

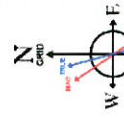
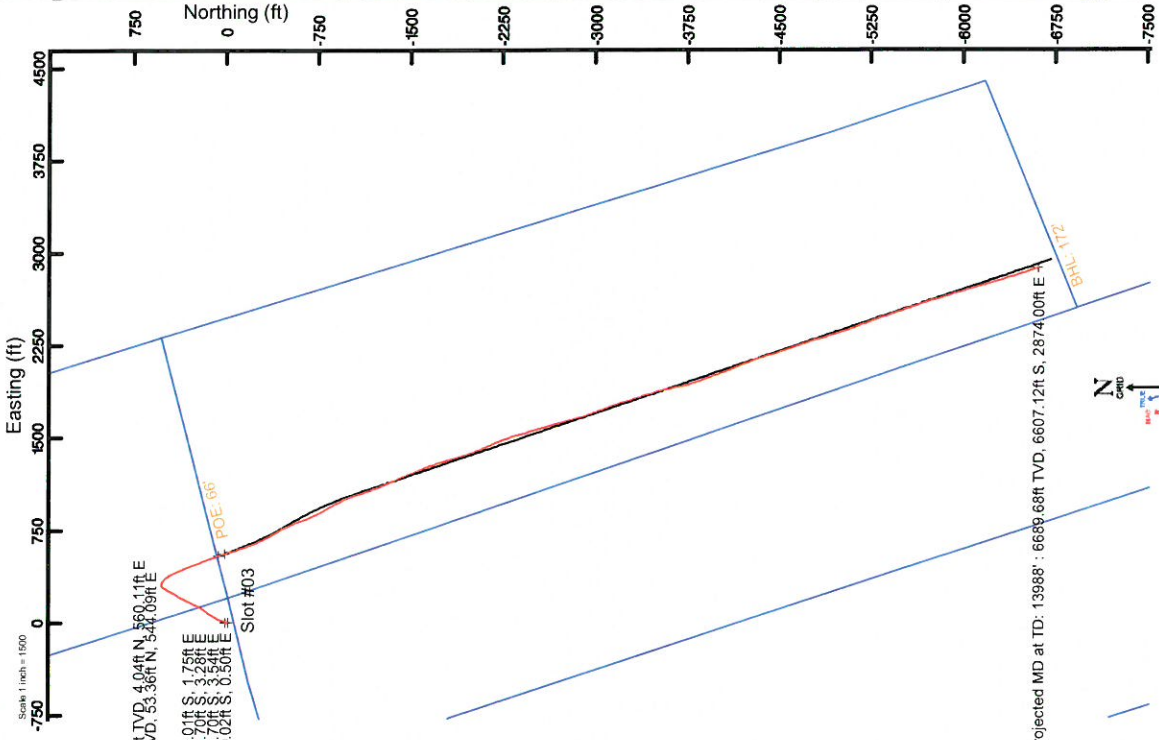


# ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV  
 Field: Ritchie  
 Facility: Hichman Pad  
 Slot: Slot #03  
 Well: Graben Unit 1H  
 Wellbore: Graben Unit 1H PWB



API: 47-085-10334-0000  
 BHI Job #: 9241924  
 Rig: Frontier 22  
 Duration: 07/04/2018-07/06/2018



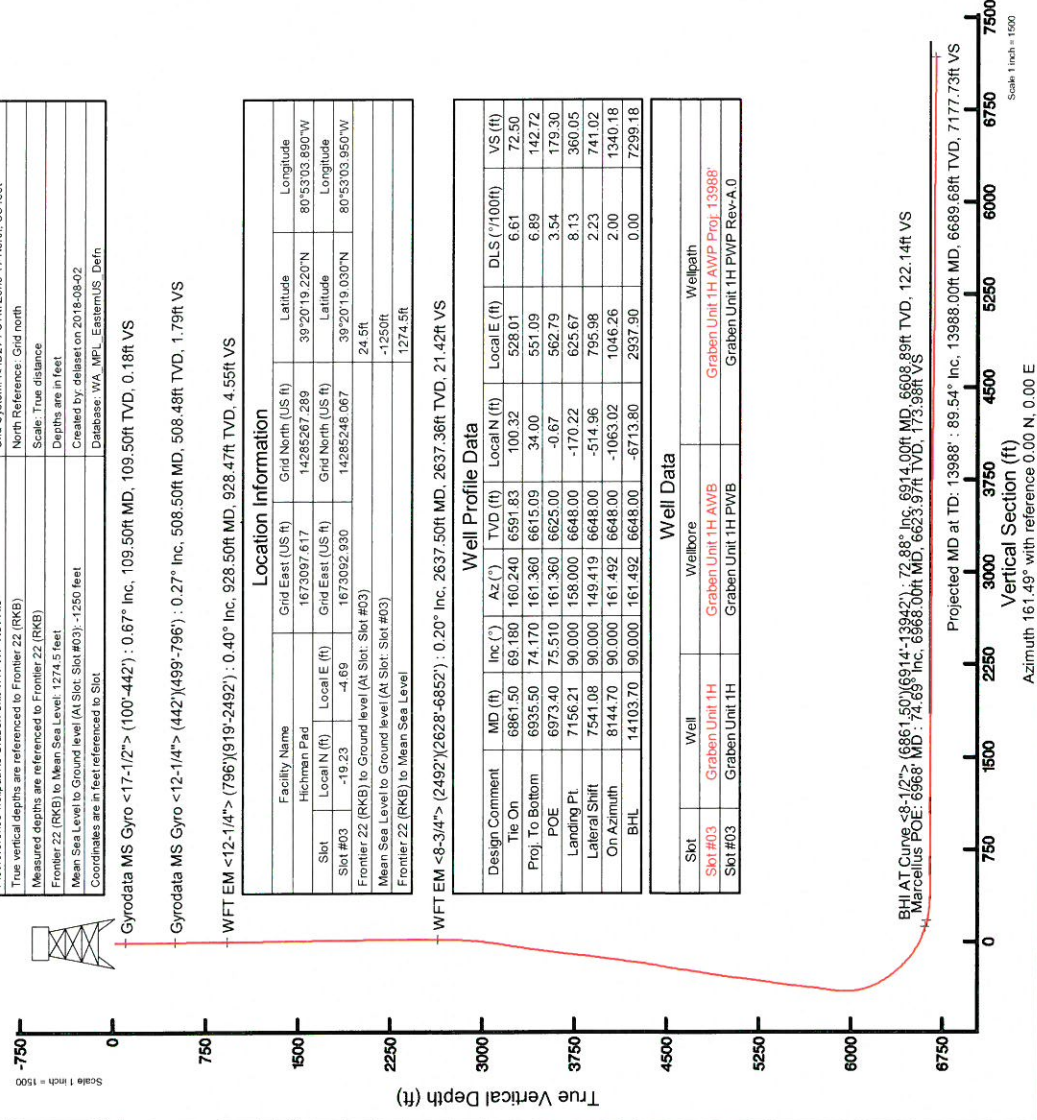
Plot reference wellpath is Graben Unit 1H PWB Rev-A-0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 22 (RKB)	North Reference: Grid north
Measured depths are referenced to Frontier 22 (RKB)	Scale: True distance
Frontier 22 (RKB) to Mean Sea Level: 1274.5 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot #03): -1250 feet	Created by: release on 2018-08-02
Coordinates are in feet referenced to Slot	Database: WA, MPL, EastemUS, Defn

- Gyrodata MS Gyro <17-1/2"> (100'-442') : 0.67° Inc, 109.50ft MD, 109.50ft TVD, 0.18ft VS
- Gyrodata MS Gyro <12-1/4"> (442')(499'-796') : 0.27° Inc, 508.50ft MD, 508.48ft TVD, 1.79ft VS
- WFT EM <12-1/4"> (796')(919'-2492') : 0.40° Inc, 928.50ft MD, 928.47ft TVD, 4.55ft VS
- WFT EM <8-3/4"> (2492')(2628'-6852') : 0.20° Inc, 2637.50ft MD, 2637.36ft TVD, 21.42ft VS

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Hichman Pad	1673097.617	14285267.289	80°53'03.890"W
Local N (ft)	Local E (ft)	Grid North (US ft)	Latitude
-19.23	-4.69	14285248.067	39°20'19.007"N
Slot #03	1673092.930		80°53'03.950"W
Frontier 22 (RKB) to Ground level (At Slot: Slot #03)			24.5ft
Mean Sea Level to Ground level (At Slot: Slot #03)			-1250ft
Frontier 22 (RKB) to Mean Sea Level			1274.5ft

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	Local N (ft)	DLS (°/100ft)	VS (ft)
Tie On	6861.50	69.180	160.240	6591.83	100.32	528.01	6.61	72.50
Proj. To Bottom	6935.50	74.170	161.360	6615.09	34.00	551.09	6.89	142.72
POE	6973.40	75.510	161.360	6625.00	-0.67	562.79	3.54	179.30
Landing Pt.	7156.21	90.000	158.000	6648.00	-170.22	625.67	8.13	360.05
Lateral Shift	7541.08	90.000	149.419	6648.00	-514.96	795.98	2.23	741.02
On Azimuth	8144.70	90.000	161.492	6648.00	-1063.02	1046.26	2.00	1340.18
BHL	14103.70	90.000	161.492	6648.00	-6713.80	2937.90	0.00	7299.18

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #03	Graben Unit 1H	Graben Unit 1H AWB	Graben Unit 1H AWP Proj: 13988'
Slot #03	Graben Unit 1H	Graben Unit 1H PWB	Graben Unit 1H PWP Rev-A-0



BHI AT Curve <8-1/2"> (6861.50)(6914'-13942') : 72.88° Inc, 6914.00ft MD, 6608.89ft TVD, 122.14ft VS  
 Marcellus POE: 6968' MD : 74.69° Inc, 6688.00ft MD, 6663.97ft TVD, 173.98ft VS  
 Projected MD at TD: 13988' : 69.54° Inc, 13988.00ft MD, 6689.68ft TVD, 7177.73ft VS  
 Vertical Section (ft)  
 Azimuth 161.49° with reference 0.00 N, 0.00 E  
 Scale 1 inch = 1500

# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Graben Unit 1H
Field	Ritchie	Wellbore	Graben 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	02/Aug/2018 at 13:44
Convergence at slot	0.07° East	Database/Source file	WA_MPL_EasternUS_Defn/Graben_Unit_1H_AWP_Proj_13988_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-19.23	-4.69	1673092.93	14285248.07	39°20'19.030"N	80°53'03.950"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		24.50ft
Horizontal Reference Pt	Slot	Frontier 22 (RKB) to Facility Vertical Datum	1274.50ft
Vertical Reference Pt	Frontier 22 (RKB)	Frontier 22 (RKB) to Mean Sea Level	24.50ft
MD Reference Pt	Frontier 22 (RKB)	Frontier 22 (RKB) to Ground Level at Slot (Slot #03)	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Origin	161.49°
		Section Azimuth	





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	ANTERO RESOURCES CORPORATION	Well	Graben Unit 1H
Area	Ritchie County, WV	Wellbore	Graben Unit 1H AWB
Field	Ritchie		
Facility	Hichman Pad		

WELLPATH DATA (187 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
0.00	0.00	92.410	0.00	0.00	0.00	0.00	1673092.93	14285248.07	39°20'19.030"N	80°53'03.950"W	0.00	0.000	0.00	0.00	0.00	
24.50	0.00	92.410	24.50	0.00	0.00	0.00	1673092.93	14285248.07	39°20'19.030"N	80°53'03.950"W	0.00	0.000	0.00	0.00	0.00	
109.50	0.670	92.410	109.50	0.18	-0.02	0.50	1673093.43	14285248.05	39°20'19.030"N	80°53'03.944"W	0.50	92.410	0.79	108.72	108.72	Gyrodata MS Gyro <17-1/2"> (100'-442')
134.50	0.640	81.080	134.50	0.25	-0.01	0.78	1673093.71	14285248.06	39°20'19.030"N	80°53'03.940"W	0.78	90.396	0.53	-0.12	-45.32	
159.50	0.780	87.260	159.49	0.32	0.02	1.09	1673094.02	14285248.09	39°20'19.030"N	80°53'03.936"W	1.09	88.716	0.64	0.56	24.72	
184.50	0.770	89.110	184.49	0.42	0.04	1.43	1673094.36	14285248.10	39°20'19.030"N	80°53'03.932"W	1.43	88.589	0.11	-0.04	7.40	
209.50	0.730	94.830	209.49	0.53	0.02	1.75	1673094.68	14285248.09	39°20'19.030"N	80°53'03.928"W	1.75	89.205	0.34	-0.16	22.88	
234.50	0.830	103.440	234.49	0.69	-0.03	2.09	1673095.02	14285248.04	39°20'19.030"N	80°53'03.923"W	2.09	90.855	0.62	0.40	34.44	
259.50	0.490	108.060	259.49	0.85	-0.11	2.37	1673095.29	14285247.96	39°20'19.029"N	80°53'03.920"W	2.37	92.575	1.38	-1.36	18.48	
284.50	0.460	108.650	284.49	0.98	-0.17	2.56	1673095.49	14285247.90	39°20'19.028"N	80°53'03.917"W	2.57	93.832	0.12	-0.12	2.36	
309.50	0.420	109.410	309.48	1.09	-0.23	2.74	1673095.67	14285247.83	39°20'19.028"N	80°53'03.915"W	2.75	94.878	0.16	-0.16	3.04	
334.50	0.380	104.880	334.48	1.20	-0.29	2.91	1673095.84	14285247.78	39°20'19.027"N	80°53'03.913"W	2.92	95.611	0.20	-0.16	-18.12	
359.50	0.260	112.760	359.48	1.28	-0.33	3.04	1673095.97	14285247.74	39°20'19.027"N	80°53'03.911"W	3.06	96.174	0.51	-0.48	31.52	
384.50	0.280	125.530	384.48	1.36	-0.39	3.14	1673096.07	14285247.68	39°20'19.026"N	80°53'03.910"W	3.17	97.008	0.25	0.08	51.08	
409.50	0.300	123.230	409.48	1.47	-0.46	3.25	1673096.18	14285247.61	39°20'19.025"N	80°53'03.909"W	3.28	98.022	0.09	0.08	-9.20	
434.50	0.230	108.040	434.48	1.55	-0.51	3.35	1673096.28	14285247.56	39°20'19.025"N	80°53'03.907"W	3.39	98.841	0.39	-0.28	-60.76	
451.50	0.260	105.800	451.48	1.59	-0.53	3.42	1673096.35	14285247.54	39°20'19.025"N	80°53'03.906"W	3.46	98.813	0.19	0.18	-13.18	
508.50	0.270	183.500	508.48	1.79	-0.70	3.54	1673096.47	14285247.37	39°20'19.023"N	80°53'03.905"W	3.61	101.188	0.58	0.02	136.32	Gyrodata MS Gyro <12-1/4"> (442')(499'-796')
594.50	0.310	192.130	594.48	2.17	-1.13	3.48	1673096.40	14285246.94	39°20'19.019"N	80°53'03.906"W	3.66	107.999	0.07	0.05	10.03	
686.50	0.510	193.740	686.48	2.73	-1.77	3.33	1673096.26	14285246.30	39°20'19.012"N	80°53'03.908"W	3.77	118.022	0.22	0.22	1.75	
805.50	0.470	173.550	805.47	3.66	-2.77	3.26	1673096.18	14285245.30	39°20'19.003"N	80°53'03.909"W	4.27	130.390	0.15	-0.03	-16.97	
928.50	0.400	184.190	928.47	4.55	-3.70	3.28	1673096.21	14285244.37	39°20'18.993"N	80°53'03.908"W	4.94	138.430	0.09	-0.06	8.65	MFT EM <12-1/4"> (796')(919'-2492')
1022.50	0.470	163.100	1022.47	5.24	-4.40	3.37	1673096.30	14285243.67	39°20'18.987"N	80°53'03.907"W	5.54	142.530	0.18	0.07	-22.44	
1117.50	0.560	157.900	1117.46	6.09	-5.20	3.66	1673096.59	14285242.87	39°20'18.979"N	80°53'03.904"W	6.36	144.874	0.11	0.09	-5.47	
1211.50	0.740	172.590	1211.46	7.14	-6.23	3.91	1673096.84	14285241.84	39°20'18.968"N	80°53'03.900"W	7.35	147.883	0.26	0.19	15.63	
1306.50	0.840	179.750	1306.45	8.41	-7.53	3.99	1673096.92	14285240.54	39°20'18.956"N	80°53'03.899"W	8.52	152.082	0.15	0.11	7.54	
1400.50	0.730	175.130	1400.44	9.64	-8.82	4.04	1673096.97	14285239.25	39°20'18.943"N	80°53'03.899"W	9.70	155.359	0.13	-0.12	-4.91	
1495.50	0.840	193.480	1495.43	10.82	-10.10	3.93	1673096.86	14285237.97	39°20'18.930"N	80°53'03.900"W	10.84	158.716	0.29	0.12	19.32	
1589.50	0.850	203.150	1589.42	11.93	-11.41	3.50	1673096.43	14285236.66	39°20'18.917"N	80°53'03.906"W	11.93	162.950	0.15	0.01	10.29	
1683.50	0.890	200.000	1683.41	13.02	-12.73	2.97	1673095.90	14285235.34	39°20'18.904"N	80°53'03.912"W	13.08	166.852	0.07	0.04	-3.35	





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	ANTERO RESOURCES CORPORATION	Well	Graben Unit 1H
Area	Ritchie County, WV	Wellbore	Graben Unit 1H AWB
Field	Ritchie		
Facility	Hichman Pad		

WELLPATH DATA (187 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	VertSect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
1778.50	0.840	195.340	1778.40	14.18	-14.10	2.54	1673095.47	14285233.97	39°20'18.891"N	80°53'03.918"W	14.33	169.795	0.09	-0.05	-4.91	
1873.50	0.740	179.310	1873.39	15.34	-15.38	2.36	1673095.29	14285232.69	39°20'18.878"N	80°53'03.920"W	15.56	171.274	0.25	-0.11	-16.87	
1967.50	0.770	188.190	1967.38	16.48	-16.62	2.28	1673095.21	14285231.46	39°20'18.866"N	80°53'03.921"W	16.77	172.192	0.13	0.03	9.45	
2062.50	0.570	183.370	2062.38	17.49	-17.72	2.16	1673095.09	14285230.35	39°20'18.855"N	80°53'03.923"W	17.85	173.051	0.22	-0.21	-5.07	
2156.50	0.460	185.470	2156.37	18.27	-18.56	2.10	1673095.03	14285229.51	39°20'18.847"N	80°53'03.924"W	18.68	173.566	0.12	-0.12	2.23	
2251.50	0.360	198.280	2251.37	18.66	-19.23	1.97	1673094.90	14285228.85	39°20'18.840"N	80°53'03.925"W	19.33	174.160	0.14	-0.11	13.48	
2346.50	0.510	178.890	2346.37	19.50	-19.93	1.88	1673094.81	14285228.14	39°20'18.833"N	80°53'03.926"W	20.02	174.609	0.22	0.16	-20.41	
2440.50	0.520	184.940	2440.36	20.29	-20.78	1.85	1673094.78	14285227.30	39°20'18.825"N	80°53'03.927"W	20.86	174.905	0.06	0.01	6.44	
2501.50	0.420	183.030	2501.36	20.75	-21.27	1.82	1673094.75	14285226.80	39°20'18.820"N	80°53'03.927"W	21.35	175.119	0.17	-0.16	-3.13	
2637.50	0.200	189.320	2637.36	21.42	-22.01	1.75	1673094.68	14285226.07	39°20'18.812"N	80°53'03.928"W	22.08	175.448	0.16	-0.16	4.62	WFT EM <-8.3/4"> (2492)(2628-6852)
2732.50	1.650	24.180	2732.35	20.57	-20.92	2.29	1673095.21	14285227.15	39°20'18.823"N	80°53'03.921"W	21.05	173.766	1.94	1.53	-173.83	
2826.50	3.590	26.370	2826.24	17.48	-17.05	4.15	1673097.08	14285231.02	39°20'18.861"N	80°53'03.897"W	17.55	166.330	2.07	2.06	2.33	
2920.50	5.490	17.620	2919.95	11.77	-10.13	6.82	1673099.74	14285237.94	39°20'18.930"N	80°53'03.863"W	12.21	146.059	2.15	2.02	-9.31	
3014.50	7.520	14.250	3013.34	2.96	0.12	9.69	1673102.62	14285248.19	39°20'19.031"N	80°53'03.827"W	9.69	89.283	2.20	2.16	-3.59	
3109.50	9.490	14.900	3107.29	-8.80	13.72	13.24	1673106.16	14285261.78	39°20'19.165"N	80°53'03.781"W	19.06	43.978	2.08	2.07	0.68	
3203.50	11.540	16.450	3199.70	-22.98	30.22	17.89	1673110.81	14285278.28	39°20'19.328"N	80°53'03.722"W	35.12	30.623	2.20	2.18	1.65	
3297.50	12.060	21.400	3291.72	-38.22	48.39	24.14	1673117.06	14285296.43	39°20'19.508"N	80°53'03.642"W	54.07	26.512	1.21	0.55	5.27	
3397.50	11.370	26.920	3389.64	-53.15	66.90	32.41	1673125.33	14285314.94	39°20'19.691"N	80°53'03.536"W	74.34	25.849	1.32	-0.69	5.52	
3491.50	11.100	33.810	3481.84	-65.18	82.68	41.64	1673134.56	14285330.72	39°20'19.847"N	80°53'03.419"W	92.58	26.732	1.46	-0.29	7.33	
3585.50	10.970	32.290	3574.10	-76.37	97.76	51.46	1673144.36	14285345.79	39°20'19.996"N	80°53'03.294"W	110.48	27.759	0.34	-0.14	-1.62	
3680.50	11.030	32.470	3667.36	-87.80	113.07	61.16	1673154.07	14285361.09	39°20'20.147"N	80°53'03.170"W	128.55	28.410	0.07	0.06	0.19	
3774.50	10.820	30.680	3759.66	-99.23	128.24	70.49	1673163.39	14285376.26	39°20'20.297"N	80°53'03.051"W	146.34	28.796	0.42	-0.22	-1.90	
3868.50	11.530	36.490	3851.88	-110.39	143.39	80.68	1673173.48	14285391.40	39°20'20.446"N	80°53'02.922"W	164.48	29.336	1.42	0.76	6.18	
3963.50	11.890	36.470	3944.90	-121.45	158.89	92.04	1673184.94	14285406.89	39°20'20.598"N	80°53'02.776"W	183.62	30.084	0.38	0.38	-0.02	
4057.50	12.870	35.770	4036.71	-133.12	175.17	103.92	1673196.81	14285423.17	39°20'20.760"N	80°53'02.625"W	203.68	30.679	1.05	1.04	-0.74	
4151.50	12.750	34.060	4128.37	-145.53	192.26	115.85	1673208.73	14285440.25	39°20'20.929"N	80°53'02.472"W	224.46	31.072	0.42	-0.13	-1.82	
4246.50	12.430	30.920	4221.09	-158.56	209.71	126.97	1673219.85	14285457.70	39°20'21.101"N	80°53'02.331"W	245.16	31.193	0.80	-0.34	-3.31	
4340.50	12.120	27.840	4312.94	-171.95	227.12	136.78	1673229.66	14285475.10	39°20'21.273"N	80°53'02.205"W	265.13	31.068	0.77	-0.33	-3.28	
4435.50	11.820	24.680	4405.88	-185.90	244.77	145.53	1673238.40	14285492.73	39°20'21.447"N	80°53'02.094"W	284.76	30.735	0.72	-0.32	-3.12	
4530.50	11.910	21.180	4498.85	-200.52	262.73	153.17	1673246.04	14285510.69	39°20'21.625"N	80°53'01.996"W	304.12	30.241	0.81	0.09	-3.89	





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'

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

WELLPATH DATA (187 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
4624.50	12.090	25.770	4590.80	-215.03	280.64	160.95	1673253.82	14285528.60	39°20'21.802"N	80°53'01.897"W	323.52	29.835	1.03	0.19	4.88	
4719.50	12.290	25.030	4583.65	-229.48	298.76	169.55	1673282.42	14285546.71	39°20'21.981"N	80°53'01.787"W	343.52	29.576	0.27	0.21	-0.78	
4814.50	12.730	28.800	4776.40	-243.91	317.10	178.88	1673271.73	14285565.04	39°20'22.162"N	80°53'01.668"W	364.07	29.427	0.98	0.46	3.97	
4909.50	13.260	26.980	4868.97	-258.64	335.98	188.86	1673281.71	14285583.91	39°20'22.348"N	80°53'01.541"W	385.42	29.341	0.70	0.56	-1.92	
5003.50	11.760	27.520	4960.73	-272.85	354.08	198.18	1673291.03	14285602.01	39°20'22.527"N	80°53'01.422"W	405.77	29.236	1.60	-1.60	0.57	
5098.50	10.850	28.740	5053.89	-285.64	370.51	206.95	1673299.80	14285618.43	39°20'22.689"N	80°53'01.310"W	424.39	29.186	0.99	-0.96	1.28	
5192.50	10.860	34.750	5146.21	-296.94	385.54	216.25	1673309.10	14285633.45	39°20'22.838"N	80°53'01.191"W	442.05	29.288	1.20	0.01	6.39	
5381.50	12.660	29.220	5331.24	-321.53	418.25	236.51	1673329.35	14285666.15	39°20'23.161"N	80°53'00.933"W	480.49	29.487	1.12	0.95	-2.93	
5476.50	11.680	27.030	5424.10	-335.27	435.90	245.97	1673338.80	14285683.79	39°20'23.335"N	80°53'00.812"W	500.51	29.435	1.14	-1.03	-2.31	
5570.50	10.130	27.510	5516.40	-347.67	451.71	254.11	1673346.94	14285699.60	39°20'23.491"N	80°53'00.708"W	518.28	29.360	1.65	-1.65	0.51	
5665.50	9.720	32.900	5609.98	-358.47	465.85	262.32	1673355.15	14285713.73	39°20'23.631"N	80°53'00.604"W	534.64	29.384	1.07	-0.43	5.67	
5760.50	11.150	34.000	5703.41	-369.07	480.20	271.82	1673364.64	14285728.08	39°20'23.773"N	80°53'00.483"W	551.80	29.512	1.52	1.51	1.16	
5853.50	13.270	30.040	5794.30	-381.61	496.90	282.19	1673375.01	14285744.77	39°20'23.938"N	80°53'00.350"W	571.44	29.592	2.45	2.28	-4.26	
5885.50	12.960	32.690	5825.47	-386.29	503.10	285.97	1673378.78	14285750.97	39°20'23.999"N	80°53'00.302"W	578.69	29.614	2.11	-0.97	8.28	
5916.50	11.060	38.170	5855.79	-390.10	508.36	289.68	1673382.50	14285756.23	39°20'24.051"N	80°53'00.255"W	585.11	29.676	7.14	-6.13	17.68	
5948.50	9.420	44.770	5887.28	-392.96	512.64	293.42	1673386.24	14285760.50	39°20'24.093"N	80°53'00.207"W	590.67	29.786	6.29	-5.12	20.62	
5979.50	7.860	53.070	5917.93	-394.77	515.71	296.91	1673389.72	14285763.57	39°20'24.123"N	80°53'00.163"W	595.07	29.930	6.43	-5.03	26.77	
6011.50	7.070	64.970	5949.66	-395.69	517.86	300.44	1673393.25	14285765.72	39°20'24.145"N	80°53'00.118"W	598.70	30.120	5.41	-2.47	37.19	
6043.50	8.510	81.240	5981.37	-395.51	519.05	304.56	1673397.37	14285766.91	39°20'24.156"N	80°53'00.065"W	601.81	30.403	8.19	4.50	50.84	
6074.50	10.880	94.150	6011.93	-394.00	519.19	309.75	1673402.56	14285767.05	39°20'24.158"N	80°52'59.999"W	604.57	30.820	10.33	7.65	41.65	
6106.50	13.090	104.690	6043.23	-390.85	518.05	316.27	1673409.07	14285765.91	39°20'24.146"N	80°52'59.916"W	606.96	31.404	9.69	6.91	32.94	
6137.50	15.410	114.250	6073.28	-386.13	515.47	323.42	1673416.22	14285763.33	39°20'24.121"N	80°52'59.825"W	608.53	32.105	10.64	7.48	30.84	
6169.50	17.720	121.850	6103.95	-379.49	511.15	331.44	1673424.23	14285759.02	39°20'24.078"N	80°52'59.723"W	609.20	32.960	9.88	7.22	23.75	
6200.50	20.270	128.040	6133.26	-371.37	505.35	339.68	1673432.47	14285753.22	39°20'24.020"N	80°52'59.619"W	608.90	33.907	10.47	8.23	19.97	
6232.50	23.180	132.670	6162.99	-361.23	497.67	348.68	1673441.47	14285745.53	39°20'23.944"N	80°52'59.504"W	607.66	35.016	10.55	9.09	14.47	
6263.50	26.400	137.570	6191.13	-349.58	488.44	357.81	1673450.60	14285736.31	39°20'23.853"N	80°52'59.388"W	605.48	36.225	12.31	10.39	15.81	
6295.50	29.130	142.140	6219.45	-335.72	477.04	367.40	1673460.18	14285724.91	39°20'23.740"N	80°52'59.266"W	602.12	37.602	10.81	8.53	14.28	
6326.50	31.430	145.710	6246.22	-320.82	464.40	376.58	1673469.36	14285712.28	39°20'23.615"N	80°52'59.149"W	597.90	39.039	9.42	7.42	11.52	
6357.50	33.470	148.440	6272.38	-304.71	450.44	385.61	1673478.39	14285698.32	39°20'23.477"N	80°52'59.035"W	592.95	40.566	8.10	6.58	8.81	
6389.50	35.330	150.900	6298.78	-287.02	434.83	394.73	1673487.50	14285682.72	39°20'23.323"N	80°52'58.919"W	587.28	42.233	7.25	5.81	7.69	





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #03
Operator	ANTERO RESOURCES CORPORATION	Well	Graben Unit 1H
Area	Ritchie County, WV	Wellbore	Graben Unit 1H AWB
Field	Ritchie		
Facility	Hichman Pad		

WELLPATH DATA (187 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (°/100ft)	Comments
6420.50	37.200	153.380	6323.78	-268.93	418.62	403.29	1673496.06	14285666.52	39°20'23.162"N	80°52'58.810"W	581.28	43.932	7.67	6.03	8.00	
6452.50	39.110	155.490	6348.94	-249.31	400.78	411.82	1673504.58	14285648.69	39°20'22.986"N	80°52'58.702"W	574.65	45.778	7.23	5.97	6.59	
6483.50	40.240	156.970	6372.80	-229.61	382.67	419.79	1673512.55	14285630.59	39°20'22.807"N	80°52'58.601"W	568.03	47.648	4.75	3.65	4.77	
6515.50	41.810	157.290	6396.94	-208.86	363.32	427.95	1673520.71	14285611.24	39°20'22.615"N	80°52'58.497"W	561.38	49.670	4.95	4.91	1.00	
6547.50	43.530	157.220	6420.47	-187.03	343.32	436.34	1673529.09	14285591.25	39°20'22.418"N	80°52'58.391"W	555.21	51.804	5.38	5.37	-0.22	
6578.50	46.280	156.740	6442.43	-165.22	323.18	444.90	1673537.65	14285571.12	39°20'22.219"N	80°52'58.282"W	549.89	54.005	8.94	8.87	-1.55	
6609.50	48.880	158.510	6463.34	-142.39	302.02	453.60	1673546.35	14285549.76	39°20'22.009"N	80°52'58.172"W	544.95	56.343	9.39	8.39	5.71	
6640.50	51.110	159.920	6483.26	-118.67	279.82	462.02	1673554.76	14285527.97	39°20'21.790"N	80°52'58.065"W	540.15	58.799	7.99	7.19	4.55	
6672.50	53.160	161.210	6502.91	-93.41	256.00	470.42	1673563.16	14285503.96	39°20'21.554"N	80°52'57.959"W	535.57	61.446	7.15	6.41	4.03	
6703.50	56.070	161.540	6520.85	-68.14	232.05	478.49	1673571.23	14285480.02	39°20'21.317"N	80°52'57.856"W	531.79	64.128	9.43	9.39	1.06	
6735.50	59.130	160.520	6538.00	-41.12	206.50	487.28	1673580.01	14285454.49	39°20'21.065"N	80°52'57.745"W	529.23	67.033	9.93	9.56	-3.19	
6766.50	62.150	158.620	6553.20	-14.13	181.19	496.71	1673589.44	14285429.18	39°20'20.814"N	80°52'57.625"W	528.73	69.959	11.11	9.74	-6.13	
6784.00†	63.724	158.178	6561.16	1.43	166.70	502.45	1673595.18	14285414.70	39°20'20.671"N	80°52'57.552"W	529.38	71.645	9.27	9.00	-2.53	Burkett: 6784' MD
6798.50	65.030	157.820	6567.43	14.48	154.58	507.35	1673600.07	14285402.59	39°20'20.551"N	80°52'57.490"W	530.37	73.055	9.27	9.00	-2.47	
6829.50	67.280	159.240	6579.96	42.80	128.20	517.72	1673610.44	14285376.21	39°20'20.290"N	80°52'57.359"W	533.36	76.092	8.38	7.26	4.58	
6859.00†	69.031	160.163	6590.94	70.16	102.51	527.22	1673619.94	14285350.54	39°20'20.037"N	80°52'57.238"W	537.09	78.996	6.61	5.94	3.13	Tully: 6859' MD
6861.50	69.180	160.240	6591.83	72.50	100.32	528.01	1673620.73	14285348.34	39°20'20.015"N	80°52'57.228"W	537.45	79.242	6.61	5.95	3.09	
6914.00	72.880	161.940	6608.89	122.14	53.36	544.09	1673636.80	14285301.40	39°20'19.550"N	80°52'57.024"W	546.70	84.399	7.68	7.05	3.24	BHI AT Curve <8-1/2"> (6861.50)-(6914-13942')
6968.00	74.690	162.070	6623.97	173.98	4.04	560.11	1673652.81	14285252.11	39°20'19.063"N	80°52'56.821"W	560.12	89.586	3.36	3.35	0.24	Marcellus POE: 6968' MD
7015.00	80.450	161.680	6634.08	219.86	-39.56	574.38	1673667.08	14285208.52	39°20'18.632"N	80°52'56.640"W	575.74	93.940	12.28	12.26	-0.83	
7063.00	83.620	161.200	6640.74	267.39	-84.62	589.51	1673682.20	14285163.48	39°20'18.186"N	80°52'56.448"W	595.55	98.168	6.68	6.60	-1.00	
7110.00	86.060	161.720	6644.96	314.20	-128.99	604.39	1673697.08	14285119.12	39°20'17.747"N	80°52'56.260"W	618.00	102.048	5.31	5.19	1.11	
7158.00	88.370	162.360	6647.29	362.14	-174.60	619.17	1673711.86	14285073.54	39°20'17.296"N	80°52'56.072"W	643.32	105.748	4.99	4.81	1.33	
7205.00	89.970	159.570	6647.97	409.12	-219.02	634.50	1673727.18	14285029.14	39°20'16.857"N	80°52'55.878"W	671.24	109.044	6.84	3.40	-5.94	
7251.00	90.000	156.100	6647.99	455.02	-261.61	651.85	1673744.52	14284986.56	39°20'16.436"N	80°52'55.658"W	702.39	111.867	7.54	0.07	-7.54	
7347.00	91.140	151.230	6647.03	500.09	-347.62	694.42	1673787.07	14284900.59	39°20'15.585"N	80°52'55.118"W	776.57	116.592	5.21	1.19	-5.07	
7442.00	89.230	149.320	6646.72	643.27	-430.11	741.52	1673834.16	14284818.13	39°20'14.769"N	80°52'54.520"W	857.23	120.115	2.84	-2.01	-2.01	
7537.00	89.290	155.930	6647.95	737.08	-514.42	785.18	1673877.79	14284733.86	39°20'13.936"N	80°52'53.965"W	938.68	123.231	6.96	0.06	6.96	
7632.00	89.720	160.190	6648.77	831.88	-602.51	820.66	1673913.26	14284645.80	39°20'13.064"N	80°52'53.515"W	1018.09	126.285	4.51	0.45	4.48	
7727.00	90.150	156.830	6648.88	926.74	-690.90	855.46	1673948.05	14284557.45	39°20'12.190"N	80°52'53.074"W	1099.61	128.925	3.57	0.45	-3.54	





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'

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**BAKER HUGHES**  
a GE company

## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #03
ANTERO RESOURCES CORPORATION	Well	Graben Unit 1H
Ritchie County, WV	Wellbore	Graben Unit 1H AWB
Ritchie		
Hichman Pad		

## WELLPATH DATA (187 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
7822.00	91.450	150.890	6647.55	1020.84	-776.13	897.29	1673989.86	14284472.25	39°20'11.348"N	80°52'52.543"W	1186.38	130.859	6.40	1.37	-6.25	
7916.00	89.690	151.160	6646.62	1113.27	-858.36	942.82	1674035.37	14284390.05	39°20'10.534"N	80°52'51.965"W	1275.03	132.315	1.89	-1.87	0.29	
8011.00	88.120	153.970	6648.43	1207.09	-942.65	986.58	1674079.11	14284305.80	39°20'09.701"N	80°52'51.409"W	1364.52	133.695	3.39	-1.65	2.96	
8107.00	88.950	159.820	6650.89	1302.71	-1030.88	1024.22	1674116.74	14284217.60	39°20'08.828"N	80°52'50.932"W	1453.18	135.186	6.15	0.86	6.09	
8202.00	89.720	162.570	6651.99	1397.69	-1120.79	1054.84	1674147.35	14284127.72	39°20'07.939"N	80°52'50.544"W	1539.11	136.736	3.01	0.81	2.89	
8297.00	90.920	159.350	6651.46	1492.67	-1210.58	1085.83	1674178.32	14284037.97	39°20'07.051"N	80°52'50.151"W	1626.20	138.110	3.62	1.26	-3.39	
8392.00	89.690	156.830	6650.96	1587.49	-1298.71	1121.27	1674213.75	14283949.88	39°20'06.180"N	80°52'49.701"W	1715.78	139.194	2.95	-1.29	-2.65	
8487.00	89.720	157.290	6651.45	1682.21	-1382.91	1158.30	1674250.76	14283862.43	39°20'05.314"N	80°52'49.231"W	1806.43	140.118	0.49	0.03	0.48	
8581.00	89.690	157.280	6651.93	1775.95	-1472.90	1194.60	1674287.05	14283775.76	39°20'04.457"N	80°52'48.771"W	1896.44	140.956	0.03	-0.03	-0.01	
8676.00	89.570	157.820	6652.54	1870.73	-1560.70	1230.87	1674323.31	14283687.99	39°20'03.589"N	80°52'48.311"W	1987.67	141.738	0.58	-0.13	0.57	
8771.00	89.480	158.650	6653.33	1965.57	-1648.92	1266.10	1674358.52	14283599.80	39°20'02.716"N	80°52'47.864"W	2078.93	142.482	0.88	-0.09	0.87	
8867.00	88.800	162.580	6654.77	2061.53	-1739.45	1297.95	1674390.36	14283509.31	39°20'01.821"N	80°52'47.460"W	2170.34	143.270	4.15	-0.71	4.09	
8962.00	90.080	166.120	6655.72	2156.39	-1830.91	1323.57	1674415.97	14283417.89	39°20'00.917"N	80°52'47.135"W	2259.22	144.137	3.96	1.33	3.73	
9055.00	90.950	162.660	6654.90	2249.25	-1920.46	1348.59	1674440.98	14283328.37	39°20'00.031"N	80°52'46.819"W	2346.67	144.923	3.84	0.96	-3.72	
9150.00	89.630	159.480	6654.42	2344.23	-2010.31	1379.41	1674471.78	14283238.56	39°19'59.143"N	80°52'46.428"W	2438.05	145.543	3.62	-1.39	-3.35	
9245.00	89.750	156.690	6654.93	2439.05	-2098.43	1414.86	1674507.22	14283150.47	39°19'58.272"N	80°52'45.978"W	2530.86	146.010	2.94	0.13	-2.94	
9339.00	89.600	155.520	6655.47	2532.64	-2184.37	1452.93	1674545.28	14283064.57	39°19'57.422"N	80°52'45.495"W	2623.45	146.370	1.25	-0.16	-1.24	
9432.00	89.600	159.630	6656.11	2625.40	-2270.32	1488.40	1674580.74	14282978.66	39°19'56.572"N	80°52'45.045"W	2714.72	146.751	4.42	0.00	4.42	
9527.00	89.600	164.000	6656.78	2720.37	-2360.55	1518.04	1674610.36	14282888.46	39°19'55.680"N	80°52'44.670"W	2806.54	147.255	4.60	0.00	4.60	
9622.00	89.660	164.190	6657.39	2815.27	-2451.91	1544.08	1674636.39	14282797.14	39°19'54.776"N	80°52'44.340"W	2897.59	147.800	0.21	0.06	0.20	
9717.00	89.630	163.620	6657.98	2910.18	-2543.19	1570.41	1674662.71	14282705.90	39°19'53.874"N	80°52'44.006"W	2988.98	148.305	0.60	-0.03	-0.60	
9812.00	89.510	164.540	6658.69	3005.08	-2634.54	1596.47	1674688.76	14282614.58	39°19'52.970"N	80°52'43.676"W	3080.51	148.785	0.98	-0.13	0.97	
9906.00	89.690	165.920	6659.35	3098.88	-2725.43	1620.43	1674712.71	14282523.73	39°19'52.072"N	80°52'43.373"W	3170.77	149.266	1.48	0.19	1.47	
10002.00	89.690	165.300	6659.87	3194.63	-2818.42	1644.29	1674736.56	14282430.78	39°19'51.153"N	80°52'43.071"W	3263.00	149.740	0.65	0.00	-0.65	
10096.00	90.310	162.220	6659.87	3288.54	-2908.65	1670.58	1674762.84	14282340.58	39°19'50.260"N	80°52'42.738"W	3354.26	150.129	3.34	0.66	-3.28	
10192.00	89.720	158.590	6659.84	3384.51	-2999.08	1702.77	1674795.01	14282250.19	39°19'49.366"N	80°52'42.330"W	3448.75	150.414	3.83	-0.61	-3.78	
10286.00	89.630	159.510	6660.38	3478.42	-3086.86	1736.37	1674828.61	14282162.44	39°19'48.498"N	80°52'41.903"W	3541.71	150.642	0.98	-0.10	0.98	
10379.00	89.630	162.200	6660.98	3571.40	-3174.71	1766.87	1674859.09	14282074.63	39°19'47.629"N	80°52'41.517"W	3633.26	150.902	2.89	0.00	2.89	
10474.00	89.690	163.570	6661.54	3666.37	-3265.50	1794.83	1674887.04	14281983.88	39°19'46.732"N	80°52'41.163"W	3726.24	151.205	1.44	0.06	1.44	
10570.00	89.200	161.290	6662.47	3762.35	-3357.01	1823.80	1674916.00	14281892.40	39°19'45.827"N	80°52'40.795"W	3820.44	151.486	2.43	-0.51	-2.38	





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #03
ANTERO RESOURCES CORPORATION	Well	Graben Unit 1H
Ritchie County, WV	Wellbore	Graben Unit 1H AWB
Ritchie		
Hichman Pad		

## WELLPATH DATA (187 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
10665.00	89.290	162.600	6663.72	3857.34	-3447.32	1853.24	1674945.43	14281802.13	39°19'44.934"N	80°52'40.422"W	3913.89	151.738	1.38	0.09	1.38	
10759.00	89.110	166.110	6665.04	3951.19	-3537.82	1878.59	1674970.76	14281711.67	39°19'44.039"N	80°52'40.101"W	4005.65	152.032	3.74	-0.19	3.73	
10853.00	89.230	168.620	6666.40	4044.68	-3629.52	1899.15	1674991.31	14281620.00	39°19'43.132"N	80°52'39.841"W	4096.36	152.379	2.67	0.13	2.67	
10947.00	89.780	166.750	6667.21	4138.13	-3721.35	1919.19	1675011.35	14281528.21	39°19'42.225"N	80°52'39.588"W	4187.09	152.719	2.07	0.59	-1.99	
11041.00	89.290	161.600	6667.97	4231.99	-3811.76	1944.82	1675036.97	14281437.84	39°19'41.331"N	80°52'39.263"W	4279.23	152.969	5.50	-0.52	-5.48	
11136.00	88.980	159.880	6669.41	4326.96	-3901.42	1976.15	1675068.29	14281348.21	39°19'40.444"N	80°52'38.866"W	4373.36	153.137	1.84	-0.33	-1.81	
11232.00	89.020	160.480	6671.08	4422.92	-3991.72	2008.69	1675100.82	14281257.94	39°19'39.551"N	80°52'38.454"W	4468.64	153.288	0.63	0.04	0.62	
11327.00	89.020	158.990	6672.71	4517.86	-4080.83	2041.59	1675133.70	14281168.87	39°19'38.670"N	80°52'38.036"W	4563.03	153.422	1.57	0.00	-1.57	
11422.00	89.170	158.190	6674.21	4612.73	-4169.26	2076.27	1675168.36	14281080.48	39°19'37.795"N	80°52'37.597"W	4657.64	153.527	0.86	0.16	-0.84	
11517.00	89.480	157.950	6675.33	4707.55	-4257.38	2111.74	1675203.83	14280992.39	39°19'36.924"N	80°52'37.147"W	4752.34	153.618	0.41	0.33	-0.25	
11612.00	89.380	162.680	6676.27	4802.50	-4346.80	2143.73	1675235.80	14280903.01	39°19'36.040"N	80°52'36.741"W	4846.67	153.749	4.98	-0.11	4.98	
11707.00	89.720	163.160	6677.02	4897.47	-4437.60	2171.63	1675263.69	14280812.24	39°19'35.142"N	80°52'36.388"W	4940.48	153.924	0.62	0.36	0.51	
11802.00	89.750	160.880	6677.46	4992.46	-4527.96	2200.96	1675293.01	14280721.92	39°19'34.249"N	80°52'36.016"W	5034.54	154.076	2.40	0.03	-2.40	
11897.00	89.690	160.860	6677.92	5087.45	-4617.71	2232.09	1675324.12	14280632.21	39°19'33.361"N	80°52'35.622"W	5128.89	154.202	0.07	-0.06	-0.02	
11992.00	89.630	161.600	6678.49	5182.45	-4707.66	2262.66	1675354.68	14280542.30	39°19'32.472"N	80°52'35.234"W	5223.18	154.330	0.78	-0.06	0.78	
12088.00	89.720	163.760	6679.03	5278.42	-4799.30	2291.23	1675383.25	14280450.69	39°19'31.566"N	80°52'34.872"W	5318.18	154.480	2.25	0.09	2.25	
12183.00	89.880	163.310	6679.36	5373.36	-4890.40	2318.16	1675410.16	14280359.63	39°19'30.665"N	80°52'34.531"W	5412.01	154.638	0.50	0.17	-0.47	
12278.00	89.660	162.480	6679.74	5468.33	-4981.20	2346.10	1675438.09	14280268.87	39°19'29.767"N	80°52'34.177"W	5506.04	154.780	0.90	-0.23	-0.87	
12373.00	89.600	161.250	6680.36	5563.32	-5071.47	2375.67	1675467.65	14280178.63	39°19'28.874"N	80°52'33.803"W	5600.33	154.900	1.30	-0.06	-1.29	
12468.00	89.690	159.030	6680.95	5658.29	-5160.82	2407.94	1675499.91	14280089.32	39°19'27.991"N	80°52'33.393"W	5694.93	154.987	2.34	0.09	-2.34	
12563.00	90.030	159.060	6681.18	5753.20	-5249.53	2441.92	1675533.87	14280000.64	39°19'27.113"N	80°52'32.963"W	5789.69	155.054	0.36	0.36	0.03	
12658.00	90.090	161.920	6681.08	5848.18	-5339.07	2473.64	1675565.58	14279911.14	39°19'26.228"N	80°52'32.561"W	5884.26	155.141	3.01	0.06	3.01	
12753.00	89.910	161.750	6681.08	5943.17	-5429.33	2503.26	1675595.18	14279820.91	39°19'25.336"N	80°52'32.185"W	5978.63	155.247	0.26	-0.19	-0.18	
12848.00	89.570	160.810	6681.51	6038.17	-5519.31	2533.75	1675625.66	14279730.97	39°19'24.446"N	80°52'31.799"W	6073.11	155.342	1.05	-0.36	-0.99	
12943.00	89.480	160.780	6682.30	6133.16	-5609.02	2564.99	1675656.90	14279641.30	39°19'23.559"N	80°52'31.403"W	6167.68	155.425	0.10	-0.09	-0.03	
13038.00	89.420	162.190	6683.21	6228.16	-5699.09	2595.16	1675687.05	14279551.26	39°19'22.668"N	80°52'31.021"W	6262.15	155.517	1.49	-0.06	1.48	
13132.00	89.420	163.060	6684.16	6322.13	-5788.80	2623.23	1675715.11	14279461.59	39°19'21.781"N	80°52'30.665"W	6355.43	155.622	0.93	0.00	0.93	
13227.00	89.630	162.260	6684.95	6417.11	-5879.48	2651.54	1675743.41	14279370.95	39°19'20.884"N	80°52'30.306"W	6449.72	155.725	0.87	0.22	-0.84	
13321.00	89.880	162.740	6685.35	6511.09	-5969.13	2679.81	1675771.66	14279281.33	39°19'19.998"N	80°52'29.948"W	6543.07	155.823	0.88	0.27	0.51	
13416.00	89.630	163.540	6685.76	6606.05	-6060.04	2707.36	1675799.21	14279190.46	39°19'19.099"N	80°52'29.599"W	6637.31	155.927	0.88	-0.26	0.84	





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'  
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## REFERENCE WELLPATH IDENTIFICATION

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

## WELLPATH DATA (187 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [ft]	Grid North [ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
13511.00	89.780	164.540	6686.25	6700.95	-6151.38	2733.48	1675825.32	14279099.16	39°19'18.196"N	80°52'29.268"W	6731.37	156.041	1.06	0.16	1.05	
13606.00	89.570	164.160	6686.79	6795.83	-6242.85	2759.11	1675850.93	14279007.72	39°19'17.292"N	80°52'28.944"W	6825.39	156.156	0.46	-0.22	-0.40	
13701.00	89.660	162.820	6687.42	6890.77	-6333.93	2786.10	1675877.92	14278916.67	39°19'16.391"N	80°52'28.602"W	6919.61	156.257	1.41	0.09	-1.41	
13795.00	89.510	162.560	6688.10	6984.75	-6423.67	2814.07	1675905.87	14278826.97	39°19'15.504"N	80°52'28.248"W	7013.03	156.343	0.32	-0.16	-0.28	
13890.00	89.540	161.930	6688.89	7079.74	-6514.14	2843.04	1675934.83	14278736.53	39°19'14.509"N	80°52'27.881"W	7107.53	156.422	0.66	0.03	-0.66	
13942.00	89.540	161.460	6689.31	7131.73	-6563.51	2859.37	1675951.16	14278687.19	39°19'14.121"N	80°52'27.674"W	7159.31	156.460	0.90	0.00	-0.90	
13988.00	89.540	161.460	6689.68	7177.73	-6607.12	2874.00	1675965.78	14278643.59	39°19'13.690"N	80°52'27.489"W	7205.13	156.492	0.00	0.00	0.00	Projected MD at TD: 13988'

## HOLE & CASING SECTIONS - Ref Wellbore: Graben Unit 1H AWB Ref Wellpath: Graben Unit 1H AWP Proj: 13988'

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	24.50	104.50	80.00	24.50	104.50	0.00	0.00	-0.02	0.44
17.5in Open Hole	104.50	498.50	394.00	104.50	498.48	-0.02	0.44	-0.66	3.54
13.375in Casing Surface	24.50	498.50	474.00	24.50	498.48	0.00	0.00	-0.66	3.54
12.25in Open Hole	498.50	2573.50	2075.00	498.48	2573.36	-0.66	3.54	-21.73	1.79
9.625in Casing Intermediate	24.50	2573.50	2549.00	24.50	2573.36	0.00	0.00	-21.73	1.79





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'  
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## REFERENCE WELLPATH IDENTIFICATION

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

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Graben Unit 1H POE - Rev-2	6625.00	-0.67	562.79	1673655.49	14285247.40	39°20'19.016"N	80°52'56.787"W	point
Graben Unit 1H BHL - Rev-2	6648.00	-6713.80	2937.90	1676029.66	14278536.96	39°19'12.634"N	80°52'26.677"W	point
Graben Unit 1H LP - Rev-2	6648.00	-170.22	625.67	1673718.35	14285077.92	39°20'17.340"N	80°52'55.990"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Graben Unit 1H AWB Ref Wellpath: Graben Unit 1H AWP Proj: 13988'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.50	451.50	Gyrodata standard - Drop gyro or Multi-shot	01_Gyrodata MS Gyro <17-1/2">(100'-442')	Graben Unit 1H AWB
451.50	805.50	Gyrodata standard - Drop gyro or Multi-shot	02_Gyrodata MS Gyro <12-1/4">(442')(499'-796')	Graben Unit 1H AWB
805.50	2501.50	ISCWSA MWD, Rev. 4 (Standard)	03_WFT EM <12-1/4">(796')(919'-2492')	Graben Unit 1H AWB
2501.50	6861.50	ISCWSA MWD, Rev. 4 (Standard)	04_WFT EM <8-3/4">(2492')(2628'-6852')	Graben Unit 1H AWB
6861.50	13942.00	BHI AutoTrak Curve (Standard)	05_AT Curve <8-1/2">(6861.50')(6914'-13942')	Graben Unit 1H AWB
13942.00	13988.00	Blind Drilling (std)	Projection to bit	Graben Unit 1H AWB





# Actual Wellpath Report

Graben Unit 1H AWP Proj: 13988'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #03
Area	Ritchie County, WV	Well	Graben Unit 1H
Field	Ritchie	Wellbore	Graben Unit 1H AWB
Facility	Hichman Pad		

COMMENTS
<p><b>Wellpath general comments</b>            API: 47-085-10334-0000            BHI Job #: 9241924            Rig: Frontier 22            Duration: 07/04/2018-07/06/2018            Gyrodata MS Gyro &lt;17-1/2"&gt; (100'-442')            Gyrodata MS Gyro &lt;12-1/4"&gt; (442')(499'-796')            WFT EM &lt;12-1/4"&gt; (796')(919'-2492')            WFT EM &lt;8-3/4"&gt; (2492')(2628'-6852')            BHI AT Curve &lt;8-1/2"&gt; (6861.50')(6914'-13942')            Burkett: 6784' MD            Tully: 6859' MD            Marcellus POE: 6968' MD            Projected MD at TD: 13988'</p>