



ANTERO RESOURCES CORPORATION
 Location: Ritchie County, WV
 Field: Ritchie
 Facility: Noland Pad

Slot: Slot #10
 Well: Piper Unit 3H
 Wellbore: Piper Unit 3H PWB



06/01/2018

API: 47-085-10296-0000
 BHI Job #: 8506917
 Rig: Patterson 343
 Duration: 04/14/2017-04/17/2017

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Well reference website is Piper Unit 3H PWB Rev-A.0	Grid System: NAD83 / UTM Zone 17 North, US Feet
The vertical depths are referenced to Patterson 343 (RFB)	* * * Wellbore was transferred from a different profile datum
Measured depths are referenced to Patterson 343 (RFB)	North Reference: Grid north
Patterson 343 (RFB) to Mean Sea Level: 1960 Feet	Scale: True distance
Mean Sea Level: Marker (41.82, Slot #10) - 1143 Feet	Depths are in feet
Coordinates are in feet referenced to SRTM	Created by: oilgas on 2017-04-25
	Database: WV_MRI_Parameters_Dim

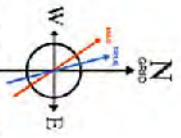
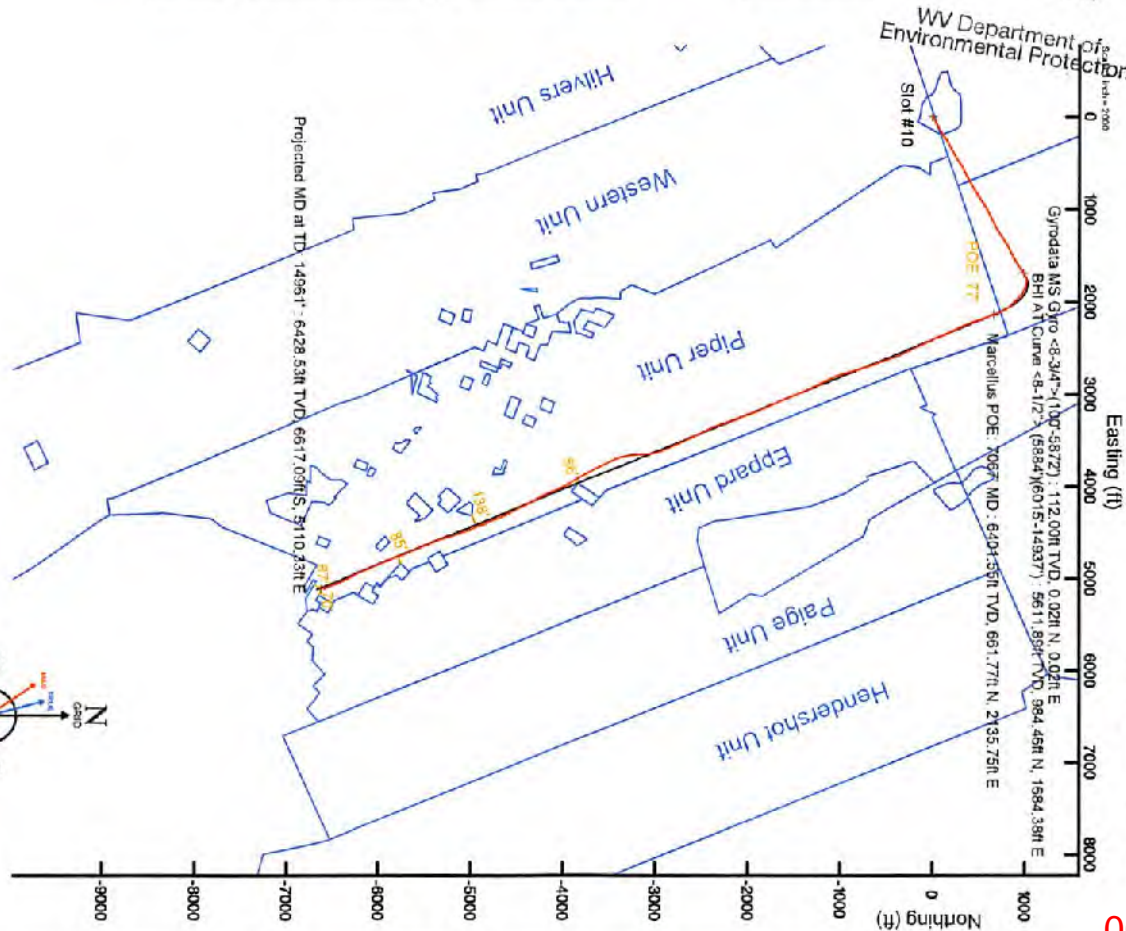
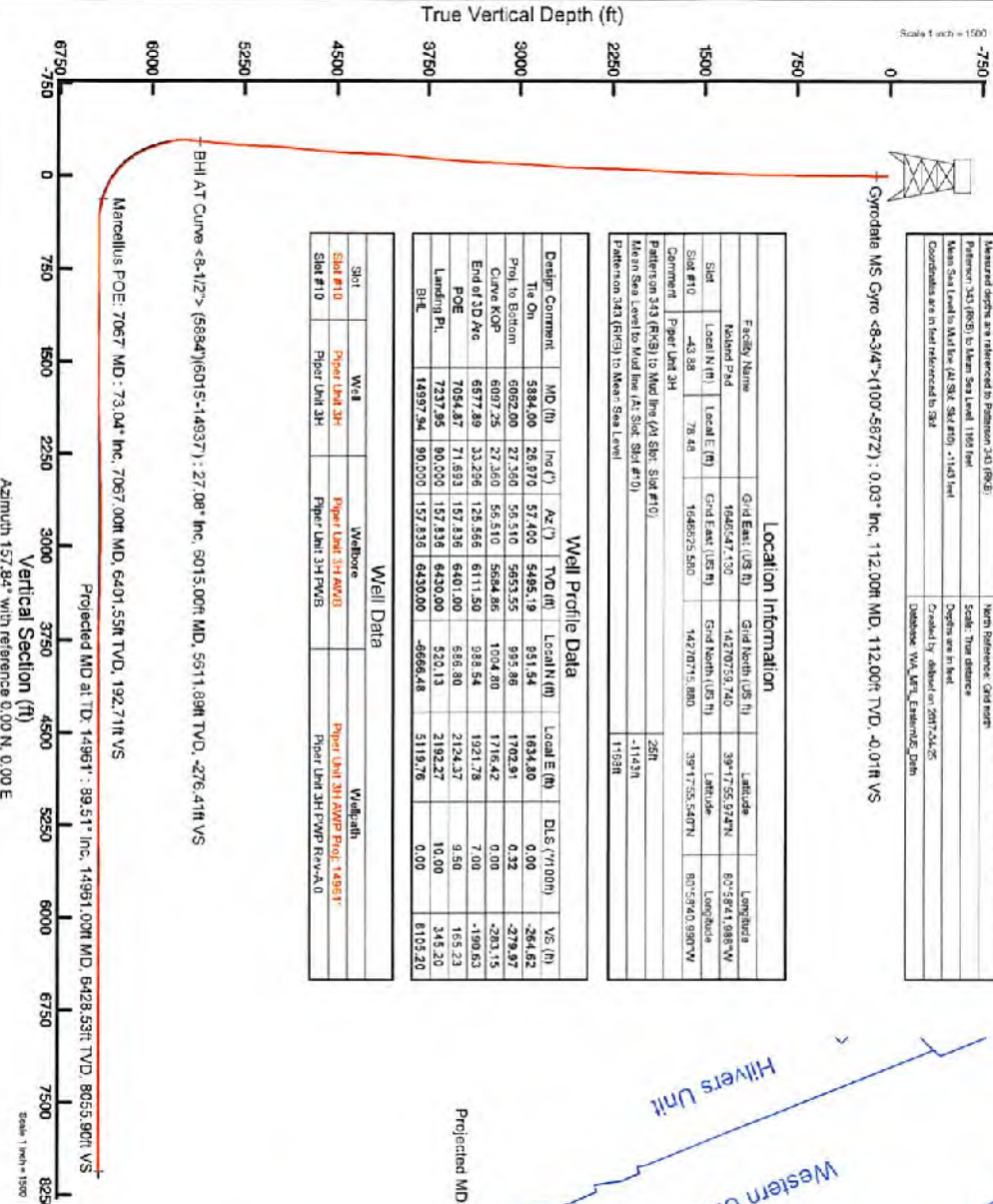


Gyrodote MS Gyro <8-3/4">(100-587Z) : 0.03° Inc, 112.00ft TVD, 112.00ft VS, -0.01ft VS

Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Noland P24	1462047.130	6427073.240	39°17'55.974"N	80°5'58.198"W	
Slot #10	78.49	1646675.580	39°17'55.940"N	80°5'58.090"W	
Comment: Piper Unit 3H			28ft	-1143ft	
Patterson 343 (RFB) to Mud line (41.82, Slot #10)					
Mean Sea Level to Mud line (41.82, Slot #10)					
Patterson 343 (RFB) to Mean Sea Level					1193ft

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (ft/100ft)	VS (ft)
Tie On	5884.00	26.970	57.400	5485.19	951.84	1634.80	0.00	-264.62
Prod to Bottom	6082.00	27.360	55.510	5653.55	995.86	1702.91	0.32	-278.97
Curve KOP	6097.25	27.360	55.510	5664.86	1004.80	1716.42	0.00	-283.15
End of 3D Avg	6577.89	33.286	125.556	6111.50	988.54	1921.78	7.00	-190.63
POE	7054.87	71.693	157.836	6401.00	566.80	2124.27	9.50	165.23
Landing Pt.	7237.95	90.000	157.836	6430.00	520.13	2182.27	10.00	345.20
BHL	14957.94	90.000	157.836	6430.00	-4666.48	5119.76	0.00	6105.20

Well Data		
Slot	Well	Wellbore
Slot #10	Piper Unit 3H	Piper Unit 3H PWB
Slot #10	Piper Unit 3H	Piper Unit 3H PWB
		Piper Unit 3H PWB Rev-A.0



User specified Dip: 66.55° East: S195.90 at
 Magnetic North: 3.99 degrees East of True North (0.01)
 Grid North: 1.46 degrees East of True North (0.01)
 To correct azimuth from True to Grid subtract 0.01 degrees
 To correct azimuth from Magnetic to Grid subtract 7.56 degrees

Scale: 1 inch = 1500'



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Actual Wellpath Report
Piper Unit 3H AWP Proj: 14961'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Piper Unit 3H
Field	Ritchie	Wellbore	Piper Unit 3H 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	25/Apr/2017 at 13:23
Convergence at slot	0.02° East	Database/Source file	WA_MPL_EasternUS_Defn\Piper_Unit_3H_AWP_Proj_14961_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-43.88	78.48	1646625.58	14270715.88	39°17'55.540"N	80°58'40.990"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		25.00ft
Horizontal Reference Pt	Slot	Patterson 343 (RKB) to Facility Vertical Datum	1168.00ft
Vertical Reference Pt	Patterson 343 (RKB)	Patterson 343 (RKB) to Mean Sea Level	25.00ft
MD Reference Pt	Patterson 343 (RKB)	Patterson 343 (RKB) to Mud Line at Slot (Slot #10)	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	157.84°



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REFERENCE WELLPATH IDENTIFICATION									
Operator	ANTERO RESOURCES CORPORATION								
Area	Ritchie County, WV								
Field	Ritchie								
Facility	Noland Pad								

WELLPATH DATA (175 stations) † = Interpolated/Extrapolated Station																
MD	Inclination	Azimuth	TYD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft/l	°	°	ft	ft	ft	ft	ft	ft			ft	°	ft/100ft	ft/100ft	ft/100ft	
0.00†	0.000	42.200	0.00	0.00	0.00	0.00	1646625.58	14270715.88	39°17'55.540"N	80°58'40.990"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	42.200	25.00	0.00	0.00	0.00	1646625.58	14270715.88	39°17'55.540"N	80°58'40.990"W	0.00	0.000	0.00	0.00	0.00	
112.00	0.030	42.200	112.00	-0.01	0.02	0.02	1646625.60	14270715.90	39°17'55.540"N	80°58'40.990"W	0.02	42.200	0.03	0.03	48.51	Synclinal MS Gyro <8-314°-(100°-5872°)
212.00	0.240	34.930	212.00	-0.23	0.24	0.00	1646625.58	14270716.12	39°17'55.542"N	80°58'40.990"W	0.24	358.852	0.22	0.21	-52.57	
312.00	0.220	28.930	312.00	-0.55	0.62	0.05	1646625.63	14270716.50	39°17'55.545"N	80°58'40.989"W	0.62	4.509	0.15	-0.02	38.73	
412.00	0.210	30.490	412.00	-0.79	0.94	0.23	1646625.81	14270716.82	39°17'55.548"N	80°58'40.987"W	0.97	13.855	0.01	-0.01	2.13	
512.00	0.610	30.800	512.00	-1.22	1.56	0.60	1646626.18	14270717.44	39°17'55.555"N	80°58'40.982"W	1.67	20.996	0.40	0.40	0.31	
612.00	1.920	42.680	611.97	-2.25	3.25	2.08	1646627.36	14270719.13	39°17'55.572"N	80°58'40.964"W	3.82	31.699	1.33	1.31	11.86	
712.00	3.910	50.760	711.84	-3.97	6.64	5.71	1646631.59	14270722.51	39°17'55.608"N	80°58'40.916"W	8.80	41.052	2.03	1.99	8.10	
812.00	5.670	59.400	811.48	-5.68	11.31	12.68	1646638.25	14270727.18	39°17'55.652"N	80°58'40.829"W	16.99	48.261	1.90	1.76	8.84	
912.00	7.160	63.690	910.85	-6.87	16.59	22.53	1646648.10	14270732.47	39°17'55.704"N	80°58'40.703"W	27.98	53.627	1.58	1.51	4.29	
1012.00	8.700	63.040	1009.89	-7.95	22.79	34.37	1646660.44	14270738.66	39°17'55.755"N	80°58'40.546"W	41.66	56.832	1.52	1.52	-0.65	
1112.00	10.650	65.120	1108.46	-9.03	30.11	50.00	1646675.56	14270745.98	39°17'55.837"N	80°58'40.354"W	58.37	58.943	1.98	1.95	2.08	
1212.00	12.460	60.510	1206.43	-10.84	39.32	67.78	1646683.34	14270755.18	39°17'55.928"N	80°58'40.128"W	78.37	59.886	2.05	1.83	-4.61	
1312.00	15.010	60.630	1303.56	-13.85	50.99	88.48	1646714.03	14270766.85	39°17'56.042"N	80°58'39.864"W	102.12	60.047	2.53	2.53	0.12	
1412.00	17.140	59.980	1399.65	-17.49	64.71	112.53	1646738.06	14270780.57	39°17'56.179"N	80°58'39.558"W	129.81	60.097	2.14	2.13	-0.65	
1512.00	17.360	59.930	1495.14	-21.55	79.57	138.22	1646763.74	14270795.47	39°17'56.328"N	80°58'38.232"W	156.48	60.073	0.24	0.24	-0.03	
1612.00	17.450	58.890	1590.56	-25.94	94.80	163.98	1646789.48	14270810.64	39°17'56.477"N	80°58'38.904"W	185.41	59.967	0.33	0.07	-1.09	
1712.00	17.840	57.740	1695.85	-30.97	110.73	189.76	1646815.27	14270826.56	39°17'56.634"N	80°58'38.576"W	219.71	59.738	0.52	0.39	-1.12	
1812.00	17.250	57.020	1791.20	-36.44	126.98	215.16	1646840.65	14270842.80	39°17'56.792"N	80°58'38.253"W	249.83	59.453	0.65	-0.59	-0.72	
1912.00	17.170	56.840	1876.72	-42.04	143.12	239.95	1646895.43	14270858.94	39°17'56.954"N	80°58'37.937"W	279.39	59.188	0.10	-0.08	-0.18	
2012.00	17.110	59.340	1972.28	-47.03	158.70	264.96	1646890.43	14270874.51	39°17'57.108"N	80°58'37.619"W	308.85	59.081	0.74	-0.06	2.50	
2112.00	18.150	61.800	2067.59	-50.85	173.56	291.34	1646916.81	14270889.37	39°17'57.255"N	80°58'37.283"W	338.12	59.217	1.28	1.04	2.46	
2212.00	18.420	62.050	2162.54	-54.08	186.32	319.03	1646944.48	14270904.13	39°17'57.401"N	80°58'36.931"W	370.45	59.446	0.28	0.27	0.25	
2312.00	17.330	61.770	2257.71	-57.25	202.77	346.10	1646971.55	14270918.57	39°17'57.543"N	80°58'36.587"W	401.13	59.635	1.09	-1.09	-0.28	
2412.00	16.510	60.790	2353.38	-60.57	216.76	371.63	1646997.06	14270933.55	39°17'57.681"N	80°58'36.262"W	430.22	59.746	0.87	-0.82	-1.01	
2512.00	17.130	62.230	2449.10	-63.76	230.56	397.06	1647022.48	14270948.35	39°17'57.818"N	80°58'35.939"W	459.14	59.857	0.75	0.62	1.47	
2612.00	17.310	62.690	2544.62	-66.55	244.26	423.30	1647048.71	14270963.04	39°17'57.953"N	80°58'35.605"W	488.72	60.014	0.22	0.18	0.43	
2712.00	16.720	59.540	2640.24	-69.97	258.38	448.92	1647074.32	14270978.16	39°17'58.093"N	80°58'35.279"W	517.95	60.077	1.09	-0.59	-3.12	
2812.00	18.580	54.010	2735.54	-75.85	275.04	474.21	1647099.60	14270993.81	39°17'58.257"N	80°58'34.957"W	548.20	59.887	2.50	1.86	-5.53	



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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #10
Operator	ANTERO RESOURCES CORPORATION	Well	Piper Unit 3H
Area	Ritchie County, WV	Wellbore	Piper Unit 3H AWP
Field	Ritchie		
Facility	Noland Pad		

WELLPATH DATA (175 stations)																
MD	Inclination	Azimuth	TVD	VertSect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft/100ft	ft/100ft	ft/100ft	
2912.00	20.240	53.140	2829.85	-84.05	284.73	500.94	1647126.32	14271010.54	39°17'58.452"N	80°56'34.617"W	581.24	59.526	1.68	1.66	-0.87	
3012.00	20.940	59.870	2923.48	-90.92	314.13	530.24	1647155.81	14271029.88	39°17'58.643"N	80°56'34.244"W	616.31	59.357	2.47	0.70	6.73	
3112.00	22.980	62.380	3016.22	-95.25	332.15	563.00	1647188.35	14271047.90	39°17'58.821"N	80°56'33.827"W	663.67	59.461	2.25	2.04	2.51	
3212.00	25.470	62.700	3107.41	-99.04	351.06	599.41	1647224.75	14271066.80	39°17'59.008"N	80°56'33.364"W	694.65	59.643	2.49	2.49	2.49	
3312.00	26.010	62.770	3197.48	-102.90	370.08	638.07	1647263.33	14271086.69	39°17'59.205"N	80°56'32.973"W	738.02	59.825	0.54	0.54	0.07	
3412.00	25.690	61.610	3287.48	-107.19	381.29	676.57	1647301.88	14271107.02	39°17'59.406"N	80°56'32.383"W	781.57	59.957	0.60	0.33	-1.16	
3512.00	26.030	60.770	3377.47	-112.24	412.31	714.78	1647340.07	14271128.02	39°17'59.613"N	80°56'31.898"W	826.17	60.022	0.51	0.36	-0.84	
3612.00	26.470	60.240	3467.16	-117.89	434.09	753.27	1647378.55	14271149.79	39°17'59.828"N	80°56'31.407"W	869.40	60.047	0.50	0.44	-0.53	
3712.00	26.540	55.150	3556.65	-124.22	456.81	791.80	1647417.06	14271172.30	39°18'00.051"N	80°56'30.917"W	914.02	60.029	0.49	0.07	-1.09	
3812.00	26.200	57.310	3646.24	-131.63	479.99	829.56	1647454.91	14271195.67	39°18'00.282"N	80°56'30.436"W	958.41	59.946	0.89	-0.34	-1.84	
3912.00	25.610	55.670	3736.20	-140.25	504.13	865.97	1647491.20	14271219.81	39°18'00.520"N	80°56'29.973"W	1002.02	59.794	0.96	-0.56	-1.74	
4012.00	26.400	56.350	3826.07	-149.27	528.67	902.30	1647527.52	14271244.33	39°18'00.767"N	80°56'29.511"W	1045.77	59.633	0.86	0.79	0.78	
4112.00	27.120	56.650	3915.36	-158.13	553.52	939.85	1647565.05	14271269.17	39°18'01.008"N	80°56'29.053"W	1089.73	59.504	0.73	0.72	0.30	
4212.00	28.860	58.850	4003.66	-166.32	578.53	979.55	1647604.73	14271294.18	39°18'01.265"N	80°56'28.528"W	1137.63	59.433	2.03	1.74	2.21	
4312.00	29.110	61.790	4091.14	-172.66	602.51	1021.64	1647645.81	14271318.15	39°18'01.492"N	80°56'27.992"W	1185.07	59.470	1.44	0.26	2.93	
4412.00	28.900	65.270	4178.51	-178.30	624.12	1065.03	1647686.18	14271339.75	39°18'01.709"N	80°56'27.440"W	1234.42	59.629	1.70	-0.21	3.48	
4512.00	28.280	64.120	4266.42	-178.92	644.56	1108.27	1647733.41	14271360.18	39°18'01.908"N	80°56'26.890"W	1282.08	59.818	0.84	-0.64	-1.15	
4612.00	26.800	63.620	4355.10	-182.11	664.91	1149.77	1647774.89	14271380.53	39°18'02.109"N	80°56'26.362"W	1328.19	59.959	1.48	-1.46	-0.50	
4712.00	25.430	61.320	4444.89	-185.21	685.23	1188.31	1647813.91	14271400.84	39°18'02.309"N	80°56'25.866"W	1372.15	60.041	1.70	-1.37	-2.30	
4812.00	25.570	59.180	4535.15	-191.90	706.80	1226.17	1647851.26	14271422.20	39°18'02.521"N	80°56'25.390"W	1415.20	60.047	0.94	0.14	-2.16	
4912.00	25.000	56.110	4625.57	-199.46	729.45	1262.25	1647887.32	14271445.04	39°18'02.748"N	80°56'24.981"W	1457.85	59.976	1.42	-0.57	-3.05	
5012.00	26.520	56.970	4715.53	-207.96	753.40	1298.51	1647923.56	14271468.98	39°18'02.983"N	80°56'24.470"W	1501.24	59.877	1.57	1.52	0.86	
5112.00	27.290	56.230	4804.81	-216.78	778.31	1336.28	1647961.32	14271493.88	39°18'03.229"N	80°56'23.989"W	1546.41	59.781	0.83	0.76	-0.74	
5212.00	26.550	57.390	4893.98	-225.45	803.09	1374.15	1647998.18	14271518.65	39°18'03.474"N	80°56'23.508"W	1591.62	59.697	0.90	-0.73	1.16	
5312.00	27.140	61.490	4983.21	-232.03	826.03	1413.02	1648038.04	14271541.58	39°18'03.700"N	80°56'23.013"W	1636.75	59.690	1.94	0.59	4.10	
5412.00	27.560	63.690	5072.03	-236.22	847.17	1453.80	1648078.80	14271563.71	39°18'03.909"N	80°56'22.494"W	1682.63	59.770	1.09	0.42	2.20	
5512.00	26.660	60.140	5161.05	-240.10	867.88	1494.39	1648119.37	14271585.41	39°18'04.114"N	80°56'21.978"W	1728.13	59.854	1.12	-0.90	-1.47	
5612.00	25.580	60.140	5250.83	-245.19	889.08	1532.97	1648157.93	14271604.61	39°18'04.322"N	80°56'21.487"W	1772.13	59.887	1.42	-1.08	-2.08	
5712.00	26.040	58.890	5340.86	-251.49	911.17	1570.46	1648195.43	14271622.69	39°18'04.542"N	80°56'21.010"W	1815.67	59.878	0.71	0.46	-1.25	
5812.00	25.970	57.510	5430.74	-268.83	934.28	1607.74	1648232.68	14271649.78	39°18'04.770"N	80°56'20.536"W	1859.49	59.839	0.61	-0.07	-1.38	



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Area	Ritchie County, WV								
Field	Ritchie								
Facility	Noland Pad								

WELLPATH DATA (175 stations)																			
MD	Inclination	Azimuth	TVD	Vert Seel	North				Grid East	Grid North	Latitude	Longitude	Closure	Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
					ft	ft	ft	ft											
5834.00	26.970	57.400	5495.19	-264.62	951.54	1634.80	1648259.72	14271657.04	39°18'04.940"N	80°58'20.191"W	1891.58	59.798	1.39	0.68	0.39	-0.15			
6015.00	27.080	55.440	5611.89	-276.41	984.46	1684.38	1648309.28	14271699.95	39°18'05.266"N	80°58'19.561"W	1950.97	59.695	0.68	0.38	-1.50	BH AT Curve <-6-1/2"> (5984716015-14937)			
6085.00	24.680	54.180	5574.86	-283.28	1002.06	1709.35	1648334.25	14271771.53	39°18'05.439"N	80°58'19.243"W	1981.42	59.620	3.52	-3.43	-1.80				
6114.00	22.910	58.200	5701.40	-285.65	1008.57	1719.08	1648343.95	14271724.05	39°18'05.584"N	80°58'19.119"W	1993.09	59.600	8.28	-6.10	13.85				
6161.00	22.460	68.720	5744.78	-287.05	1016.66	1735.21	1648360.09	14271732.13	39°18'05.584"N	80°58'18.914"W	2011.11	59.634	8.67	-0.96	22.38				
6208.00	23.020	81.750	5788.15	-284.70	1021.24	1752.68	1648377.56	14271738.71	39°18'05.629"N	80°58'18.692"W	2028.50	59.772	10.76	1.19	27.72				
6355.00	22.400	93.300	5931.53	-278.64	1022.04	1770.73	1648395.59	14271737.51	39°18'05.637"N	80°58'18.462"W	2044.51	60.007	9.56	-1.32	24.57				
6303.00	24.750	101.170	5975.53	-269.17	1019.56	1789.74	1648414.60	14271735.03	39°18'05.637"N	80°58'18.220"W	2059.77	60.331	8.23	4.98	16.40				
6350.00	27.230	106.050	5917.77	-257.10	1014.68	1808.74	1648434.58	14271730.15	39°18'05.664"N	80°58'17.966"W	2074.79	60.722	6.91	5.19	10.40				
6396.00	29.020	107.250	5968.33	-243.57	1008.46	1830.51	1648455.38	14271723.93	39°18'05.502"N	80°58'17.702"W	2089.92	61.149	4.08	3.89	2.59				
6443.00	29.010	109.690	5999.44	-228.67	1001.24	1852.13	1648476.97	14271716.71	39°18'05.433"N	80°58'17.422"W	2105.44	61.605	2.52	-0.02	5.19				
6490.00	29.980	117.600	6040.36	-212.09	991.95	1873.28	1648493.10	14271707.43	39°18'05.339"N	80°58'17.158"W	2119.70	62.098	8.53	2.06	16.83				
6537.00	31.740	124.900	6080.72	-192.75	979.43	1893.83	1648518.65	14271694.92	39°18'05.215"N	80°58'16.896"W	2132.11	62.653	8.80	3.74	15.53				
6584.00	33.880	128.620	6120.22	-170.93	964.18	1914.21	1648539.02	14271679.67	39°18'05.064"N	80°58'16.637"W	2143.33	63.265	6.25	4.55	7.91				
6629.00	41.450	132.500	6197.75	-117.69	925.16	1959.54	1648584.33	14271640.66	39°18'04.678"N	80°58'16.061"W	2166.96	64.727	8.09	7.72	3.96				
6722.00	45.130	133.700	6231.96	-88.42	903.13	1983.08	1648607.84	14271618.65	39°18'04.461"N	80°58'15.761"W	2179.03	65.514	8.02	7.83	2.55				
6763.00H	48.859	135.319	6255.15	-65.59	885.70	2000.78	1648625.55	14271601.22	39°18'04.288"N	80°58'15.536"W	2188.05	66.122	11.51	10.97	4.79	Middlesex: 6763 MD			
6820.00	49.960	135.750	6281.65	-58.57	880.28	2006.09	1648630.87	14271585.80	39°18'04.235"N	80°58'15.469"W	2190.73	66.308	11.51	11.01	4.41				
6868.00	53.880	139.580	6290.94	-23.85	852.92	2030.97	1648655.73	14271558.46	39°18'03.964"N	80°58'15.152"W	2202.80	67.220	10.51	8.34	8.13				
6915.00	56.800	143.520	6317.94	14.04	822.00	2055.49	1648680.25	14271537.55	39°18'03.856"N	80°58'14.840"W	2213.76	68.203	9.06	6.08	8.21				
6950.00H	61.080	148.750	6342.20	53.44	788.57	2077.87	1648702.62	14271504.13	39°18'03.328"N	80°58'14.565"W	2222.48	69.218	13.19	9.11	11.15				
6960.00H	63.741	152.018	6358.41	84.19	761.60	2093.19	1648717.93	14271477.18	39°18'03.062"N	80°58'14.361"W	2227.44	70.006	11.22	7.90	9.31	Burket: 6950 MD			
6962.00	64.670	153.100	6363.63	94.95	752.01	2098.17	1648722.90	14271457.59	39°18'02.967"N	80°58'14.298"W	2228.86	70.282	11.22	7.74	9.02				
7009.00	68.450	157.650	6382.33	138.01	712.82	2116.10	1648740.83	14271428.42	39°18'02.579"N	80°58'14.070"W	2232.93	71.384	11.99	8.04	9.70				
7016.00H	68.974	157.983	6384.86	144.53	706.78	2118.56	1648743.29	14271422.38	39°18'02.520"N	80°58'14.039"W	2233.35	71.551	8.64	7.49	4.62	July: 7016 MD			
7056.00H	71.980	159.790	6398.24	182.22	671.62	2135.73	1648756.86	14271377.23	39°18'02.172"N	80°58'13.866"W	2235.41	72.516	8.64	7.51	4.52				
7067.00H	73.042	159.890	6401.55	192.71	661.77	2135.75	1648760.47	14271367.88	39°18'02.076"N	80°58'13.820"W	2235.92	72.784	9.70	9.66	0.91	Marcellus POE: 7057 MD			
7103.00	76.520	160.210	6411.00	227.41	629.12	2147.50	1648772.31	14271344.75	39°18'01.752"N	80°58'13.670"W	2237.85	73.673	9.70	9.66	0.89				
7151.00	80.550	159.470	6420.54	274.42	584.97	2163.81	1648788.52	14271300.61	39°18'01.316"N	80°58'13.464"W	2241.49	74.872	8.53	8.40	-1.54				
7198.00	84.640	159.940	6426.59	320.99	541.26	2179.97	1648804.68	14271256.93	39°18'00.884"N	80°58'13.258"W	2246.16	76.056	8.76	8.70	1.00				



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Field	Ritchie								
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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	°/100ft	°/100ft	
7245.00	88.030	150.870	6429.50	367.94	497.08	2195.70	1648820.40	14271212.76	39°18'00.44"N	80°58'13.058"W	2251.25	77.244	7.48	7.21	1.95	
7292.00	90.000	150.650	6430.40	414.77	452.71	2211.17	1648835.86	14271158.41	39°18'00.008"N	80°58'12.852"W	2257.04	79.429	4.21	4.19	-0.38	
7339.00	90.060	159.250	6430.38	461.73	408.55	2227.28	1648851.95	14271124.27	39°17'59.572"N	80°58'12.657"W	2264.42	79.506	3.05	0.13	-3.04	
7433.00	90.000	155.840	6430.33	555.72	321.69	2263.15	1648887.82	14271037.44	39°17'58.713"N	80°58'12.201"W	2285.90	81.910	3.64	0.06	-3.64	
7528.00	89.910	154.340	6430.40	650.51	235.53	2303.16	1648927.82	14270951.32	39°17'57.861"N	80°58'11.692"W	2315.18	84.161	1.58	-0.09	-1.58	
7622.00	89.940	156.680	6430.53	744.52	149.99	2342.13	1648966.77	14270655.81	39°17'57.016"N	80°58'11.197"W	2346.93	86.336	2.49	0.03	-2.49	
7716.00	89.820	156.630	6430.72	838.50	63.69	2379.38	1649004.00	14270779.54	39°17'56.163"N	80°58'10.724"W	2380.23	88.467	0.14	-0.13	-0.05	
7810.00	89.940	156.100	6430.92	932.47	-22.42	2417.06	1649041.67	14270693.46	39°17'55.311"N	80°58'10.245"W	2417.17	90.532	0.58	0.13	-0.55	
7905.00	89.720	155.430	6431.20	1027.41	-109.05	2455.06	1649080.65	14270606.87	39°17'54.455"N	80°58'09.749"W	2458.48	92.542	0.74	0.23	-0.71	
7999.00	89.720	153.970	6431.66	1121.26	-194.03	2496.23	1649120.80	14270521.93	39°17'53.615"N	80°58'09.238"W	2503.76	94.445	1.55	0.00	-1.55	
8093.00	90.680	153.180	6431.33	1215.00	-278.21	2538.06	1649162.62	14270437.78	39°17'52.783"N	80°58'08.707"W	2553.26	96.255	1.32	1.02	-0.84	
8187.00	90.220	158.640	6430.60	1308.91	-363.99	2576.41	1649200.95	14270352.04	39°17'51.935"N	80°58'08.219"W	2502.00	98.041	5.83	-0.49	5.81	
8281.00	89.850	160.920	6430.54	1402.85	-452.19	2608.90	1649233.43	14270263.87	39°17'51.063"N	80°58'07.806"W	2547.80	99.933	2.46	-0.39	2.43	
8375.00	90.120	160.690	6430.56	1496.72	-540.96	2639.80	1649264.32	14270175.14	39°17'50.186"N	80°58'07.414"W	2594.65	101.581	0.38	0.29	-0.24	
8469.00	90.030	160.010	6430.44	1590.63	-629.49	2671.41	1649285.92	14270086.65	39°17'49.311"N	80°58'07.012"W	2744.58	103.259	0.73	-0.10	-0.72	
8563.00	90.150	161.330	6430.29	1684.51	-718.19	2702.53	1649327.02	14269997.98	39°17'48.434"N	80°58'06.617"W	2796.33	104.882	1.41	0.13	1.40	
8657.00	91.110	163.970	6429.26	1778.17	-807.89	2730.55	1649395.04	14269808.31	39°17'47.547"N	80°58'06.250"W	2847.56	106.482	2.99	1.02	2.81	
8751.00	91.020	163.970	6427.51	1871.61	-898.22	2756.51	1649380.98	14269618.02	39°17'46.654"N	80°58'05.931"W	2899.16	108.048	0.10	-0.10	0.00	
8845.00	91.350	161.960	6425.57	1965.21	-988.08	2784.04	1649408.50	14269429.20	39°17'45.766"N	80°58'05.581"W	2954.18	109.540	2.17	0.35	-2.14	
8939.00	91.800	157.470	6423.15	2059.11	-1076.19	2816.61	1649441.05	14269240.12	39°17'44.895"N	80°58'05.167"W	3015.21	110.911	4.78	0.27	-4.78	
9034.00	90.920	151.920	6421.06	2153.90	-1162.02	2857.19	1649481.62	14269054.32	39°17'44.046"N	80°58'04.651"W	3084.45	112.132	5.88	-0.72	-5.84	
9128.00	90.800	153.610	6419.65	2247.52	-1245.59	2900.20	1649524.61	14268947.09	39°17'43.220"N	80°58'04.105"W	3156.37	113.243	1.90	-0.13	1.80	
9222.00	90.920	155.820	6418.23	2341.37	-1330.57	2940.34	1649564.74	14268830.49	39°17'42.380"N	80°58'03.594"W	3227.39	114.348	2.35	0.13	2.35	
9316.00	90.920	154.800	6416.72	2435.26	-1415.96	2979.60	1649603.98	14268713.83	39°17'41.536"N	80°58'03.095"W	3298.94	115.418	1.08	0.00	-1.09	
9410.00	91.050	159.280	6415.11	2529.21	-1502.48	3016.26	1649640.62	14268591.00	39°17'40.681"N	80°58'02.630"W	3369.75	116.479	4.77	0.14	4.77	
9505.00	90.400	157.300	6413.91	2624.20	-1590.73	3051.39	1649675.75	14268472.79	39°17'39.809"N	80°58'02.183"W	3441.14	117.534	2.19	-0.58	-2.08	
9599.00	89.940	155.080	6413.63	2718.15	-1676.72	3089.34	1649713.68	14268353.83	39°17'38.958"N	80°58'01.701"W	3515.03	118.491	2.41	-0.49	-2.36	
9693.00	89.940	156.790	6413.73	2812.10	-1762.55	3127.67	1649751.99	14268234.04	39°17'38.110"N	80°58'01.214"W	3590.11	119.403	1.92	0.00	1.82	
9788.00	89.230	157.190	6414.41	2907.08	-1849.99	3164.80	1649789.11	14268114.63	39°17'37.246"N	80°58'00.742"W	3665.84	120.308	0.96	-0.75	-0.42	
9882.00	89.420	158.210	6415.52	3001.07	-1936.95	3200.47	1649824.75	14268000.77	39°17'36.386"N	80°58'00.289"W	3740.95	121.183	1.10	0.20	1.05	



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Field	Ritchie								
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ft	°	°	ft	ft	ft	ft	ft	ft	°	°	ft	°	ft/100ft	ft/100ft	ft/100ft	
9976.00	86.820	161.660	6416.14	3095.00	-2025.23	3232.71	1849868.99	14268691.48	39°17'35.613"N	80°57'59.879"W	3814.70	122.068	0.71	0.43	3.67	
10071.00	86.250	161.280	6416.91	3189.80	-2115.30	3282.90	1849887.17	14268601.43	39°17'34.623"N	80°57'59.485"W	3888.58	122.955	0.71	-0.59	-0.40	
10165.00	88.080	161.180	6418.27	3283.63	-2204.29	3293.14	1849917.40	14268512.47	39°17'33.743"N	80°57'59.111"W	3962.79	123.757	0.22	-0.19	-0.11	
10259.00	88.550	159.170	6420.21	3377.52	-2292.70	3325.01	1849948.26	14268424.10	39°17'32.859"N	80°57'58.705"W	4038.84	124.587	2.21	-0.56	-2.14	
10353.00	88.490	155.360	6422.64	3471.47	-2379.35	3361.33	1849985.66	14268337.49	39°17'32.013"N	80°57'58.245"W	4118.23	125.263	4.08	-0.08	-4.08	
10448.00	88.340	153.260	6425.27	3566.25	-2464.92	3402.50	1850028.72	14268251.96	39°17'31.167"N	80°57'57.721"W	4201.53	125.921	2.20	-0.16	-2.20	
10542.00	88.340	154.280	6427.99	3659.97	-2549.20	3444.02	1850068.22	14268167.10	39°17'30.333"N	80°57'57.184"W	4284.83	126.508	1.10	0.00	1.10	
10635.00	88.400	154.610	6430.67	3753.77	-2633.98	3484.55	1850108.73	14268082.96	39°17'29.496"N	80°57'56.679"W	4368.05	127.086	0.35	0.05	0.34	
10730.00	88.320	156.300	6433.54	3847.66	-2719.48	3523.92	1850147.75	14267997.61	39°17'28.651"N	80°57'56.183"W	4450.97	127.661	2.05	0.98	1.80	
10825.00	88.450	155.970	6433.66	3942.61	-2806.31	3562.07	1850185.21	14267910.69	39°17'27.792"N	80°57'55.684"W	4534.72	128.232	0.43	0.14	-0.41	
10919.00	89.600	155.350	6434.34	4036.54	-2891.93	3600.85	1850224.98	14267825.11	39°17'26.946"N	80°57'55.201"W	4618.38	128.789	0.62	0.16	-0.60	
11013.00	90.400	166.720	6434.34	4130.24	-2980.69	3631.35	1850265.47	14267738.39	39°17'26.058"N	80°57'54.813"W	4698.00	129.360	12.13	0.85	12.10	
11107.00	90.340	173.840	6433.73	4221.95	-3073.29	3647.13	1850271.24	14267643.83	39°17'25.153"N	80°57'54.613"W	4769.34	130.119	7.68	-0.06	7.68	
11201.00	90.250	179.790	6433.24	4310.78	-3167.10	3662.27	1850276.88	14267556.05	39°17'24.228"N	80°57'54.548"W	4834.21	130.931	6.22	-0.10	6.22	
11295.00	90.280	170.270	6432.81	4400.47	-3260.64	3680.40	1850284.51	14267466.55	39°17'23.301"N	80°57'54.445"W	4902.07	131.664	10.13	0.03	-10.13	
11390.00	90.400	167.450	6432.24	4493.71	-3353.84	3678.75	1850302.86	14267376.39	39°17'22.380"N	80°57'54.212"W	4978.10	132.355	2.97	0.13	-2.97	
11484.00	90.950	153.190	6431.13	4587.37	-3442.12	3710.33	1850334.41	14267276.15	39°17'21.508"N	80°57'53.811"W	5061.09	132.862	15.18	0.59	-15.17	
11578.00	90.400	153.600	6430.02	4681.10	-3526.23	3752.27	1850378.34	14267191.07	39°17'20.678"N	80°57'53.278"W	5148.16	133.221	0.87	-0.59	0.65	
11672.00	90.310	153.890	6429.44	4774.87	-3610.60	3793.71	1850417.76	14267106.73	39°17'19.842"N	80°57'52.751"W	5237.24	133.583	0.14	-0.10	0.10	
11767.00	90.370	150.770	6428.88	4866.41	-3694.73	3837.82	1850461.85	14267022.64	39°17'19.010"N	80°57'52.181"W	5327.27	133.912	3.28	0.06	-3.28	
11861.00	90.180	149.300	6428.43	4962.54	-3776.18	3884.77	1850508.78	14266941.24	39°17'18.208"N	80°57'51.584"W	5417.64	134.188	1.58	-0.20	-1.56	
11955.00	90.220	150.010	6428.10	5056.58	-3857.28	3932.25	1850556.25	14266860.15	39°17'17.403"N	80°57'50.991"W	5508.29	134.448	0.76	0.04	0.76	
12049.00	90.280	151.130	6427.69	5148.82	-3939.15	3978.44	1850602.42	14266776.32	39°17'16.594"N	80°57'50.404"W	5598.65	134.718	1.19	0.05	1.19	
12143.00	90.340	155.210	6427.18	5242.49	-4023.01	4020.85	1850644.82	14266694.49	39°17'15.785"N	80°57'49.865"W	5687.87	135.015	4.34	0.05	4.34	
12238.00	90.340	157.250	6426.62	5337.45	-4109.94	4056.15	1850683.09	14266607.59	39°17'14.906"N	80°57'49.318"W	5776.53	135.356	2.15	0.00	2.15	
12332.00	90.430	155.310	6425.98	5431.40	-4196.00	4096.95	1850720.89	14266521.57	39°17'14.055"N	80°57'48.858"W	5864.42	135.664	2.07	-2.06	-4.61	
12426.00	89.910	150.980	6425.80	5525.07	-4279.84	4139.41	1850763.33	14266437.76	39°17'13.226"N	80°57'48.358"W	5954.14	135.966	4.64	-0.55	-4.61	
12521.00	89.970	152.970	6425.80	5619.56	-4363.70	4184.04	1850801.94	14266353.94	39°17'12.397"N	80°57'47.791"W	6045.50	136.204	2.10	0.05	2.09	
12615.00	89.910	154.640	6425.60	5713.33	-4448.04	4225.54	1850849.42	14266266.63	39°17'11.563"N	80°57'47.264"W	6135.16	136.469	1.78	-0.05	1.78	
12709.00	89.970	157.400	6426.00	5806.98	-4531.80	4266.18	1850892.04	14266185.91	39°17'10.735"N	80°57'46.722"W	6226.31	136.716	3.45	0.08	-3.45	



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REFERENCE WELLPATH IDENTIFICATION									
Operator	ANTERO RESOURCES CORPORATION								
Area	Ritchie County, WV								
Field	Ritchie								
Facility	Noland Pad								
	Slot	Slot #10							
	Well	Piper Unit 3H							
	Wellbore	Piper Unit 3H AWP							

WELLPATH DATA (175 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	ft	ft	°	°	ft	°	ft/100ft	ft/100ft	ft/100ft	
12803.00	90.030	154.070	6426.00	5900.80	-4515.34	4311.23	1650935.08	14266102.39	39°17'09.909"N	80°57'46.175"W	6315.71	135.951	2.94	0.06	2.94	
12897.00	90.036	158.590	6425.95	5994.54	-4701.41	4348.95	1650972.79	14266016.36	39°17'09.058"N	80°57'45.655"W	6404.43	137.230	4.81	0.00	4.81	
12992.00	89.970	157.950	6425.95	6089.54	-4789.58	4384.13	1651007.95	14265928.14	39°17'08.185"N	80°57'45.248"W	6493.19	137.531	0.56	-0.06	-0.57	
13096.00	90.000	158.790	6425.98	6183.54	-4877.04	4418.73	1651042.59	14265840.80	39°17'07.322"N	80°57'44.808"W	6581.12	137.822	0.39	0.03	0.39	
13180.00	89.970	157.410	6426.00	6277.53	-4964.28	4453.94	1651077.63	14265753.62	39°17'06.460"N	80°57'44.363"W	6669.38	138.102	1.47	-0.03	-1.47	
13274.00	89.890	156.780	6426.12	6371.52	-5050.85	4490.43	1651114.20	14265667.06	39°17'05.604"N	80°57'43.898"W	6758.33	138.361	0.58	-0.10	-0.57	
13368.00	89.940	162.850	6426.27	6465.42	-5139.03	4522.85	1651146.61	14265578.91	39°17'04.732"N	80°57'43.485"W	6845.96	138.649	6.48	0.06	6.46	
13465.00	89.940	165.430	6426.37	6559.84	-5230.41	4548.81	1651172.56	14265487.58	39°17'03.829"N	80°57'43.155"W	6931.73	138.987	2.72	0.00	2.72	
13555.00	90.250	160.090	6426.22	6653.46	-5320.15	4575.66	1651200.40	14265397.87	39°17'02.942"N	80°57'42.803"W	7017.82	139.286	5.69	0.33	-5.68	
13651.00	90.000	157.310	6426.01	6747.44	-5407.72	4610.80	1651234.53	14265310.33	39°17'02.075"N	80°57'42.369"W	7105.54	139.548	2.97	-0.27	-2.96	
13745.00	89.970	157.380	6426.03	6841.44	-5494.47	4647.01	1651270.72	14265223.62	39°17'01.219"N	80°57'41.909"W	7196.10	139.777	0.08	-0.03	0.07	
13838.00	89.970	157.440	6426.08	6935.44	-5581.26	4683.12	1651306.81	14265136.97	39°17'00.361"N	80°57'41.450"W	7285.74	140.001	0.06	0.00	0.06	
13934.00	89.850	156.760	6426.23	7030.43	-5668.40	4718.55	1651342.23	14265048.76	39°16'59.490"N	80°57'41.000"W	7376.09	140.230	1.40	-0.13	1.39	
14028.00	89.970	157.900	6426.38	7124.43	-5755.75	4753.26	1651376.93	14264961.44	39°16'58.628"N	80°57'40.559"W	7465.50	140.454	0.92	0.13	-0.91	
14122.00	89.910	158.400	6426.48	7218.43	-5844.00	4788.24	1651411.90	14264874.23	39°16'57.764"N	80°57'40.115"W	7555.11	140.671	0.54	-0.06	0.53	
14217.00	89.970	157.900	6426.58	7313.43	-5932.18	4823.50	1651447.24	14264785.09	39°16'56.892"N	80°57'39.665"W	7645.77	140.885	0.53	0.06	-0.53	
14311.00	89.850	154.400	6426.73	7407.37	-6018.14	4861.50	1651485.23	14264700.16	39°16'56.042"N	80°57'39.183"W	7736.48	141.068	3.73	-0.13	-3.72	
14405.00	90.150	160.030	6426.73	7501.33	-6104.77	4897.99	1651521.60	14264613.57	39°16'55.185"N	80°57'38.720"W	7826.78	141.259	6.00	0.32	5.99	
14499.00	89.850	156.030	6426.73	7595.31	-6191.92	4933.15	1651558.75	14264525.45	39°16'54.324"N	80°57'38.274"W	7916.81	141.455	4.27	-0.32	-4.26	
14593.00	90.060	152.610	6426.80	7689.11	-6278.82	4973.88	1651597.46	14264441.78	39°16'53.487"N	80°57'37.755"W	8008.46	141.605	3.65	0.22	-3.64	
14688.00	89.970	153.650	6426.78	7783.79	-6361.37	5016.81	1651640.37	14264357.07	39°16'52.649"N	80°57'37.211"W	8101.57	141.739	1.11	-0.09	-1.11	
14782.00	89.980	156.670	6427.08	7877.68	-6448.67	5056.28	1651679.83	14264271.80	39°16'51.805"N	80°57'36.709"W	8193.02	141.892	3.22	-0.33	-3.20	
14876.00	89.480	163.740	6427.79	7971.54	-6535.05	5098.10	1651721.63	14264183.45	39°16'50.932"N	80°57'36.305"W	8282.25	142.086	7.52	-0.19	7.52	
14937.00	89.510	165.450	6428.32	8032.11	-6623.86	5104.30	1651772.83	14264124.67	39°16'50.351"N	80°57'36.100"W	8338.53	142.257	2.90	0.05	2.90	
14961.00	89.510	165.450	6428.53	8056.90	-6617.09	5110.33	1651733.85	14264101.45	39°16'50.121"N	80°57'36.023"W	8380.70	142.321	0.00	0.00	0.00	Projected MD at TD: 14961'



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REFERENCE WELLPATH IDENTIFICATION				Slot	Slot #10
Operator	ANTERO RESOURCES CORPORATION			Well	Piper Unit 3H
Area	Ritchie County, WV			Wellbore	Piper Unit 3H AWB
Field	Ritchie				
Facility	Noland Pad				

HOLE & CASING SECTIONS - Ref Wellbore: Piper Unit 3H AWB String/Diameter	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start N/S (ft)	Start EW (ft)	End N/S (ft)	End EW (ft)
	25.00	65.00	40.00	25.00	65.00	0.00	0.00	0.00	0.00
	65.00	366.00	301.00	65.00	366.00	0.00	0.00	0.80	0.15
	25.00	366.00	341.00	25.00	366.00	0.00	0.00	0.80	0.15
	366.00	2615.00	2249.00	366.00	2547.48	0.80	0.15	244.67	424.09
	25.00	2615.00	2590.00	25.00	2547.48	0.00	0.00	244.67	424.09
	2615.00	6062.00	3447.00	2547.48	5654.03	244.67	424.09	996.38	1701.43
	6062.00	14961.00	8899.00	5654.03	6428.53	996.38	1701.43	-6617.09	5110.33
	25.00	14961.00	14936.00	25.00	6428.53	0.00	0.00	-6617.09	5110.33

TARGETS	Name	TVD (ft)	North (ft)	East (ft)	Grid East (TUS ft)	Grid North (TUS ft)	Latitude	Longitude	Shape
	Piper Unit 3H POE Rev-2	6401.00	686.80	2124.37	1648749.10	14271402.41	39°18'02.322"N	80°58'13.965"W	point
	Piper Unit 3H BHL Rev-2	6430.00	-6666.48	5119.76	1661743.28	14264052.08	39°19'49.633"N	80°57'35.903"W	point
	Piper Unit 3H LP Rev-1	6430.00	520.13	2192.27	1648816.97	14271235.80	39°18'00.675"N	80°58'13.102"W	point
	Piper Unit 3H 25' L/R Hard Line	6512.00	-3073.18	3656.01	1650280.13	14267643.94	39°17'25.154"N	80°57'54.500"W	rectangle



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Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Piper Unit 3H
Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

WELLPATH COMPOSITION - Ref Wellbore: Piper Unit 3H AWB Ref Wellpath: Piper Unit 3H AWP Proj: 14961'			
Start MD	End MD	Positional Uncertainty Model	Log Name/Comment
[ft]	[ft]		Wellbore
25.00	5884.00	Gyrodela standard - Continuous gyro	03 Gyrodela MS Gyro <8-3/4">(100'-5872')
5884.00	14937.00	BHI AutoTrak Curve (Short)	04 BHI AT Curve <8-1/2">(5884')(6015'-14937')
14937.00	14961.00	Blind Drilling (std)	Projection to Bit
			Piper Unit 3H AWB
			Piper Unit 3H AWB
			Piper Unit 3H AWB



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Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

COMMENTS

Wellpath general comments
 API: 47-085-10296-0000
 BHI Job #: 8506917
 Rig: Patterson 343
 Duration: 04/14/2017-04/17/2017
 Gyrodala MS Gyro <8-3/4">(100-5872)
 BHI AT Curve <8-1/2"> (5884)(6015-14937')
 Middlesex: 6763' MD
 Burket: 6950' MD
 Tully: 7016' MD
 Marcellus POE: 7067' MD
 Projected MD at TD: 14961'