W	982.44	175.679	1.23	0.39	1.17	
7546.00	89.570	163.200	6281.05	1045.57	-1070.53	101.69	1632518.13	14273560.25	39°18'23.660"N	81°01'40.522"W	1075.35	174.574	0.48	-0.39	0.27	
7641.00	89.690	162.680	6281.67	1140.52	-1161.34	129.56	1632545.99	14273469.47	39°18'22.762"N	81°01'40.167"W	1168.55	173.634	0.56	0.13	-0.55	
7736.00	89.690	162.670	6282.18	1235.48	-1252.03	157.85	1632574.27	14273378.82	39°18'21.866"N	81°01'39.807"W	1261.94	172.814	0.01	0.00	-0.01	
7831.00	89.720	162.010	6282.67	1330.46	-1342.55	186.67	1632603.08	14273288.33	39°18'20.971"N	81°01'39.440"W	1355.47	172.084	0.70	0.03	-0.69	
7926.00	89.600	162.460	6283.23	1425.43	-1433.02	215.65	1632632.05	14273197.90	39°18'20.077"N	81°01'39.071"W	1449.16	171.442	0.49	-0.13	0.47	
8021.00	89.850	161.690	6283.69	1520.42	-1523.41	244.89	1632661.28	14273107.55	39°18'19.184"N	81°01'38.699"W	1542.97	170.868	0.85	0.26	-0.81	
8115.00	89.820	160.590	6283.96	1614.41	-1612.36	275.28	1632691.65	14273018.63	39°18'18.305"N	81°01'38.312"W	1635.69	170.311	1.17	-0.03	-1.17	
8210.00	89.540	157.420	6284.49	1709.34	-1701.04	309.31	1632725.67	14272929.99	39°18'17.428"N	81°01'37.878"W	1728.93	169.694	3.35	-0.29	-3.34	
8305.00	89.630	153.600	6285.18	1803.87	-1787.48	348.68	1632765.02	14272843.59	39°18'16.574"N	81°01'37.377"W	1821.17	168.962	4.02	0.09	-4.02	
8400.00	89.720	152.980	6285.72	1898.00	-1872.34	391.38	1632807.71	14272758.76	39°18'15.736"N	81°01'36.834"W	1912.81	168.193	0.66	0.09	-0.65	
8494.00	90.400	153.870	6285.62	1991.17	-1956.40	433.43	1632849.74	14272674.73	39°18'14.905"N	81°01'36.298"W	2003.84	167.508	1.19	0.72	0.95	
8589.00	89.970	152.000	6285.31	2085.21	-2041.00	476.65	1632892.95	14272590.17	39°18'14.069"N	81°01'35.748"W	2095.92	166.855	2.02	-0.45	-1.97	
8684.00	91.110	151.820	6284.42	2178.99	-2124.80	521.38	1632937.66	14272506.40	39°18'13.241"N	81°01'35.179"W	2187.84	166.213	1.21	1.20	-0.19	
8779.00	89.660	151.200	6283.78	2272.67	-2208.29	566.70	1632982.95	14272422.94	39°18'12.416"N	81°01'34.602"W	2279.85	165.607	1.66	-1.53	-0.65	
8873.00	90.090	158.090	6283.98	2366.03	-2293.19	606.93	1633023.17	14272338.08	39°18'11.577"N	81°01'34.090"W	2372.14	165.176	7.34	0.46	7.33	
8968.00	90.950	163.800	6283.12	2460.98	-2382.94	637.93	1633054.15	14272248.36	39°18'10.690"N	81°01'33.696"W	2466.85	165.013	6.08	0.91	6.01	
9063.00	91.020	164.870	6281.49	2555.81	-2474.40	663.57	1633079.79	14272156.94	39°18'09.786"N	81°01'33.369"W	2561.83	164.988	1.13	0.07	1.13	
9158.00	89.970	160.890	6280.67	2650.74	-2565.16	691.53	1633107.74	14272066.21	39°18'08.889"N	81°01'33.013"W	2656.74	164.913	4.33	-1.11	-4.19	
9253.00	89.570	160.990	6281.05	2745.74	-2654.95	722.55	1633138.75	14271976.46	39°18'08.001"N	81°01'32.618"W	2751.52	164.775	0.43	-0.42	0.11	
9348.00	89.200	161.990	6282.07	2840.73	-2745.03	752.71	1633168.89	14271886.42	39°18'07.111"N	81°01'32.234"W	2846.36	164.666	1.12	-0.39	1.05	
9442.00	90.090	162.240	6282.65	2934.71	-2834.49	781.58	1633197.75	14271797.00	39°18'06.227"N	81°01'31.866"W	2940.27	164.584	0.98	0.95	0.27	
9537.00	89.750	162.250	6282.78	3029.69	-2924.96	810.55	1633226.71	14271706.56	39°18'05.333"N	81°01'31.498"W	3035.19	164.511	0.36	-0.36	0.01	



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

WELLPATH DATA (195 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
9632.00	89.720	163.380	6283.22	3124.64	-3015.72	838.62	1633254.76	14271615.84	39°18'04.436"N	81°01'31.140"W	3130.15	164.460	1.19	-0.03	1.19	
9727.00	89.880	163.400	6283.55	3219.56	-3106.75	865.77	1633281.91	14271524.84	39°18'03.536"N	81°01'30.795"W	3225.13	164.428	0.17	0.17	0.02	
9822.00	89.660	162.660	6283.93	3314.50	-3197.62	893.50	1633309.63	14271434.01	39°18'02.638"N	81°01'30.442"W	3320.10	164.388	0.81	-0.23	-0.78	
9917.00	89.540	163.350	6284.60	3409.45	-3288.47	921.27	1633337.38	14271343.20	39°18'01.740"N	81°01'30.088"W	3415.07	164.350	0.74	-0.13	0.73	
10012.00	89.970	164.890	6285.00	3504.31	-3379.84	947.26	1633363.36	14271251.87	39°18'00.837"N	81°01'29.757"W	3510.07	164.344	1.68	0.45	1.62	
10108.00	89.910	163.970	6285.10	3600.14	-3472.31	973.03	1633389.12	14271159.43	39°17'59.924"N	81°01'29.429"W	3606.07	164.346	0.96	-0.06	-0.96	
10203.00	89.910	163.080	6285.25	3695.05	-3563.41	999.97	1633416.05	14271068.37	39°17'59.023"N	81°01'29.086"W	3701.06	164.325	0.94	0.00	-0.94	
10298.00	89.100	163.150	6285.40	3789.99	-3654.32	1027.56	1633443.63	14270977.50	39°17'58.125"N	81°01'28.735"W	3796.04	164.294	0.07	0.00	0.07	
10393.00	90.400	163.650	6285.15	3884.91	-3745.35	1054.70	1633470.76	14270886.50	39°17'57.225"N	81°01'28.389"W	3891.03	164.273	0.74	0.52	0.53	
10488.00	90.090	162.120	6284.74	3979.86	-3836.14	1082.66	1633498.71	14270795.74	39°17'56.328"N	81°01'28.033"W	3985.99	164.240	1.64	-0.33	-1.61	
10583.00	90.030	157.130	6284.64	4074.80	-3925.17	1115.72	1633531.76	14270706.75	39°17'55.448"N	81°01'27.612"W	4080.66	164.132	5.25	-0.06	-5.25	
10678.00	90.150	158.210	6284.49	4169.63	-4013.05	1151.82	1633567.84	14270618.91	39°17'54.580"N	81°01'27.153"W	4175.07	163.986	1.14	0.13	1.14	
10773.00	89.850	158.860	6284.49	4264.54	-4101.46	1186.58	1633602.59	14270530.54	39°17'53.706"N	81°01'26.710"W	4269.65	163.864	0.75	-0.32	0.68	
10868.00	89.940	161.060	6284.67	4359.51	-4190.70	1219.13	1633635.13	14270441.33	39°17'52.824"N	81°01'26.296"W	4364.43	163.780	2.32	0.09	2.32	
10964.00	89.940	161.110	6284.77	4455.51	-4281.52	1250.25	1633666.23	14270350.55	39°17'51.926"N	81°01'25.900"W	4460.33	163.722	0.05	0.00	0.05	
11059.00	89.880	162.170	6284.92	4550.51	-4371.68	1280.18	1633696.15	14270260.42	39°17'51.035"N	81°01'25.519"W	4555.26	163.678	1.12	-0.06	1.12	
11154.00	89.880	163.330	6285.11	4645.46	-4462.40	1308.35	1633724.31	14270169.74	39°17'50.139"N	81°01'25.160"W	4650.25	163.659	1.22	0.00	1.22	
11249.00	89.660	161.990	6285.50	4740.42	-4553.08	1336.66	1633752.61	14270079.09	39°17'49.242"N	81°01'24.800"W	4745.23	163.639	1.43	-0.23	-1.41	
11344.00	89.780	159.650	6285.96	4835.42	-4642.80	1367.87	1633783.80	14269989.41	39°17'48.356"N	81°01'24.403"W	4840.11	163.584	2.47	0.13	-2.46	
11439.00	89.820	158.420	6286.29	4930.35	-4731.51	1401.86	1633817.78	14269900.74	39°17'47.479"N	81°01'23.970"W	4934.82	163.496	1.30	0.04	-1.29	
11534.00	89.940	160.110	6286.49	5025.30	-4820.35	1435.49	1633851.40	14269811.93	39°17'46.601"N	81°01'23.542"W	5029.56	163.417	1.78	0.13	1.78	
11630.00	89.880	162.970	6286.64	5121.29	-4911.41	1465.89	1633881.78	14269720.91	39°17'45.701"N	81°01'23.155"W	5125.50	163.381	2.98	-0.06	2.98	
11725.00	89.880	164.590	6286.84	5216.18	-5002.62	1492.42	1633908.31	14269629.74	39°17'44.800"N	81°01'22.817"W	5220.49	163.389	1.71	0.00	1.71	
11820.00	89.850	163.860	6287.06	5311.03	-5094.04	1518.25	1633934.12	14269538.35	39°17'43.896"N	81°01'22.488"W	5315.48	163.404	0.77	-0.03	-0.77	
11915.00	89.910	167.430	6287.26	5405.72	-5186.06	1541.80	1633957.66	14269446.37	39°17'42.987"N	81°01'22.188"W	5410.39	163.443	3.76	0.06	3.76	
12010.00	89.750	166.600	6287.54	5500.20	-5278.63	1563.14	1633979.00	14269353.84	39°17'42.072"N	81°01'21.917"W	5505.21	163.505	0.89	-0.17	-0.87	
12105.00	89.690	165.360	6288.01	5594.85	-5370.80	1586.16	1634002.00	14269261.71	39°17'41.161"N	81°01'21.624"W	5600.12	163.547	1.31	-0.06	-1.31	
12201.00	89.850	163.530	6288.39	5690.68	-5463.28	1611.90	1634027.74	14269169.27	39°17'40.247"N	81°01'21.296"W	5696.10	163.562	1.91	0.17	-1.91	
12296.00	89.780	162.600	6288.70	5785.62	-5554.16	1639.57	1634055.40	14269078.42	39°17'39.349"N	81°01'20.944"W	5791.10	163.554	0.98	-0.07	-0.98	
12391.00	89.850	159.310	6289.01	5880.60	-5643.94	1670.57	1634086.38	14268988.67	39°17'38.462"N	81°01'20.549"W	5885.99	163.512	3.46	0.07	-3.46	



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

WELLPATH DATA (195 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
12486.00	89.630	156.390	6289.44	5975.44	-5731.92	1706.38	1634122.18	14268900.73	39°17'37.592"N	81°01'20.093"W	5980.52	163.422	3.08	-0.23	-3.07	
12581.00	89.850	156.110	6289.87	6070.11	-5818.87	1744.64	1634160.42	14268813.81	39°17'36.733"N	81°01'19.606"W	6074.79	163.310	0.37	0.23	-0.29	
12676.00	89.880	153.930	6290.09	6164.57	-5904.98	1784.76	1634200.52	14268727.74	39°17'35.882"N	81°01'19.096"W	6168.81	163.183	2.29	0.03	-2.29	
12771.00	89.720	154.700	6290.43	6258.91	-5990.59	1825.93	1634241.68	14268642.16	39°17'35.036"N	81°01'18.572"W	6262.69	163.049	0.83	-0.17	0.81	
12867.00	89.880	157.000	6290.76	6354.51	-6078.19	1865.20	1634280.94	14268554.60	39°17'34.170"N	81°01'18.072"W	6357.93	162.940	2.40	0.17	2.40	
12962.00	89.750	158.790	6291.07	6449.36	-6166.20	1900.95	1634316.67	14268466.63	39°17'33.300"N	81°01'17.617"W	6452.57	162.866	1.89	-0.14	1.88	
13057.00	90.150	159.110	6291.15	6544.30	-6254.86	1935.07	1634350.78	14268378.00	39°17'32.424"N	81°01'17.183"W	6547.35	162.809	0.54	0.42	0.34	
13153.00	90.150	159.800	6290.90	6640.26	-6344.75	1968.76	1634384.46	14268288.14	39°17'31.536"N	81°01'16.754"W	6643.19	162.761	0.72	0.00	0.72	
13248.00	90.120	159.170	6290.68	6735.22	-6433.73	2002.06	1634417.74	14268199.21	39°17'30.656"N	81°01'16.330"W	6738.03	162.715	0.66	-0.03	-0.66	
13343.00	89.880	159.630	6290.68	6830.18	-6522.65	2035.48	1634451.15	14268110.32	39°17'29.778"N	81°01'15.905"W	6832.87	162.669	0.55	-0.25	0.48	
13438.00	90.120	160.660	6290.68	6925.17	-6612.00	2067.75	1634483.40	14268021.00	39°17'28.894"N	81°01'15.494"W	6927.78	162.634	1.11	0.25	1.08	
13533.00	90.060	163.050	6290.53	7020.15	-6702.27	2097.33	1634512.97	14267930.77	39°17'28.002"N	81°01'15.118"W	7022.77	162.624	2.52	-0.06	2.52	
13628.00	90.060	163.850	6290.43	7115.07	-6793.34	2124.39	1634540.02	14267839.74	39°17'27.102"N	81°01'14.773"W	7117.76	162.635	0.84	0.00	0.84	
13723.00	89.970	163.830	6290.40	7209.96	-6884.58	2150.83	1634566.45	14267748.53	39°17'26.201"N	81°01'14.437"W	7212.74	162.651	0.10	-0.09	-0.02	
13818.00	90.060	165.210	6290.38	7304.78	-6976.13	2176.19	1634591.80	14267657.02	39°17'25.296"N	81°01'14.114"W	7307.68	162.675	1.46	0.09	1.45	
13913.00	90.060	165.800	6290.28	7399.49	-7068.11	2199.96	1634615.56	14267565.08	39°17'24.387"N	81°01'13.811"W	7402.57	162.711	0.62	0.00	0.62	
14008.00	90.090	166.880	6290.15	7494.09	-7160.42	2222.40	1634637.99	14267472.80	39°17'23.474"N	81°01'13.526"W	7497.38	162.757	1.14	0.03	1.14	
14102.00	88.950	168.950	6290.94	7587.41	-7252.33	2242.08	1634657.66	14267380.93	39°17'22.566"N	81°01'13.275"W	7590.99	162.821	2.51	-1.21	2.20	
14197.00	89.720	167.650	6292.04	7681.64	-7345.34	2261.34	1634676.92	14267287.95	39°17'21.647"N	81°01'13.030"W	7685.55	162.888	1.59	0.81	-1.37	
14292.00	89.750	166.030	6292.48	7776.15	-7437.85	2282.97	1634698.53	14267195.49	39°17'20.733"N	81°01'12.755"W	7780.33	162.937	1.71	0.03	-1.71	
14387.00	89.820	164.320	6292.84	7870.91	-7529.68	2307.27	1634722.83	14267103.69	39°17'19.825"N	81°01'12.445"W	7875.25	162.964	1.80	0.07	-1.80	
14482.00	89.720	162.380	6293.22	7965.82	-7620.69	2334.49	1634750.04	14267012.72	39°17'18.925"N	81°01'12.099"W	7970.24	162.968	2.04	-0.11	-2.04	
14577.00	89.820	160.990	6293.60	8060.82	-7710.88	2364.34	1634779.88	14266922.57	39°17'18.034"N	81°01'11.719"W	8065.22	162.953	1.47	0.11	-1.46	
14673.00	89.850	163.100	6293.88	8156.80	-7802.20	2393.94	1634809.46	14266831.29	39°17'17.132"N	81°01'11.342"W	8161.20	162.942	2.20	0.03	2.20	
14768.00	90.000	164.230	6294.00	8251.70	-7893.36	2420.66	1634836.17	14266740.16	39°17'16.231"N	81°01'11.002"W	8256.19	162.951	1.20	0.16	1.19	
14863.00	90.150	164.880	6293.88	8346.52	-7984.93	2445.96	1634861.46	14266648.63	39°17'15.326"N	81°01'10.680"W	8351.15	162.969	0.70	0.16	0.68	
14958.00	90.090	160.450	6293.68	8441.46	-8075.59	2474.25	1634889.74	14266558.00	39°17'14.430"N	81°01'10.320"W	8446.13	162.966	4.66	-0.06	-4.66	
15053.00	90.060	155.840	6293.56	8536.31	-8163.74	2509.61	1634925.08	14266469.89	39°17'13.559"N	81°01'09.870"W	8540.77	162.912	4.85	-0.03	-4.85	
15149.00	89.720	154.090	6293.74	8631.76	-8250.72	2550.23	1634965.69	14266382.95	39°17'12.699"N	81°01'09.353"W	8635.85	162.824	1.86	-0.35	-1.82	
15244.00	89.850	155.560	6294.10	8726.20	-8336.69	2590.64	1635006.08	14266297.01	39°17'11.849"N	81°01'08.839"W	8729.94	162.737	1.55	0.14	1.55	



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

WELLPATH DATA (195 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
15339.00	89.660	155.700	6294.50	8820.77	-8423.22	2629.84	1635045.27	14266210.51	39°17'10.994"N	81°01'08.340"W	8824.21	162.661	0.25	-0.20	0.15	
15434.00	89.850	157.560	6294.91	8915.48	-8510.42	2667.52	1635082.93	14266123.34	39°17'10.132"N	81°01'07.861"W	8918.69	162.597	1.97	0.20	1.96	
15529.00	89.780	159.850	6295.22	9010.39	-8598.93	2702.02	1635117.42	14266034.87	39°17'09.258"N	81°01'07.422"W	9013.46	162.556	2.41	-0.07	2.41	
15623.00	89.850	161.620	6295.52	9104.39	-8687.66	2733.03	1635148.42	14265946.17	39°17'08.381"N	81°01'07.027"W	9107.41	162.537	1.88	0.07	1.88	
15718.00	89.820	162.950	6295.79	9199.36	-8778.16	2761.94	1635177.31	14265855.72	39°17'07.486"N	81°01'06.659"W	9202.41	162.534	1.40	-0.03	1.40	
15813.00	89.780	162.770	6296.12	9294.32	-8868.94	2789.94	1635205.30	14265764.97	39°17'06.589"N	81°01'06.303"W	9297.41	162.538	0.19	-0.04	-0.19	
15908.00	89.880	162.430	6296.41	9389.28	-8959.59	2818.35	1635233.70	14265674.36	39°17'05.693"N	81°01'05.942"W	9392.41	162.538	0.37	0.11	-0.36	
16003.00	89.780	160.980	6296.69	9484.27	-9049.78	2848.17	1635263.51	14265584.20	39°17'04.802"N	81°01'05.562"W	9487.39	162.530	1.53	-0.11	-1.53	
16098.00	89.820	160.600	6297.02	9579.27	-9139.49	2879.42	1635294.75	14265494.52	39°17'03.915"N	81°01'05.164"W	9582.35	162.513	0.40	0.04	-0.40	
16193.00	89.660	162.810	6297.45	9674.26	-9229.69	2909.24	1635324.56	14265404.37	39°17'03.024"N	81°01'04.785"W	9677.33	162.505	2.33	-0.17	2.33	
16288.00	89.690	163.860	6297.99	9769.18	-9320.69	2936.49	1635351.79	14265313.40	39°17'02.124"N	81°01'04.438"W	9772.32	162.513	1.11	0.03	1.11	
16382.00	89.820	164.870	6298.39	9863.02	-9411.21	2961.82	1635377.11	14265222.92	39°17'01.230"N	81°01'04.116"W	9866.27	162.531	1.08	0.14	1.07	
16477.00	89.690	165.850	6298.80	9957.75	-9503.13	2985.83	1635401.11	14265131.04	39°17'00.321"N	81°01'03.810"W	9961.15	162.558	1.04	-0.14	1.03	
16495.00	89.750	165.920	6298.89	9975.69	-9520.58	2990.22	1635405.50	14265113.59	39°17'00.149"N	81°01'03.754"W	9979.12	162.564	0.51	0.33	0.39	
16519.00	89.750	165.920	6298.99	9999.60	-9543.86	2996.06	1635411.34	14265090.32	39°16'59.919"N	81°01'03.680"W	10003.08	162.572	0.00	0.00	0.00	Projected MD at TD: 16519'



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Hayhurst Unit 2H AWB Ref Wellpath: Hayhurst Unit 2H AWP Proj: 16519'

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	25.50	105.50	80.00	25.50	105.50	0.00	0.00	0.16	0.11
17.5in Open Hole	105.50	466.50	361.00	105.50	466.49	0.16	0.11	2.14	0.66
13.375in Casing Surface	25.50	466.50	441.00	25.50	466.49	0.00	0.00	2.14	0.66
12.25in Open Hole	466.50	2592.50	2126.00	466.49	2592.37	2.14	0.66	-4.41	-2.91
9.625in Casing Intermediate	25.50	2592.50	2567.00	25.50	2592.37	0.00	0.00	-4.41	-2.91
8.75in Open Hole	2592.50	5656.50	3064.00	2592.37	5602.91	-4.41	-2.91	370.96	-359.56
8.5in Open Hole	5656.50	16519.00	10862.50	5602.91	6298.99	370.96	-359.56	-9543.86	2996.06
5.5in Casing Production	25.50	16519.00	16493.50	25.50	6298.99	0.00	0.00	-9543.86	2996.06

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Hayhurst Unit 2H POE Plat	6232.00	-61.37	-206.57	1632210.00	14274569.00	39°18'33.633"N	81°01'44.448"W	point
Hayhurst Unit 2H POE Rev-1	6232.00	-85.08	-232.10	1632184.47	14274545.30	39°18'33.398"N	81°01'44.772"W	point
Hayhurst Unit 2H AZI Rev-1	6277.00	-541.98	-41.67	1632374.83	14274088.58	39°18'28.883"N	81°01'42.348"W	point
Hayhurst Unit 2H BHL Rev-1	6277.00	-9546.18	3047.74	1635463.00	14265088.00	39°16'59.896"N	81°01'03.023"W	point
Hayhurst Unit 2H LP Rev-1	6277.00	-313.67	-131.09	1632285.45	14274316.80	39°18'31.139"N	81°01'43.486"W	point



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

WELLPATH COMPOSITION - Ref Wellbore: Hayhurst Unit 2H AWB Ref Wellpath: Hayhurst Unit 2H AWP Proj: 16519'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.50	453.50	Gyrodata standard - Drop gyro or Multi-shot	01_Gyrodata MS Gyro <17-1/2">(100'-443')	Hayhurst Unit 2H AWB
453.50	2525.50	ISCWSA MWD, Rev. 4 (Standard)	02_Panther EM <12-1/4">(443')(475'-2515')	Hayhurst Unit 2H AWB
2525.50	5592.50	ISCWSA MWD, Rev. 4 (Standard)	03_Panther EM <8-3/4">(2515')(2625'-5582')	Hayhurst Unit 2H AWB
5592.50	16495.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8-1/2"> (5592.5')(5644'-16495')	Hayhurst Unit 2H AWB
16495.00	16519.00	Blind Drilling (std)	Projection to bit	Hayhurst Unit 2H AWB



Actual Wellpath Report

Hayhurst Unit 2H AWP Proj: 16519'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Hayhurst Unit 2H
Field	Ritchie	Wellbore	Hayhurst Unit 2H AWB
Facility	Black Forest Pad		

COMMENTS

Wellpath general comments

API: 47-085-10377-0000

BHI Job #: 109721817

Rig: H&P 317

Duration: 03/25/2019-03/27/2019

Gyrodata MS Gyro <17-1/2">(100'-443')

Panther EM <12-1/4">(443')(475'-2515')

Panther EM <8-3/4">(2515')(2625'-5582')

BH AT Curve <8-1/2"> (5592.5')(5644'-16495')

Middlesex: 6247' MD

Burkett: 6434' MD

Marcellus POE: 6492' MD

Projected MD at TD: 16519'