



ANTERO RESOURCES CORPORATION

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

Slot: Slot #08
 Well: Piper Unit 1H
 Wellbore: Piper Unit 1H PWB



API: 47-085-10291-0000
 BHI Job #: 8484895
 Rig: Patterson 343
 Duration: 04/05/2017-04/08/2017

Plot reference wellpath is Piper Unit 1H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Patterson 343 (RKB)	* = Wellpath was transformed from a different geoidic datum
Measured depths are referenced to Patterson 343 (RKB)	North Reference: Grid north
Patterson 343 (RKB) to Mean Sea Level: 1168 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot#08): -1143 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: delaset on 2017-04-13
	Database: WA_MPL_EasternUS_Defn

Gyrodata MS Gyro <8-3/4">(100'-5569') : 0.35° Inc, 112.00ft MD, 112.00ft TVD, 0.27ft VS

Location Information						
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Noland Pad		1646547.130	14270759.740	39°17'55.974"N	80°58'41.988"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #08	-33.76	61.17	1646608.280	14270725.990	39°17'55.640"N	80°58'41.210"W
Comment		Piper Unit 1H				
Patterson 343 (RKB) to Mud line (At Slot: Slot#08)		25ft				
Mean Sea Level to Mud line (At Slot: Slot#08)		-1143ft				
Patterson 343 (RKB) to Mean Sea Level		1168ft				

Well Profile Data								
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	5581.00	15.630	44.370	5466.30	553.61	540.72	0.00	-309.50
Proj. to Bottom	5742.00	15.500	41.130	5621.40	585.32	570.04	0.55	-327.85
Curve KOP	5769.00	15.500	41.130	5647.41	590.75	574.78	0.00	-331.10
End of 3D Arc	6177.20	25.742	126.125	6036.03	579.33	684.55	7.00	-279.23
POE	6721.74	69.928	157.898	6397.00	252.51	888.90	9.00	-100.47
Landing Pt.	6889.00	90.000	157.895	6426.00	100.68	950.56	12.00	264.34
BHL	15750.00	90.000	157.895	6426.00	-8108.98	4285.04	0.00	9125.34

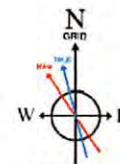
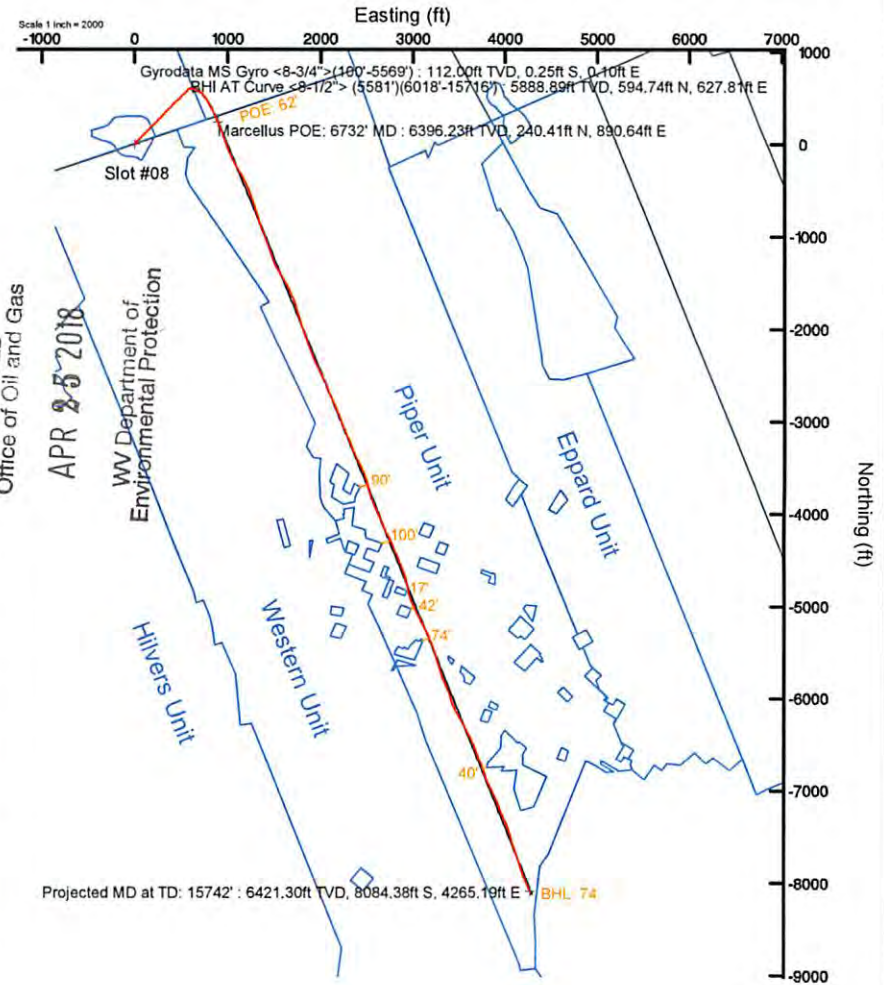
Well Data			
Slot	Well	Wellbore	Wellpath
Slot #08	Piper Unit 1H	Piper Unit 1H AWB	Piper Unit 1H AWP Proj: 15742'
Slot #08	Piper Unit 1H	Piper Unit 1H PWB	Piper Unit 1H PWP Rev-A.0

BHI AT Curve <8-1/2"> (5581')(6018'-15716') : 17.48° Inc, 6018.00ft MD, 5888.89ft TVD, -314.85ft VS

Marcellus POE: 6732' MD : 70.81° Inc, 6732.00ft MD, 6396.23ft TVD, 112.33ft VS

Projected MD at TD: 15742' : 90.74° Inc, 15742.00ft MD, 6421.30ft TVD, 9095.08ft VS

Vertical Section (ft)
 Azimuth 157.90° with reference 0.00 N, 0.00 E



User specified (HDGM) Dip: 66.55° Field: 51953 nT
 Magnetic North is 7.83 degrees West of True North (at 03/Apr/2017)
 Grid North is 0.01 degrees East of True North
 To correct azimuth from True to Grid subtract 0.01 degrees
 To correct azimuth from Magnetic to Grid subtract 7.84 degrees

Scale 1 inch = 1500



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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Piper Unit 1H
Field	Ritchie	Wellbore	Piper Unit 1H AWB
Facility	Noland Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Delaset
Scale	0.999600	Report Generated	13/Apr/2017 at 13:44
Convergence at slot	0.02° East	Database/Source file	WA_MPL_EasternUS_Defn/Piper_Unit_1H_AWP_Proj_15742_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-33.76	61.17	1646608.28	14270725.99	39°17'55.640"N	80°58'41.210"W
Facility Reference Pt			1646547.13	14270759.74	39°17'55.974"N	80°58'41.988"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 343 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 343 (RKB) to Mean Sea Level	1168.00ft
Vertical Reference Pt	Patterson 343 (RKB)	Patterson 343 (RKB) to Mud Line at Slot (Slot #08)	25.00ft
MD Reference Pt	Patterson 343 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	157.90°

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Field Vertical Reference	Mean Sea Level	Section Azimuth	157.90°

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Area	Ritchie County, WV	Well	Piper Unit 1H
Field	Ritchie	Wellbore	Piper Unit 1H AWB
Facility	Noland Pad		

WELLPATH DATA (184 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	158.340	0.00	0.00	0.00	0.00	1646608.28	14270725.99	39°17'55.640"N	80°58'41.210"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	158.340	25.00	0.00	0.00	0.00	1646608.28	14270725.99	39°17'55.640"N	80°58'41.210"W	0.00	0.000	0.00	0.00	0.00	
112.00	0.350	158.340	112.00	0.27	-0.25	0.10	1646608.38	14270725.74	39°17'55.638"N	80°58'41.209"W	0.27	158.340	0.40	0.40	182.00	Gyrodatta MS Gyro <8-3/4">(100'-5569')
212.00	0.080	203.480	212.00	0.62	-0.59	0.18	1646608.46	14270725.40	39°17'55.634"N	80°58'41.208"W	0.62	162.901	0.30	-0.27	45.14	
312.00	0.070	218.120	312.00	0.70	-0.71	0.12	1646608.40	14270725.28	39°17'55.633"N	80°58'41.209"W	0.72	170.566	0.02	-0.01	14.64	
412.00	0.100	70.470	412.00	0.73	-0.73	0.16	1646608.44	14270725.26	39°17'55.633"N	80°58'41.208"W	0.74	167.418	0.16	0.03	-147.65	
512.00	1.410	45.360	511.99	0.27	0.17	1.12	1646609.40	14270726.16	39°17'55.642"N	80°58'41.196"W	1.13	81.474	1.32	1.31	-25.11	
612.00	3.510	32.680	611.89	-1.97	3.61	3.65	1646611.93	14270729.60	39°17'55.676"N	80°58'41.164"W	5.13	45.308	2.16	2.10	-12.68	
712.00	4.070	30.470	711.67	-5.89	9.24	7.10	1646615.38	14270735.23	39°17'55.731"N	80°58'41.120"W	11.66	37.528	0.58	0.56	-2.21	
812.00	2.380	34.720	811.51	-9.19	14.01	10.08	1646618.36	14270739.99	39°17'55.778"N	80°58'41.082"W	17.26	35.742	1.71	-1.69	4.25	
912.00	1.030	63.780	911.46	-10.39	16.11	12.07	1646620.35	14270742.10	39°17'55.799"N	80°58'41.056"W	20.13	36.839	1.56	-1.35	29.06	
1012.00	0.820	108.380	1011.45	-9.99	16.29	13.56	1646621.83	14270742.27	39°17'55.801"N	80°58'41.038"W	21.19	39.777	0.73	-0.21	44.60	
1112.00	1.000	118.560	1111.44	-8.85	15.64	15.00	1646623.28	14270741.63	39°17'55.795"N	80°58'41.019"W	21.67	43.804	0.24	0.18	10.18	
1212.00	0.840	121.990	1211.43	-7.58	14.84	16.39	1646624.66	14270740.82	39°17'55.787"N	80°58'41.002"W	22.11	47.849	0.17	-0.16	3.43	
1312.00	0.590	132.340	1311.42	-6.52	14.10	17.39	1646625.67	14270740.09	39°17'55.779"N	80°58'40.989"W	22.39	50.966	0.28	-0.25	10.35	
1412.00	0.400	159.340	1411.42	-5.71	13.43	17.90	1646626.17	14270739.41	39°17'55.773"N	80°58'40.982"W	22.37	53.118	0.30	-0.19	27.00	
1512.00	0.650	280.050	1511.41	-5.66	13.20	17.46	1646625.73	14270739.19	39°17'55.770"N	80°58'40.988"W	21.89	52.911	0.92	0.25	120.71	
1612.00	0.840	283.910	1611.41	-6.39	13.48	16.19	1646624.47	14270739.46	39°17'55.773"N	80°58'41.004"W	21.07	50.229	0.20	0.19	3.86	
1712.00	0.900	279.600	1711.39	-7.24	13.78	14.71	1646622.98	14270739.77	39°17'55.776"N	80°58'41.023"W	20.16	46.854	0.09	0.06	-4.31	
1812.00	0.270	61.230	1811.39	-7.68	14.03	14.14	1646622.41	14270740.01	39°17'55.779"N	80°58'41.030"W	19.92	45.224	1.12	-0.63	141.63	
1912.00	0.940	82.710	1911.38	-7.50	14.25	15.16	1646623.43	14270740.23	39°17'55.781"N	80°58'41.017"W	20.80	46.778	0.70	0.67	21.48	
2012.00	0.970	81.940	2011.37	-7.08	14.47	16.81	1646625.08	14270740.45	39°17'55.783"N	80°58'40.996"W	22.18	49.282	0.03	0.03	-0.77	
2112.00	1.020	67.110	2111.36	-6.89	14.93	18.47	1646626.74	14270740.92	39°17'55.788"N	80°58'40.975"W	23.75	51.041	0.26	0.05	-14.83	
2212.00	0.920	34.480	2211.34	-7.34	15.94	19.74	1646628.01	14270741.92	39°17'55.797"N	80°58'40.959"W	25.37	51.081	0.55	-0.10	-32.63	
2312.00	0.370	342.930	2311.34	-8.11	16.91	20.10	1646628.37	14270742.89	39°17'55.807"N	80°58'40.954"W	26.27	49.927	0.75	-0.55	-51.55	
2412.00	1.170	264.560	2411.33	-8.72	17.12	18.99	1646627.26	14270743.11	39°17'55.809"N	80°58'40.968"W	25.57	47.960	1.15	0.80	-78.37	
2512.00	1.620	263.690	2511.30	-9.40	16.87	16.57	1646624.84	14270742.85	39°17'55.807"N	80°58'40.999"W	23.65	44.483	0.45	0.45	-0.87	
2612.00	1.780	264.040	2611.25	-10.21	16.55	13.62	1646621.89	14270742.54	39°17'55.804"N	80°58'41.037"W	21.44	39.445	0.16	0.16	0.35	
2712.00	1.500	266.820	2711.21	-11.07	16.32	10.77	1646619.04	14270742.30	39°17'55.801"N	80°58'41.073"W	19.55	33.417	0.29	-0.28	2.78	
2812.00	1.850	27.010	2811.19	-12.55	17.69	10.19	1646618.47	14270743.67	39°17'55.815"N	80°58'41.080"W	20.41	29.959	2.91	0.35	120.19	

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Field	Ritchie	Wellbore	Piper Unit 1H AWB
Facility	Noland Pad		

WELLPATH DATA (184 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
2912.00	4.470	35.210	2911.03	-15.71	22.31	13.18	1646621.45	14270748.29	39°17'55.860"N	80°58'41.042"W	25.91	30.564	2.65	2.62	8.20	
3012.00	6.700	33.660	3010.55	-21.10	30.35	18.66	1646626.93	14270756.33	39°17'55.940"N	80°58'40.973"W	35.63	31.579	2.23	2.23	-1.55	
3112.00	8.520	47.270	3109.67	-26.99	40.23	27.33	1646635.60	14270766.21	39°17'56.038"N	80°58'40.862"W	48.64	34.190	2.55	1.82	13.61	
3212.00	10.130	49.840	3208.35	-32.33	50.93	39.50	1646647.76	14270776.90	39°17'56.143"N	80°58'40.708"W	64.45	37.792	1.66	1.61	2.57	
3312.00	12.510	47.560	3306.40	-38.82	63.91	54.21	1646662.47	14270789.88	39°17'56.272"N	80°58'40.520"W	83.81	40.304	2.42	2.38	-2.28	
3412.00	13.680	46.480	3403.79	-46.91	79.37	70.78	1646679.03	14270805.32	39°17'56.424"N	80°58'40.309"W	106.34	41.727	1.20	1.17	-1.08	
3512.00	14.270	45.760	3500.83	-55.87	96.11	88.18	1646696.43	14270822.06	39°17'56.590"N	80°58'40.088"W	130.43	42.538	0.62	0.59	-0.72	
3612.00	14.980	44.660	3597.59	-65.61	113.90	106.10	1646714.33	14270839.84	39°17'56.765"N	80°58'39.860"W	155.66	42.969	0.76	0.71	-1.10	
3712.00	15.910	44.760	3693.98	-76.10	132.82	124.83	1646733.06	14270858.76	39°17'56.952"N	80°58'39.622"W	182.28	43.224	0.93	0.93	0.10	
3812.00	17.220	42.870	3789.83	-87.75	153.41	144.56	1646752.78	14270879.33	39°17'57.156"N	80°58'39.371"W	210.78	43.299	1.42	1.31	-1.89	
3912.00	18.470	42.680	3885.02	-100.76	175.90	165.37	1646773.58	14270901.82	39°17'57.378"N	80°58'39.106"W	241.43	43.232	1.25	1.25	-0.19	
4012.00	19.230	44.570	3979.65	-114.03	199.28	187.66	1646795.87	14270925.19	39°17'57.609"N	80°58'38.822"W	273.73	43.280	0.97	0.76	1.89	
4112.00	18.970	47.970	4074.15	-126.10	221.89	211.29	1646819.49	14270947.79	39°17'57.833"N	80°58'38.522"W	306.40	43.598	1.14	-0.26	3.40	
4212.00	18.300	45.670	4168.91	-137.58	243.75	234.60	1646842.78	14270969.64	39°17'58.049"N	80°58'38.225"W	338.30	43.904	0.99	-0.67	-2.30	
4312.00	18.080	44.870	4263.91	-149.59	265.71	256.77	1646864.95	14270991.60	39°17'58.266"N	80°58'37.943"W	369.51	44.020	0.33	-0.22	-0.80	
4412.00	17.480	43.340	4359.14	-161.90	287.63	278.03	1646886.20	14271013.51	39°17'58.482"N	80°58'37.673"W	400.04	44.027	0.76	-0.60	-1.53	
4512.00	16.730	40.790	4454.71	-174.70	309.46	297.74	1646905.90	14271035.32	39°17'58.698"N	80°58'37.422"W	429.43	43.895	1.06	-0.75	-2.55	
4612.00	17.500	43.410	4550.29	-187.49	331.28	317.48	1646925.63	14271057.13	39°17'58.913"N	80°58'37.171"W	458.84	43.781	1.09	0.77	2.62	
4712.00	17.730	43.740	4645.60	-199.96	353.20	338.34	1646946.48	14271079.05	39°17'59.130"N	80°58'36.905"W	489.10	43.769	0.25	0.23	0.33	
4812.00	19.160	44.910	4740.46	-212.60	375.82	360.45	1646968.59	14271101.66	39°17'59.354"N	80°58'36.624"W	520.74	43.804	1.48	1.43	1.17	
4912.00	19.920	45.280	4834.70	-225.56	399.43	384.14	1646992.27	14271125.26	39°17'59.587"N	80°58'36.322"W	554.18	43.882	0.77	0.76	0.37	
5012.00	20.670	43.850	4928.49	-239.31	424.15	408.47	1647016.59	14271149.97	39°17'59.831"N	80°58'36.013"W	588.86	43.921	0.90	0.75	-1.43	
5112.00	20.860	42.330	5021.99	-254.19	450.04	432.69	1647040.80	14271175.85	39°18'00.087"N	80°58'35.705"W	624.30	43.874	0.57	0.19	-1.52	
5212.00	20.070	48.370	5115.69	-267.61	474.60	457.51	1647065.60	14271200.40	39°18'00.330"N	80°58'35.389"W	659.21	43.949	2.25	-0.79	6.04	
5312.00	18.170	48.080	5210.17	-278.63	496.42	481.94	1647090.02	14271222.21	39°18'00.545"N	80°58'35.078"W	691.88	44.152	1.90	-1.90	-0.29	
5412.00	19.410	44.920	5304.84	-290.41	518.60	505.27	1647113.35	14271244.39	39°18'00.764"N	80°58'34.781"W	724.05	44.254	1.60	1.24	-3.16	
5512.00	16.430	46.050	5399.98	-302.16	540.19	527.19	1647135.26	14271265.96	39°18'00.978"N	80°58'34.502"W	754.81	44.302	3.00	-2.98	1.13	
5581.00	15.630	44.370	5466.30	-309.50	553.61	540.72	1647148.78	14271279.37	39°18'01.110"N	80°58'34.330"W	773.86	44.325	1.34	-1.16	-2.43	
5640.00	15.500	40.550	5523.14	-316.30	565.28	551.40	1647159.46	14271291.04	39°18'01.226"N	80°58'34.194"W	789.67	44.288	1.75	-0.22	-6.47	
5735.00	15.460	35.430	5614.69	-328.93	585.24	566.99	1647175.05	14271311.00	39°18'01.423"N	80°58'33.996"W	814.88	44.093	1.44	-0.04	-5.39	

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Actual Wellpath Report

Piper Unit 1H AWP Proj: 15742'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Piper Unit 1H
Field	Ritchie	Wellbore	Piper Unit 1H AWB
Facility	Noland Pad		

WELLPATH DATA (184 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
5782.00	13.670	40.520	5660.18	-334.84	594.57	574.24	1647182.28	14271320.32	39°18'01.515"N	80°58'33.904"W	826.60	44.003	4.68	-3.81	10.83	
5829.00	12.430	64.680	5706.00	-337.69	600.96	582.42	1647190.47	14271326.71	39°18'01.578"N	80°58'33.800"W	836.88	44.103	11.81	-2.64	51.40	
5876.00	13.000	83.050	5751.87	-336.59	603.76	592.25	1647200.29	14271329.51	39°18'01.606"N	80°58'33.675"W	845.75	44.448	8.65	1.21	39.09	
5923.00	14.400	100.580	5797.55	-332.05	603.33	603.24	1647211.28	14271329.08	39°18'01.602"N	80°58'33.535"W	853.18	44.996	9.28	2.98	37.30	
5970.00	15.960	110.820	5842.92	-324.49	599.96	615.03	1647223.06	14271325.71	39°18'01.568"N	80°58'33.385"W	859.19	45.711	6.59	3.32	21.79	
6018.00	17.480	113.470	5888.89	-314.85	594.74	627.81	1647235.84	14271320.49	39°18'01.517"N	80°58'33.222"W	864.79	46.549	3.54	3.17	5.52	BHI AT Curve <8-1/2"> (5581')(6018'-15716')
6050.00	19.650	114.380	5919.22	-307.51	590.61	637.12	1647245.15	14271316.36	39°18'01.476"N	80°58'33.104"W	868.76	47.170	6.84	6.78	2.84	
6112.00	22.540	113.810	5977.06	-291.42	581.51	657.49	1647265.51	14271307.26	39°18'01.386"N	80°58'32.845"W	877.75	48.510	4.67	4.66	-0.92	
6159.00	24.940	113.710	6020.08	-277.84	573.88	674.81	1647282.82	14271299.64	39°18'01.310"N	80°58'32.624"W	885.84	49.621	5.11	5.11	-0.21	
6207.00	25.470	115.010	6063.51	-263.02	565.45	693.43	1647301.43	14271291.21	39°18'01.227"N	80°58'32.388"W	894.75	50.805	1.60	1.10	2.71	
6254.00	27.920	124.450	6105.52	-246.42	554.95	711.67	1647319.67	14271280.71	39°18'01.123"N	80°58'32.156"W	902.47	52.054	10.41	5.21	20.09	
6301.00	33.280	135.420	6145.99	-225.30	539.51	729.83	1647337.81	14271265.29	39°18'00.971"N	80°58'31.925"W	907.59	53.527	16.43	11.40	23.34	
6348.00	38.290	142.480	6184.12	-199.32	518.76	747.77	1647355.74	14271244.54	39°18'00.765"N	80°58'31.697"W	910.09	55.249	13.80	10.66	15.02	
6395.00	42.270	147.260	6219.98	-169.72	493.90	765.19	1647373.17	14271219.69	39°18'00.520"N	80°58'31.475"W	910.74	57.160	10.72	8.47	10.17	
6440.00†	46.424	150.199	6252.15	-138.68	467.01	781.49	1647389.45	14271192.81	39°18'00.254"N	80°58'31.268"W	910.40	59.138	10.30	9.23	6.53	Middlesex: 6440' MD
6442.00	46.610	150.320	6253.53	-137.24	465.75	782.21	1647390.17	14271191.55	39°18'00.241"N	80°58'31.259"W	910.37	59.229	10.30	9.31	6.05	
6490.00	52.530	151.700	6284.65	-100.98	433.79	799.89	1647407.85	14271159.61	39°17'59.925"N	80°58'31.034"W	909.95	61.528	12.53	12.33	2.87	
6537.00	56.790	152.390	6311.83	-62.85	399.93	817.85	1647425.81	14271125.76	39°17'59.591"N	80°58'30.805"W	910.40	63.941	9.14	9.06	1.47	
6583.00	61.790	154.340	6335.31	-23.44	364.59	835.56	1647443.51	14271090.43	39°17'59.241"N	80°58'30.580"W	911.64	66.427	11.46	10.87	4.24	
6629.00†	65.225	156.044	6355.83	17.67	327.22	852.82	1647460.76	14271053.08	39°17'58.872"N	80°58'30.361"W	913.44	69.009	8.17	7.47	3.70	Burket: 6629' MD
6630.00	65.300	156.080	6356.25	18.58	326.39	853.19	1647461.13	14271052.25	39°17'58.864"N	80°58'30.356"W	913.49	69.066	8.17	7.49	3.60	
6677.00	65.500	156.390	6375.81	61.30	287.28	870.41	1647478.34	14271013.15	39°17'58.477"N	80°58'30.137"W	916.60	71.735	0.74	0.43	0.66	
6691.00†	66.879	156.518	6381.47	74.10	275.54	875.53	1647483.46	14271001.42	39°17'58.361"N	80°58'30.072"W	917.86	72.531	9.89	9.85	0.91	Tully: 6691' MD
6724.00	70.130	156.810	6393.56	104.80	247.35	887.69	1647495.61	14270973.24	39°17'58.082"N	80°58'29.918"W	921.51	74.430	9.89	9.85	0.88	
6732.00†	70.812	157.094	6396.23	112.33	240.41	890.64	1647498.56	14270966.30	39°17'58.014"N	80°58'29.880"W	922.52	74.894	9.16	8.53	3.55	Marcellus POE: 6732' MD
6772.00	74.230	158.480	6408.24	150.48	205.09	905.06	1647512.98	14270931.00	39°17'57.665"N	80°58'29.697"W	928.01	77.232	9.16	8.54	3.47	
6819.00	79.140	159.740	6419.06	196.19	162.38	921.36	1647529.27	14270888.30	39°17'57.242"N	80°58'29.490"W	935.56	80.005	10.77	10.45	2.68	
6866.00	86.370	161.150	6424.99	242.74	118.47	936.95	1647544.85	14270844.41	39°17'56.808"N	80°58'29.292"W	944.41	82.794	15.67	15.38	3.00	
6913.00	90.580	162.190	6426.24	289.61	73.88	951.72	1647559.62	14270799.84	39°17'56.368"N	80°58'29.104"W	954.58	85.561	9.23	8.96	2.21	
6960.00	90.120	159.190	6425.95	336.55	29.53	967.26	1647575.15	14270755.51	39°17'55.929"N	80°58'28.906"W	967.71	88.251	6.46	-0.98	6.38	

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Actual Wellpath Report

Piper Unit 1H AWP Proj: 15742'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Piper Unit 1H
Field	Ritchie	Wellbore	Piper Unit 1H AWB
Facility	Noland Pad		

WELLPATH DATA (184 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
5782.00	13.670	40.520	5660.18	-334.84	594.57	574.24	1647182.28	14271320.32	39°18'01.515"N	80°58'33.904"W	826.60	44.003	4.68	-3.81	10.83	
5829.00	12.430	64.680	5706.00	-337.69	600.96	582.42	1647190.47	14271326.71	39°18'01.578"N	80°58'33.800"W	836.88	44.103	11.81	-2.64	51.40	
5876.00	13.000	83.050	5751.87	-336.59	603.76	592.25	1647200.29	14271329.51	39°18'01.606"N	80°58'33.675"W	845.75	44.448	8.65	1.21	39.09	
5923.00	14.400	100.580	5797.55	-332.05	603.33	603.24	1647211.28	14271329.08	39°18'01.602"N	80°58'33.535"W	853.18	44.996	9.28	2.98	37.30	
5970.00	15.960	110.820	5842.92	-324.49	599.96	615.03	1647223.06	14271325.71	39°18'01.568"N	80°58'33.385"W	859.19	45.711	6.59	3.32	21.79	
6018.00	17.480	113.470	5888.89	-314.85	594.74	627.81	1647235.84	14271320.49	39°18'01.517"N	80°58'33.222"W	864.79	46.549	3.54	3.17	5.52	BHI AT Curve <8-1/2"> (5581')(6018'-15716')
6050.00	19.650	114.380	5919.22	-307.51	590.61	637.12	1647245.15	14271316.36	39°18'01.476"N	80°58'33.104"W	868.76	47.170	6.84	6.78	2.84	
6112.00	22.540	113.810	5977.06	-291.42	581.51	657.49	1647265.51	14271307.26	39°18'01.386"N	80°58'32.845"W	877.75	48.510	4.67	4.66	-0.92	
6159.00	24.940	113.710	6020.08	-277.84	573.88	674.81	1647282.82	14271299.64	39°18'01.310"N	80°58'32.624"W	885.84	49.621	5.11	5.11	-0.21	
6207.00	25.470	115.010	6063.51	-263.02	565.45	693.43	1647301.43	14271291.21	39°18'01.227"N	80°58'32.388"W	894.75	50.805	1.60	1.10	2.71	
6254.00	27.920	124.450	6105.52	-246.42	554.95	711.67	1647319.67	14271280.71	39°18'01.123"N	80°58'32.156"W	902.47	52.054	10.41	5.21	20.09	
6301.00	33.280	135.420	6145.99	-225.30	539.51	729.83	1647337.81	14271265.29	39°18'00.971"N	80°58'31.925"W	907.59	53.527	16.43	11.40	23.34	
6348.00	38.290	142.480	6184.12	-199.32	518.76	747.77	1647355.74	14271244.54	39°18'00.765"N	80°58'31.697"W	910.09	55.249	13.80	10.66	15.02	
6395.00	42.270	147.260	6219.98	-169.72	493.90	765.19	1647373.17	14271219.69	39°18'00.520"N	80°58'31.475"W	910.74	57.160	10.72	8.47	10.17	
6440.00†	46.424	150.199	6252.15	-138.68	467.01	781.49	1647389.45	14271192.81	39°18'00.254"N	80°58'31.268"W	910.40	59.138	10.30	9.23	6.53	Middlesex: 6440' MD
6442.00	46.610	150.320	6253.53	-137.24	465.75	782.21	1647390.17	14271191.55	39°18'00.241"N	80°58'31.259"W	910.37	59.229	10.30	9.31	6.05	
6490.00	52.530	151.700	6284.65	-100.98	433.79	799.89	1647407.85	14271159.61	39°17'59.925"N	80°58'31.034"W	909.95	61.528	12.53	12.33	2.87	
6537.00	56.790	152.390	6311.83	-62.85	399.93	817.85	1647425.81	14271125.76	39°17'59.591"N	80°58'30.805"W	910.40	63.941	9.14	9.06	1.47	
6583.00	61.790	154.340	6335.31	-23.44	364.59	835.56	1647443.51	14271090.43	39°17'59.241"N	80°58'30.580"W	911.64	66.427	11.46	10.87	4.24	
6629.00†	65.225	156.044	6355.83	17.67	327.22	852.82	1647460.76	14271053.08	39°17'58.872"N	80°58'30.361"W	913.44	69.009	8.17	7.47	3.70	Burket: 6629' MD
6630.00	65.300	156.080	6356.25	18.58	326.39	853.19	1647461.13	14271052.25	39°17'58.864"N	80°58'30.356"W	913.49	69.066	8.17	7.49	3.60	
6677.00	65.500	156.390	6375.81	61.30	287.28	870.41	1647478.34	14271013.15	39°17'58.477"N	80°58'30.137"W	916.60	71.735	0.74	0.43	0.66	
6691.00†	66.879	156.518	6381.47	74.10	275.54	875.53	1647483.46	14271001.42	39°17'58.361"N	80°58'30.072"W	917.86	72.531	9.89	9.85	0.91	Tully: 6691' MD
6724.00	70.130	156.810	6393.56	104.80	247.35	887.69	1647495.61	14270973.24	39°17'58.082"N	80°58'29.918"W	921.51	74.430	9.89	9.85	0.88	
6732.00†	70.812	157.094	6396.23	112.33	240.41	890.64	1647498.56	14270966.30	39°17'58.014"N	80°58'29.880"W	922.52	74.894	9.16	8.53	3.55	Marcellus POE: 6732' MD
6772.00	74.230	158.480	6408.24	150.48	205.09	905.06	1647512.98	14270931.00	39°17'57.665"N	80°58'29.697"W	928.01	77.232	9.16	8.54	3.47	
6819.00	79.140	159.740	6419.06	196.19	162.38	921.36	1647529.27	14270888.30	39°17'57.242"N	80°58'29.490"W	935.56	80.005	10.77	10.45	2.68	
6866.00	86.370	161.150	6424.99	242.74	118.47	936.95	1647544.85	14270844.41	39°17'56.808"N	80°58'29.292"W	944.41	82.794	15.67	15.38	3.00	
6913.00	90.580	162.190	6426.24	289.61	73.88	951.72	1647559.62	14270799.84	39°17'56.368"N	80°58'29.104"W	954.58	85.561	9.23	8.96	2.21	
6960.00	90.120	159.190	6425.95	336.55	29.53	967.26	1647575.15	14270755.51	39°17'55.929"N	80°58'28.906"W	967.71	88.251	6.46	-0.98	6.38	

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Area	Ritchie County, WV		Well	Piper Unit 1H
Field	Ritchie		Wellbore	Piper Unit 1H AWB
Facility	Noland Pad			

WELLPATH DATA (184 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
7055.00	90.280	157.640	6425.62	431.54	-58.80	1002.21	1647610.08	14270667.21	39°17'55.056"N	80°58'28.462"W	1003.93	93.358	1.64	0.17	-1.63	
7149.00	90.620	156.000	6424.88	525.52	-145.21	1039.21	1647647.07	14270580.84	39°17'54.202"N	80°58'27.992"W	1049.30	97.955	1.78	0.36	-1.74	
7243.00	90.000	149.680	6424.37	619.10	-228.80	1082.09	1647689.94	14270497.28	39°17'53.376"N	80°58'27.447"W	1106.02	101.939	6.76	-0.66	-6.72	
7336.00	89.750	147.450	6424.58	710.86	-308.15	1130.59	1647738.42	14270417.97	39°17'52.591"N	80°58'26.830"W	1171.83	105.246	2.41	-0.27	-2.40	
7432.00	90.150	154.690	6424.66	806.12	-392.11	1177.00	1647784.81	14270334.04	39°17'51.761"N	80°58'26.240"W	1240.60	108.425	7.55	0.42	7.54	
7526.00	89.450	156.380	6424.99	900.03	-477.67	1215.93	1647823.72	14270248.51	39°17'50.916"N	80°58'25.745"W	1306.39	111.447	1.95	-0.74	1.80	
7620.00	89.910	161.200	6425.51	993.99	-565.27	1249.92	1647857.70	14270160.95	39°17'50.050"N	80°58'25.313"W	1371.80	114.335	5.15	0.49	5.13	
7715.00	89.940	163.210	6425.64	1088.72	-655.72	1278.96	1647886.72	14270070.53	39°17'49.156"N	80°58'24.944"W	1437.25	117.144	2.12	0.03	2.12	
7809.00	90.000	164.130	6425.69	1182.24	-745.93	1305.38	1647913.14	14269980.36	39°17'48.264"N	80°58'24.608"W	1503.48	119.745	0.98	0.06	0.98	
7903.00	90.490	162.320	6425.28	1275.83	-835.92	1332.51	1647940.26	14269890.40	39°17'47.374"N	80°58'24.263"W	1573.01	122.101	1.99	0.52	-1.93	
7997.00	90.000	158.930	6424.88	1369.71	-924.59	1363.69	1647971.42	14269801.77	39°17'46.498"N	80°58'23.867"W	1647.58	124.137	3.64	-0.52	-3.61	
8092.00	89.750	159.340	6425.09	1464.69	-1013.36	1397.53	1648005.25	14269713.04	39°17'45.621"N	80°58'23.437"W	1726.26	125.946	0.51	-0.26	0.43	
8186.00	89.350	161.110	6425.83	1558.60	-1101.81	1429.33	1648037.03	14269624.63	39°17'44.746"N	80°58'23.033"W	1804.70	127.627	1.93	-0.43	1.88	
8280.00	90.250	161.790	6426.16	1652.42	-1190.92	1459.23	1648066.93	14269535.55	39°17'43.865"N	80°58'22.653"W	1883.52	129.219	1.20	0.96	0.72	
8374.00	89.880	156.320	6426.05	1746.37	-1278.68	1492.82	1648100.50	14269447.83	39°17'42.998"N	80°58'22.226"W	1965.59	130.582	5.83	-0.39	-5.82	
8468.00	90.310	150.100	6425.89	1840.00	-1362.55	1535.17	1648142.83	14269363.99	39°17'42.169"N	80°58'21.688"W	2052.63	131.591	6.63	0.46	-6.62	
8562.00	90.220	147.460	6425.46	1932.81	-1442.92	1583.89	1648191.53	14269283.65	39°17'41.374"N	80°58'21.068"W	2142.60	132.334	2.81	-0.10	-2.81	
8656.00	89.570	150.570	6425.63	2025.67	-1523.50	1632.27	1648239.90	14269203.10	39°17'40.578"N	80°58'20.453"W	2232.79	133.026	3.38	-0.69	3.31	
8750.00	90.580	157.890	6425.51	2119.41	-1608.09	1673.11	1648280.72	14269118.54	39°17'39.742"N	80°58'19.934"W	2320.62	133.865	7.86	1.07	7.79	
8844.00	90.460	160.020	6424.65	2213.38	-1695.81	1706.86	1648314.46	14269030.86	39°17'38.874"N	80°58'19.505"W	2406.07	134.814	2.27	-0.13	2.27	
8938.00	90.620	162.780	6423.77	2307.20	-1784.89	1736.84	1648344.42	14268941.82	39°17'37.994"N	80°58'19.124"W	2490.47	135.782	2.94	0.17	2.94	
9033.00	90.180	163.000	6423.10	2401.83	-1875.69	1764.79	1648372.36	14268851.06	39°17'37.096"N	80°58'18.769"W	2575.40	136.745	0.52	-0.46	0.23	
9126.00	90.250	162.340	6422.76	2494.51	-1964.46	1792.49	1648400.05	14268762.32	39°17'36.219"N	80°58'18.417"W	2659.35	137.621	0.71	0.08	-0.71	
9221.00	90.340	162.220	6422.27	2589.23	-2054.95	1821.41	1648428.96	14268671.86	39°17'35.324"N	80°58'18.050"W	2745.97	138.448	0.16	0.09	-0.13	
9315.00	90.310	161.750	6421.73	2682.99	-2144.34	1850.48	1648458.01	14268582.51	39°17'34.441"N	80°58'17.680"W	2832.40	139.207	0.50	-0.03	-0.50	
9409.00	90.680	159.670	6420.92	2776.87	-2233.06	1881.53	1648489.05	14268493.83	39°17'33.564"N	80°58'17.286"W	2920.05	139.883	2.25	0.39	-2.21	
9503.00	90.310	155.900	6420.11	2870.85	-2320.06	1917.06	1648524.57	14268406.86	39°17'32.704"N	80°58'16.834"W	3009.62	140.433	4.03	-0.39	-4.01	
9597.00	90.310	153.420	6419.60	2964.69	-2405.01	1957.29	1648564.78	14268321.95	39°17'31.864"N	80°58'16.323"W	3100.81	140.860	2.64	0.00	-2.64	
9692.00	90.060	156.790	6419.29	3059.56	-2491.17	1997.27	1648604.75	14268235.82	39°17'31.012"N	80°58'15.815"W	3192.96	141.279	3.56	-0.26	3.55	
9786.00	90.370	157.880	6418.94	3153.55	-2577.91	2033.49	1648640.96	14268149.12	39°17'30.155"N	80°58'15.354"W	3283.40	141.733	1.21	0.33	1.16	

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Actual Wellpath Report

Piper Unit 1H AWP Proj: 15742'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #08
Area	Ritchie County, WV		Well	Piper Unit 1H
Field	Ritchie		Wellbore	Piper Unit 1H AWB
Facility	Noland Pad			

WELLPATH DATA (184 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
9881.00	90.400	155.460	6418.30	3248.52	-2665.13	2071.11	1648678.56	14268061.93	39°17'29.293"N	80°58'14.876"W	3375.27	142.149	2.55	0.03	-2.55	
9975.00	90.000	155.340	6417.97	3342.43	-2750.60	2110.24	1648717.67	14267976.50	39°17'28.448"N	80°58'14.379"W	3466.83	142.505	0.44	-0.43	-0.13	
10069.00	89.850	155.830	6418.10	3436.36	-2836.19	2149.10	1648756.51	14267890.94	39°17'27.602"N	80°58'13.885"W	3558.46	142.847	0.55	-0.16	0.52	
10164.00	89.940	157.720	6418.27	3531.33	-2923.49	2186.56	1648793.96	14267803.67	39°17'26.739"N	80°58'13.409"W	3650.73	143.206	1.99	0.09	1.99	
10258.00	89.970	158.630	6418.34	3625.33	-3010.75	2221.50	1648828.89	14267716.45	39°17'25.876"N	80°58'12.965"W	3741.62	143.578	0.97	0.03	0.97	
10352.00	90.030	157.450	6418.34	3719.33	-3097.93	2256.65	1648864.03	14267629.30	39°17'25.015"N	80°58'12.518"W	3832.71	143.929	1.26	0.06	-1.26	
10446.00	89.970	157.210	6418.34	3813.32	-3184.67	2292.88	1648900.24	14267542.60	39°17'24.157"N	80°58'12.058"W	3924.21	144.247	0.26	-0.06	-0.26	
10540.00	89.940	159.300	6418.42	3907.32	-3271.97	2327.71	1648935.05	14267455.33	39°17'23.294"N	80°58'11.615"W	4015.47	144.572	2.22	-0.03	2.22	
10635.00	89.510	154.610	6418.88	4002.28	-3359.37	2364.88	1648972.21	14267367.97	39°17'22.430"N	80°58'11.143"W	4108.29	144.856	4.96	-0.45	-4.94	
10729.00	89.820	154.010	6419.42	4096.09	-3444.07	2405.63	1649012.95	14267283.30	39°17'21.593"N	80°58'10.625"W	4201.04	145.066	0.72	0.33	-0.64	
10823.00	89.850	155.880	6419.70	4189.96	-3529.22	2445.44	1649052.74	14267198.18	39°17'20.751"N	80°58'10.119"W	4293.67	145.281	1.99	0.03	1.99	
10917.00	89.880	163.620	6419.92	4283.84	-3617.35	2477.95	1649085.23	14267110.10	39°17'19.880"N	80°58'09.706"W	4384.68	145.588	8.23	0.03	8.23	
11012.00	90.180	167.620	6419.87	4377.96	-3709.35	2501.54	1649108.81	14267018.13	39°17'18.971"N	80°58'09.406"W	4474.03	146.005	4.22	0.32	4.21	
11106.00	89.510	162.310	6420.12	4471.21	-3800.10	2525.91	1649133.18	14266927.42	39°17'18.074"N	80°58'09.097"W	4563.00	146.388	5.69	-0.71	-5.65	
11200.00	89.480	156.860	6420.95	4565.13	-3888.16	2558.69	1649165.94	14266839.39	39°17'17.203"N	80°58'08.680"W	4654.53	146.652	5.80	-0.03	-5.80	
11295.00	89.420	153.760	6421.86	4660.02	-3974.46	2598.36	1649205.60	14266753.13	39°17'16.350"N	80°58'08.176"W	4748.46	146.825	3.26	-0.06	-3.26	
11388.00	89.510	155.380	6422.73	4752.86	-4058.44	2638.30	1649245.52	14266669.18	39°17'15.520"N	80°58'07.668"W	4840.62	146.973	1.74	0.10	1.74	
11482.00	89.540	156.890	6423.51	4846.80	-4144.40	2676.32	1649283.53	14266583.25	39°17'14.670"N	80°58'07.185"W	4933.43	147.147	1.61	0.03	1.61	
11577.00	89.600	150.100	6424.22	4941.47	-4229.36	2718.69	1649325.88	14266498.33	39°17'13.830"N	80°58'06.647"W	5027.80	147.267	7.15	0.06	-7.15	
11671.00	89.570	156.880	6424.91	5035.13	-4313.43	2760.63	1649367.80	14266414.29	39°17'12.999"N	80°58'06.114"W	5121.20	147.380	7.21	-0.03	7.21	
11765.00	89.690	157.970	6425.51	5129.12	-4400.22	2796.71	1649403.87	14266327.53	39°17'12.141"N	80°58'05.655"W	5213.79	147.561	1.17	0.13	1.16	
11859.00	90.220	156.650	6425.59	5223.12	-4486.95	2832.97	1649440.11	14266240.85	39°17'11.284"N	80°58'05.194"W	5306.45	147.732	1.51	0.56	-1.40	
11954.00	89.940	157.110	6425.45	5318.10	-4574.32	2870.27	1649477.40	14266153.51	39°17'10.420"N	80°58'04.720"W	5400.26	147.893	0.57	-0.29	0.48	
12048.00	88.620	163.410	6426.64	5411.96	-4662.74	2902.00	1649509.12	14266065.13	39°17'09.546"N	80°58'04.317"W	5492.06	148.103	6.85	-1.40	6.70	
12142.00	90.000	169.880	6427.77	5504.81	-4754.14	2923.70	1649530.81	14265973.76	39°17'08.643"N	80°58'04.042"W	5581.21	148.409	7.04	1.47	6.88	
12236.00	90.490	167.470	6427.37	5597.15	-4846.30	2942.16	1649549.26	14265881.64	39°17'07.732"N	80°58'03.807"W	5669.47	148.738	2.62	0.52	-2.56	
12330.00	92.280	156.580	6425.09	5690.73	-4935.55	2971.11	1649578.20	14265792.42	39°17'06.850"N	80°58'03.440"W	5760.83	148.953	11.74	1.90	-11.59	
12425.00	90.120	153.920	6423.10	5785.60	-5021.79	3010.87	1649617.94	14265706.22	39°17'05.997"N	80°58'02.934"W	5855.23	149.055	3.61	-2.27	-2.80	
12519.00	89.940	153.150	6423.05	5879.32	-5105.94	3052.76	1649659.81	14265622.10	39°17'05.165"N	80°58'02.402"W	5948.95	149.125	0.84	-0.19	-0.82	
12613.00	90.030	154.210	6423.07	5973.07	-5190.19	3094.44	1649701.47	14265537.88	39°17'04.332"N	80°58'01.872"W	6042.65	149.196	1.13	0.10	1.13	

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Piper Unit 1H AWP Proj: 15742'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #08
Area	Ritchie County, WV		Well	Piper Unit 1H
Field	Ritchie		Wellbore	Piper Unit 1H AWB
Facility	Noland Pad			

WELLPATH DATA (184 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
12708.00	89.940	154.190	6423.10	6067.87	-5275.72	3135.78	1649742.80	14265452.39	39°17'03.487"N	80°58'01.347"W	6137.30	149.274	0.10	-0.09	-0.02	
12802.00	89.540	156.710	6423.53	6161.77	-5361.22	3174.84	1649781.84	14265366.93	39°17'02.642"N	80°58'00.851"W	6230.75	149.367	2.71	-0.43	2.68	
12896.00	89.750	159.440	6424.11	6255.76	-5448.41	3209.93	1649816.92	14265279.77	39°17'01.780"N	80°58'00.405"W	6323.67	149.496	2.91	0.22	2.90	
12990.00	89.940	162.970	6424.36	6349.59	-5537.38	3240.21	1649847.19	14265190.83	39°17'00.900"N	80°58'00.020"W	6415.73	149.666	3.76	0.20	3.76	
13084.00	90.000	163.800	6424.41	6443.16	-5627.46	3267.09	1649874.06	14265100.79	39°17'00.010"N	80°57'59.679"W	6507.08	149.862	0.89	0.06	0.88	
13179.00	90.340	162.610	6424.13	6537.75	-5718.40	3294.54	1649901.49	14265009.89	39°16'59.111"N	80°57'59.330"W	6599.55	150.053	1.30	0.36	-1.25	
13273.00	90.340	156.360	6423.57	6631.67	-5806.40	3327.46	1649934.41	14264921.93	39°16'58.241"N	80°57'58.912"W	6692.25	150.184	6.65	0.00	-6.65	
13367.00	90.220	157.080	6423.11	6725.64	-5892.74	3364.61	1649971.54	14264835.62	39°16'57.388"N	80°57'58.440"W	6785.65	150.275	0.78	-0.13	0.77	
13461.00	90.060	163.750	6422.88	6819.50	-5981.25	3396.11	1650003.02	14264747.14	39°16'56.513"N	80°57'58.040"W	6878.15	150.412	7.10	-0.17	7.10	
13555.00	90.680	158.500	6422.28	6913.32	-6070.17	3426.50	1650033.41	14264658.26	39°16'55.634"N	80°57'57.653"W	6970.50	150.556	5.62	0.66	-5.59	
13650.00	90.090	150.770	6421.64	7008.09	-6155.94	3467.17	1650074.06	14264572.53	39°16'54.786"N	80°57'57.137"W	7065.19	150.611	8.16	-0.62	-8.14	
13744.00	89.970	149.610	6421.59	7101.24	-6237.50	3513.90	1650120.77	14264491.00	39°16'53.979"N	80°57'56.543"W	7159.18	150.605	1.24	-0.13	-1.23	
13838.00	89.910	151.060	6421.69	7194.41	-6319.18	3560.42	1650167.27	14264409.35	39°16'53.172"N	80°57'55.952"W	7253.18	150.602	1.54	-0.06	1.54	
13932.00	89.380	152.480	6422.27	7287.87	-6401.99	3604.88	1650211.71	14264326.57	39°16'52.353"N	80°57'55.387"W	7347.15	150.617	1.61	-0.56	1.51	
14027.00	89.540	158.480	6423.16	7382.74	-6488.38	3644.29	1650251.10	14264240.22	39°16'51.499"N	80°57'54.886"W	7441.77	150.679	6.32	0.17	6.32	
14121.00	90.090	159.320	6423.47	7476.72	-6576.08	3678.13	1650284.93	14264152.56	39°16'50.632"N	80°57'54.456"W	7534.81	150.781	1.07	0.59	0.89	
14215.00	89.970	158.000	6423.42	7570.71	-6663.63	3712.33	1650319.12	14264065.04	39°16'49.767"N	80°57'54.021"W	7627.93	150.878	1.41	-0.13	-1.40	
14309.00	89.940	160.070	6423.49	7664.69	-6751.40	3745.96	1650352.74	14263977.30	39°16'48.899"N	80°57'53.594"W	7720.99	150.977	2.20	-0.03	2.20	
14404.00	90.030	160.460	6423.52	7759.61	-6840.82	3778.04	1650384.80	14263887.92	39°16'48.015"N	80°57'53.187"W	7814.76	151.089	0.42	0.09	0.41	
14498.00	90.370	154.670	6423.19	7853.57	-6927.67	3813.90	1650420.65	14263801.10	39°16'47.157"N	80°57'52.731"W	7908.13	151.166	6.17	0.36	-6.16	
14592.00	90.030	153.040	6422.86	7947.33	-7012.05	3855.32	1650462.05	14263716.76	39°16'46.323"N	80°57'52.205"W	8002.02	151.197	1.77	-0.36	-1.73	
14686.00	89.480	155.740	6423.26	8041.14	-7096.81	3895.95	1650502.66	14263632.04	39°16'45.485"N	80°57'51.689"W	8095.87	151.234	2.93	-0.59	2.87	
14780.00	90.030	159.600	6423.66	8135.12	-7183.74	3931.65	1650538.35	14263545.14	39°16'44.625"N	80°57'51.235"W	8189.26	151.308	4.15	0.59	4.11	
14875.00	90.150	155.670	6423.52	8230.10	-7271.58	3967.79	1650574.48	14263457.34	39°16'43.757"N	80°57'50.776"W	8283.67	151.381	4.14	0.13	-4.14	
14969.00	89.660	155.710	6423.67	8324.03	-7357.24	4006.49	1650613.16	14263371.71	39°16'42.910"N	80°57'50.284"W	8377.41	151.429	0.52	-0.52	0.04	
15063.00	89.290	161.800	6424.53	8417.97	-7444.81	4040.53	1650647.19	14263284.18	39°16'42.045"N	80°57'49.852"W	8470.60	151.510	6.49	-0.39	6.48	
15157.00	90.150	166.370	6424.99	8511.40	-7535.18	4066.30	1650672.95	14263193.84	39°16'41.151"N	80°57'49.524"W	8562.34	151.647	4.95	0.91	4.86	
15251.00	91.260	160.830	6423.84	8604.89	-7625.31	4092.83	1650699.46	14263103.74	39°16'40.260"N	80°57'49.188"W	8654.28	151.776	6.01	1.18	-5.89	
15345.00	90.030	159.360	6422.78	8698.81	-7713.69	4124.83	1650731.45	14263015.41	39°16'39.387"N	80°57'48.781"W	8747.29	151.865	2.04	-1.31	-1.56	
15440.00	90.000	163.320	6422.75	8793.62	-7803.67	4155.22	1650761.83	14262925.45	39°16'38.497"N	80°57'48.395"W	8840.99	151.966	4.17	-0.03	4.17	

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Piper Unit 1H AWP Proj: 15742'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #08
Area	Ritchie County, WV		Well	Piper Unit 1H
Field	Ritchie		Wellbore	Piper Unit 1H AWB
Facility	Noland Pad			

WELLPATH DATA (184 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
15534.00	90.060	161.360	6422.70	8887.33	-7893.24	4183.73	1650790.33	14262835.92	39°16'37.612"N	80°57'48.033"W	8933.47	152.075	2.09	0.06	-2.09	
15628.00	90.280	157.520	6422.42	8981.28	-7981.24	4216.74	1650823.32	14262747.96	39°16'36.742"N	80°57'47.614"W	9026.68	152.151	4.09	0.23	-4.09	
15716.00	90.740	153.150	6421.64	9069.17	-8061.18	4253.45	1650860.02	14262668.05	39°16'35.952"N	80°57'47.147"W	9114.52	152.182	4.99	0.52	-4.97	
15742.00	90.740	153.150	6421.30	9095.08	-8084.38	4265.19	1650871.76	14262644.86	39°16'35.722"N	80°57'46.998"W	9140.52	152.185	0.00	0.00	0.00	Projected MD at TD: 15742'

HOLE & CASING SECTIONS - Ref Wellbore: Piper Unit 1H AWB Ref Wellpath: Piper Unit 1H AWP Proj: 15742'									
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	25.00	65.00	40.00	25.00	65.00	0.00	0.00	-0.05	0.02
17.5in Open Hole	65.00	368.00	303.00	65.00	368.00	-0.05	0.02	-0.74	0.11
13.375in Casing Surface	25.00	368.00	343.00	25.00	368.00	0.00	0.00	-0.74	0.11
12.25in Open Hole	368.00	2574.00	2206.00	368.00	2573.27	-0.74	0.11	16.68	14.77
9.625in Casing Intermediate	25.00	2574.00	2549.00	25.00	2573.27	0.00	0.00	16.68	14.77
8.75in Open Hole	2574.00	5742.00	3168.00	2573.27	5621.45	16.68	14.77	586.74	568.08
8.5in Open Hole	5742.00	15742.00	10000.00	5621.45	6421.30	586.74	568.08	-8084.38	4265.19
5.5in Casing Production	25.00	15742.00	15717.00	25.00	6421.30	0.00	0.00	-8084.38	4265.19

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Actual Wellpath Report

Piper Unit 1H AWP Proj: 15742'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Piper Unit 1H
Field	Ritchie	Wellbore	Piper Unit 1H AWB
Facility	Noland Pad		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Piper Unit 1H POE Rev-2	6397.00	252.51	888.90	1647496.82	14270978.39	39°17'58.133"N	80°58'29.902"W	point
Piper Unit 1H BHL Rev-2	6426.00	-8108.98	4285.04	1650891.60	14262620.27	39°16'35.479"N	80°57'46.746"W	point
Piper Unit 1H LP Rev-1	6426.00	100.68	950.56	1647558.45	14270826.63	39°17'56.633"N	80°58'29.118"W	point
Piper Unit 1H 25' L/R Hard Line	6512.00	-4023.24	2625.56	1649232.78	14266704.37	39°17'15.868"N	80°58'07.830"W	rectangle

WELLPATH COMPOSITION - Ref Wellbore: Piper Unit 1H AWB Ref Wellpath: Piper Unit 1H AWP Proj: 15742'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
25.00	5581.00	Gyrodata standard - Drop gyro or Multi-shot	03 Gyrodata MS Gyro <8-3/4"> (100'-5569')	Piper Unit 1H AWB	
5581.00	15716.00	BHI AutoTrak Curve (Short)	04 BHI AT Curve <8-1/2">(5581')(6018'-15716')	Piper Unit 1H AWB	
15716.00	15742.00	Blind Drilling (std)	Projection to bit	Piper Unit 1H AWB	

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COMMENTS
<p>Wellpath general comments API: 47-085-10291-0000 BHI Job #: 8484895 Rig: Patterson 343 Duration: 04/05/2017-04/08/2017 Gyrodatta MS Gyro <8-3/4">(100'-5569') BHI AT Curve <8-1/2"> (5581')(6018'-15716') Middlesex: 6440' MD Burket: 6629' MD Tully: 6691' MD Marcellus POE: 6732' MD Projected MD at TD: 15742'</p>

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