



# ANTERO RESOURCES CORPORATION



API: 47-085-10339-0000  
 BHI Job #: 109307823  
 Rig: Frontier 22  
 Duration: 07/25/2018-07/28/2018

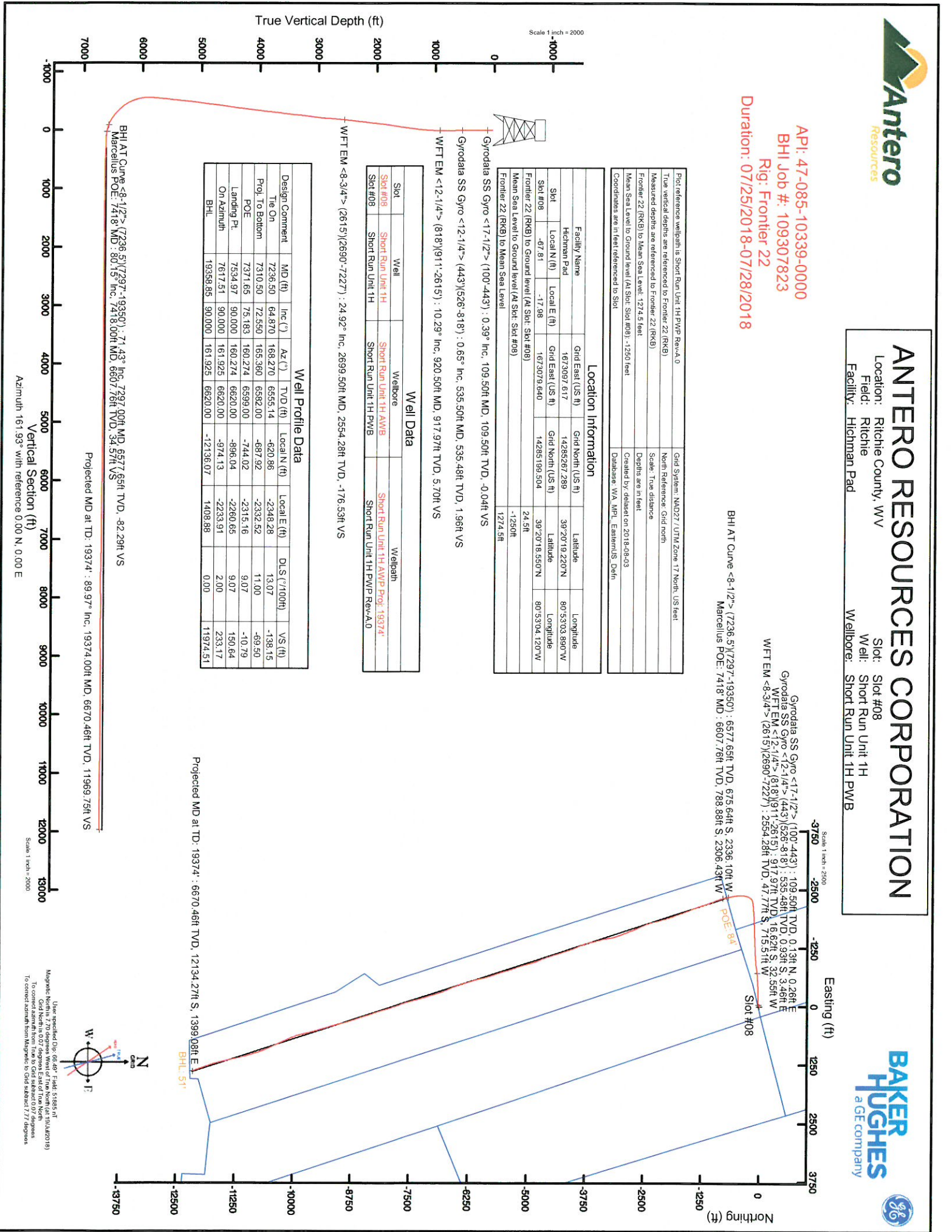
Location: Ritchie County, WV  
 Field: Ritchie  
 Facility: Hichman Pad  
 Slot: Slot #08  
 Well: Short Run Unit 1H  
 Wellbore: Short Run Unit 1H PWB

Photo reference wellpath is Short Run Unit 1H PWB Rev-A 0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 22 (RKB)	North Reference: Grid north
Measured depths are referenced to Frontier 22 (RKB)	Scale: True distance
Frontier 22 (RKB) to Mean Sea Level: 1274.5 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #08)	Created by: delaseti on 2018-08-03
Coordinates are in feet referenced to Slot	Database: VA_MPL_EasternUS_DeIn

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude
Hichman Pad	1673097.617	14285267.289	39°20'19.220"N
Slot	Local N (ft)	Grid East (US ft)	Longitude
Slot #08	-67.81	1673079.640	80°53'03.890"W
Frontier 22 (RKB) to Ground level (At Slot: Slot #08)	-17.98	14285199.504	39°20'18.550"N
Mean Sea Level to Ground level (At Slot: Slot #08)			80°53'04.120"W
Frontier 22 (RKB) to Mean Sea Level			24.5ft
			-1250ft
			1274.5ft

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #08	Short Run Unit 1H	Short Run Unit 1H AWB	Short Run Unit 1H AWB Prop: 193774'
Slot #08	Short Run Unit 1H	Short Run Unit 1H PWB	Short Run Unit 1H PWB Rev-A 0

Well Profile Data						
Design Comment	MD (ft)	Inc (%)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)
Tie On	7236.50	64.870	168.270	6555.14	-620.86	-2348.28
Proj. to Bottom	7310.50	72.550	165.360	6682.00	-687.92	-2332.52
POE	7371.66	75.183	160.274	6699.00	-744.02	-2315.16
Landing Pt.	7534.97	90.000	160.274	6620.00	-896.04	-2260.65
On Azimuth	7617.51	90.000	161.925	6620.00	-974.13	-2233.91
BHL	19358.85	90.000	161.925	6620.00	-12136.07	1408.88



Projected MD at TD: 19374' : 89.97° Inc. 19374.00ft MD. 6670.46ft TVD. 11969.75ft VS

Projected MD at TD: 19374' : 6670.46ft TVD. 12134.27ft S. 1399.08ft E.

Vertical Section (ft)  
 Azimuth 161.93° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000



Magnetic: User specified Dip: 66.48° Field: 51855 nT  
 To correct azimuth from True to Grid subtract 7.71 degrees  
 To correct azimuth from Magnetic to Grid subtract 7.71 degrees

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

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999601	Report Generated	03/Aug/2018 at 11:11
Convergence at slot	0.07° East	Database/Source file	WA_MPL_EasternUS_Defn/Short_Run_Unit_1H_AWP_Proj_19374.xml

WELLPATH LOCATION							
	Local coordinates			Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Easting[US ft]	Northing[US ft]	Latitude	Longitude	
Slot Location	-67.81	-17.98	1673079.64	14285199.50	39°20'18.550"N	80°53'04.120"W	
Facility Reference Pt			1673097.62	14285267.29	39°20'19.220"N	80°53'03.890"W	
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W	

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 22 (RKB) to Facility Vertical Datum	24.50ft
Horizontal Reference Pt	Slot	Frontier 22 (RKB) to Mean Sea Level	1274.50ft
Vertical Reference Pt	Frontier 22 (RKB)	Frontier 22 (RKB) to Ground Level at Slot (Slot #08)	24.50ft
MD Reference Pt	Frontier 22 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	161.93°



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Short Run Unit 1H
Field	Ritchie	Wellbore	Short Run Unit 1H AWB
Facility	Hichman Pad		

## WELLPATH DATA (244 stations)

MD ft	Inclination °	Azimuth °	TVD ft	Vert Sect ft	North ft	East ft	Interpolated/Extrapolated Station		Latitude	Longitude	Closure Dist ft	Closure Dir °	DLS ft/100ft	Build Rate ft/100ft	Turn Rate ft/100ft	Comments
							Grid East ft	Grid North ft								
0.00	0.000	63.600	0.00	0.00	0.00	0.00	1673079.64	14285199.50	39°20'18.550"N	80°53'04.120"W	0.00	0.000	0.00	0.00	0.00	
24.50	0.000	63.600	24.50	0.00	0.00	0.00	1673079.64	14285199.50	39°20'18.550"N	80°53'04.120"W	0.00	0.000	0.00	0.00	0.00	
109.50	0.390	63.600	109.50	-0.04	0.13	0.26	1673079.90	14285199.53	39°20'18.551"N	80°53'04.117"W	0.29	63.600	0.46	0.46	74.82	Gyrodota SS Gyro <17-112'> (100-443)
134.50	0.280	55.020	134.50	-0.07	0.20	0.39	1673080.03	14285199.76	39°20'18.552"N	80°53'04.115"W	0.43	62.399	0.48	-0.44	-34.32	
159.50	0.570	79.030	159.50	-0.07	0.26	0.56	1673080.20	14285199.76	39°20'18.553"N	80°53'04.113"W	0.62	64.984	1.34	1.16	96.04	
184.50	0.520	91.550	184.50	-0.02	0.28	0.79	1673080.43	14285199.78	39°20'18.553"N	80°53'04.110"W	0.84	70.504	0.52	-0.20	50.08	
209.50	0.560	91.810	209.50	0.06	0.27	1.03	1673080.67	14285199.78	39°20'18.553"N	80°53'04.107"W	1.06	75.091	0.16	0.16	1.04	
234.50	0.600	88.350	234.49	0.14	0.27	1.28	1673080.92	14285199.78	39°20'18.553"N	80°53'04.104"W	1.31	77.942	0.21	0.16	-13.84	
259.50	0.740	83.220	259.49	0.21	0.30	1.57	1673081.21	14285199.80	39°20'18.553"N	80°53'04.100"W	1.60	79.320	0.61	0.56	-20.52	
284.50	0.960	87.390	284.49	0.29	0.33	1.94	1673081.58	14285199.83	39°20'18.553"N	80°53'04.095"W	1.97	80.495	0.91	0.88	16.68	
309.50	1.090	86.740	309.49	0.41	0.35	2.39	1673082.03	14285199.85	39°20'18.553"N	80°53'04.090"W	2.41	81.706	0.52	0.52	-2.60	
334.50	0.600	101.270	334.48	0.53	0.34	2.75	1673082.39	14285199.84	39°20'18.553"N	80°53'04.085"W	2.77	83.042	2.12	-1.96	58.12	
359.50	0.480	112.600	359.48	0.67	0.27	2.98	1673082.62	14285199.77	39°20'18.552"N	80°53'04.082"W	2.99	84.816	0.64	-0.48	45.32	
384.50	0.500	114.490	384.48	0.81	0.18	3.18	1673082.81	14285199.69	39°20'18.552"N	80°53'04.080"W	3.18	86.668	0.10	0.08	83.00	
409.50	0.570	135.240	409.48	0.99	0.05	3.36	1673083.00	14285199.56	39°20'18.550"N	80°53'04.077"W	3.36	89.125	0.82	0.28	66.28	
434.50	0.490	151.810	434.48	1.21	-0.13	3.50	1673083.14	14285199.37	39°20'18.549"N	80°53'04.075"W	3.50	92.146	0.69	-0.32	66.28	
452.50	0.410	154.010	452.48	1.35	-0.26	3.56	1673083.20	14285199.25	39°20'18.547"N	80°53'04.075"W	3.57	94.121	0.45	0.29	67.70	
535.50	0.650	210.200	535.48	1.96	-0.93	3.46	1673083.10	14285198.57	39°20'18.547"N	80°53'04.075"W	3.58	105.063	0.65	0.29	67.70	Gyrodota SS Gyro <12-114'> (443)(526-818)
625.50	3.080	240.260	625.42	2.79	-2.57	1.10	1673080.74	14285196.93	39°20'18.525"N	80°53'04.106"W	2.80	156.808	2.82	2.70	33.40	
745.50	6.290	241.680	745.11	4.15	-6.11	-5.34	1673074.30	14285193.40	39°20'18.490"N	80°53'04.188"W	8.11	221.146	3.57	3.57	1.58	
827.50	8.340	247.290	826.19	5.90	-12.16	-18.23	1673061.41	14285178.35	39°20'18.430"N	80°53'04.352"W	21.92	236.307	1.94	1.83	5.01	
920.50	10.290	257.070	917.97	5.70	-16.62	-32.55	1673047.10	14285182.89	39°20'18.386"N	80°53'04.535"W	36.55	242.953	2.69	2.10	10.52	WFT EM <12-114'> (818)(911-2615)
1017.50	12.650	260.360	1013.03	3.37	-20.34	-51.47	1673028.19	14285178.17	39°20'18.350"N	80°53'04.775"W	55.35	248.439	2.52	2.43	3.39	
1111.50	14.890	263.320	1104.32	-0.52	-23.47	-73.62	1673006.05	14285176.05	39°20'18.319"N	80°53'05.057"W	77.27	252.319	2.50	2.38	3.15	
1206.50	17.920	267.700	1195.45	-6.91	-25.47	-100.35	1672979.33	14285174.04	39°20'18.296"N	80°53'05.398"W	103.54	255.756	3.44	3.19	4.61	
1300.50	21.040	270.740	1284.06	-16.28	-25.84	-131.68	1672948.01	14285173.68	39°20'18.291"N	80°53'05.796"W	134.19	258.899	3.49	3.32	3.23	
1395.50	22.760	269.550	1372.20	-27.34	-25.76	-167.11	1672912.59	14285173.75	39°20'18.297"N	80°53'06.247"W	169.09	261.297	1.87	1.81	-1.25	
1489.50	24.880	268.310	1458.19	-38.43	-26.49	-205.07	1672874.66	14285173.03	39°20'18.291"N	80°53'06.730"W	206.77	262.640	2.32	2.26	-1.32	
1584.50	27.210	269.500	1543.53	-50.62	-27.22	-246.77	1672833.97	14285172.25	39°20'18.284"N	80°53'07.261"W	248.27	263.695	2.51	2.45	1.25	
1679.50	27.720	270.030	1627.83	-64.04	-27.44	-290.58	1672789.18	14285172.07	39°20'18.282"N	80°53'07.819"W	291.87	264.605	0.60	0.54	0.56	



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'  
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REFERENCE WELLPATH IDENTIFICATION				Slot
Operator	ANTERO RESOURCES CORPORATION			Slot #08
Area	Ritchie County, WV			Short Run Unit 1H
Field	Ritchie			Short Run Unit 1H AWP
Facility	Hichman Pad			Wellbore

WELLPATH DATA (244 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	D/S	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	US ft	US ft			ft	°	ft/100ft	ft/100ft	ft/100ft	
1773.50	28.540	270.150	1710.72	-77.85	-27.37	-334.90	1672744.88	14285172.14	39°20'18.284"N	80°53'08.383"W	376.01	265.327	0.87	0.87	0.13	
1867.50	27.040	269.900	1793.88	-91.47	-27.35	-378.72	1672701.07	14285172.16	39°20'18.284"N	80°53'08.947"W	379.71	265.869	1.60	-1.60	-0.27	
1961.50	24.490	266.570	1878.53	-102.99	-28.56	-419.55	1672660.26	14285170.96	39°20'18.273"N	80°53'09.460"W	420.52	266.106	3.12	-2.71	-3.54	
2056.50	24.200	265.730	1965.08	-112.61	-31.18	-458.82	1672621.20	14285168.33	39°20'18.248"N	80°53'09.957"W	459.68	266.110	0.48	-0.31	-0.88	
2150.50	23.270	266.160	2051.13	-121.77	-33.86	-496.36	1672583.48	14285165.66	39°20'18.222"N	80°53'10.438"W	497.51	266.097	1.01	-0.99	0.46	
2245.50	23.150	266.580	2138.44	-131.10	-36.23	-533.72	1672546.13	14285163.29	39°20'18.199"N	80°53'10.933"W	534.95	266.116	0.22	-0.13	0.44	
2339.50	23.540	267.160	2224.75	-140.71	-38.26	-570.92	1672508.95	14285161.25	39°20'18.179"N	80°53'11.387"W	572.20	266.166	0.48	0.41	0.62	
2434.50	24.000	266.850	2311.69	-150.67	-40.27	-609.16	1672470.73	14285159.25	39°20'18.160"N	80°53'11.874"W	610.48	266.218	0.50	0.48	-0.33	
2529.50	22.930	266.140	2398.83	-160.18	-42.57	-646.91	1672432.99	14285156.95	39°20'18.137"N	80°53'12.354"W	648.31	266.235	1.16	-1.13	-0.75	
2624.50	23.940	265.480	2485.99	-169.24	-45.34	-684.59	1672395.32	14285154.18	39°20'18.110"N	80°53'12.834"W	686.09	266.214	1.10	1.06	-0.69	
2699.50	24.920	265.540	2554.28	-176.53	-47.77	-715.51	1672364.41	14285151.76	39°20'18.087"N	80°53'13.227"W	717.11	266.181	1.31	1.31	0.89	WFT EM <-8.3/4'> (2615)(2690-7227)
2793.50	25.580	262.990	2639.30	-185.08	-51.78	-755.40	1672324.54	14285147.74	39°20'18.048"N	80°53'13.735"W	757.17	266.078	1.35	0.70	-2.71	
2888.50	25.740	260.990	2724.93	-192.26	-57.52	-796.13	1672283.83	14285142.01	39°20'17.991"N	80°53'14.254"W	798.21	265.868	0.93	0.17	-2.11	
2982.50	25.880	258.440	2809.56	-197.80	-64.83	-836.39	1672243.58	14285134.70	39°20'17.849"N	80°53'14.766"W	838.90	265.568	1.19	0.15	-2.71	
3077.50	25.510	261.530	2895.17	-203.57	-71.99	-876.94	1672203.05	14285127.54	39°20'17.849"N	80°53'15.282"W	879.89	265.307	1.46	-0.39	3.25	
3171.50	25.160	264.750	2980.13	-211.38	-76.80	-916.86	1672163.15	14285122.73	39°20'17.802"N	80°53'15.790"W	920.07	265.212	1.51	0.37	3.43	
3266.50	25.340	269.480	3066.06	-221.99	-78.84	-957.30	1672122.72	14285120.70	39°20'17.783"N	80°53'16.305"W	960.54	265.292	2.13	0.19	4.98	
3360.50	25.330	268.020	3151.02	-233.63	-79.71	-997.51	1672082.53	14285119.82	39°20'17.752"N	80°53'16.817"W	1000.69	265.431	0.66	-0.01	-1.55	
3454.50	25.640	265.410	3235.88	-243.94	-82.04	-1037.88	1672042.17	14285117.50	39°20'17.752"N	80°53'17.331"W	1041.12	265.481	1.24	0.33	-2.78	
3548.50	25.440	262.800	3320.70	-252.49	-86.19	-1078.19	1672001.88	14285113.34	39°20'17.711"N	80°53'17.844"W	1081.63	265.429	1.22	-0.21	-2.78	
3648.50	24.070	264.550	3411.51	-260.99	-90.82	-1118.80	1671960.29	14285108.72	39°20'17.666"N	80°53'18.374"W	1123.48	265.363	1.55	-1.37	1.75	
3742.50	23.250	269.700	3497.61	-270.85	-92.74	-1157.44	1671922.66	14285106.80	39°20'17.646"N	80°53'18.853"W	1161.15	265.419	2.36	-0.87	5.48	
3836.50	23.380	269.470	3583.94	-282.13	-93.01	-1194.64	1671885.48	14285106.53	39°20'17.646"N	80°53'19.326"W	1198.26	265.548	0.17	0.14	-0.24	
3930.50	25.000	268.440	3669.68	-293.40	-93.72	-1233.15	1671846.98	14285105.82	39°20'17.639"N	80°53'19.816"W	1236.71	265.654	1.78	1.72	-1.10	
4025.50	25.290	265.610	3755.68	-303.90	-95.82	-1273.45	1671806.70	14285103.72	39°20'17.619"N	80°53'20.329"W	1277.05	265.697	1.30	0.31	-2.98	
4119.50	24.040	265.630	3841.10	-313.18	-98.82	-1312.56	1671767.60	14285100.72	39°20'17.590"N	80°53'20.827"W	1316.28	265.694	1.33	-1.33	0.02	
4214.50	22.400	267.280	3928.41	-322.56	-101.15	-1346.94	1671730.24	14285098.39	39°20'17.567"N	80°53'21.303"W	1353.73	265.715	1.86	-1.73	1.74	
4309.50	22.890	269.550	4016.08	-332.94	-102.16	-1386.50	1671693.70	14285097.39	39°20'17.557"N	80°53'21.768"W	1390.26	265.786	1.05	0.52	2.39	
4403.50	24.150	268.810	4102.27	-344.06	-102.70	-1424.01	1671656.21	14285096.85	39°20'17.553"N	80°53'22.245"W	1427.70	265.875	1.38	1.34	-0.79	
4497.50	25.550	268.230	4187.57	-355.33	-103.73	-1463.49	1671616.73	14285095.82	39°20'17.543"N	80°53'22.748"W	1467.17	265.946	1.51	1.49	-0.62	



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #08
Operator	ANTERO RESOURCES CORPORATION	Well	Short Run Unit 1H
Area	Ritchie County, WV	Wellbore	Short Run Unit 1H AWB
Field	Ritchie		
Facility	Hichman Pad		

WELLPATH DATA (244 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Built Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	US ft	US ft			ft	°	ft/100ft	ft/100ft	ft/100ft	
4592.50	25.550	265.290	4273.28	-365.82	-106.04	-1504.39	1671575.85	14285093.51	39°20'17.520"N	80°53'23.269"W	1508.12	265.968	1.33	0.00	-3.09	
4686.50	25.600	265.770	4358.07	-375.36	-109.20	-1544.85	1671535.41	14285090.34	39°20'17.490"N	80°53'23.783"W	1548.70	265.957	0.23	0.05	0.51	
4780.50	24.550	271.730	4443.22	-386.84	-110.11	-1584.62	1671495.65	14285089.44	39°20'17.481"N	80°53'24.290"W	1588.45	266.025	2.91	-1.12	6.34	
4875.50	24.460	271.790	4529.67	-400.20	-108.90	-1624.01	1671456.28	14285090.65	39°20'17.494"N	80°53'24.791"W	1627.66	266.164	0.10	-0.09	0.06	
4969.50	24.740	269.250	4615.14	-412.67	-108.55	-1663.13	1671417.18	14285091.00	39°20'17.498"N	80°53'25.289"W	1666.67	266.266	1.16	0.30	-2.70	
5063.50	25.210	266.990	4700.35	-423.73	-109.86	-1702.79	1671377.53	14285089.69	39°20'17.485"N	80°53'25.794"W	1706.33	266.309	1.13	0.50	-2.40	
5158.50	25.900	265.240	4786.06	-433.76	-112.64	-1743.67	1671336.67	14285086.91	39°20'17.458"N	80°53'26.314"W	1747.31	266.304	1.08	0.73	-1.84	
5253.50	24.440	266.560	4872.03	-443.50	-115.55	-1783.97	1671296.39	14285084.01	39°20'17.430"N	80°53'26.827"W	1787.71	266.294	1.65	-1.54	1.39	
5346.50	24.820	270.400	4956.58	-454.55	-116.56	-1822.69	1671257.68	14285082.92	39°20'17.420"N	80°53'27.320"W	1826.42	266.341	1.77	0.41	4.13	
5441.50	24.840	269.420	5042.80	-466.86	-116.63	-1862.59	1671217.80	14285082.99	39°20'17.420"N	80°53'27.828"W	1866.23	266.417	0.43	0.02	-1.03	
5536.50	25.530	266.560	5128.77	-478.03	-118.06	-1902.98	1671177.43	14285081.49	39°20'17.407"N	80°53'28.342"W	1906.63	266.450	1.47	0.73	-3.01	
5630.50	26.350	264.500	5213.30	-487.69	-121.27	-1943.96	1671136.46	14285078.28	39°20'17.375"N	80°53'28.863"W	1947.74	266.430	1.30	0.87	-2.19	
5725.50	25.160	263.980	5298.86	-496.49	-125.41	-1985.03	1671095.40	14285074.14	39°20'17.335"N	80°53'29.386"W	1988.99	266.385	1.28	-1.25	-0.55	
5819.50	23.520	266.650	5384.51	-505.43	-128.60	-2023.63	1671056.82	14285070.95	39°20'17.280"N	80°53'29.877"W	2027.71	266.364	2.10	-1.74	2.84	
5914.50	23.270	265.940	5471.70	-514.79	-131.04	-2061.27	1671019.19	14285068.52	39°20'17.255"N	80°53'30.357"W	2065.44	266.363	0.40	-0.26	-0.75	
6009.50	24.770	266.450	5558.47	-524.32	-133.60	-2099.86	1670980.62	14285065.96	39°20'17.226"N	80°53'30.848"W	2104.10	266.360	1.59	1.58	0.54	
6103.50	24.920	264.930	5643.77	-533.71	-136.57	-2139.24	1670941.26	14285062.99	39°20'17.226"N	80°53'31.349"W	2143.59	266.347	0.70	0.16	-1.62	
6198.50	25.910	263.130	5729.57	-542.25	-140.82	-2179.78	1670900.73	14285058.74	39°20'17.185"N	80°53'31.865"W	2184.33	266.304	1.32	1.04	-1.89	
6292.50	26.330	260.530	5813.98	-549.35	-146.77	-2220.74	1670859.79	14285052.86	39°20'17.127"N	80°53'32.386"W	2225.58	266.220	1.30	0.45	-2.77	
6355.50	22.980	257.610	5871.23	-552.66	-151.65	-2246.54	1670834.00	14285047.92	39°20'17.079"N	80°53'32.715"W	2251.65	266.138	5.66	-5.32	-4.63	
6387.50	22.060	252.540	5900.79	-553.34	-154.78	-2258.37	1670822.17	14285044.78	39°20'17.048"N	80°53'32.865"W	2263.67	266.079	6.71	-2.88	-15.84	
6418.50	21.680	245.720	5929.56	-552.79	-158.89	-2259.15	1670811.40	14285040.68	39°20'17.007"N	80°53'33.003"W	2274.70	265.995	8.28	-1.23	-22.00	
6449.50	22.590	239.880	5958.28	-550.92	-164.24	-2279.52	1670801.04	14285035.33	39°20'16.955"N	80°53'33.135"W	2285.43	265.879	7.68	2.94	-18.84	
6480.50	23.120	233.580	5986.85	-547.76	-170.84	-2289.57	1670790.99	14285028.74	39°20'16.889"N	80°53'33.263"W	2295.93	265.733	8.07	1.71	-20.32	
6512.50	23.720	228.150	6016.22	-543.19	-178.86	-2299.42	1670781.14	14285020.71	39°20'16.810"N	80°53'33.388"W	2306.36	265.552	7.00	1.88	-16.97	
6543.50	24.790	223.620	6044.48	-537.59	-187.73	-2308.55	1670772.02	14285011.85	39°20'16.723"N	80°53'33.504"W	2316.17	265.351	6.92	3.45	-14.61	
6574.50	25.730	217.410	6072.53	-530.70	-197.78	-2317.12	1670763.45	14285001.80	39°20'16.623"N	80°53'33.614"W	2325.55	265.121	9.07	3.03	-20.03	
6606.50	27.090	213.250	6101.19	-522.20	-209.39	-2325.34	1670755.24	14284990.20	39°20'16.509"N	80°53'33.718"W	2334.74	264.854	7.17	4.25	-13.00	
6638.50	28.300	210.210	6129.52	-512.60	-222.04	-2333.15	1670747.43	14284977.55	39°20'16.384"N	80°53'33.818"W	2343.69	264.564	5.81	3.78	-9.50	
6669.50	29.180	206.680	6156.70	-502.34	-235.15	-2340.24	1670740.34	14284964.45	39°20'16.254"N	80°53'33.909"W	2352.02	264.262	6.17	2.84	-11.39	



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'  
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REFERENCE WELLPATH IDENTIFICATION									
Operator	ANTERO RESOURCES CORPORATION								
Area	Ritchie County, WV								
Field	Ritchie								
Facility	Hichman Pad								
Slot	Slot #08								
Well	Short Run Unit 1H								
Wellbore	Short Run Unit 1H AWB								

WELLPATH DATA (244 stations)																
MD ft	Inclination °	Azimuth °	TVD ft	Vert Sect ft	+ = interpolated/extrapolated station				Closure Dist ft	Closure Dir °	DLS F/100ft	Build Rate F/100ft	Turn Rate F/100ft	Comments		
					North ft	East ft	Grid East US ft	Grid North US ft							Latitude	Longitude
6701.50	30.580	203.540	6184.45	-490.72	249.58	-2346.99	1670733.59	14284950.02	39°20'16.12"N	80°53'33.995"W	2360.23	263.930	6.56	4.37	-9.81	
6732.50	31.460	198.420	6211.02	-478.31	-264.49	-2352.70	1670727.88	14284935.12	39°20'15.965"N	80°53'34.068"W	2367.52	263.586	8.97	2.84	-16.52	
6764.50	32.900	195.240	6238.11	-464.34	280.80	-2357.62	1670722.96	14284918.82	39°20'15.803"N	80°53'34.131"W	2374.29	263.208	6.95	4.50	-9.94	
6795.50	34.710	193.180	6263.87	-449.75	-297.52	-2361.85	1670718.74	14284902.11	39°20'15.638"N	80°53'34.185"W	2380.52	262.820	6.91	5.84	-6.65	
6827.50	36.720	190.840	6289.85	-433.59	-315.79	-2365.73	1670714.86	14284883.84	39°20'15.488"N	80°53'34.234"W	2386.71	262.397	7.59	6.28	-7.31	
6858.50	39.290	187.450	6314.28	-416.61	-334.63	-2368.74	1670711.85	14284865.01	39°20'15.272"N	80°53'34.273"W	2392.26	261.959	10.68	8.29	-10.94	
6890.50	41.720	184.170	6338.61	-397.61	-355.30	-2370.83	1670709.76	14284844.35	39°20'15.067"N	80°53'34.300"W	2397.31	261.477	10.10	7.59	-10.25	
6921.50	43.380	181.660	6361.45	-378.04	-376.23	-2371.89	1670708.70	14284823.43	39°20'14.860"N	80°53'34.314"W	2401.54	260.987	7.66	5.35	-8.10	
6952.50	45.000	180.270	6384.39	-356.95	-398.53	-2372.26	1670708.33	14284801.13	39°20'14.640"N	80°53'34.319"W	2405.51	260.464	5.90	5.06	-4.34	
6985.50	46.180	179.370	6406.78	-335.20	-421.39	-2372.19	1670708.40	14284778.28	39°20'14.414"N	80°53'34.318"W	2409.33	259.927	4.20	3.69	-2.81	
7016.50	47.610	177.480	6427.97	-313.50	-444.01	-2371.56	1670709.03	14284755.67	39°20'14.190"N	80°53'34.310"W	2412.77	259.396	6.41	4.61	-6.10	
7047.50	49.570	176.090	6448.47	-291.03	-467.22	-2370.26	1670710.33	14284732.47	39°20'13.961"N	80°53'34.294"W	2415.87	258.849	7.16	6.32	-4.48	
7079.50	50.640	174.470	6469.00	-267.14	-491.69	-2368.23	1670712.36	14284708.01	39°20'13.719"N	80°53'34.269"W	2418.74	258.271	5.12	3.34	-5.06	
7110.50	52.550	173.300	6488.25	-243.37	-515.84	-2365.64	1670714.95	14284683.87	39°20'13.480"N	80°53'34.236"W	2421.23	257.699	6.83	6.16	-3.77	
7142.50	54.580	171.980	6507.26	-218.08	-541.37	-2362.34	1670718.25	14284658.35	39°20'13.228"N	80°53'34.194"W	2423.58	257.093	7.16	6.34	-4.12	
7173.50	57.280	170.320	6524.63	-192.74	-566.74	-2358.38	1670722.20	14284632.99	39°20'12.977"N	80°53'34.144"W	2425.52	256.488	9.77	8.71	-5.35	
7205.50	60.990	169.580	6541.04	-165.54	-593.78	-2353.59	1670727.00	14284605.96	39°20'12.710"N	80°53'34.084"W	2427.33	255.841	11.76	11.59	-4.17	
7236.50	62.428	169.083	6546.49	-155.50	-603.73	-2351.71	1670728.87	14284596.02	39°20'12.612"N	80°53'34.060"W	2428.97	255.602	13.07	12.50	-4.32	Burkett 7217' MD
7267.00	64.870	168.270	6555.14	-138.15	-620.86	-2348.28	1670732.30	14284578.89	39°20'12.442"N	80°53'34.017"W	2429.97	255.190	13.07	12.52	-4.17	
7298.00	70.996	166.790	6576.36	-86.06	-671.96	-2336.97	1670743.61	14284527.82	39°20'11.937"N	80°53'33.874"W	2431.65	253.958	11.11	10.84	-2.62	Tully 7293' MD
7329.00	71.430	166.690	6577.65	-82.29	-675.64	-2336.10	1670744.48	14284524.13	39°20'11.901"N	80°53'33.863"W	2431.84	253.869	11.11	10.85	-2.51	BH AT Curve <-8-1/2"> (7236.5)/(7297'-19350')
7358.00	73.360	165.900	6587.03	-52.83	-704.35	-2329.10	1670751.48	14284495.44	39°20'11.617"N	80°53'33.774"W	2433.27	253.107	6.68	6.23	-2.55	
7375.00	76.740	164.950	6599.15	-7.51	-748.29	-2317.67	1670762.90	14284451.52	39°20'11.182"N	80°53'33.629"W	2435.47	252.107	7.45	7.19	-2.02	
7418.00	80.153	164.107	6607.76	34.57	-788.88	-2306.43	1670774.13	14284410.94	39°20'10.781"N	80°53'33.487"W	2437.61	251.117	8.17	7.94	-1.96	Marcellus POE 7418' MD
7423.00	80.550	164.010	6608.60	39.50	-793.62	-2305.08	1670775.49	14284406.20	39°20'10.734"N	80°53'33.469"W	2437.87	251.002	8.17	7.94	-1.94	
7470.00	84.580	163.210	6614.68	86.07	-838.32	-2291.93	1670788.63	14284361.52	39°20'10.292"N	80°53'33.303"W	2440.43	249.909	8.74	8.57	-1.70	
7518.00	85.320	161.530	6618.90	133.88	-883.89	-2277.45	1670803.11	14284315.97	39°20'09.842"N	80°53'33.119"W	2442.95	248.788	3.81	1.54	-3.50	
7566.00	88.220	159.460	6621.55	180.78	-928.12	-2261.78	1670818.77	14284271.76	39°20'09.404"N	80°53'32.920"W	2444.80	247.689	7.58	6.17	-4.40	
7612.00	89.260	158.880	6622.59	227.72	-972.03	-2245.07	1670835.47	14284221.86	39°20'08.970"N	80°53'32.708"W	2446.46	246.589	2.53	2.21	-1.23	
7707.00	88.220	159.390	6624.67	322.58	-1060.78	-2211.24	1670869.29	14284139.15	39°20'08.093"N	80°53'32.279"W	2452.51	244.372	1.21	-1.09	0.53	



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374

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

WELLPATH DATA (244 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	
7802.00	87.630	160.740	6628.11	417.46	-1150.02	-2178.86	1670901.65	1428404.95	39°20'07.210"N	80°53'31.869"W	2463.73	242.175	1.56	-0.62	1.43	
7896.00	88.430	161.840	6631.35	511.40	-1239.00	-2148.73	1670931.78	1428396.100	39°20'06.330"N	80°53'31.486"W	2480.35	240.031	1.45	0.85	1.17	
7991.00	88.580	161.090	6633.82	606.36	-1329.04	-2118.54	1670961.95	1428387.100	39°20'05.440"N	80°53'31.104"W	2500.91	237.898	0.80	0.16	-0.79	
8086.00	88.890	158.400	6635.92	701.26	-1418.13	-2085.66	1670994.82	1428378.194	39°20'04.559"N	80°53'30.686"W	2522.12	235.786	2.85	0.33	-2.83	
8180.00	89.510	158.430	6637.23	795.08	-1505.53	-2051.08	1671029.38	1428368.457	39°20'03.696"N	80°53'30.248"W	2544.32	233.721	0.66	0.66	0.03	
8275.00	90.400	159.600	6637.31	889.95	-1594.23	-2017.06	1671063.39	1428360.591	39°20'02.818"N	80°53'29.816"W	2571.01	231.678	1.55	0.94	1.23	
8370.00	90.060	159.260	6636.93	984.86	-1683.17	-1983.68	1671096.75	1428357.01	39°20'01.938"N	80°53'29.393"W	2601.55	229.685	0.51	-0.36	-0.36	
8465.00	90.030	160.210	6636.85	1079.79	-1772.29	-1950.78	1671129.64	1428347.92	39°20'01.057"N	80°53'28.975"W	2635.63	227.745	1.00	-0.03	1.00	
8559.00	89.480	159.840	6637.26	1173.73	-1860.63	-1918.67	1671161.74	1428339.62	39°20'00.184"N	80°53'28.568"W	2672.69	225.880	0.71	-0.59	-0.39	
8655.00	89.690	161.250	6637.95	1269.70	-1951.15	-1886.69	1671193.70	1428324.914	39°19'59.289"N	80°53'28.163"W	2714.15	224.038	1.48	0.22	1.47	
8748.00	89.260	164.070	6638.80	1362.68	-2039.91	-1858.98	1671221.40	1428316.041	39°19'58.411"N	80°53'27.811"W	2759.90	222.343	3.07	-0.46	3.03	
8844.00	90.060	165.420	6639.37	1458.56	-2132.52	-1833.72	1671246.65	1428306.784	39°19'57.485"N	80°53'27.491"W	2812.51	220.692	1.63	0.83	1.41	
8939.00	90.370	166.350	6639.02	1553.33	-2224.65	-1810.56	1671269.81	1428297.574	39°19'56.585"N	80°53'27.198"W	2868.31	219.141	1.03	0.33	0.98	
9034.00	90.550	164.380	6638.25	1648.15	-2316.56	-1786.56	1671293.80	1428288.387	39°19'55.676"N	80°53'26.894"W	2925.45	217.640	2.08	0.19	-2.07	
9129.00	90.220	160.570	6637.62	1743.13	-2407.13	-1757.95	1671322.39	1428279.334	39°19'54.780"N	80°53'26.531"W	2980.72	216.141	4.03	-0.35	-4.01	
9224.00	89.850	158.000	6637.56	1838.02	-2495.98	-1724.35	1671355.98	1428270.452	39°19'53.902"N	80°53'26.105"W	3033.70	214.639	2.73	-0.39	-2.71	
9319.00	89.940	155.340	6637.73	1932.61	-2583.21	-1686.74	1671393.58	1428261.733	39°19'53.039"N	80°53'25.627"W	3085.13	213.143	2.80	0.09	-2.80	
9415.00	89.660	155.540	6638.07	2028.00	-2670.52	-1646.83	1671433.47	1428253.005	39°19'51.761"N	80°53'25.121"W	3137.48	211.661	0.36	-0.29	0.21	
9508.00	89.320	157.360	6638.88	2120.56	-2755.77	-1609.68	1671470.61	1428244.84	39°19'51.333"N	80°53'24.650"W	3191.45	210.290	1.99	-0.37	1.96	
9602.00	89.940	159.140	6639.50	2214.36	-2843.07	-1574.85	1671505.42	1428235.757	39°19'50.470"N	80°53'24.208"W	3250.11	208.983	2.01	0.66	1.89	
9697.00	90.090	160.240	6639.48	2309.29	-2932.16	-1541.87	1671538.38	1428226.851	39°19'49.589"N	80°53'23.789"W	3312.85	207.738	1.17	0.16	1.16	
9792.00	90.120	158.810	6639.30	2404.20	-3021.16	-1508.64	1671571.60	1428217.955	39°19'48.709"N	80°53'23.368"W	3376.90	206.536	1.51	0.03	-1.51	
9886.00	88.800	162.600	6640.19	2498.16	-3109.86	-1477.59	1671602.64	1428209.89	39°19'47.832"N	80°53'22.974"W	3443.04	205.414	4.27	-1.40	4.03	
9980.00	90.220	170.590	6640.99	2591.76	-3201.22	-1455.82	1671624.40	1428199.57	39°19'46.928"N	80°53'22.698"W	3516.70	204.455	8.63	1.51	8.50	
10075.00	90.180	172.010	6640.66	2685.49	-3298.12	-1441.45	1671638.77	1428190.570	39°19'46.000"N	80°53'22.297"W	3596.61	203.627	1.50	-0.04	1.49	
10170.00	90.150	166.850	6640.39	2779.55	-3398.48	-1424.03	1671656.18	1428181.238	39°19'44.077"N	80°53'22.007"W	3675.55	202.795	5.43	-0.03	-5.43	
10264.00	90.030	164.920	6640.24	2873.42	-3479.64	-1401.11	1671679.10	1428172.126	39°19'44.176"N	80°53'22.007"W	3751.13	201.933	2.06	-0.13	-2.05	
10359.00	89.420	166.750	6640.70	2966.19	-3571.74	-1377.86	1671702.33	1428162.919	39°19'43.265"N	80°53'21.712"W	3828.29	201.095	2.03	-0.64	1.93	
10454.00	90.030	166.130	6641.45	3062.90	-3664.09	-1355.59	1671724.60	1428153.688	39°19'42.352"N	80°53'21.430"W	3906.81	200.303	0.92	0.64	-0.65	
10548.00	90.770	161.780	6640.50	3156.81	-3754.41	-1329.61	1671750.56	1428144.60	39°19'41.459"N	80°53'21.101"W	3982.89	199.501	4.69	0.79	-4.63	



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Short Run Unit 1H
Field	Ritchie	Wellbore	Short Run Unit 1H AWB
Facility	Hichman Pad		

## WELLPATH DATA (244 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	
10643.00	89.760	156.440	6640.06	3251.66	-3843.13	-1295.75	1677184.41	14281357.92	39°19'40.562"N	80°53'20.671"W	4055.69	198.632	5.72	-1.07	-5.62	
10738.00	89.600	157.020	6640.60	3346.27	-3930.40	-1258.22	1671821.92	14281270.68	39°19'39.719"N	80°53'20.195"W	4126.88	197.751	0.63	-0.16	0.61	
10832.00	90.400	160.230	6640.60	3440.10	-4017.92	-1223.96	1671856.17	14281183.20	39°19'38.864"N	80°53'19.761"W	4200.21	196.942	3.52	0.85	3.41	
10927.00	89.750	161.280	6640.48	3535.08	-4107.61	-1192.65	1671887.47	14281093.54	39°19'37.967"N	80°53'19.364"W	4277.25	196.191	1.30	-0.68	1.11	
11021.00	90.580	162.270	6640.21	3629.08	-4196.89	-1163.26	1671916.85	14281004.30	39°19'37.084"N	80°53'18.991"W	4355.12	195.492	1.37	0.88	1.05	
11116.00	90.220	162.310	6639.55	3724.07	-4287.39	-1134.36	1671945.74	14280954.84	39°19'36.189"N	80°53'18.625"W	4434.91	194.820	0.38	-0.38	0.04	
11211.00	89.760	163.260	6639.57	3819.06	-4378.13	-1106.24	1671973.84	14280823.13	39°19'35.292"N	80°53'18.268"W	4515.73	194.180	1.12	-0.49	1.00	
11305.00	90.090	161.980	6639.70	3913.05	-4467.83	-1078.16	1672001.91	14280733.46	39°19'34.405"N	80°53'17.912"W	4596.08	193.567	1.41	0.36	-1.36	
11400.00	89.820	161.460	6639.78	4008.05	-4558.04	-1048.37	1672031.69	14280645.55	39°19'33.513"N	80°53'17.555"W	4677.05	192.993	0.62	-0.28	-0.55	
11495.00	89.850	158.290	6640.05	4102.98	-4647.23	-1015.68	1672064.36	14280554.14	39°19'32.631"N	80°53'17.120"W	4756.93	192.329	3.34	0.03	-3.34	
11591.00	89.630	156.520	6640.49	4198.67	-4735.86	-978.80	1672101.23	14280465.55	39°19'31.755"N	80°53'16.652"W	4835.95	191.677	1.86	-0.23	-1.84	
11686.00	89.510	160.710	6641.20	4293.49	-4824.29	-944.17	1672135.85	14280377.15	39°19'30.880"N	80°53'16.213"W	4915.82	191.073	4.41	-0.13	4.41	
11781.00	89.480	164.210	6641.94	4388.47	-4914.86	-915.54	1672164.46	14280286.62	39°19'29.987"N	80°53'15.850"W	4999.41	190.552	3.69	0.09	3.68	
11875.00	89.480	166.880	6642.68	4482.32	-5005.67	-891.29	1672188.71	14280195.84	39°19'29.087"N	80°53'15.543"W	5084.40	190.096	1.78	-0.13	1.78	
11970.00	89.050	164.020	6643.91	4577.18	-5097.40	-866.62	1672213.36	14280104.15	39°19'28.180"N	80°53'15.230"W	5170.54	189.649	2.01	-0.45	-1.96	
12064.00	89.540	161.080	6645.07	4671.15	-5187.06	-838.44	1672241.54	14280014.53	39°19'27.293"N	80°53'14.873"W	5254.38	189.182	3.17	0.52	-3.13	
12158.00	89.660	160.350	6645.72	4765.13	-5275.78	-807.40	1672272.57	14279925.84	39°19'26.416"N	80°53'14.480"W	5337.20	188.701	0.79	0.13	-0.78	
12253.00	89.910	162.160	6646.08	4860.12	-5365.73	-776.87	1672303.08	14279835.92	39°19'25.527"N	80°53'14.093"W	5421.68	188.238	1.92	0.26	1.91	
12348.00	90.000	163.390	6646.15	4955.11	-5456.47	-748.74	1672331.20	14279745.22	39°19'24.630"N	80°53'13.736"W	5507.60	187.813	1.30	0.09	1.29	
12443.00	89.780	163.280	6646.34	5050.08	-5547.48	-721.49	1672358.44	14279654.25	39°19'23.730"N	80°53'13.391"W	5594.20	187.410	0.26	-0.23	-0.12	
12538.00	89.480	161.130	6646.95	5145.07	-5637.93	-692.46	1672387.45	14279563.83	39°19'22.835"N	80°53'13.023"W	5680.29	187.002	2.29	-0.32	-2.26	
12631.00	89.320	160.000	6647.92	5238.04	-5725.62	-661.52	1672418.38	14279476.18	39°19'21.968"N	80°53'12.631"W	5763.71	186.591	1.23	-0.17	-1.22	
12727.00	89.970	161.380	6648.52	5334.01	-5816.22	-629.78	1672450.11	14279385.62	39°19'21.072"N	80°53'12.228"W	5850.22	186.180	1.59	0.68	1.44	
12822.00	89.460	167.040	6648.98	5428.89	-5907.60	-603.94	1672475.94	14279294.28	39°19'20.169"N	80°53'11.901"W	5938.39	185.837	5.98	-0.52	5.96	
12916.00	89.670	168.950	6649.43	5522.36	-5999.53	-584.39	1672495.49	14279202.37	39°19'19.268"N	80°53'11.653"W	6027.93	185.563	2.10	0.52	2.03	
13010.00	89.780	163.230	6649.63	5616.08	-6090.74	-561.80	1672518.07	14279111.21	39°19'18.368"N	80°53'11.368"W	6116.59	185.270	6.09	-0.20	-6.09	
13105.00	89.760	160.840	6650.02	5711.07	-6181.10	-532.50	1672547.35	14279020.88	39°19'17.465"N	80°53'10.996"W	6203.99	184.924	2.52	-0.03	-2.52	
13200.00	89.940	161.580	6650.28	5806.06	-6271.04	-501.90	1672577.94	14278930.98	39°19'16.576"N	80°53'10.608"W	6291.09	184.576	0.80	0.20	0.78	
13294.00	90.030	163.920	6650.04	5900.04	-6360.80	-474.03	1672605.80	14278841.25	39°19'15.688"N	80°53'10.255"W	6378.44	184.262	2.49	0.10	2.49	
13387.00	89.420	161.330	6650.75	5993.03	-6449.55	-446.26	1672633.56	14278752.54	39°19'14.811"N	80°53'09.903"W	6464.97	183.958	2.86	-0.66	-2.78	





# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Short Run Unit 1H
Field	Ritchie	Wellbore	Short Run Unit 1H AWB
Facility	Hichman Pad		

## WELLPATH DATA (244 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	
13482.00	89.600	158.010	6651.56	6087.94	-6538.62	413.26	1672666.55	14278663.51	39°19'13.930"N	80°53'09.485"W	6551.66	183.616	3.50	0.19	-3.49	
13576.00	89.420	155.570	6652.37	6181.55	-6625.00	-376.22	1672703.57	14278577.16	39°19'13.076"N	80°53'09.015"W	6635.67	183.250	2.60	-0.19	-2.60	
13669.00	89.570	155.120	6653.19	6273.93	-6709.52	-337.42	1672742.35	14278492.68	39°19'12.240"N	80°53'08.522"W	6718.00	182.879	0.51	0.16	-0.48	
13763.00	90.280	160.410	6653.31	6367.65	-6796.49	-301.87	1672777.89	14278405.73	39°19'11.380"N	80°53'08.071"W	6803.20	182.543	5.68	0.76	5.63	
13858.00	90.000	162.160	6653.08	6462.64	-6886.47	-271.39	1672808.36	14278315.80	39°19'10.490"N	80°53'07.685"W	6891.81	182.257	1.87	-0.29	1.84	
13953.00	89.720	163.100	6653.31	6557.63	-6977.13	-243.03	1672836.71	14278225.17	39°19'09.580"N	80°53'07.326"W	6981.37	181.995	1.03	-0.29	0.99	
14046.00	89.970	161.920	6653.56	6650.62	-7065.83	-215.08	1672864.65	14278136.50	39°19'08.717"N	80°53'06.971"W	7069.11	181.743	1.30	0.27	-1.27	
14141.00	89.750	163.060	6653.79	6745.62	-7156.43	-186.49	1672893.22	14278045.94	39°19'07.821"N	80°53'06.609"W	7158.86	181.493	1.22	-0.23	1.20	
14236.00	89.880	164.800	6654.10	6840.55	-7247.71	-160.20	1672919.51	14277954.70	39°19'06.918"N	80°53'06.276"W	7249.48	181.266	1.84	0.14	1.83	
14330.00	89.350	165.140	6654.73	6934.42	-7338.49	-135.82	1672943.87	14277863.95	39°19'06.021"N	80°53'05.967"W	7339.75	181.060	0.67	-0.56	0.36	
14423.00	89.600	164.020	6655.58	7027.31	-7428.14	-111.10	1672968.59	14277774.34	39°19'05.134"N	80°53'05.654"W	7428.97	180.857	1.23	0.27	-1.20	
14518.00	89.660	165.300	6656.20	7122.20	-7519.75	-85.96	1672993.71	14277682.76	39°19'04.228"N	80°53'05.336"W	7520.24	180.655	1.35	0.06	1.35	
14614.00	89.110	160.780	6657.23	7218.15	-7614.55	-57.97	1673021.69	14277591.01	39°19'03.321"N	80°53'04.981"W	7611.77	180.436	4.74	-0.57	-4.71	
14708.00	89.350	159.050	6658.49	7312.08	-7699.82	-25.69	1673053.96	14277502.77	39°19'02.448"N	80°53'04.572"W	7699.86	180.191	1.86	0.26	-1.84	
14804.00	89.110	161.890	6659.78	7408.03	-7790.28	6.39	1673086.03	14277412.35	39°19'01.554"N	80°53'04.165"W	7790.28	179.953	2.97	-0.25	2.96	
14899.00	87.480	160.340	6662.61	7502.98	-7880.12	37.13	1673116.75	14277322.54	39°19'00.665"N	80°53'03.776"W	7880.21	179.730	2.37	-1.72	-1.63	
14994.00	89.720	163.550	6664.93	7597.93	-7970.40	66.55	1673146.17	14277232.30	39°18'59.773"N	80°53'03.403"W	7970.68	179.522	4.12	2.36	3.38	
15090.00	89.970	165.970	6665.19	7693.80	-8063.02	91.79	1673171.39	14277139.72	39°18'58.857"N	80°53'03.083"W	8063.54	179.348	2.53	0.26	2.52	
15185.00	90.340	162.040	6664.93	7788.72	-8154.32	117.96	1673197.55	14277048.45	39°18'57.954"N	80°53'02.752"W	8155.17	179.171	4.16	0.39	-4.14	
15280.00	90.220	160.250	6664.47	7883.71	-8244.22	148.66	1673228.24	14276958.59	39°18'57.065"N	80°53'02.363"W	8245.56	178.967	1.89	-0.13	-1.88	
15375.00	90.180	160.530	6664.14	7978.67	-8333.71	180.54	1673260.11	14276869.14	39°18'56.180"N	80°53'01.958"W	8335.66	178.759	0.30	-0.04	0.29	
15470.00	89.880	164.120	6664.09	8073.66	-8424.21	209.38	1673288.94	14276778.67	39°18'55.285"N	80°53'01.593"W	8426.81	178.576	3.79	0.49	3.78	
15563.00	90.340	161.030	6663.91	8166.64	-8512.93	237.23	1673316.77	14276689.99	39°18'54.408"N	80°53'01.240"W	8516.23	178.404	3.36	-0.32	-3.32	
15658.00	89.720	160.210	6663.86	8261.61	-8602.54	268.75	1673348.28	14276600.41	39°18'53.522"N	80°53'00.841"W	8606.74	178.211	1.08	-0.65	-0.86	
15753.00	89.750	162.720	6664.30	8356.60	-8692.61	298.95	1673378.47	14276510.38	39°18'52.632"N	80°53'00.458"W	8697.75	178.030	2.64	0.03	2.64	
15848.00	90.120	163.730	6664.41	8451.57	-8783.56	326.36	1673405.87	14276421.94	39°18'51.732"N	80°53'00.110"W	8789.62	177.872	1.13	0.39	1.06	
15943.00	89.820	164.020	6664.46	8546.52	-8874.83	352.75	1673433.25	14276332.24	39°18'50.830"N	80°52'59.776"W	8881.83	177.724	0.44	-0.32	0.31	
16038.00	90.000	165.670	6664.60	8641.39	-8966.52	377.58	1673457.07	14276243.58	39°18'49.923"N	80°52'59.462"W	8974.47	177.589	1.75	0.19	1.74	
16132.00	89.880	164.860	6664.70	8735.23	-9057.43	401.49	1673480.97	14276154.51	39°18'49.024"N	80°52'59.159"W	9066.32	177.462	0.87	-0.13	-0.66	
16228.00	90.280	163.300	6664.57	8831.16	-9149.74	427.82	1673507.29	14276065.43	39°18'48.112"N	80°52'58.826"W	9159.74	177.323	1.68	0.42	-1.63	



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION		
Area	Ritchie County, WV		
Field	Ritchie		
Facility	Hichman Pad		
Slot	Slot #08	Short Run Unit 1H	Short Run Unit 1H AWP

WELLPATH DATA (244 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	
16322.00	90.400	163.380	6664.01	8925.13	-9239.79	454.77	1673534.23	14275563.41	39°18'47.22"N	80°52'56.484"W	9250.98	177.182	0.15	0.13	0.09	
16417.00	90.460	163.460	6663.30	9020.10	-9330.84	481.88	1673561.33	142755872.40	39°18'46.321"N	80°52'58.141"W	9343.28	177.044	0.11	0.06	0.08	
16512.00	90.340	163.300	6662.83	9115.06	-9421.87	509.05	1673588.49	14275781.41	39°18'45.421"N	80°52'57.797"W	9435.61	176.907	0.21	-0.13	-0.17	
16607.00	90.030	164.360	6662.33	9210.01	-9513.11	535.51	1673614.93	14275690.21	39°18'44.519"N	80°52'57.462"W	9528.17	176.778	1.16	-0.33	-1.12	
16702.00	90.060	166.360	6662.25	9304.84	-9605.02	559.52	1673638.93	14275598.33	39°18'43.610"N	80°52'57.158"W	9621.30	176.666	2.11	0.03	2.11	
16797.00	90.340	166.800	6661.92	9399.52	-9697.43	581.57	1673660.97	14275505.96	39°18'42.697"N	80°52'56.879"W	9714.85	176.568	0.55	0.29	0.46	
16892.00	89.820	165.650	6661.79	9494.25	-9789.69	604.19	1673683.58	14275413.74	39°18'41.784"N	80°52'56.592"W	9808.32	176.468	1.33	-0.55	-1.21	
16986.00	90.000	163.100	6661.94	9588.16	-9880.21	629.50	1673708.89	14275323.25	39°18'40.889"N	80°52'56.272"W	9900.24	176.354	2.72	0.19	-2.71	
17081.00	90.340	158.610	6661.65	9683.12	-9969.93	660.65	1673740.02	14275333.57	39°18'40.002"N	80°52'55.877"W	9991.80	176.209	4.74	0.36	-4.73	
17176.00	90.310	155.670	6661.12	9777.77	-10057.46	697.55	1673767.91	14275146.07	39°18'39.137"N	80°52'55.409"W	10081.62	176.033	3.09	-0.03	-3.09	
17270.00	90.310	155.790	6660.61	9871.22	-10143.15	736.19	1673815.53	14275060.42	39°18'38.289"N	80°52'54.919"W	10169.83	175.849	0.13	0.00	0.13	
17365.00	89.690	156.830	6660.61	9965.76	-10230.14	774.36	1673853.69	14274973.46	39°18'37.429"N	80°52'54.435"W	10259.41	175.671	1.27	0.17	-1.09	
17460.00	89.850	155.140	6660.99	10060.25	-10316.92	813.02	1673892.33	14274886.72	39°18'36.571"N	80°52'53.944"W	10348.90	175.494	1.79	0.17	-1.78	
17555.00	90.060	157.200	6661.06	10154.76	-10403.81	851.40	1673930.70	14274799.86	39°18'35.711"N	80°52'53.457"W	10438.59	175.322	2.18	0.22	2.17	
17650.00	89.630	156.520	6661.32	10249.39	-10491.17	888.73	1673968.01	14274712.54	39°18'34.848"N	80°52'52.984"W	10528.75	175.158	0.85	-0.45	-0.72	
17745.00	89.760	153.750	6661.81	10343.71	-10577.35	928.67	1674007.94	14274626.39	39°18'33.995"N	80°52'52.477"W	10618.04	174.982	2.92	0.16	-2.92	
17840.00	89.820	159.550	6662.14	10438.27	-10664.54	966.31	1674045.56	14274539.24	39°18'33.133"N	80°52'52.000"W	10708.22	174.823	6.11	0.04	6.11	
17935.00	89.760	162.650	6662.47	10533.25	-10754.40	997.08	1674076.32	14274449.41	39°18'32.244"N	80°52'51.610"W	10800.52	174.703	3.26	-0.04	3.26	
18030.00	89.880	162.460	6662.75	10628.24	-10845.03	1025.56	1674104.79	14274358.82	39°18'31.348"N	80°52'51.249"W	10893.41	174.598	0.23	0.11	-0.20	
18125.00	89.290	164.040	6663.44	10723.21	-10936.00	1052.93	1674132.15	14274267.89	39°18'30.449"N	80°52'50.902"W	10986.57	174.500	1.78	-0.62	1.66	
18220.00	89.510	166.100	6664.44	10818.06	-11027.78	1077.41	1674156.61	14274176.15	39°18'29.541"N	80°52'50.593"W	11080.28	174.420	2.18	0.23	2.17	
18315.00	89.080	166.910	6665.61	10912.75	-11120.15	1099.57	1674178.77	14274083.81	39°18'28.628"N	80°52'50.312"W	11174.38	174.353	0.97	-0.45	0.85	
18409.00	89.450	168.440	6666.81	11006.26	-11211.97	1119.64	1674198.53	14273992.03	39°18'27.720"N	80°52'50.059"W	11267.74	174.297	1.67	0.39	1.63	
18504.00	89.600	165.290	6667.60	11100.90	-11304.47	1141.22	1674220.40	14273899.56	39°18'26.806"N	80°52'49.785"W	11361.93	174.235	3.32	0.16	-3.32	
18599.00	89.780	165.230	6668.11	11185.73	-11396.34	1165.39	1674244.57	14273807.73	39°18'25.897"N	80°52'49.480"W	11455.77	174.161	0.20	0.19	-0.06	
18694.00	89.720	166.800	6668.53	11290.49	-11488.52	1188.35	1674267.51	14273715.59	39°18'24.986"N	80°52'49.189"W	11549.82	174.094	1.65	-0.06	1.65	
18788.00	89.720	166.250	6668.99	11384.19	-11579.93	1210.25	1674289.41	14273624.21	39°18'24.082"N	80°52'48.912"W	11643.01	174.034	0.59	0.00	-0.59	
18883.00	89.660	164.000	6669.50	11479.03	-11671.74	1234.64	1674313.78	14273532.44	39°18'23.175"N	80°52'48.603"W	11736.86	173.962	2.37	-0.06	-2.37	
18978.00	89.880	161.320	6669.88	11574.01	-11762.42	1262.95	1674342.08	14273441.80	39°18'22.278"N	80°52'48.245"W	11830.02	173.872	2.83	0.23	-2.82	
19073.00	89.970	159.940	6670.01	11668.99	-11852.04	1294.46	1674373.58	14273352.22	39°18'21.392"N	80°52'47.845"W	11922.52	173.767	1.46	0.09	-1.45	



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Richie County, WV	Well	Short Run Unit 1H
Field	Richie	Wellbore	Short Run Unit 1H AWB
Facility	Hichman Pad		

WELLPATH DATA (244 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)	
19168.00	89.910	159.750	6670.11	11763.92	-11941.22	1327.19	1674406.30	14273263.07	39°18'20.510"N	80°52'47.430"W	12014.75	173.658	0.21	-0.06	-0.20	
19263.00	89.850	159.620	6670.31	11858.85	-12030.31	1360.17	1674439.27	14273174.02	39°18'19.629"N	80°52'47.012"W	12106.98	173.549	0.15	-0.06	-0.14	
19350.00	89.970	159.390	6670.44	11945.77	-12111.80	1390.63	1674469.72	14273092.56	39°18'18.823"N	80°52'46.626"W	12191.37	173.450	0.30	0.14	-0.26	
19374.00	89.970	159.390	6670.46	11969.75	-12134.27	1399.08	1674478.16	14273070.10	39°18'18.601"N	80°52'46.519"W	12214.68	173.423	0.00	0.00	0.00	Projected MD at TD: 19374'

HOLE & CASING SECTIONS - Ref Wellbore: Short Run Unit 1H AWB													
String/Diameter	Start MD	End MD	Interval	Start TVD	End TVD	Start N/S	Start E/W	End N/S	End E/W				
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
20in Conductor	24.50	104.50	80.00	24.50	104.50	0.00	0.00	0.11	0.23				
17.5in Open Hole	104.50	475.50	371.00	104.50	475.48	0.11	0.23	-0.42	3.61				
13.375in Casing Surface	24.50	475.50	451.00	24.50	475.48	0.00	0.00	-0.42	3.61				
12.25in Open Hole	475.50	2673.10	2197.60	475.48	2530.30	-0.42	3.61	-46.91	-704.50				
9.625in Casing Intermediate	24.50	2673.10	2648.60	24.50	2530.30	0.00	0.00	-46.91	-704.50				
8.75in Open Hole	2673.10	7310.50	4637.40	2530.30	6581.86	-46.91	-704.50	-688.12	-2333.11				
8.5in Open Hole	7310.50	19374.00	12063.50	6581.86	6670.46	-688.12	-2333.11	-12134.27	1399.08				
5.5in Casing Production	24.50	19374.00	19349.50	24.50	6670.46	0.00	0.00	-12134.27	1399.08				



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'

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

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Short Run Unit 1H POE - Rev-3	6599.00	-744.02	-2315.16	1670765.41	14284455.79	39°20'11.225"N	80°53'33.597"W	point
Short Run Unit 1H BHL - Rev-3	6620.00	-12136.07	1408.88	1674487.96	14273068.29	39°18'18.583"N	80°52'46.394"W	point
Short Run Unit 1H LP - Rev-3	6620.00	-896.04	-2260.65	1670819.90	14284303.82	39°20'09.721"N	80°53'32.906"W	point

WELLPATH COMPOSITION - Ref Wellbore: Short Run Unit 1H AWB				Ref Wellpath: Short Run Unit 1H AWP Proj: 19374'			
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment			
24.50	452.50	Gyrodatta standard - Single-shot	01	Gyrodatta SS Gyro <17-1/2">(100'-443')			Short Run Unit 1H AWB
452.50	827.50	Gyrodatta standard - Single-shot	02	Gyrodatta SS Gyro <12-1/4">(443')(526'-818')			Short Run Unit 1H AWB
827.50	2624.50	ISCWSA MWD, Rev. 4 (Standard)	03	WFT EM <12-1/4">(818')(911'-2615')			Short Run Unit 1H AWB
2624.50	7236.50	ISCWSA MWD, Rev. 4 (Standard)	04	WFT EM <8-3/4">(2615')(2690'-7227')			Short Run Unit 1H AWB
7236.50	19350.00	BH AutoTrak Curve (Short)	05	AT Curve <8-1/2">(7236.50')(7297'-19350')			Short Run Unit 1H AWB
19350.00	19374.00	Blind Drilling (std)		Projection to bit			Short Run Unit 1H AWB



# Actual Wellpath Report

Short Run Unit 1H AWP Proj: 19374'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Ritchie County, WV	Well	Short Run Unit 1H
Field	Ritchie	Wellbore	Short Run Unit 1H AWP
Facility	Hichman Pad		

### COMMENTS

Wellpath general comments  
 API: 47-085-10339-0000  
 BHI Job #: 109307823  
 Rig: Frontier 22  
 Duration: 07/25/2018-07/28/2018  
 Gyrodatta SS Gyro <17'-1/2"> (100'-443')  
 Gyrodatta SS Gyro <12-1/4"> (443')(526'-818')  
 WFT EM <12-1/4"> (818')(911'-2615)  
 WFT EM <8-3/4"> (2615')(2690'-7227')  
 BHI AT Curve <8-1/2"> (7236.5')(7297'-19350')  
 Burkett: 7217' MD  
 Tully: 7293' MD  
 Marcellus POE: 7418' MD  
 Projected MD at TD: 19374'