



ANTERO RESOURCES CORPORATION



Location: Tyler County, WV
Field: Tyler
Facility: Beech Run Pad

Slot: Slot A
Well: Crystal Unit 1H
Wellbore: Crystal Unit 1H PWB

POE reference wellbore is Crystal Unit 1H PWB Rev-C.0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to H&P 317 (RKB)	North Reference: Grid north
Reference wellbore measured depths are referenced to H&P 317 (RKB)	Scale: True distance
H&P 317 (RKB) to Mean Sea Level: 1247.5 feet	Coordinates are in feet referenced to GRS
Mean Sea Level to Ground level (At Slot: Slot A): -1222 feet	Depths are in feet
Other wellbore MDs are referenced to their path's datum MD datum	Created by: akshay on 2022-12-16; Elnahave, WS, MPL, EASTERNUS, Dwh

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Beech Run Pad	1701783.750	14354455.970	39°31'42.7928"N	80°46'56.5204"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot A	-43.92	-9.88	1701773.870	14354412.070
Comment: Crystal Unit 1H				
H&P 317 (RKB) to Ground level (At Slot: Slot A)			25.5ft	
Mean Sea Level to Ground level (At Slot: Slot A)			-1222ft	
H&P 317 (RKB) to Mean Sea Level			1247.5ft	

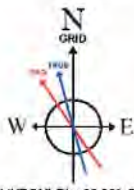
Well Data			
Slot	Well	Wellbore	Wellpath
Slot A	Crystal Unit 1H	Crystal Unit 1H AWB	Crystal Unit 1H AWP Proj. 17805'
Slot A	Crystal Unit 1H	Crystal Unit 1H PWB	Crystal Unit 1H PWP Rev-C.0

Well Profile Data							
Design Comment	MD (ft)	Inc (")	Az (")	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	25.50	0.000	192.000	25.50	0.00	0.00	0.00
Start Nudge	1030.00	0.000	192.000	1030.00	0.00	0.00	0.00
End of Build	1330.00	6.000	192.000	1329.45	-15.35	-3.25	-13.48
Hold	2330.00	6.000	192.000	2323.97	-117.59	-25.00	-103.26
End of Drop	2930.00	0.000	147.478	2922.88	-148.30	-31.52	-130.21
KOP 1	4007.12	0.000	147.478	4000.00	-148.30	-31.52	-130.21
End of Build	4555.32	10.964	147.478	4544.86	-192.39	-3.41	-181.01
Curve KOP	6090.06	10.964	147.478	6051.59	-438.51	153.52	-464.58
Avoid No-Go	6585.60	30.000	0.000	6528.59	-350.63	179.82	-390.11
POE	7164.24	74.217	341.189	6877.00	81.12	84.92	49.41
Landing Pt.	7361.52	90.000	341.189	6904.00	265.51	22.11	244.20
BHL	17829.72	90.000	341.189	6904.00	10174.60	-3353.28	0.00

Gyrodata MS Gyro <17-1/2"> (100'-924') : 0.09" Inc, 100.00ft MD, 100.00ft TVD, -0.02ft VS

APS EM <12-1/4"> (924')(1044'-3291') : 0.85" Inc, 1044.00ft MD, 1043.97ft TVD, -5.65ft VS

APS EM <8-3/4"> (3291')(3397'-5949') : 1.18" Inc, 3397.00ft MD, 3390.39ft TVD, -141.90ft VS



User specified (HDGM) Dip: 66.39° Field: 51729 ft
Magnetic North is 7.59 degrees West of True North (at 11/9/2022)
Grid North is 0.14 degrees East of True North
To correct azimuth from True to Grid subtract 0.14 degrees
To correct azimuth from Magnetic to Grid subtract 7.73 degrees

BH AT Curve <8-1/2"> (5949')(5986'-17781') : 12.16" Inc, 5986.00ft MD, 5950.27ft TVD, -445.22ft VS

Marcellus POE: 7283' MD : 78.29° Inc, 7283.00ft MD, 6891.44ft TVD, 175.56ft VS

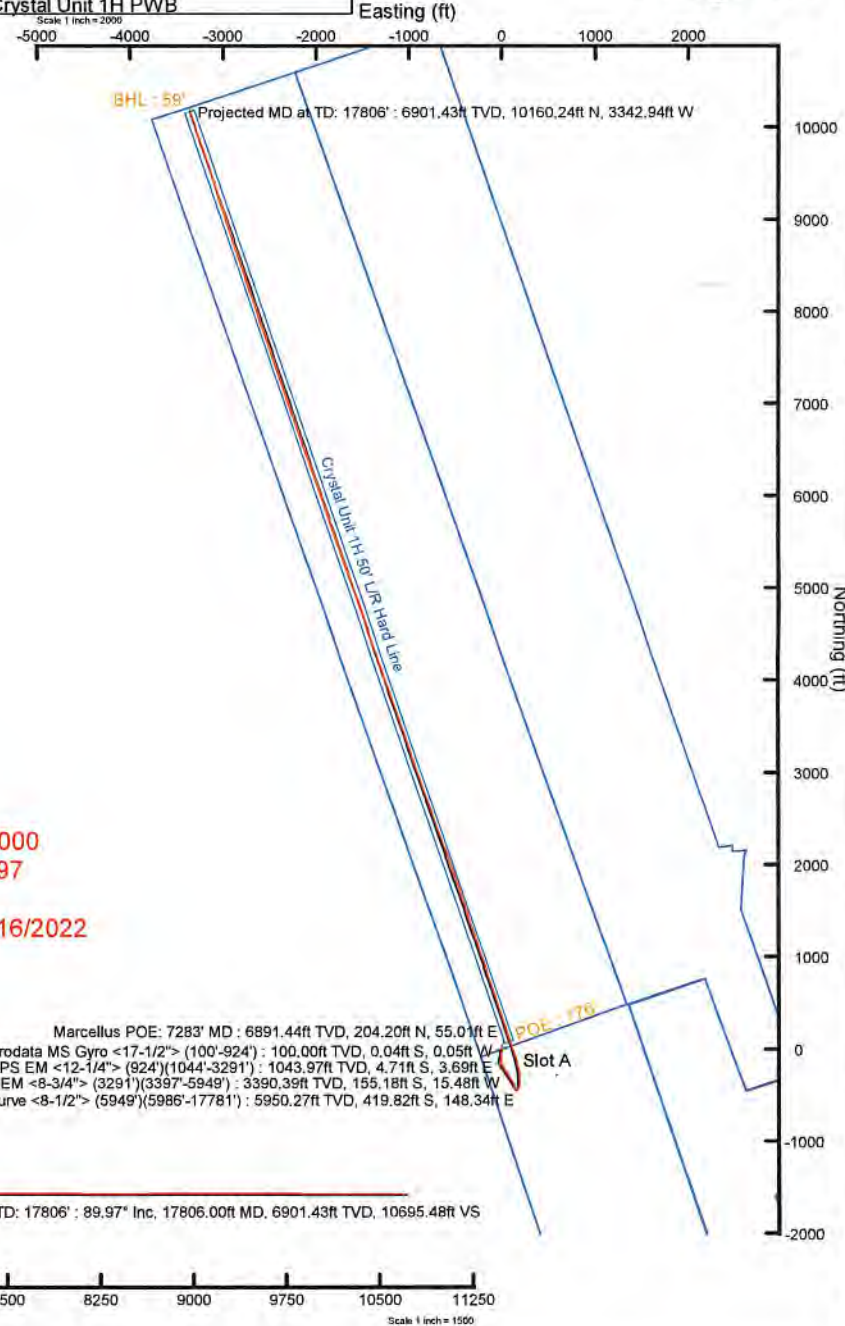
API: 47-095-02799-0000
BH Job #: 111519897
Rig: H&P 317
Duration: 11/10/2022-11/16/2022

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Marcellus POE: 7283' MD : 6891.44ft TVD, 204.20ft N, 55.01ft E
Gyrodata MS Gyro <17-1/2"> (100'-924') : 100.00ft TVD, 0.04ft S, 0.05ft W
APS EM <12-1/4"> (924')(1044'-3291') : 1043.97ft TVD, 4.71ft S, 3.69ft E
APS EM <8-3/4"> (3291')(3397'-5949') : 3390.39ft TVD, 155.18ft S, 15.48ft W
BH AT Curve <8-1/2"> (5949')(5986'-17781') : 5950.27ft TVD, 419.82ft S, 148.34ft E

Projected MD at TD: 17806' : 89.97" Inc, 17806.00ft MD, 6901.43ft TVD, 10695.48ft VS

Vertical Section (ft)
Azimuth 341.19° with reference 0.00 N, 0.00 E



Scale 1 inch = 1000ft
Scale 1 inch = 2000ft
Scale 1 inch = 1500ft



Actual Wellpath Report

Crystal Unit 1H AWP Proj: 17806'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Crystal Unit 1H
Field	Tyler	API	47-095-02799-0000
Facility	Beech Run Pad	Wellbore	Crystal Unit 1H AWB
Slot	Slot A		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Edsaryar
Scale	0.999604	Report Generated	12/14/2022 at 2:06:42 PM
Convergence at slot	0.14° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-43.92	-9.88	1701773.87	14354412.07	39°31'42.3590"N	80°46'56.6479"W
Facility Reference Pt			1701783.75	14354455.97	39°31'42.7928"N	80°46'56.5204"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.3013"W

WELLPATH DATUM			
Calculation method	Minimum curvature	H&P 317 (RKB) to Facility Vertical Datum	1247.50ft
Horizontal Reference Pt	Slot	H&P 317 (RKB) to Mean Sea Level	1247.50ft
Vertical Reference Pt	H&P 317 (RKB)	H&P 317 (RKB) to Ground Level at Slot (Slot A)	25.50ft
MD Reference Pt	H&P 317 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	341.19°

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Crystal Unit 1H AWP Proj: 17806'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Well	Crystal Unit 1H
Field	Tyler		API	47-095-02799-0000
Facility	Beech Run Pad		Wellbore	Crystal Unit 1H AWB
Slot	Slot A			

WELLPATH DATA (196 stations) † = interpolated, ‡ = extrapolated station																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00†	0.000	232.120	0.00	0.00	0.00	0.00	1701773.87	14354412.07	39°31'42.3590"N	80°46'56.6479"W	0.00	0.000	0.00	0.00	0.00	
25.50	0.000	232.120	25.50	0.00	0.00	0.00	1701773.87	14354412.07	39°31'42.3590"N	80°46'56.6479"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.090	232.120	100.00	-0.02	-0.04	-0.05	1701773.82	14354412.03	39°31'42.3586"N	80°46'56.6485"W	0.06	232.120	0.12	0.12	0.00	Gyrodata MS Gyro <17-1/2"> (100'-924')
200.00	0.090	249.290	200.00	-0.05	-0.11	-0.18	1701773.69	14354411.96	39°31'42.3579"N	80°46'56.6503"W	0.21	238.359	0.03	0.00	0.00	17.17
300.00	0.310	148.060	300.00	-0.31	-0.37	-0.11	1701773.76	14354411.70	39°31'42.3553"N	80°46'56.6494"W	0.39	196.871	0.34	0.22	-101.23	
400.00	0.410	130.050	400.00	-0.88	-0.83	0.31	1701774.17	14354411.24	39°31'42.3508"N	80°46'56.6441"W	0.88	159.801	0.15	0.10	-18.01	
500.00	0.400	137.860	499.99	-1.51	-1.32	0.81	1701774.68	14354410.75	39°31'42.3459"N	80°46'56.6376"W	1.55	148.331	0.06	-0.01	7.81	
600.00	0.450	131.850	599.99	-2.17	-1.84	1.34	1701775.21	14354410.23	39°31'42.3408"N	80°46'56.6309"W	2.28	143.924	0.07	0.05	-6.01	
700.00	0.610	135.660	699.99	-3.00	-2.48	2.00	1701775.87	14354409.59	39°31'42.3344"N	80°46'56.6224"W	3.19	141.073	0.16	0.16	3.81	
800.00	0.440	130.310	799.98	-3.81	-3.11	2.67	1701776.54	14354408.96	39°31'42.3282"N	80°46'56.6140"W	4.10	139.369	0.18	-0.17	-5.35	
900.00	0.340	130.050	899.98	-4.39	-3.55	3.19	1701777.06	14354408.52	39°31'42.3238"N	80°46'56.6073"W	4.77	138.066	0.10	-0.10	-0.26	
924.00	0.320	125.030	923.98	-4.50	-3.63	3.30	1701777.17	14354408.44	39°31'42.3230"N	80°46'56.6060"W	4.91	137.773	0.15	-0.08	-20.92	
1044.00	0.850	172.530	1043.97	-5.65	-4.71	3.69	1701777.56	14354407.36	39°31'42.3123"N	80°46'56.6010"W	5.98	141.929	0.56	0.44	39.58	APS EM <12-1/4"> (924')(1044'-3291')
1138.00	2.480	178.240	1137.93	-8.28	-7.43	3.84	1701777.71	14354404.64	39°31'42.2854"N	80°46'56.5991"W	8.37	152.669	1.74	1.73	6.07	
1232.00	4.180	183.170	1231.77	-13.40	-12.89	3.71	1701777.58	14354399.19	39°31'42.2315"N	80°46'56.6009"W	13.41	163.920	1.83	1.81	5.24	
1327.00	5.500	186.620	1326.43	-20.72	-20.87	3.00	1701776.87	14354391.21	39°31'42.1527"N	80°46'56.6103"W	21.08	171.823	1.42	1.39	3.63	
1422.00	5.640	187.900	1420.98	-29.00	-30.01	1.83	1701775.70	14354382.07	39°31'42.0623"N	80°46'56.6255"W	30.07	176.507	0.20	0.15	1.35	
1516.00	5.890	187.760	1514.51	-37.44	-39.37	0.55	1701774.42	14354372.72	39°31'41.9699"N	80°46'56.6422"W	39.37	179.206	0.27	0.27	-0.15	
1611.00	5.840	186.220	1609.01	-46.18	-49.00	-0.64	1701773.23	14354363.09	39°31'41.8747"N	80°46'56.6576"W	49.01	180.744	0.17	-0.05	-1.62	
1705.00	5.920	183.370	1702.51	-55.00	-58.60	-1.44	1701772.43	14354353.50	39°31'41.7799"N	80°46'56.6681"W	58.61	181.407	0.32	0.09	-3.03	
1800.00	5.650	181.480	1797.03	-63.92	-68.16	-1.85	1701772.02	14354343.94	39°31'41.6854"N	80°46'56.6736"W	68.19	181.553	0.35	-0.28	-1.99	
1895.00	5.740	181.550	1891.56	-72.76	-77.58	-2.10	1701771.77	14354334.52	39°31'41.5922"N	80°46'56.6771"W	77.61	181.548	0.10	0.09	0.07	
1990.00	5.520	178.440	1986.10	-81.58	-86.90	-2.10	1701771.77	14354325.20	39°31'41.5002"N	80°46'56.6774"W	86.93	181.385	0.40	-0.23	-3.27	
2084.00	5.220	177.720	2079.69	-90.00	-95.69	-1.81	1701772.06	14354316.41	39°31'41.4133"N	80°46'56.6740"W	95.71	181.082	0.33	-0.32	-0.77	
2179.00	5.150	179.380	2174.30	-98.19	-104.27	-1.59	1701772.28	14354307.84	39°31'41.3284"N	80°46'56.6714"W	104.29	180.874	0.17	-0.07	1.75	
2274.00	5.210	179.160	2268.91	-106.35	-112.85	-1.48	1701772.39	14354299.26	39°31'41.2437"N	80°46'56.6703"W	112.86	180.752	0.07	0.06	-0.23	
2368.00	4.160	174.280	2362.60	-113.73	-120.51	-1.08	1701772.79	14354291.61	39°31'41.1680"N	80°46'56.6654"W	120.52	180.513	1.19	-1.12	-5.19	
2463.00	4.030	177.300	2457.36	-120.29	-127.27	-0.58	1701773.29	14354284.85	39°31'41.1011"N	80°46'56.6592"W	127.28	180.260	0.27	-0.14	3.18	
2558.00	4.290	183.820	2552.11	-126.78	-134.15	-0.66	1701773.21	14354277.97	39°31'41.0331"N	80°46'56.6605"W	134.16	180.281	0.57	0.27	6.86	
2654.00	4.060	192.020	2647.85	-133.01	-141.06	-1.60	1701772.27	14354271.07	39°31'40.9649"N	80°46'56.6728"W	141.07	180.651	0.67	-0.24	8.54	

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Crystal Unit 1H AWP Proj: 17806'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Well	Crystal Unit 1H
Field	Tyler		API	47-095-02799-0000
Facility	Beech Run Pad		Wellbore	Crystal Unit 1H AWB
Slot	Slot A			

WELLPATH DATA (196 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	
2749.00	3.450	208.900	2742.85	-137.82	-146.85	-3.69	1701770.19	14354265.28	39°31'40.9077"N	80°46'56.6995"W	146.90	181.438	1.32	-0.64	17.77		
2844.00	2.420	211.920	2837.52	-141.01	-151.06	-6.13	1701767.74	14354261.07	39°31'40.8662"N	80°46'56.7308"W	151.18	182.323	1.10	-1.08	3.18		
2938.00	1.100	176.230	2931.48	-143.14	-153.64	-7.12	1701766.75	14354258.49	39°31'40.8406"N	80°46'56.7435"W	153.81	182.652	1.76	-1.40	-37.97		
3033.00	1.210	245.290	3026.47	-144.13	-154.97	-7.97	1701765.90	14354257.16	39°31'40.8275"N	80°46'56.7544"W	155.18	182.944	1.38	0.12	72.69		
3128.00	1.230	274.410	3121.45	-143.83	-155.31	-9.90	1701763.98	14354256.82	39°31'40.8242"N	80°46'56.7790"W	155.63	183.646	0.65	0.02	30.65		
3222.00	1.390	274.520	3215.42	-142.98	-155.15	-12.04	1701761.84	14354256.99	39°31'40.8259"N	80°46'56.8064"W	155.61	184.437	0.17	0.17	0.12		
3291.00	1.000	264.450	3284.41	-142.51	-155.14	-13.47	1701760.40	14354256.99	39°31'40.8260"N	80°46'56.8247"W	155.72	184.963	0.64	-0.57	-14.59		
3397.00	1.180	272.600	3390.39	-141.90	-155.18	-15.48	1701758.39	14354256.95	39°31'40.8257"N	80°46'56.8503"W	155.95	185.698	0.22	0.17	7.69	APS EM <8-3/4"> (3291')(3397-5949)	
3491.00	1.400	252.260	3484.36	-141.52	-155.48	-17.54	1701756.33	14354256.65	39°31'40.8227"N	80°46'56.8766"W	156.47	186.438	0.54	0.23	-21.64		
3587.00	1.630	354.600	3580.34	-140.17	-154.48	-18.79	1701755.09	14354257.65	39°31'40.8326"N	80°46'56.8925"W	155.62	186.935	2.46	0.24	106.60		
3682.00	1.950	340.680	3675.30	-137.24	-151.61	-19.45	1701754.43	14354260.52	39°31'40.8610"N	80°46'56.9009"W	152.85	187.311	0.57	0.34	-14.65		
3776.00	1.950	342.310	3769.24	-134.04	-148.58	-20.47	1701753.41	14354263.55	39°31'40.8910"N	80°46'56.9137"W	149.98	187.843	0.06	0.00	1.73		
3871.00	2.000	346.530	3864.19	-130.78	-145.43	-21.34	1701752.53	14354266.70	39°31'40.9222"N	80°46'56.9248"W	146.98	188.350	0.16	0.05	4.44		
3966.00	1.130	160.400	3959.17	-130.06	-144.70	-21.42	1701752.46	14354267.43	39°31'40.9294"N	80°46'56.9257"W	146.27	188.419	3.29	-0.92	183.02		
4060.00	4.460	145.330	4053.05	-134.51	-148.58	-19.03	1701754.85	14354263.55	39°31'40.8910"N	80°46'56.8953"W	149.79	187.297	3.60	3.54	-16.03		
4154.00	4.140	137.670	4146.78	-141.13	-154.09	-14.66	1701759.21	14354258.04	39°31'40.8364"N	80°46'56.8398"W	154.79	185.435	0.70	-0.34	-8.15		
4249.00	4.160	133.340	4241.53	-147.33	-158.99	-9.85	1701764.03	14354253.14	39°31'40.7879"N	80°46'56.7785"W	159.30	183.544	0.33	0.02	-4.56		
4343.00	6.310	143.080	4335.14	-155.25	-165.46	-4.26	1701769.61	14354246.67	39°31'40.7238"N	80°46'56.7074"W	165.52	181.476	2.47	2.29	10.36		
4437.00	8.720	144.080	4428.32	-166.97	-175.36	3.02	1701776.89	14354236.78	39°31'40.6257"N	80°46'56.6148"W	175.39	179.013	2.57	2.56	1.06		
4532.00	7.660	139.720	4522.35	-179.75	-186.03	11.34	1701785.21	14354226.12	39°31'40.5202"N	80°46'56.5090"W	186.37	176.512	1.29	-1.12	-4.59		
4626.00	7.180	144.560	4615.57	-191.21	-195.59	18.80	1701792.66	14354216.56	39°31'40.4254"N	80°46'56.4141"W	196.49	174.511	0.84	-0.51	5.15		
4720.00	9.290	144.830	4708.59	-204.12	-206.58	26.57	1701800.43	14354205.57	39°31'40.3166"N	80°46'56.3152"W	208.28	172.670	2.25	2.24	0.29		
4815.00	11.160	148.060	4802.08	-220.43	-220.65	35.86	1701809.71	14354191.51	39°31'40.1773"N	80°46'56.1972"W	223.55	170.770	2.06	1.97	3.40		
4909.00	10.030	144.170	4894.48	-237.12	-235.01	45.46	1701819.31	14354177.15	39°31'40.0352"N	80°46'56.0750"W	239.37	169.052	1.42	-1.20	-4.14		
5004.00	10.570	142.950	4987.95	-253.30	-248.67	55.55	1701829.40	14354163.50	39°31'39.9000"N	80°46'55.9467"W	254.80	167.407	0.61	0.57	-1.28		
5100.00	11.580	151.660	5082.17	-271.17	-264.18	65.43	1701839.28	14354147.99	39°31'39.7464"N	80°46'55.8210"W	272.16	166.089	2.03	1.05	9.07		
5195.00	10.180	149.560	5175.46	-288.80	-279.81	74.21	1701848.05	14354132.37	39°31'39.5917"N	80°46'55.7095"W	289.49	165.146	1.53	-1.47	-2.21		
5289.00	10.300	143.670	5267.96	-304.95	-293.74	83.40	1701857.24	14354118.44	39°31'39.4538"N	80°46'55.5927"W	305.35	164.150	1.12	0.13	-6.27		
5384.00	11.640	151.940	5361.23	-322.51	-309.04	92.94	1701866.77	14354103.15	39°31'39.3024"N	80°46'55.4714"W	322.72	163.262	2.17	1.41	8.71		
5478.00	12.990	156.700	5453.07	-342.40	-327.12	101.58	1701875.41	14354085.08	39°31'39.1236"N	80°46'55.3617"W	342.53	162.749	1.80	1.44	5.06		

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Actual Wellpath Report

Crystal Unit 1H AWP Proj: 17806'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Crystal Unit 1H
Field	Tyler	API	47-095-02799-0000
Facility	Beech Run Pad	Wellbore	Crystal Unit 1H AWP
Slot	Slot A		

WELLPATH DATA (196 stations) † = interpolated, ‡ = extrapolated station																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Build Rate ["/100ft]	Turn Rate ["/100ft]	Comments
5573.00	10.790	149.000	5546.03	-361.74	-344.55	110.39	1701884.21	14354067.66	39°31'38.9511"N	80°46'55.2498"W	361.80	162.236	2.85	-2.32	-8.11	
5667.00	11.870	152.530	5638.20	-379.90	-360.67	119.38	1701893.20	14354051.54	39°31'38.7915"N	80°46'55.1356"W	379.91	161.686	1.36	1.15	3.76	
5762.00	13.100	159.750	5730.95	-400.32	-379.44	127.61	1701901.43	14354032.78	39°31'38.6058"N	80°46'55.0311"W	400.32	161.411	2.09	1.29	7.60	
5857.00	10.950	153.750	5823.87	-420.03	-397.64	135.33	1701909.15	14354014.59	39°31'38.4258"N	80°46'54.9332"W	420.03	161.205	2.61	-2.26	-6.32	
5949.00	11.730	147.190	5914.07	-437.77	-413.33	144.26	1701918.07	14353998.90	39°31'38.2704"N	80°46'54.8197"W	437.79	160.760	1.64	0.85	-7.13	
5986.00	12.160	148.440	5950.27	-445.22	-419.82	148.34	1701922.15	14353992.42	39°31'38.2063"N	80°46'54.7678"W	445.25	160.539	1.36	1.16	3.38	BH AT Curve <8-1/2"> (5949')(5986'-17781')
6080.00	6.760	138.040	6042.97	-459.98	-432.38	157.23	1701931.04	14353979.87	39°31'38.0819"N	80°46'54.6548"W	460.07	160.017	6.00	-5.74	-11.06	
6174.00	5.610	97.880	6136.46	-467.13	-437.12	165.48	1701939.29	14353975.12	39°31'38.0348"N	80°46'54.5496"W	467.40	159.265	4.65	-1.22	-42.72	
6269.00	7.340	65.660	6230.88	-468.63	-435.26	175.61	1701949.41	14353976.99	39°31'38.0530"N	80°46'54.4202"W	469.35	158.027	4.16	1.82	-33.92	
6364.00	13.580	26.720	6324.36	-460.22	-422.77	186.18	1701959.98	14353989.47	39°31'38.1762"N	80°46'54.2850"W	461.95	156.232	9.58	6.57	-40.99	
6458.00	20.390	11.580	6414.25	-438.33	-396.82	194.44	1701968.24	14354015.40	39°31'38.4324"N	80°46'54.1787"W	441.90	153.895	8.58	7.24	-16.11	
6553.00	27.200	4.520	6501.14	-404.07	-358.92	199.48	1701973.27	14354053.30	39°31'38.8069"N	80°46'54.1133"W	410.63	150.935	7.76	7.17	-7.43	
6639.00†	33.248	357.022	6575.44	-363.28	-315.72	199.81	1701973.60	14354096.47	39°31'39.2338"N	80°46'54.1078"W	373.64	147.672	8.28	7.03	-8.72	Sycamore: 6639' MD
6647.00	33.830	356.450	6582.11	-359.03	-311.31	199.56	1701973.35	14354100.88	39°31'39.2774"N	80°46'54.1109"W	369.78	147.339	8.28	7.27	-7.16	
6742.00	41.390	349.950	6657.34	-302.37	-253.88	192.43	1701966.22	14354158.29	39°31'39.8452"N	80°46'54.2001"W	318.57	142.841	8.98	7.96	-6.84	
6793.00†	47.171	347.829	6693.84	-267.10	-218.97	185.53	1701959.33	14354193.19	39°31'40.1904"N	80°46'54.2869"W	287.00	139.725	11.70	11.33	-4.16	Middlesex: 6793' MD
6836.00	52.070	346.330	6721.69	-234.53	-187.06	178.20	1701952.00	14354225.09	39°31'40.5059"N	80°46'54.3796"W	258.35	136.390	11.70	11.39	-3.49	
6931.00	63.840	344.390	6772.01	-154.35	-109.31	157.80	1701931.60	14354302.80	39°31'41.2748"N	80°46'54.6375"W	191.96	124.712	12.51	12.39	-2.04	
6982.00†	65.662	342.661	6793.77	-108.27	-65.09	144.71	1701918.52	14354347.01	39°31'41.7123"N	80°46'54.8031"W	158.68	114.216	4.71	3.57	-3.39	Burkett: 6982' MD
7026.00	67.250	341.210	6811.34	-67.94	-26.74	132.20	1701906.02	14354385.34	39°31'42.0915"N	80°46'54.9616"W	134.88	101.435	4.71	3.61	-3.30	
7069.00†	67.522	341.269	6827.88	-28.24	10.85	119.44	1701893.26	14354422.91	39°31'42.4633"N	80°46'55.1234"W	119.93	84.812	0.64	0.63	0.14	Tully: 7069' MD
7121.00	67.850	341.340	6847.62	19.86	56.41	104.02	1701877.85	14354468.46	39°31'42.9140"N	80°46'55.3187"W	118.33	61.527	0.64	0.63	0.14	
7215.00	76.330	341.840	6876.50	109.22	141.21	75.80	1701849.64	14354553.22	39°31'43.7527"N	80°46'55.6762"W	160.27	28.228	9.04	9.02	0.53	
7283.00†	78.291	341.625	6891.44	175.56	204.20	55.01	1701828.86	14354616.19	39°31'44.3758"N	80°46'55.9396"W	211.48	15.077	2.90	2.88	-0.32	Marcellus POE: 7283' MD
7310.00	79.070	341.540	6896.74	202.03	229.32	46.65	1701820.50	14354641.30	39°31'44.6243"N	80°46'56.0456"W	234.01	11.498	2.90	2.88	-0.31	
7405.00	85.100	342.020	6909.81	296.08	318.65	17.24	1701791.10	14354730.60	39°31'45.5079"N	80°46'56.4181"W	319.12	3.097	6.37	6.35	0.51	
7500.00	90.340	341.980	6913.59	390.96	408.90	-12.08	1701761.79	14354820.81	39°31'46.4005"N	80°46'56.7895"W	409.08	358.308	5.52	5.52	-0.04	
7594.00	89.750	341.830	6913.52	484.95	498.25	-41.28	1701732.61	14354910.12	39°31'47.2843"N	80°46'57.1594"W	499.96	355.264	0.65	-0.63	-0.16	
7689.00	89.850	342.000	6913.85	579.94	588.56	-70.77	1701703.13	14355000.39	39°31'48.1775"N	80°46'57.5329"W	592.80	353.144	0.21	0.11	0.18	
7784.00	89.540	341.000	6914.36	674.94	678.65	-100.91	1701673.00	14355090.45	39°31'49.0688"N	80°46'57.9149"W	686.11	351.542	1.10	-0.33	-1.05	

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Crystal Unit 1H AWP Proj: 17806'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Well	Crystal Unit 1H
Field	Tyler		API	47-095-02799-0000
Facility	Beech Run Pad		Wellbore	Crystal Unit 1H AWP
Slot	Slot A			

WELLPATH DATA (196 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
7879.00	90.740	341.490	6914.12	769.94	768.60	-131.46	1701642.47	14355180.36	39°31'49.9584"N	80°46'58.3019"W	779.76	350.294	1.36	1.26	0.52	
7974.00	90.430	342.260	6913.15	864.92	858.88	-161.01	1701612.93	14355270.61	39°31'50.8514"N	80°46'58.6763"W	873.84	349.382	0.87	-0.33	0.81	
8069.00	89.380	341.110	6913.31	959.92	949.06	-190.86	1701583.09	14355360.76	39°31'51.7434"N	80°46'59.0545"W	968.06	348.629	1.64	-1.11	-1.21	
8164.00	89.630	341.400	6914.13	1054.91	1039.02	-221.39	1701552.57	14355450.68	39°31'52.6332"N	80°46'59.4413"W	1062.35	347.972	0.40	0.26	0.31	
8259.00	89.290	342.740	6915.03	1149.89	1129.40	-250.63	1701523.34	14355541.02	39°31'53.5271"N	80°46'59.8118"W	1156.88	347.488	1.46	-0.36	1.41	
8353.00	90.800	341.670	6914.95	1243.88	1218.90	-279.36	1701494.62	14355630.49	39°31'54.4124"N	80°47'0.1756"W	1250.50	347.091	1.97	1.61	-1.14	
8448.00	89.660	342.120	6914.57	1338.87	1309.19	-308.88	1701465.11	14355720.74	39°31'55.3055"N	80°47'0.5496"W	1345.14	346.725	1.29	-1.20	0.47	
8543.00	89.510	341.670	6915.26	1433.86	1399.49	-338.40	1701435.60	14355811.00	39°31'56.1986"N	80°47'0.9236"W	1439.82	346.407	0.50	-0.16	-0.47	
8638.00	89.540	342.270	6916.05	1528.84	1489.82	-367.80	1701406.21	14355901.30	39°31'57.0920"N	80°47'1.2961"W	1534.55	346.132	0.63	0.03	0.63	
8732.00	89.020	341.300	6917.23	1622.83	1579.10	-397.18	1701376.85	14355990.54	39°31'57.9751"N	80°47'1.6688"W	1628.29	345.882	1.17	-0.55	-1.03	
8827.00	89.750	341.450	6918.25	1717.82	1669.12	-427.52	1701346.52	14356080.53	39°31'58.8655"N	80°47'2.0528"W	1723.00	345.633	0.78	0.77	0.16	
8922.00	91.750	343.710	6917.01	1812.78	1759.74	-455.96	1701318.10	14356171.11	39°31'59.7619"N	80°47'2.4129"W	1817.85	345.474	3.18	2.11	2.38	
9016.00	89.570	341.350	6915.92	1906.73	1849.39	-484.17	1701289.89	14356260.73	39°32'0.6485"N	80°47'2.7703"W	1911.72	345.329	3.42	-2.32	-2.51	
9111.00	89.450	338.430	6916.73	2001.69	1938.59	-516.83	1701257.25	14356349.89	39°32'1.5309"N	80°47'3.1844"W	2006.30	345.072	3.08	-0.13	-3.07	
9206.00	89.600	340.810	6917.52	2096.65	2027.63	-549.91	1701224.18	14356438.89	39°32'2.4117"N	80°47'3.6038"W	2100.88	344.826	2.51	0.16	2.51	
9300.00	89.230	339.740	6918.48	2190.63	2116.11	-581.63	1701192.47	14356527.34	39°32'3.2869"N	80°47'4.0060"W	2194.59	344.631	1.20	-0.39	-1.14	
9395.00	90.430	338.720	6918.76	2285.57	2204.93	-615.32	1701158.80	14356616.12	39°32'4.1655"N	80°47'4.4332"W	2289.18	344.407	1.66	1.26	-1.07	
9490.00	89.820	337.720	6918.56	2380.44	2293.15	-650.57	1701123.56	14356704.31	39°32'5.0383"N	80°47'4.8804"W	2383.65	344.161	1.23	-0.64	-1.05	
9584.00	89.690	340.800	6918.96	2474.38	2381.04	-683.85	1701090.29	14356792.17	39°32'5.9077"N	80°47'5.3025"W	2477.30	343.976	3.28	-0.14	3.28	
9679.00	89.690	340.860	6919.47	2569.37	2470.78	-715.05	1701059.11	14356881.86	39°32'6.7953"N	80°47'5.6980"W	2572.16	343.859	0.06	0.00	0.06	
9773.00	90.000	340.730	6919.73	2663.37	2559.54	-745.97	1701028.20	14356970.60	39°32'7.6734"N	80°47'6.0899"W	2666.03	343.751	0.36	0.33	-0.14	
9868.00	90.280	341.600	6919.50	2758.37	2649.46	-776.64	1700997.54	14357060.47	39°32'8.5627"N	80°47'6.4786"W	2760.94	343.663	0.96	0.29	0.92	
9962.00	89.720	341.670	6919.50	2852.36	2738.67	-806.25	1700967.94	14357149.65	39°32'9.4451"N	80°47'6.8539"W	2854.88	343.596	0.60	-0.60	0.07	
10057.00	90.310	340.700	6919.47	2947.36	2828.59	-836.89	1700937.31	14357239.54	39°32'10.3346"N	80°47'7.2422"W	2949.80	343.518	1.20	0.62	-1.02	
10151.00	90.550	341.050	6918.76	3041.36	2917.40	-867.69	1700906.53	14357328.31	39°32'11.2130"N	80°47'7.6326"W	3043.70	343.437	0.45	0.26	0.37	
10246.00	90.000	339.930	6918.31	3136.35	3006.94	-899.41	1700874.81	14357417.82	39°32'12.0987"N	80°47'8.0348"W	3138.57	343.347	1.31	-0.58	-1.18	
10341.00	91.850	341.560	6916.78	3231.33	3096.61	-930.74	1700843.50	14357507.45	39°32'12.9857"N	80°47'8.4318"W	3233.46	343.271	2.60	1.95	1.72	
10436.00	89.910	341.010	6915.32	3326.31	3186.57	-961.21	1700813.04	14357597.37	39°32'13.8755"N	80°47'8.8181"W	3328.39	343.214	2.12	-2.04	-0.58	
10530.00	90.400	342.030	6915.06	3420.31	3275.72	-991.01	1700783.26	14357686.49	39°32'14.7573"N	80°47'9.1957"W	3422.35	343.168	1.20	0.52	1.09	
10625.00	89.780	341.180	6914.91	3515.30	3365.86	-1021.00	1700753.27	14357776.59	39°32'15.6489"N	80°47'9.5758"W	3517.31	343.125	1.12	-0.65	-0.92	

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Field	Tyler		API	47-095-02799-0000
Facility	Beech Run Pad		Wellbore	Crystal Unit 1H AWP
Slot	Slot A			

WELLPATH DATA (196 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
10719.00	90.060	339.020	6915.04	3609.28	3454.24	-1053.01	1700721.28	14357864.93	39°32'16.5231"N	80°47'9.9816"W	3611.18	343.046	2.30	0.30	-2.28	
10814.00	90.550	341.400	6914.54	3704.26	3543.62	-1085.17	1700689.13	14357954.28	39°32'17.4072"N	80°47'10.3894"W	3706.05	342.974	2.56	0.52	2.51	
10908.00	90.860	341.700	6913.38	3798.25	3632.78	-1114.92	1700659.39	14358043.40	39°32'18.2891"N	80°47'10.7664"W	3800.02	342.938	0.46	0.33	0.32	
11003.00	90.460	341.130	6912.29	3893.24	3722.82	-1145.20	1700629.13	14358133.41	39°32'19.1797"N	80°47'11.1501"W	3894.98	342.901	0.73	-0.42	-0.60	
11097.00	90.000	339.460	6911.91	3987.22	3811.31	-1176.89	1700597.45	14358221.86	39°32'20.0551"N	80°47'11.5519"W	3988.88	342.840	1.84	-0.49	-1.78	
11192.00	90.400	340.120	6911.58	4082.20	3900.46	-1209.71	1700564.64	14358310.98	39°32'20.9369"N	80°47'11.9681"W	4083.75	342.769	0.81	0.42	0.69	
11287.00	90.740	342.040	6910.63	4177.19	3990.32	-1240.51	1700533.86	14358400.80	39°32'21.8257"N	80°47'12.3586"W	4178.70	342.731	2.05	0.36	2.02	
11381.00	90.120	340.400	6909.93	4271.18	4079.31	-1270.77	1700503.61	14358489.76	39°32'22.7059"N	80°47'12.7421"W	4272.66	342.697	1.87	-0.66	-1.74	
11476.00	90.520	341.580	6909.40	4366.18	4169.12	-1301.71	1700472.68	14358579.54	39°32'23.5943"N	80°47'13.1343"W	4367.61	342.660	1.31	0.42	1.24	
11570.00	90.120	341.040	6908.87	4460.17	4258.17	-1331.83	1700442.57	14358668.54	39°32'24.4751"N	80°47'13.5161"W	4461.59	342.632	0.71	-0.43	-0.57	
11665.00	90.800	339.240	6908.11	4555.15	4347.51	-1364.10	1700410.31	14358757.85	39°32'25.3588"N	80°47'13.9253"W	4556.49	342.580	2.03	0.72	-1.89	
11759.00	90.520	340.980	6907.03	4649.12	4435.89	-1396.08	1700378.34	14358846.20	39°32'26.2331"N	80°47'14.3308"W	4650.39	342.530	1.87	-0.30	1.85	
11854.00	90.550	341.000	6906.14	4744.12	4525.71	-1427.02	1700347.41	14358935.98	39°32'27.1215"N	80°47'14.7231"W	4745.36	342.499	0.04	0.03	0.02	
11949.00	91.320	341.300	6904.59	4839.10	4615.60	-1457.71	1700316.74	14359025.83	39°32'28.0106"N	80°47'15.1121"W	4840.32	342.473	0.87	0.81	0.32	
12043.00	89.970	340.670	6903.53	4933.10	4704.46	-1488.34	1700286.12	14359114.66	39°32'28.8896"N	80°47'15.5003"W	4934.28	342.444	1.58	-1.44	-0.67	
12138.00	90.030	341.040	6903.53	5028.09	4794.21	-1519.49	1700254.98	14359204.37	39°32'29.7773"N	80°47'15.8953"W	5029.24	342.414	0.39	0.06	0.39	
12232.00	90.180	340.120	6903.36	5122.09	4882.86	-1550.75	1700223.74	14359292.99	39°32'30.6542"N	80°47'16.2916"W	5123.19	342.381	0.99	0.16	-0.98	
12327.00	90.620	340.660	6902.70	5217.08	4972.34	-1582.63	1700191.87	14359382.44	39°32'31.5393"N	80°47'16.6958"W	5218.13	342.344	0.73	0.46	0.57	
12422.00	90.550	340.580	6901.73	5312.07	5061.96	-1614.15	1700160.36	14359472.01	39°32'32.4257"N	80°47'17.0955"W	5313.09	342.314	0.11	-0.07	-0.08	
12517.00	90.460	340.760	6900.89	5407.06	5151.60	-1645.60	1700128.93	14359561.62	39°32'33.3124"N	80°47'17.4942"W	5408.05	342.285	0.21	-0.09	0.19	
12611.00	90.030	340.970	6900.49	5501.06	5240.40	-1676.41	1700098.13	14359650.39	39°32'34.1908"N	80°47'17.8848"W	5502.02	342.260	0.51	-0.46	0.22	
12706.00	90.150	341.160	6900.34	5596.05	5330.26	-1707.24	1700067.31	14359740.21	39°32'35.0796"N	80°47'18.2756"W	5597.00	342.240	0.24	0.13	0.20	
12800.00	90.060	341.100	6900.16	5690.05	5419.21	-1737.64	1700036.92	14359829.13	39°32'35.9594"N	80°47'18.6610"W	5690.98	342.222	0.12	-0.10	-0.06	
12895.00	90.310	341.380	6899.86	5785.05	5509.16	-1768.19	1700006.38	14359919.04	39°32'36.8492"N	80°47'19.0483"W	5785.96	342.206	0.40	0.26	0.29	
12989.00	90.710	341.010	6899.02	5879.05	5598.14	-1798.49	1699976.10	14360007.99	39°32'37.7293"N	80°47'19.4324"W	5879.94	342.190	0.58	0.43	-0.39	
13084.00	90.550	340.810	6897.98	5974.04	5687.91	-1829.56	1699945.04	14360097.72	39°32'38.6172"N	80°47'19.8263"W	5974.92	342.169	0.27	-0.17	-0.21	
13179.00	91.200	341.940	6896.53	6069.03	5777.92	-1859.89	1699914.72	14360187.70	39°32'39.5075"N	80°47'20.2108"W	6069.89	342.157	1.37	0.68	1.19	
13273.00	92.160	340.230	6893.77	6162.98	5866.81	-1890.35	1699884.27	14360276.54	39°32'40.3867"N	80°47'20.5970"W	6163.83	342.140	2.09	1.02	-1.82	
13368.00	89.690	341.270	6892.24	6257.96	5956.47	-1921.66	1699852.97	14360366.18	39°32'41.2736"N	80°47'20.9940"W	6258.78	342.119	2.82	-2.60	1.09	
13463.00	89.380	340.960	6893.01	6352.96	6046.36	-1952.41	1699822.24	14360456.02	39°32'42.1627"N	80°47'21.3838"W	6353.77	342.104	0.46	-0.33	-0.33	

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Actual Wellpath Report

Crystal Unit 1H AWP Proj: 17806'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Well	Crystal Unit 1H
Field	Tyler		API	47-095-02799-0000
Facility	Beech Run Pad		Wellbore	Crystal Unit 1H AWB
Slot	Slot A			

WELLPATH DATA (196 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
13557.00	90.580	340.100	6893.04	6446.95	6134.98	-1983.74	1699790.92	14360544.61	39°32'43.0393"N	80°47'21.7811"W	6447.73	342.081	1.57	1.28	-0.91	
13651.00	90.460	341.040	6892.19	6540.94	6223.62	-2015.01	1699759.66	14360633.22	39°32'43.9161"N	80°47'22.1776"W	6541.69	342.060	1.01	-0.13	1.00	
13746.00	90.090	340.920	6891.73	6635.94	6313.43	-2045.97	1699728.71	14360722.99	39°32'44.8044"N	80°47'22.5701"W	6636.67	342.044	0.41	-0.39	-0.13	
13841.00	89.200	340.260	6892.32	6730.93	6403.03	-2077.54	1699697.16	14360812.55	39°32'45.6907"N	80°47'22.9704"W	6731.64	342.024	1.17	-0.94	-0.69	
13935.00	90.060	340.240	6892.93	6824.91	6491.50	-2109.30	1699665.41	14360900.99	39°32'46.5657"N	80°47'23.3732"W	6825.59	341.999	0.92	0.91	-0.02	
14030.00	90.680	341.420	6892.31	6919.91	6581.23	-2140.50	1699634.22	14360990.68	39°32'47.4533"N	80°47'23.7687"W	6920.57	341.983	1.40	0.65	1.24	
14125.00	89.570	338.750	6892.11	7014.88	6670.54	-2172.85	1699601.88	14361079.95	39°32'48.3367"N	80°47'24.1791"W	7015.51	341.958	3.04	-1.17	-2.81	
14219.00	89.600	341.640	6892.79	7108.85	6758.96	-2204.70	1699570.05	14361168.35	39°32'49.2114"N	80°47'24.5830"W	7109.45	341.934	3.07	0.03	3.07	
14314.00	90.030	342.210	6893.09	7203.84	6849.28	-2234.17	1699540.59	14361258.62	39°32'50.1046"N	80°47'24.9566"W	7204.45	341.934	0.75	0.45	0.60	
14408.00	89.200	340.440	6893.73	7297.84	6938.32	-2264.27	1699510.50	14361347.63	39°32'50.9854"N	80°47'25.3381"W	7298.44	341.926	2.08	-0.88	-1.88	
14503.00	89.570	340.620	6894.75	7392.82	7027.88	-2295.93	1699478.85	14361437.16	39°32'51.8713"N	80°47'25.7396"W	7393.40	341.908	0.43	0.39	0.19	
14598.00	89.940	341.210	6895.15	7487.82	7117.66	-2326.99	1699447.80	14361526.90	39°32'52.7593"N	80°47'26.1335"W	7488.39	341.896	0.73	0.39	0.62	
14692.00	90.550	341.290	6894.75	7581.82	7206.67	-2357.21	1699417.60	14361615.87	39°32'53.6397"N	80°47'26.5166"W	7582.38	341.888	0.65	0.65	0.09	
14787.00	90.060	341.390	6894.24	7676.82	7296.67	-2387.60	1699387.22	14361705.84	39°32'54.5299"N	80°47'26.9019"W	7677.38	341.881	0.53	-0.52	0.11	
14882.00	89.750	341.460	6894.40	7771.82	7386.72	-2417.86	1699356.97	14361795.86	39°32'55.4206"N	80°47'27.2855"W	7772.37	341.875	0.33	-0.33	0.07	
14976.00	89.230	340.790	6895.24	7865.81	7475.67	-2448.27	1699326.57	14361884.76	39°32'56.3003"N	80°47'27.6711"W	7866.36	341.866	0.90	-0.55	-0.71	
15071.00	90.180	341.490	6895.73	7960.81	7565.56	-2478.98	1699295.88	14361974.62	39°32'57.1895"N	80°47'28.0604"W	7961.35	341.858	1.24	1.00	0.74	
15166.00	88.650	341.290	6896.70	8055.80	7655.59	-2509.30	1699265.57	14362064.61	39°32'58.0799"N	80°47'28.4447"W	8056.34	341.852	1.62	-1.61	-0.21	
15261.00	89.320	340.820	6898.38	8150.78	7745.43	-2540.13	1699234.75	14362154.42	39°32'58.9685"N	80°47'28.8357"W	8151.31	341.843	0.86	0.71	-0.49	
15356.00	89.230	340.140	6899.58	8245.77	7834.96	-2571.87	1699203.02	14362243.91	39°32'59.8541"N	80°47'29.2383"W	8246.28	341.827	0.72	-0.09	-0.72	
15450.00	90.460	340.890	6899.84	8339.76	7923.57	-2603.23	1699171.68	14362332.49	39°33'0.7307"N	80°47'29.6359"W	8340.25	341.812	1.53	1.31	0.80	
15544.00	90.280	341.490	6899.23	8433.76	8012.55	-2633.53	1699141.38	14362421.43	39°33'1.6107"N	80°47'30.0202"W	8434.24	341.806	0.67	-0.19	0.64	
15639.00	90.030	341.580	6898.97	8528.75	8102.66	-2663.62	1699111.31	14362511.51	39°33'2.5020"N	80°47'30.4016"W	8529.24	341.803	0.28	-0.26	0.09	
15734.00	91.140	340.480	6898.00	8623.75	8192.49	-2694.50	1699080.44	14362601.30	39°33'3.3905"N	80°47'30.7932"W	8624.23	341.794	1.64	1.17	-1.16	
15829.00	90.680	342.390	6896.49	8718.73	8282.53	-2724.74	1699050.21	14362691.31	39°33'4.2811"N	80°47'31.1766"W	8719.21	341.790	2.07	-0.48	2.01	
15923.00	89.850	342.100	6896.06	8812.71	8372.05	-2753.41	1699021.56	14362780.79	39°33'5.1665"N	80°47'31.5399"W	8813.20	341.795	0.94	-0.88	-0.31	
16018.00	90.030	340.920	6896.16	8907.71	8462.15	-2783.54	1698991.44	14362870.85	39°33'6.0576"N	80°47'31.9218"W	8908.20	341.792	1.26	0.19	-1.24	
16113.00	90.220	341.340	6895.95	9002.71	8552.04	-2814.26	1698960.73	14362960.71	39°33'6.9468"N	80°47'32.3114"W	9003.19	341.785	0.49	0.20	0.44	
16207.00	89.940	341.390	6895.82	9096.71	8641.11	-2844.30	1698930.70	14363049.75	39°33'7.8278"N	80°47'32.6923"W	9097.19	341.781	0.30	-0.30	0.05	
16302.00	90.030	342.080	6895.84	9191.70	8731.33	-2874.07	1698900.94	14363139.92	39°33'8.7201"N	80°47'33.0697"W	9192.19	341.780	0.73	0.09	0.73	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Crystal Unit 1H
Field	Tyler	API	47-095-02799-0000
Facility	Beech Run Pad	Wellbore	Crystal Unit 1H AWB
Slot	Slot A		

WELLPATH DATA (196 stations) † = interpolated, ‡ = extrapolated station																
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Build Rate ["/100ft]	Turn Rate ["/100ft]	Comments
16396.00	89.880	341.970	6895.92	9285.69	8820.74	-2903.08	1698871.95	14363229.30	39°33'9.6044"N	80°47'33.4374"W	9286.19	341.783	0.20	-0.16	-0.12	
16491.00	89.690	342.520	6896.27	9380.67	8911.21	-2932.05	1698842.99	14363319.74	39°33'10.4993"N	80°47'33.8046"W	9381.18	341.787	0.61	-0.20	0.58	
16586.00	89.910	341.770	6896.61	9475.66	9001.64	-2961.18	1698813.87	14363410.13	39°33'11.3936"N	80°47'34.1738"W	9476.18	341.791	0.82	0.23	-0.79	
16681.00	89.940	341.890	6896.73	9570.65	9091.90	-2990.80	1698784.26	14363500.35	39°33'12.2864"N	80°47'34.5493"W	9571.18	341.791	0.13	0.03	0.13	
16775.00	89.880	342.330	6896.88	9664.64	9181.35	-3019.68	1698755.39	14363589.77	39°33'13.1711"N	80°47'34.9153"W	9665.18	341.794	0.47	-0.06	0.47	
16870.00	90.120	342.810	6896.88	9759.61	9271.99	-3048.13	1698726.95	14363680.37	39°33'14.0676"N	80°47'35.2760"W	9760.17	341.802	0.56	0.25	0.51	
16964.00	89.140	342.250	6897.49	9853.58	9361.65	-3076.35	1698698.74	14363770.00	39°33'14.9543"N	80°47'35.6336"W	9854.16	341.809	1.20	-1.04	-0.60	
17058.00	89.480	341.790	6898.62	9947.57	9451.05	-3105.37	1698669.74	14363859.37	39°33'15.8386"N	80°47'36.0014"W	9948.15	341.811	0.61	0.36	-0.49	
17153.00	90.550	340.960	6898.59	10042.56	9541.08	-3135.71	1698639.41	14363949.35	39°33'16.7290"N	80°47'36.3861"W	10043.15	341.807	1.43	1.13	-0.87	
17247.00	88.980	341.870	6898.98	10136.56	9630.17	-3165.66	1698609.47	14364038.41	39°33'17.6102"N	80°47'36.7659"W	10137.14	341.803	1.93	-1.67	0.97	
17343.00	90.060	340.100	6900.57	10326.54	9809.79	-3227.56	1698547.59	14364217.96	39°33'19.3868"N	80°47'37.5509"W	10327.10	341.788	1.09	0.57	-0.93	
17531.00	90.860	341.480	6899.82	10420.53	9898.55	-3258.49	1698516.68	14364306.68	39°33'20.2647"N	80°47'37.9432"W	10421.08	341.779	1.70	0.85	1.47	
17626.00	89.140	342.550	6899.82	10515.52	9988.90	-3287.82	1698487.36	14364397.00	39°33'21.1584"N	80°47'38.3150"W	10516.08	341.781	2.13	-1.81	1.13	
17720.00	89.350	342.110	6901.05	10609.49	10078.46	-3316.35	1698458.84	14364486.52	39°33'22.0441"N	80°47'38.6766"W	10610.07	341.786	0.52	0.22	-0.47	
17781.00	89.970	341.920	6901.42	10670.48	10136.48	-3335.18	1698440.01	14364544.51	39°33'22.6180"N	80°47'38.9154"W	10671.06	341.787	1.06	1.02	-0.31	
17806.00‡	89.970	341.920	6901.43	10695.48	10160.24	-3342.94	1698432.26	14364568.27	39°33'22.8530"N	80°47'39.0138"W	10696.06	341.788	0.00	0.00	0.00	Projected MD at TD: 17806'

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Crystal Unit 1H AWP Proj: 17806'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Crystal Unit 1H
Field	Tyler	API	47-095-02799-0000
Facility	Beech Run Pad	Wellbore	Crystal Unit 1H AWB
Slot	Slot A		

HOLE & CASING SECTIONS - Ref Wellbore: Crystal Unit 1H AWB Ref Wellpath: Crystal Unit 1H AWP Proj: 17806'									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	25.50	126.00	100.50	25.50	126.00	0.00	0.00	-0.06	-0.08
17.5in Open Hole	126.00	992.00	866.00	126.00	991.98	-0.06	-0.08	-4.07	3.56
13.375in Casing Surface	25.50	972.00	946.50	25.50	971.98	0.00	0.00	-3.90	3.49
12.25in Open Hole	992.00	3368.00	2376.00	991.98	3361.39	-4.07	3.56	-155.19	-14.90
9.625in Casing Intermediate	25.50	3348.00	3322.50	25.50	3341.40	0.00	0.00	-155.19	-14.51
8.75in Open Hole	3368.00	6021.00	2653.00	3361.39	5984.61	-155.19	-14.90	-425.50	152.00
8.5in Open Hole	6021.00	17806.00	11785.00	5984.61	6901.43	-425.50	152.00	10160.24	-3342.94
5.5in Casing Production	25.50	17786.00	17760.50	25.50	6901.42	0.00	0.00	10141.23	-3336.74

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Crystal Unit 1H POE Rev-3	6877.00	81.12	84.92	1701858.76	14354493.16	39°31'43.1587"N	80°46'55.5616"W	point
Crystal Unit 1H BHL Rev-3	6904.00	10174.60	-3353.28	1698421.92	14364582.62	39°33'22.9951"N	80°47'39.1453"W	point
Crystal Unit 1H LP Rev-3	6904.00	265.51	22.11	1701795.97	14354677.48	39°31'44.9826"N	80°46'56.3575"W	point
Crystal Unit 1H 50' L/R Hard Line	7250.00	5127.86	-1634.18	1700140.34	14359537.89	39°32'33.0775"N	80°47'17.3492"W	rectangle
2D Rectangle 10663 x 100.								

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Crystal Unit 1H AWP Proj: 17806'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Crystal Unit 1H
Field	Tyler	API	47-095-02799-0000
Facility	Beech Run Pad	Wellbore	Crystal Unit 1H AWB
Slot	Slot A		

WELLPATH COMPOSITION - Ref Wellbore: Crystal Unit 1H AWB Ref Wellpath: Crystal Unit 1H AWP Proj: 17806'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
25.50	924.00	Gyrodata 2015 - GC+WIR+DPIPE	01_Gyrodata MS Gyro <17-1/2"> (100'-924')	Crystal Unit 1H AWB	11/9/2022
924.00	3291.00	BH NaviTrak (2019) (Axial Corr+HRGM)	02_APS EM <12-1/4"> (924')(1044'-3291')	Crystal Unit 1H AWB	11/9/2022
3291.00	5949.00	BH NaviTrak (2019) (Axial Corr+HRGM)	03_APS EM <8-3/4"> (3291')(3397'-5949')	Crystal Unit 1H AWB	11/9/2022
5949.00	17806.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04_BH AT Curve <8-1/2"> (5949')(5986'-17781')	Crystal Unit 1H AWB	11/9/2022

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Crystal Unit 1H
Field	Tyler	API	47-095-02799-0000
Facility	Beech Run Pad	Wellbore	Crystal Unit 1H AWB
Slot	Slot A		

COMMENTS

Wellpath general comments

API: 47-095-02799-0000
 BH Job #: 111519897
 Rig: H&P 317
 Duration: 11/10/2022-11/16/2022
 Gyrodata MS Gyro <17-1/2"> (100'-924')
 APS EM <12-1/4"> (924')(1044'-3291')
 APS EM <8-3/4"> (3291')(3397'-5949')
 BH AT Curve <8-1/2"> (5949')(5986'-17781')
 Sycamore: 6639' MD
 Middlesex: 6793' MD
 Burkett: 6982' MD
 Tully: 7069' MD
 Marcellus POE: 7283' MD
 Projected MD at TD: 17806'

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