

ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV
 Field: Ritchie
 Facility: Black Forest Pad

Slot: Slot #03
 Well: Hayhurst Unit 1H
 Wellbore: Hayhurst Unit 1H PWB

Gyrodala MS Gyro <17-112>(100-445) : 110.50ft TVD, 0.16ft N, 0.01ft E
 Panther EM <12-1/4>(445)(474-2590) : 484.50ft TVD, 0.84ft N, 0.84ft E

Pool reference wellpath is Hayhurst Unit 1H PWB Rev-A.0
 True vertical depths are referenced to H&P 317 (RKG)
 Measured depths are referenced to H&P 317 (RKG)
 H&P 317 (RKG) to Mean Seal Level: 1093.5 feet
 Mean Seal Level to Ground level (A) Slot: Slot #03: -1093 feet
 Coordinates are in feet referenced to Slot

Parthner EM <8-3/4>(2590)(2693-5876) : 2827.69ft TVD, 303.65ft S, 427.00ft W
 Marcellus POE: 6673 MD : 6229.06ft TVD, 1357.50ft S, 1177.37ft W

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Black Forest Pad	1632416.484	14274621.346	38°16'34.240"N	81°01'41.820"W
Slot	Local N (ft)	Grid East (US ft)	Latitude	Longitude
Slot #03	-8.10	1632411.787	38°16'34.150"N	81°01'41.880"W
H&P 317 (RKG) to Ground level (A) Slot: Slot #03			25.8ft	
Mean Seal Level to Ground level (A) Slot: Slot #03			-1093.5ft	
H&P 317 (RKG) to Mean Seal Level			1108.5ft	

Well Data

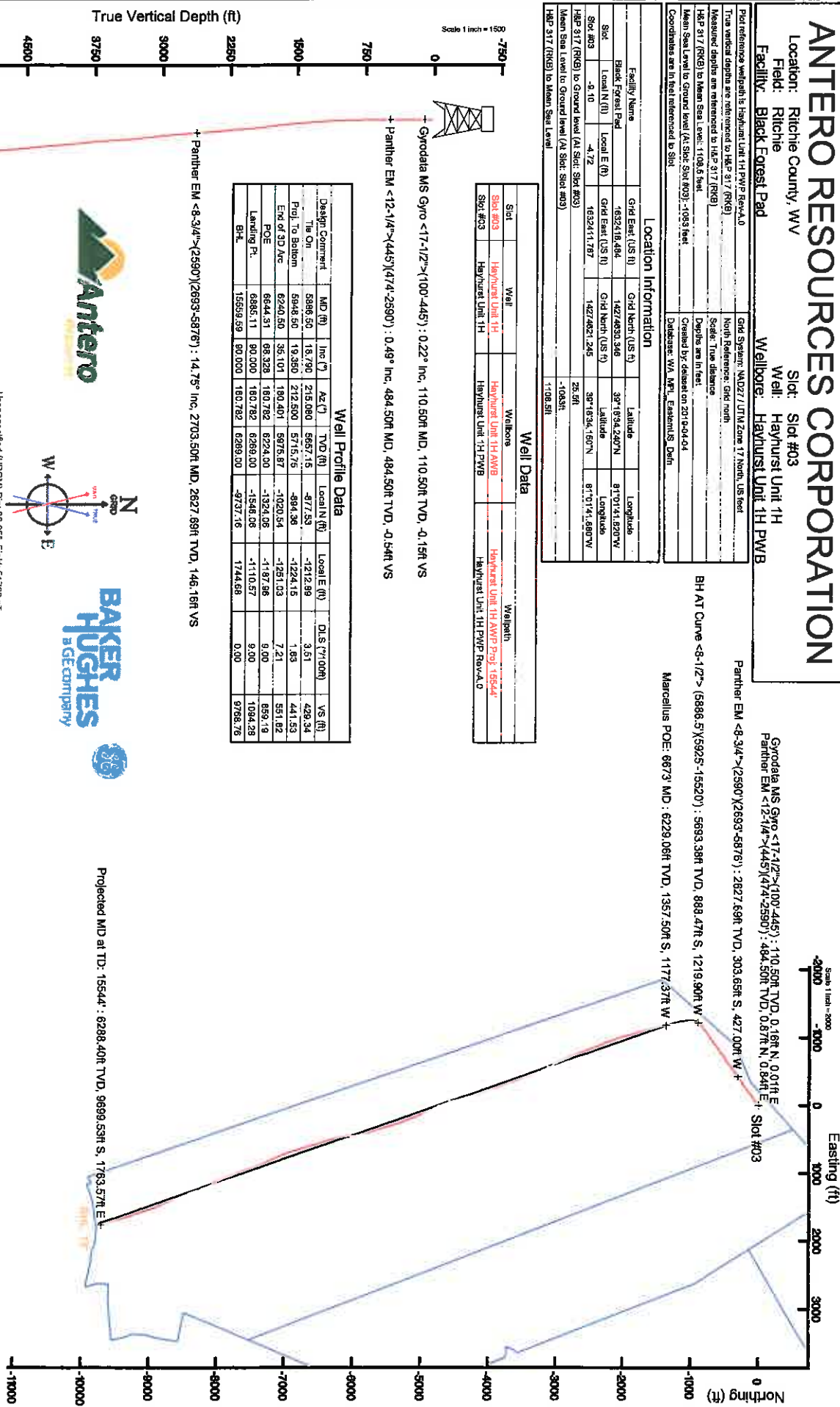
Slot	Well	Wellbore	Wellpath
Slot #03	Hayhurst Unit 1H	Hayhurst Unit 1H AWB	Hayhurst Unit 1H AWB Proj: 15544
Slot #03	Hayhurst Unit 1H	Hayhurst Unit 1H PWB	Hayhurst Unit 1H PWB Rev-A.0

Well Profile Data

Design Comment	MD (ft)	Incl (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
The On	6386.50	18.730	216.080	6657.15	-877.53	-1212.98	3.51	428.34
Prof. To Bottom	6948.50	19.350	212.500	5715.75	-884.36	-1224.15	1.83	441.53
End of 3D Arc	6240.50	35.101	180.401	5975.87	-1020.54	-1261.03		551.82
POE	6644.51	68.328	160.782	8224.00	-1324.06	-1187.96	9.00	659.19
Landing Pt.	6885.11	90.000	160.782	8289.00	-1346.06	-1110.57	9.00	1094.28
BrL	15559.59	80.000	160.782	8289.00	-9737.16	1744.68	0.00	9768.76

+ Gyrodala MS Gyro <17-112>(100-445) : 0.22° Inc, 110.50ft MD, 110.50ft TVD, -0.16ft VS
 + Parthner EM <12-1/4>(445)(474-2590) : 0.49° Inc, 484.50ft MD, 484.50ft TVD, -0.84ft VS

+ Parthner EM <8-3/4>(2590)(2693-5876) : 14.75° Inc, 2703.50ft MD, 2827.69ft TVD, 146.18ft VS



User specified (HDGM) Dip: 86.35° Field: 51703 nT
 Magnetic North is 7.97 degrees West of True North (at 3/28/2019)
 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

Vertical Section (ft)
 Scale 1 inch = 1500
 BH AT Curve <8-1/2> (5886.5)(5925-15520) : 20.70° Inc, 5925.00ft MD, 5693.38ft TVD, 437.37ft VS
 Marcellus POE: 6673 MD : 72.31° Inc, 6673.00ft MD, 6229.06ft TVD, 894.25ft VS
 Projected MD at TD: 15544 : 90.49° Inc, 15544.00ft MD, 6288.40ft TVD, 9739.46ft VS
 Projected MD at TD: 15544 : 8288.40ft TVD, 9699.58ft S, 1763.57ft E

API: 47-085-10376-0000
 BHI Job #: 109743919
 Rig: H&P 317
 Duration: 03/29/2019-03/31/2019



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Hayhurst Unit 1H
Field	Ritchie	Wellbore	Hayhurst Unit 1H 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	4/4/2019 at 10:11:39 AM
Convergence at slot	0.02° West	Database/Source file	WA_MPL_EasternUS_Defn/Hayhurst_Unit_1H_AWP_Proj_15544.xml

WELLPATH LOCATION							
	Local coordinates			Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Easting(US ft)	Northing(US ft)	Latitude	Longitude	
Slot Location	-9.10	-4.72	1632411.77	14274621.25	39°18'34.150"N	81°01'41.880"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 #03)	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	160.78°



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Hayhurst Unit 1H
Field	Ritchie	Wellbore	Hayhurst Unit 1H AWB
Facility	Black Forest Pad		

WELLPATH DATA (193 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 °/100ft	Comments
0.00	0.000	5.210	0.00	0.00	0.00	0.00	163241.77	14274621.25	39°18'34.150"N	81°01'41.880"W	0.00	0.000	0.00	0.00	0.00	
25.50	0.000	5.210	25.50	0.00	0.00	0.00	163241.77	14274621.25	39°18'34.150"N	81°01'41.880"W	0.00	0.000	0.00	0.00	0.00	
110.50	0.220	5.210	110.50	-0.15	0.16	0.01	163241.78	14274621.41	39°18'34.152"N	81°01'41.880"W	0.16	5.210	0.26	0.26	6.13	Gyrodata MS Gyro <17-12">(100-445)
135.50	0.150	345.130	135.50	-0.22	0.24	0.01	163241.78	14274621.49	39°18'34.152"N	81°01'41.880"W	0.24	2.351	0.38	-0.28	-80.32	
160.50	0.320	332.990	160.50	-0.33	0.34	-0.03	163241.74	14274621.58	39°18'34.153"N	81°01'41.880"W	0.34	354.886	0.71	0.68	-61.12	
185.50	0.210	355.930	185.50	-0.44	0.44	-0.07	163241.70	14274621.69	39°18'34.154"N	81°01'41.881"W	0.45	351.567	0.61	-0.44	94.32	
210.50	0.230	342.370	210.50	-0.53	0.54	-0.08	163241.68	14274621.78	39°18'34.155"N	81°01'41.881"W	0.54	351.089	0.22	0.08	-54.24	
235.50	0.220	333.410	235.50	-0.63	0.63	-0.12	163241.65	14274621.87	39°18'34.156"N	81°01'41.882"W	0.64	349.099	0.15	-0.04	-35.84	
260.50	0.150	42.320	260.50	-0.70	0.69	-0.12	163241.65	14274621.94	39°18'34.157"N	81°01'41.882"W	0.70	350.175	0.87	-0.28	275.64	
285.50	0.220	50.050	285.50	-0.73	0.75	-0.08	163241.71	14274621.99	39°18'34.157"N	81°01'41.881"W	0.75	355.314	0.30	0.28	30.82	
310.50	0.180	58.940	310.50	-0.75	0.80	0.01	163241.78	14274622.05	39°18'34.158"N	81°01'41.880"W	0.80	0.778	0.17	-0.12	35.56	
335.50	0.280	39.830	335.50	-0.79	0.87	0.09	163241.85	14274622.11	39°18'34.159"N	81°01'41.879"W	0.87	5.615	0.47	0.36	-76.44	
360.50	0.290	93.960	360.50	-0.80	0.91	0.19	163241.95	14274622.16	39°18'34.159"N	81°01'41.878"W	0.93	11.629	1.04	0.04	276.52	
385.50	0.250	102.960	385.50	-0.75	0.90	0.30	163241.07	14274622.14	39°18'34.159"N	81°01'41.876"W	0.95	18.747	0.23	-0.18	36.00	
410.50	0.250	85.250	410.50	-0.70	0.89	0.41	163241.21	14274622.13	39°18'34.159"N	81°01'41.875"W	0.98	24.863	0.31	0.00	-70.84	
435.50	0.340	87.950	435.50	-0.67	0.90	0.54	163241.31	14274622.14	39°18'34.159"N	81°01'41.873"W	1.05	31.099	0.36	0.36	10.80	
460.50	0.280	90.140	460.50	-0.63	0.90	0.65	163241.21	14274622.14	39°18'34.159"N	81°01'41.872"W	1.11	35.845	0.31	-0.30	10.95	
485.50	0.490	102.900	485.50	-0.54	0.87	0.84	163241.21	14274622.11	39°18'34.159"N	81°01'41.872"W	1.21	44.012	0.78	0.72	44.00	Parther EM <12-1/4">(445)(474-2590)
510.50	0.460	143.240	510.50	0.01	0.49	1.44	163241.320	14274621.73	39°18'34.155"N	81°01'41.862"W	1.52	71.186	0.36	-0.03	44.33	
535.50	2.530	230.980	535.50	1.03	-1.05	0.11	163241.88	14274620.20	39°18'34.140"N	81°01'41.879"W	1.06	173.993	2.84	2.30	97.49	
560.50	4.280	239.070	560.50	2.38	-4.03	-4.31	163240.745	14274617.22	39°18'34.110"N	81°01'42.029"W	5.90	226.967	2.01	1.94	8.99	
585.50	6.580	239.070	585.50	4.14	-8.46	-11.70	163240.07	14274612.79	39°18'34.086"N	81°01'42.029"W	14.43	234.130	2.53	2.53	-0.07	
610.50	8.870	239.000	610.50	6.58	-14.66	-22.08	1632389.69	14274606.59	39°18'34.005"N	81°01'42.161"W	26.51	236.613	1.91	1.76	4.42	
635.50	10.560	235.000	635.50	10.45	-23.49	-36.65	1632376.13	14274597.76	39°18'33.918"N	81°01'42.333"W	42.89	236.613	1.55	1.50	-1.90	
660.50	11.970	233.210	660.50	15.73	-34.27	-50.51	1632361.28	14274586.99	39°18'33.811"N	81°01'42.532"W	61.04	235.842	1.55	0.61	0.71	
685.50	12.540	233.890	685.50	21.64	-46.13	-66.56	1632345.23	14274575.14	39°18'33.694"N	81°01'42.727"W	80.98	235.278	0.62	0.61	0.93	
710.50	13.410	233.860	710.50	27.78	-58.57	-83.61	1632328.19	14274562.70	39°18'33.571"N	81°01'42.943"W	125.08	234.987	0.93	0.93	-0.02	
735.50	15.050	235.670	735.50	34.14	-71.88	-102.49	1632309.32	14274549.39	39°18'33.439"N	81°01'43.184"W	150.75	235.154	1.81	1.74	1.93	
760.50	16.520	236.340	760.50	40.61	-86.13	-123.72	1632288.10	14274535.15	39°18'33.298"N	81°01'43.454"W	150.75	235.154	1.58	1.56	0.93	
785.50	18.820	235.760	785.50	47.82	-102.94	-147.41	1632264.42	14274519.25	39°18'33.141"N	81°01'43.755"W	179.28	235.308	2.46	2.45	-0.83	



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544'
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	ANTERO RESOURCES CORPORATION	Well	Hayhurst Unit 1H
Area	Richie County, WY	Wellbore	Hayhurst Unit 1H AWB
Field	Richie		
Facility	Black Forest Pad		

WELLPATH DATA (193 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	US ft	US ft	°	°	ft	°	ft/100ft	ft/100ft	°/100ft	
1690.50	20.100	232.210	1665.09	56.90	-120.47	-172.71	1632229.13	14274500.83	39°18'32.956"N	81°01'44.077"W	210.57	235.103	1.85	1.36	-3.78	
1785.50	19.430	229.100	1754.49	67.93	-140.82	-197.55	1632214.30	14274480.49	39°18'32.758"N	81°01'44.393"W	242.60	234.518	1.31	-0.71	-3.27	
1879.50	19.820	230.390	1843.03	79.28	-161.21	-221.65	1632190.21	14274460.10	39°18'32.565"N	81°01'44.699"W	274.07	233.970	0.62	0.41	1.37	
1973.50	18.830	232.910	1931.73	89.47	-180.52	-246.02	1632165.84	14274440.80	39°18'32.365"N	81°01'45.009"W	305.15	233.730	1.38	-1.05	2.66	
2067.50	19.350	238.370	2020.57	97.47	-197.84	-271.39	1632140.49	14274423.49	39°18'32.194"N	81°01'45.332"W	336.84	233.908	1.98	0.55	5.81	
2162.50	19.560	238.480	2110.15	104.24	-214.41	-298.34	1632113.54	14274406.92	39°18'32.030"N	81°01'45.675"W	367.40	234.287	0.22	0.22	0.12	
2256.50	19.410	237.770	2198.76	111.11	-230.96	-324.97	1632086.93	14274390.37	39°18'31.866"N	81°01'46.013"W	398.69	234.598	0.30	-0.16	-0.76	
2350.50	17.310	232.860	2287.98	118.93	-247.74	-349.34	1632062.57	14274373.61	39°18'31.700"N	81°01'46.323"W	428.26	234.657	2.77	-2.23	-5.22	
2444.50	16.560	230.590	2377.90	127.86	-264.69	-370.83	1632041.08	14274356.66	39°18'31.538"N	81°01'46.597"W	455.61	234.482	1.06	-0.80	-2.41	
2538.50	15.610	235.830	2468.23	135.74	-280.30	-391.65	1632020.27	14274341.06	39°18'31.373"N	81°01'46.861"W	481.62	234.489	1.64	-1.01	-5.57	
2630.50	14.690	237.660	2528.07	139.69	-289.20	-405.19	1632006.74	14274332.16	39°18'31.290"N	81°01'47.034"W	497.81	234.483	1.65	-1.48	-5.57	
2703.50	14.750	235.410	2627.69	146.16	-303.65	-427.00	1631984.94	14274317.72	39°18'31.147"N	81°01'47.578"W	523.96	234.583	0.53	0.06	-2.08	panther EM -<3/4">(2590'X2693'-5876')
2798.50	16.500	234.960	2719.18	153.04	-318.26	-448.01	1631963.94	14274303.11	39°18'31.003"N	81°01'47.875"W	549.54	234.610	1.85	1.84	-2.79	
2892.50	18.440	236.580	2808.84	160.33	-334.11	-471.35	1631940.61	14274287.26	39°18'30.846"N	81°01'48.173"W	577.75	234.669	2.13	2.06	-1.72	
2986.50	18.850	233.850	2898.42	167.94	-350.34	-494.76	1631917.21	14274271.05	39°18'30.688"N	81°01'48.473"W	606.24	234.687	1.91	-1.69	-2.90	
3080.50	19.720	234.050	2988.14	176.09	-366.82	-517.40	1631894.57	14274254.57	39°18'30.523"N	81°01'48.761"W	634.24	234.655	1.03	1.03	-0.21	
3180.50	19.700	233.800	3082.83	185.38	-385.76	-543.39	1631868.59	14274238.84	39°18'30.336"N	81°01'49.093"W	666.40	234.629	1.88	1.88	-0.25	
3274.50	18.180	228.250	3171.74	195.62	-404.89	-569.12	1631844.87	14274221.65	39°18'30.146"N	81°01'49.481"W	696.82	234.476	2.51	-1.62	-5.90	
3369.50	18.120	231.450	3262.02	206.19	-423.96	-599.73	1631822.27	14274197.45	39°18'29.956"N	81°01'49.811"W	726.31	234.287	1.05	-0.06	3.37	
3464.50	17.460	233.220	3352.48	215.38	-441.70	-612.70	1631799.31	14274179.72	39°18'29.782"N	81°01'49.982"W	756.32	234.212	0.90	-0.69	7.33	
3559.50	18.210	240.180	3442.92	222.41	-457.62	-637.00	1631775.03	14274163.81	39°18'29.625"N	81°01'49.982"W	784.33	234.307	2.38	0.79	7.33	
3654.50	16.650	239.730	3533.56	227.75	-471.86	-661.63	1631750.40	14274149.57	39°18'29.484"N	81°01'50.295"W	812.66	234.504	1.65	-1.64	-0.47	
3748.50	19.280	240.730	3623.45	232.78	-485.51	-686.50	1631726.55	14274135.93	39°18'29.349"N	81°01'50.599"W	840.01	234.692	0.82	0.76	1.06	
3843.50	17.360	237.260	3713.63	238.92	-500.92	-711.05	1631701.00	14274120.53	39°18'29.197"N	81°01'50.924"W	869.78	234.836	2.32	2.02	-3.65	
3937.50	18.470	230.610	3802.58	247.69	-518.76	-735.62	1631676.44	14274102.69	39°18'29.020"N	81°01'51.238"W	890.14	234.808	2.44	-0.86	-7.07	
4031.50	17.770	232.260	3891.92	257.39	-536.99	-768.47	1631653.60	14274084.47	39°18'28.840"N	81°01'51.527"W	929.32	234.702	0.92	-0.74	1.76	
4126.50	18.360	233.070	3982.24	266.53	-554.86	-781.89	1631630.19	14274066.61	39°18'28.663"N	81°01'51.825"W	958.76	234.639	0.67	0.62	0.85	
4220.50	18.430	235.450	4071.44	274.96	-572.18	-805.97	1631606.12	14274049.30	39°18'28.492"N	81°01'52.131"W	988.42	234.628	0.80	0.07	2.53	
4315.50	18.260	239.880	4161.61	281.75	-588.16	-831.21	1631580.89	14274033.32	39°18'28.334"N	81°01'52.452"W	1018.26	234.717	1.48	-0.18	4.66	
4409.50	16.100	232.460	4251.43	288.63	-603.50	-854.29	1631557.82	14274017.99	39°18'28.182"N	81°01'52.746"W	1045.95	234.761	3.27	-2.30	-7.89	



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544
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REFERENCE WELLPATH IDENTIFICATION		Operator	ANTERO RESOURCES CORPORATION	Area	Ritchie County, WV	Field	Ritchie	Facility	Black Forest Pad	Slot	Slot #03
		Wellbore	Well							Hayhurst Unit 1H	Hayhurst Unit 1H AWB

WELLPATH DATA (193 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
4504.50	16.610	231.010	4342.58	297.37	-620.07	-876.29	1631536.83	14274001.43	39°18'28.019"N	81°01'53.013"W	1072.67	234.886	0.69	0.54	-1.53	
4598.50	17.390	229.390	4432.47	307.03	-637.67	-896.39	1631515.73	14273983.84	39°18'27.845"N	81°01'53.281"W	1100.06	234.573	0.97	0.83	-1.72	
4692.50	16.900	232.730	4522.30	316.39	-655.08	-917.93	1631484.20	14273966.42	39°18'27.672"N	81°01'53.555"W	1127.71	234.486	1.17	-0.52	3.55	
4786.50	17.180	232.010	4612.17	325.09	-671.90	-939.73	1631472.40	14273948.61	39°18'27.506"N	81°01'53.833"W	1155.24	234.436	0.37	0.30	-0.77	
4880.50	16.960	234.800	4702.03	333.33	-688.35	-961.89	1631450.26	14273933.17	39°18'27.343"N	81°01'54.114"W	1182.82	234.412	0.90	-0.23	2.97	
4974.50	18.050	238.180	4791.68	340.28	-703.93	-985.47	1631426.69	14273917.60	39°18'27.189"N	81°01'54.414"W	1211.06	234.461	1.59	1.18	3.60	
5068.50	18.150	238.990	4881.03	346.45	-719.15	-1010.39	1631401.78	14273902.38	39°18'27.039"N	81°01'54.731"W	1240.19	234.558	0.29	0.11	0.86	
5162.50	19.840	237.630	4969.91	353.10	-735.26	-1036.40	1631375.78	14273886.28	39°18'26.879"N	81°01'55.062"W	1270.72	234.647	1.87	1.80	-1.55	
5257.50	19.420	232.430	5059.39	361.77	-753.55	-1062.52	1631349.67	14273868.00	39°18'26.699"N	81°01'55.394"W	1302.61	234.655	1.86	-0.44	-5.37	
5351.50	17.650	232.380	5148.51	371.19	-771.78	-1088.20	1631326.01	14273849.78	39°18'26.518"N	81°01'55.696"W	1332.46	234.605	1.88	-1.88	-0.05	
5445.50	18.370	231.610	5237.91	380.55	-789.67	-1109.09	1631303.12	14273831.89	39°18'26.341"N	81°01'55.986"W	1361.50	234.549	0.81	0.77	-0.82	
5540.50	18.310	235.920	5328.09	389.29	-807.33	-1133.89	1631279.03	14273814.24	39°18'26.167"N	81°01'56.293"W	1391.37	234.532	1.43	-0.06	4.54	
5634.50	17.260	235.340	5417.59	396.79	-823.54	-1156.89	1631255.34	14273798.04	39°18'26.007"N	81°01'56.594"W	1420.07	234.555	1.13	-1.12	-0.62	
5728.50	17.650	229.060	5507.27	405.78	-840.81	-1179.13	1631233.11	14273780.78	39°18'25.836"N	81°01'56.877"W	1448.20	234.508	2.05	0.41	-6.66	
5823.50	18.840	221.940	5597.51	418.57	-861.66	-1200.26	1631211.89	14273763.93	39°18'25.630"N	81°01'57.146"W	1477.53	234.325	2.66	1.25	-7.45	
5886.50	18.790	215.080	5667.15	429.34	-877.53	-1212.89	1631199.36	14273744.07	39°18'25.473"N	81°01'57.306"W	1497.05	234.114	3.51	-0.05	-10.89	
5925.00	20.700	201.410	5693.38	437.37	-888.47	-1219.90	1631192.36	14273733.13	39°18'25.365"N	81°01'57.396"W	1509.15	233.934	6.43	4.96	-12.13	SH AT Curve <-8-1/2"> (5886.5)(5925-15520)
5975.00	22.750	201.050	5739.84	450.47	-905.12	-1227.85	1631184.41	14273716.48	39°18'25.200"N	81°01'57.497"W	1525.41	233.604	8.04	4.10	-18.72	
6023.00	23.740	188.050	5783.98	466.15	-923.37	-1232.54	1631179.72	14273698.25	39°18'25.020"N	81°01'57.556"W	1540.05	233.161	10.86	2.06	-27.08	
6070.00	25.330	182.200	5826.74	483.92	-942.78	-1234.02	1631177.24	14273678.94	39°18'24.828"N	81°01'57.678"W	1566.37	232.626	6.17	3.36	-72.45	
6118.00	26.710	182.090	5870.05	503.18	-963.45	-1235.80	1631176.47	14273658.18	39°18'24.623"N	81°01'57.588"W	1595.10	232.042	0.80	0.79	-0.23	
6165.00	27.980	181.520	5911.99	522.99	-984.66	-1235.69	1631176.57	14273636.98	39°18'24.414"N	81°01'57.596"W	1580.03	231.450	4.86	4.83	-1.21	
6260.00	31.710	179.130	5953.61	545.51	-1008.54	-1235.80	1631176.47	14273613.11	39°18'24.178"N	81°01'57.581"W	1595.10	230.782	8.16	7.77	-4.98	
6358.00	35.050	175.350	5992.86	570.30	-1034.35	-1234.51	1631177.75	14273587.31	39°18'23.923"N	81°01'57.581"W	1610.56	230.042	8.37	7.11	-8.04	
6398.00	39.100	173.200	6031.15	598.44	-1063.68	-1227.48	1631184.78	14273562.01	39°18'23.336"N	81°01'57.491"W	1644.03	228.299	8.38	8.04	-3.62	
6403.00	47.130	170.490	6100.55	662.03	-1127.19	-1222.16	1631190.10	14273494.51	39°18'22.005"N	81°01'57.402"W	1662.60	227.315	8.98	8.85	-4.48	
6415.00*	48.418	170.185	6108.62	660.80	-1135.95	-1220.67	1631191.59	14273468.75	39°18'22.019"N	81°01'57.404"W	1667.46	227.059	10.90	10.74	-2.50	Middlesex: 6415 MD
6450.00	52.180	169.360	6130.97	697.39	-1182.45	-1215.88	1631196.37	14273459.27	39°18'22.657"N	81°01'57.343"W	1682.16	226.287	10.90	10.75	-2.36	
6468.00	57.580	170.080	6158.58	738.16	-1261.06	-1208.89	1631203.37	14273420.66	39°18'22.275"N	81°01'57.254"W	1704.10	225.186	11.32	11.25	1.50	



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	ANTERO RESOURCES CORPORATION	Well	Hayhurst Unit 1H
Area	Ritchie County, WV	Wellbore	Hayhurst Unit 1H AWP
Field	Ritchie		
Facility	Black Forest Pad		

WELLPATH DATA (193 stations) † = interpolated/extrapolated station																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	US ft	US ft			ft	°	°/100ft	°/100ft	°/100ft	
6545.00	62.820	169.670	6181.92	776.42	-1241.20	-1201.72	1631210.53	14273380.54	39°18'21.878"N	81°01'57.163"W	1727.63	224.074	11.17	11.15	-0.87	
6593.00	67.810	169.310	6201.96	819.51	-1284.07	-1193.76	1631218.49	14273337.69	39°18'21.455"N	81°01'57.061"W	1753.25	222.913	10.42	10.40	-0.73	
6604.00†	68.493	168.749	6206.06	829.62	-1294.09	-1191.82	1631220.43	14273327.67	39°18'21.356"N	81°01'57.036"W	1758.29	222.644	7.80	6.21	-5.10	Burkett: 6604' MID
6840.00	70.740	168.950	6218.60	863.10	-1327.08	-1184.71	1631227.53	14273294.70	39°18'21.030"N	81°01'56.946"W	1778.95	221.756	7.80	6.24	-5.00	
6673.00†	72.308	166.928	6229.06	884.25	-1367.50	-1177.37	1631234.87	14273264.29	39°18'20.728"N	81°01'56.862"W	1796.85	220.935	5.58	4.75	-3.05	Marcellus POE: 6673' MID
6698.00	73.00	165.440	6233.82	909.47	-1372.30	-1173.59	1631238.64	14273240.50	39°18'20.583"N	81°01'56.804"W	1805.70	220.537	5.58	4.76	-3.05	
6736.00	75.410	164.220	6246.58	954.58	-1415.95	-1161.76	1631250.48	14273205.86	39°18'20.151"N	81°01'56.654"W	1831.56	219.368	5.57	4.98	-2.60	
6784.00	79.920	165.840	6256.83	1001.33	-1461.24	-1149.65	1631262.58	14273160.59	39°18'19.704"N	81°01'56.499"W	1859.28	218.194	9.96	9.40	3.37	
6831.00	84.170	166.370	6263.34	1047.67	-1506.42	-1138.48	1631273.75	14273115.43	39°18'19.257"N	81°01'56.357"W	1888.23	217.080	9.11	9.04	1.13	
6878.00	86.980	165.760	6267.04	1096.32	-1552.86	-1126.95	1631285.27	14273069.01	39°18'18.798"N	81°01'56.210"W	1918.70	215.969	6.99	6.85	-1.27	
6926.00	89.820	164.150	6268.35	1142.17	-1598.23	-1114.76	1631297.45	14273023.68	39°18'18.350"N	81°01'56.055"W	1948.59	214.896	6.95	6.04	-3.43	
6974.00	89.820	164.150	6268.50	1190.09	-1644.40	-1101.65	1631310.56	14272977.51	39°18'17.894"N	81°01'55.898"W	1979.32	213.820	0.00	0.00	0.00	
7068.00	89.750	163.910	6268.86	1284.93	-1725.73	-1075.51	1631336.69	14272886.21	39°18'16.991"N	81°01'55.555"W	2041.94	211.784	0.26	-0.07	-0.23	
7164.00	89.880	164.980	6269.17	1379.74	-1827.25	-1050.04	1631362.15	14272794.73	39°18'16.087"N	81°01'55.230"W	2107.47	209.884	1.13	0.14	1.13	
7250.00	89.600	165.420	6269.60	1474.45	-1919.10	-1025.77	1631386.41	14272702.92	39°18'15.179"N	81°01'54.921"W	2176.04	208.125	0.55	-0.28	0.48	
7354.00	89.690	164.070	6270.19	1569.22	-2010.75	-1000.78	1631411.39	14272611.31	39°18'14.273"N	81°01'54.603"W	2246.03	206.460	1.42	0.09	-1.42	
7449.00	89.780	161.420	6270.63	1664.16	-2101.46	-972.60	1631429.56	14272520.63	39°18'13.377"N	81°01'54.244"W	2315.62	204.836	2.79	-0.09	-2.79	
7544.00	89.600	158.610	6271.14	1759.14	-2190.73	-940.13	1631472.01	14272431.39	39°18'12.494"N	81°01'53.831"W	2383.94	203.226	2.96	-0.19	-2.96	
7640.00	89.680	156.720	6271.73	1854.99	-2279.52	-903.65	1631508.48	14272342.64	39°18'11.617"N	81°01'53.366"W	2452.11	201.624	1.97	0.09	-1.97	
7734.00	89.820	158.610	6272.14	1948.84	-2455.51	-867.93	1631544.18	14272255.73	39°18'10.758"N	81°01'52.912"W	2520.61	200.141	2.02	0.14	2.01	
7829.00	89.630	160.610	6272.59	2043.82	-2455.51	-834.84	1631577.26	14272166.72	39°18'09.878"N	81°01'52.490"W	2593.55	198.777	2.11	-0.20	2.11	
7924.00	89.570	158.550	6273.26	2138.79	-2544.53	-801.70	1631610.39	14272077.73	39°18'08.998"N	81°01'52.068"W	2667.84	197.488	2.17	-0.06	-2.17	
8019.00	89.720	157.570	6273.84	2233.68	-2632.65	-766.20	1631645.87	14271989.66	39°18'08.127"N	81°01'51.616"W	2741.88	196.227	1.04	0.16	-1.03	
8114.00	89.780	157.480	6274.26	2328.53	-2720.43	-729.88	1631682.18	14271901.80	39°18'07.260"N	81°01'51.154"W	2816.85	195.019	0.11	0.06	-0.09	
8208.00	89.570	156.300	6274.79	2422.31	-2806.89	-692.99	1631718.05	14271815.48	39°18'06.405"N	81°01'50.684"W	2891.17	193.868	1.28	-0.22	-1.28	
8303.00	89.690	155.570	6275.41	2516.96	-2883.63	-654.25	1631757.78	14271728.78	39°18'05.548"N	81°01'50.191"W	2966.67	192.740	0.78	0.13	-0.77	
8398.00	89.690	156.690	6275.92	2611.65	-2980.50	-615.81	1631796.20	14271641.94	39°18'04.690"N	81°01'49.702"W	3043.45	191.674	1.18	0.00	1.18	
8492.00	89.780	156.660	6276.36	2705.41	-3066.82	-578.59	1631833.41	14271555.66	39°18'03.837"N	81°01'49.228"W	3120.92	190.684	0.10	-0.10	-0.03	
8587.00	89.630	156.110	6276.84	2800.12	-3153.86	-540.54	1631871.45	14271468.65	39°18'02.976"N	81°01'48.742"W	3199.85	189.725	0.60	-0.16	-0.58	
8682.00	89.630	155.580	6277.46	2894.77	-3240.54	-501.66	1631910.30	14271382.01	39°18'02.120"N	81°01'48.240"W	3279.14	188.800	0.56	0.00	-0.58	



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION									
Operator	ANTERO RESOURCES CORPORATION								
Area	Ritchie County, WV								
Field	Ritchie								
Facility	Black Forest Pad								
	Slot	Slot #03							
	Well	Hayhurst Unit 1H							
	Wellbore	Hayhurst Unit 1H AWB							

WELLPATH DATA (193 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	US ft	US ft			ft	°	ft/100ft	ft/100ft	ft/100ft	
8777.00	89.750	157.060	6277.97	2989.48	-3327.54	-463.51	1631948.44	14271285.05	39°18'01.260"N	81°01'47.763"W	3359.66	187.930	1.56	0.13	1.56	
8872.00	89.780	159.320	6278.36	3084.37	-3415.73	-428.22	1631983.72	14271206.89	39°18'00.389"N	81°01'47.314"W	3442.47	187.146	2.38	0.03	2.38	
8966.00	89.820	159.800	6278.69	3178.35	-3503.75	-395.24	1632016.69	14271118.90	39°17'59.519"N	81°01'46.894"W	3525.98	186.436	0.30	0.04	0.30	
9061.00	89.880	159.570	6278.94	3273.33	-3592.79	-362.10	1632049.81	14271029.90	39°17'58.639"N	81°01'46.472"W	3610.99	185.765	0.07	0.06	-0.03	
9156.00	89.750	159.910	6279.24	3368.31	-3681.91	-329.20	1632082.70	14270940.82	39°17'57.758"N	81°01'46.053"W	3696.60	185.109	0.38	-0.14	0.36	
9251.00	89.660	161.260	6279.73	3463.31	-3771.50	-297.63	1632114.26	14270861.26	39°17'56.673"N	81°01'45.651"W	3783.23	184.512	1.42	-0.08	1.42	
9346.00	89.510	161.880	6280.42	3558.30	-3861.63	-267.59	1632144.28	14270761.17	39°17'55.982"N	81°01'45.268"W	3870.89	183.964	0.67	-0.16	0.65	
9440.00	89.750	161.680	6281.03	3652.28	-3950.91	-238.20	1632173.66	14270671.92	39°17'55.100"N	81°01'44.894"W	3958.09	183.450	0.33	0.26	-0.21	
9535.00	89.850	161.760	6281.76	3747.27	-4041.12	-208.41	1632203.44	14270581.75	39°17'54.208"N	81°01'44.515"W	4046.49	182.952	0.13	0.11	0.08	
9630.00	89.720	162.100	6282.13	3842.25	-4131.43	-178.94	1632232.90	14270481.47	39°17'53.318"N	81°01'44.140"W	4135.31	182.480	0.36	-0.14	0.36	
9725.00	92.190	165.250	6280.13	3937.09	-4222.57	-152.24	1632259.58	14270400.37	39°17'52.415"N	81°01'43.800"W	4225.31	182.065	4.21	2.60	3.32	
9820.00	90.000	162.490	6278.32	4031.92	-4313.80	-125.86	1632285.96	14270309.18	39°17'51.513"N	81°01'43.464"W	4315.63	181.671	3.71	-2.31	-2.91	
9915.00	89.750	164.750	6278.52	4126.80	-4404.94	-99.07	1632312.74	14270218.08	39°17'50.613"N	81°01'43.123"W	4406.05	181.288	2.39	-0.26	2.38	
10011.00	89.850	165.030	6278.86	4222.55	-4497.62	-74.05	1632337.75	14270125.44	39°17'49.697"N	81°01'42.804"W	4498.23	180.943	0.31	0.10	0.29	
10106.00	89.850	161.530	6279.11	4317.45	-4588.59	-46.72	1632365.07	14270034.50	39°17'48.798"N	81°01'42.456"W	4588.82	180.583	3.68	0.06	-3.68	
10201.00	89.780	160.310	6279.41	4412.44	-4678.37	-15.67	1632396.11	14269944.76	39°17'47.910"N	81°01'42.061"W	4678.39	180.192	1.29	-0.07	-1.28	
10296.00	89.880	154.160	6279.70	4507.22	-4765.92	21.08	1632432.83	14269857.24	39°17'47.045"N	81°01'41.593"W	4765.97	179.747	6.47	0.11	-6.47	
10391.00	89.660	152.480	6280.08	4601.41	-4850.80	63.73	1632475.47	14269772.39	39°17'46.206"N	81°01'41.050"W	4851.22	179.247	1.78	-0.23	-1.77	
10486.00	89.750	152.410	6280.57	4695.40	-4935.03	107.68	1632519.40	14269688.20	39°17'45.374"N	81°01'40.491"W	4936.20	178.760	0.12	0.05	-0.07	
10581.00	89.400	153.920	6282.10	4789.55	-5019.78	190.55	1632562.26	14269603.48	39°17'44.536"N	81°01'39.945"W	5022.04	178.282	2.13	-1.42	1.59	
10676.00	89.910	158.420	6283.50	4884.20	-5106.65	188.92	1632600.61	14269516.65	39°17'43.678"N	81°01'39.457"W	5110.14	177.881	5.00	1.59	4.74	
10771.00	89.940	158.730	6283.63	4979.13	-5195.08	223.62	1632635.30	14269428.25	39°17'42.804"N	81°01'39.015"W	5199.89	177.535	0.33	0.03	0.33	
10867.00	89.500	160.080	6284.01	5075.10	-5284.94	257.39	1632669.05	14269338.43	39°17'41.916"N	81°01'38.585"W	5291.21	177.212	1.45	-0.35	1.41	
10962.00	90.550	163.370	6283.89	5170.07	-5375.14	297.18	1632698.83	14269248.27	39°17'41.025"N	81°01'38.206"W	5382.81	176.942	3.60	1.00	3.46	
11057.00	89.880	164.800	6283.53	5264.91	-5466.49	313.22	1632724.87	14269156.95	39°17'40.122"N	81°01'37.874"W	5475.46	176.721	1.66	-0.71	1.51	
11152.00	90.400	162.640	6283.30	5359.78	-5557.68	339.85	1632751.48	14269065.80	39°17'39.221"N	81°01'37.535"W	5568.06	176.501	2.34	0.56	-2.27	
11247.00	89.820	162.640	6283.12	5454.73	-5648.35	368.20	1632778.82	14268975.16	39°17'38.324"N	81°01'37.174"W	5660.34	176.270	0.61	-0.61	0.00	
11342.00	89.820	163.230	6283.42	5549.66	-5739.17	396.08	1632807.69	14268884.38	39°17'37.427"N	81°01'36.819"W	5752.82	176.052	0.62	0.00	0.62	
11437.00	89.350	166.150	6284.10	5644.43	-5830.78	421.16	1632832.76	14268792.80	39°17'36.522"N	81°01'36.500"W	5846.97	175.839	3.11	-0.49	3.07	
11533.00	90.090	170.640	6284.57	5739.56	-5924.80	449.46	1632852.05	14268698.83	39°17'35.582"N	81°01'36.254"W	5941.15	175.748	4.74	0.77	4.68	



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Hayhurst Unit 1H
Field	Ritchie	Wellbore	Hayhurst Unit 1H AWB
Facility	Black Forest Pad		

WELLPATH DATA (193 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	US ft	US ft			ft	°	ft/100ft	ft/100ft	ft/100ft	
11628.00	90.090	171.980	6284.42	5832.95	-6018.70	454.82	1632866.40	14266604.96	39°17'34.664"N	81°01'36.074"W	6035.86	175.679	1.41	0.00	1.41	
11723.00	90.180	172.050	6284.20	5926.13	-6112.78	468.01	1632879.59	14268510.92	39°17'33.734"N	81°01'36.903"W	6130.67	175.622	0.12	0.08	0.07	
11818.00	90.060	168.880	6284.00	6019.77	-6206.46	483.75	1632895.32	14268417.28	39°17'32.809"N	81°01'35.702"W	6225.28	175.543	3.34	-0.13	-3.34	
11913.00	91.940	162.790	6282.34	6114.33	-6298.51	506.98	1632918.54	14268325.27	39°17'31.899"N	81°01'35.407"W	6318.88	175.398	6.71	1.98	-6.41	
12008.00	90.000	161.670	6280.73	6208.28	-6388.96	536.97	1632847.52	14268234.86	39°17'31.005"N	81°01'35.038"W	6411.40	175.205	2.36	-2.04	-1.18	
12104.00	90.030	163.040	6280.71	6305.23	-6480.44	565.07	1632976.61	14268143.41	39°17'30.101"N	81°01'34.667"W	6505.03	175.017	1.43	0.03	1.43	
12199.00	90.180	162.040	6280.53	6400.20	-6571.06	593.57	1633005.10	14268052.83	39°17'29.205"N	81°01'34.304"W	6597.81	174.838	1.06	0.16	-1.05	
12294.00	90.030	163.070	6280.36	6495.15	-6661.69	622.05	1633033.57	14267962.23	39°17'28.310"N	81°01'33.942"W	6690.67	174.665	1.10	-0.16	1.08	
12389.00	90.120	164.800	6280.29	6590.00	-6752.97	648.34	1633059.84	14267870.99	39°17'27.408"N	81°01'33.607"W	6784.03	174.516	1.82	0.05	1.82	
12484.00	89.820	163.950	6280.24	6684.86	-6844.26	674.64	1633086.14	14267779.74	39°17'26.505"N	81°01'33.272"W	6877.43	174.371	1.87	-0.32	-1.84	
12579.00	90.120	159.850	6280.34	6779.84	-6934.31	704.86	1633116.34	14267689.72	39°17'25.615"N	81°01'32.888"W	6970.04	174.196	3.38	0.32	-3.37	
12674.00	89.850	156.960	6280.36	6874.75	-7022.63	739.82	1633151.29	14267601.44	39°17'24.743"N	81°01'32.443"W	7061.49	173.986	3.06	-0.28	-3.04	
12770.00	89.690	155.440	6280.75	6970.44	-7110.48	778.56	1633190.01	14267513.64	39°17'23.875"N	81°01'31.950"W	7152.96	173.751	1.59	-0.17	-1.58	
12865.00	89.780	153.250	6281.19	7064.83	-7198.09	819.69	1633231.12	14267428.05	39°17'23.028"N	81°01'31.426"W	7242.63	173.502	2.31	0.05	-2.31	
12960.00	89.570	155.390	6281.72	7158.22	-7281.70	860.85	1633272.27	14267342.47	39°17'22.182"N	81°01'30.902"W	7332.41	173.288	2.26	-0.22	2.26	
13055.00	89.600	159.870	6282.41	7254.05	-7369.53	897.00	1633308.40	14267254.68	39°17'21.314"N	81°01'30.442"W	7423.92	173.060	4.72	0.03	4.72	
13151.00	89.690	161.540	6283.01	7350.05	-7460.13	928.72	1633340.11	14267164.11	39°17'20.419"N	81°01'30.039"W	7517.72	172.904	1.74	0.08	1.74	
13246.00	89.660	159.680	6283.55	7445.04	-7549.14	960.26	1633371.64	14267074.54	39°17'19.533"N	81°01'29.637"W	7610.56	172.751	1.96	-0.03	-1.96	
13341.00	89.660	159.830	6284.11	7540.02	-7638.67	993.13	1633404.50	14266985.45	39°17'18.653"N	81°01'29.219"W	7703.15	172.593	0.16	0.00	0.16	
13437.00	89.750	160.330	6284.60	7636.01	-7729.12	1026.84	1633437.19	14266895.23	39°17'17.761"N	81°01'28.802"W	7796.90	172.440	0.53	0.05	0.52	
13531.00	89.720	159.010	6285.04	7729.99	-7817.26	1058.49	1633469.83	14266807.12	39°17'16.890"N	81°01'28.387"W	7888.60	172.289	1.40	-0.03	-1.40	
13626.00	89.780	156.890	6285.46	7824.87	-7905.51	1094.15	1633505.48	14266719.11	39°17'16.019"N	81°01'27.933"W	7980.67	172.120	2.23	0.06	-2.23	
13721.00	89.600	155.490	6285.97	7919.56	-7992.22	1132.50	1633543.82	14266632.24	39°17'15.160"N	81°01'27.445"W	8072.06	171.935	1.49	-0.19	-1.47	
13816.00	89.750	156.400	6286.51	8014.22	-8078.67	1171.23	1633582.52	14266545.52	39°17'14.303"N	81°01'26.952"W	8163.42	171.751	0.97	0.16	0.96	
13911.00	89.680	157.730	6287.00	8108.02	-8166.45	1208.25	1633619.53	14266458.07	39°17'13.439"N	81°01'26.457"W	8256.35	171.584	1.40	-0.09	1.40	
14006.00	89.690	160.680	6287.53	8203.97	-8255.25	1241.97	1633655.24	14266369.31	39°17'12.561"N	81°01'26.052"W	8348.16	171.444	3.11	0.03	3.11	
14101.00	89.680	161.540	6288.07	8298.97	-8345.14	1272.72	1633693.98	14266279.46	39°17'11.673"N	81°01'25.660"W	8441.63	171.329	0.91	-0.03	0.91	
14195.00	89.780	158.640	6288.53	8392.95	-8433.51	1304.73	1633731.97	14266191.13	39°17'10.799"N	81°01'25.253"W	8533.84	171.206	3.09	0.13	-3.09	
14290.00	89.780	156.040	6288.90	8487.77	-8521.17	1347.33	1633762.56	14266103.50	39°17'09.933"N	81°01'24.877"W	8626.09	171.054	2.74	0.00	-2.74	
14385.00	89.600	154.600	6289.41	8582.33	-8607.48	1390.89	1633792.21	14266017.22	39°17'09.080"N	81°01'24.283"W	8717.56	170.885	1.53	-0.18	-1.52	



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Hayhurst Unit 1H
Field	Ritchie	Wellbore	Hayhurst Unit 1H AWB
Facility	Black Forest Pad		

WELLPATH DATA (193 stations)																
ID	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
14480.00	90.180	157.000	6289.59	8676.97	-8694.13	1419.93	1633831.13	14265930.61	39°17'08.224"N	81°01'23.787"W	8809.32	170.724	2.60	0.61	2.53	
14576.00	90.250	157.420	6289.23	8772.78	-8782.63	1457.12	1633868.30	14265842.14	39°17'07.349"N	81°01'23.314"W	8902.69	170.580	0.44	0.07	0.44	
14671.00	90.310	156.430	6288.77	8867.56	-8870.03	1494.35	1633905.52	14265754.78	39°17'06.485"N	81°01'22.840"W	8995.03	170.437	1.04	0.06	-1.04	
14766.00	88.740	158.320	6289.56	8962.39	-8957.71	1530.89	1633942.05	14265667.14	39°17'05.619"N	81°01'22.375"W	9087.58	170.302	2.59	-1.65	1.99	
14861.00	91.170	164.140	6289.63	9057.33	-9047.61	1561.45	1633972.59	14265577.27	39°17'04.730"N	81°01'21.985"W	9181.36	170.208	6.64	2.56	6.13	
14956.00	90.150	163.870	6288.54	9152.18	-9136.93	1587.62	1633998.75	14265485.99	39°17'03.828"N	81°01'21.653"W	9275.80	170.145	1.11	-1.07	0.28	
15052.00	90.280	160.210	6288.18	9248.14	-9230.23	1617.22	1634028.34	14265394.72	39°17'02.926"N	81°01'21.276"W	9370.84	170.062	3.81	0.14	-3.81	
15147.00	88.860	160.970	6288.89	9343.13	-9319.63	1648.78	1634059.89	14265305.16	39°17'02.040"N	81°01'20.875"W	9464.55	169.967	1.70	-1.48	0.80	
15242.00	89.480	164.470	6290.27	9438.05	-9410.52	1677.00	1634088.09	14265214.51	39°17'01.144"N	81°01'20.515"W	9558.77	169.896	3.74	0.65	3.68	
15337.00	89.850	165.990	6290.82	9532.76	-9502.57	1701.22	1634112.30	14265122.68	39°17'00.236"N	81°01'20.207"W	9653.46	169.850	1.65	0.39	1.60	
15432.00	91.230	163.540	6289.93	9627.52	-9594.02	1726.18	1634137.25	14265031.08	39°16'59.330"N	81°01'19.889"W	9748.07	169.800	2.96	1.45	-2.58	
15520.00	90.490	158.510	6288.61	9715.48	-9677.20	1754.78	1634165.84	14264947.93	39°16'58.508"N	81°01'19.525"W	9835.01	169.722	5.78	-0.84	-5.72	
15544.00	90.490	158.510	6288.40	9739.46	-9699.53	1763.57	1634174.63	14264925.61	39°16'58.287"N	81°01'19.414"W	9858.56	169.695	0.00	0.00	0.00	Projected MD at TD: 15544'

HOLE & CASING SECTIONS - Ref Wellbore: Hayhurst Unit 1H AWB Ref Wellpath: Hayhurst Unit 1H AWP Proj: 15544'														
String/Diameter	Start MD ft	End MD ft	Interval ft	Start TVD ft	End TVD ft	Start N/S	Start E/W	End N/S	End E/W					
20in Conductor	25.50	105.50	80.00	25.50	105.50	0.00	0.00	0.14	0.01					
17.5in Open Hole	105.50	465.50	360.00	105.50	465.50	0.14	0.01	0.89	0.70					
13.375in Casing Surface	25.50	465.50	440.00	25.50	465.50	0.00	0.00	0.89	0.70					
12.25in Open Hole	465.50	2668.50	2203.00	465.50	2668.50	0.89	0.00	-298.64	-419.64					
9.625in Casing Intermediate	25.50	2668.50	2643.00	25.50	2593.84	0.00	0.00	-298.64	-419.64					
8.75in Open Hole	2668.50	5948.50	3280.00	2593.84	5715.30	-298.64	-419.64	-895.95	-1223.89					
8.5in Open Hole	5948.50	15544.00	9595.50	5715.30	6288.40	-895.95	-1223.89	-9699.53	-1763.57					
5.5in Casing Production	25.50	15544.00	15518.50	25.50	6288.40	0.00	0.00	-9699.53	-1763.57					



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Hayhurst Unit 1H
Field	Ritchie	Wellbore	Hayhurst Unit 1H AWB
Facility	Black Forest Pad		

TARGETS									
Name	TVD ft	North ft	East ft	Grid East US ft	Grid North US ft	Latitude	Longitude	Shape	
Hayhurst Unit 1H - POE - Rev-2	6224.00	-1324.06	-1187.96	1631224.29	14273297.72	39°18'21.059"N	81°0'156.987"W	point	
Hayhurst Unit 1H - BHL - Rev-2	6269.00	-9737.16	1744.68	1634155.75	14264898.00	39°16'57.916"N	81°0'19.654"W	point	
Hayhurst Unit 1H - LP - Rev-2	6269.00	-1546.06	-1110.57	1631301.64	14273075.81	39°18'18.866"N	81°0'156.002"W	point	

WELLPATH COMPOSITION - Ref Wellbore: Hayhurst Unit 1H AWB Ref Wellpath: Hayhurst Unit 1H AWP Proj: 15544'									
Start MD ft	End MD ft	Positional Uncertainty Model	Log Name/Comment	Wellbore					
25:50	455:50	Gyrodala standard - Drop gyro or Multi-shot	01 Gyrodala MS Gyro <1-1/2">(100-445')	Hayhurst Unit 1H AWB					
455:50	2600:50	ISCWSA MWD, Rev. 4 (Standard)	02 Panther EM <12-1/4">(445')(474'-2590')	Hayhurst Unit 1H AWB					
2600:50	5886:50	ISCWSA MWD, Rev. 4 (Standard)	03 Panther EM <8-3/4">(2590')(2693'-5876')	Hayhurst Unit 1H AWB					
5886:50	15520:00	BH Autotrak Curve (Short)	04 BH AT Curve <8-1/2">(5886-57)(5925'-15520')	Hayhurst Unit 1H AWB					
15520:00	15524:00	Blind Drilling (std)	Protection to bit	Hayhurst Unit 1H AWB					



Actual Wellpath Report

Hayhurst Unit 1H AWP Proj: 15544'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Hayhurst Unit 1H
Field	Ritchie	Wellbore	Hayhurst Unit 1H AWB
Facility	Black Forest Pad		

COMMENTS

Wellpath general comments
 API: 47-085-10376-0000
 BHI Job #: 109743919
 Rig: H&P 317
 Duration: 03/29/2019-03/31/2019
 Gyrodata MS Gyro <17-1/2">(100'-445')
 Panther EM <12-1/4">(445')(474'-2590')
 Panther EM <8-3/4">(2590')(2693'-5876')
 BH AT Curve <8-1/2">(5886.5')(5925'-15520')
 Middlesex: 6415' MD
 Burkett: 6604' MD
 Marcellus POE: 6673' MD
 Projected MD at TD: 15544'