



ANTERO RESOURCES CORPORATION



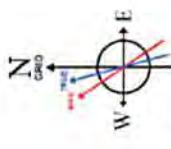
Location: Tyler County, WV
 Field: Tyler
 Facility: Ritchie Petroleum Pad
 Slot: Slot #09
 Well: Shepherd Unit 1H
 Wellbore: Shepherd Unit 1H PWB

Post reference wellpath as Shepherd Unit 1H PWB Rev-A.0	Grid System: NAD27 UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 32 (RKB)	* = Wellpath was transformed from a different geocoid datum
Measured depths are referenced to Frontier 32 (RKB)	North Reference: Grid north
Frontier 32 (RKB) to Mean Sea Level: 1210 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot #09): -1178 feet	Directions are in feet
Coordinates are in feet referenced to Slot	Created by: dslanest/2017-10-06
	Database: WA_MES_ExternalUS北海

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Ritchie Petroleum Pad	1647374.770	14292738.540	80°58'31.350"W
Slot	Local E (ft)	Grid North (US ft)	Latitude
Slot #09	-23.27	1647355.147	39°21'33.060"N
Comment	Shepherd Unit 1H		80°58'31.630"W
Frontier 32 (RKB) to Mud line (At Slot: Slot #09)		32ft	
Mean Sea Level to Mud line (At Slot: Slot #09)		+1178ft	
Frontier 32 (RKB) to Mean Sea Level		1210ft	

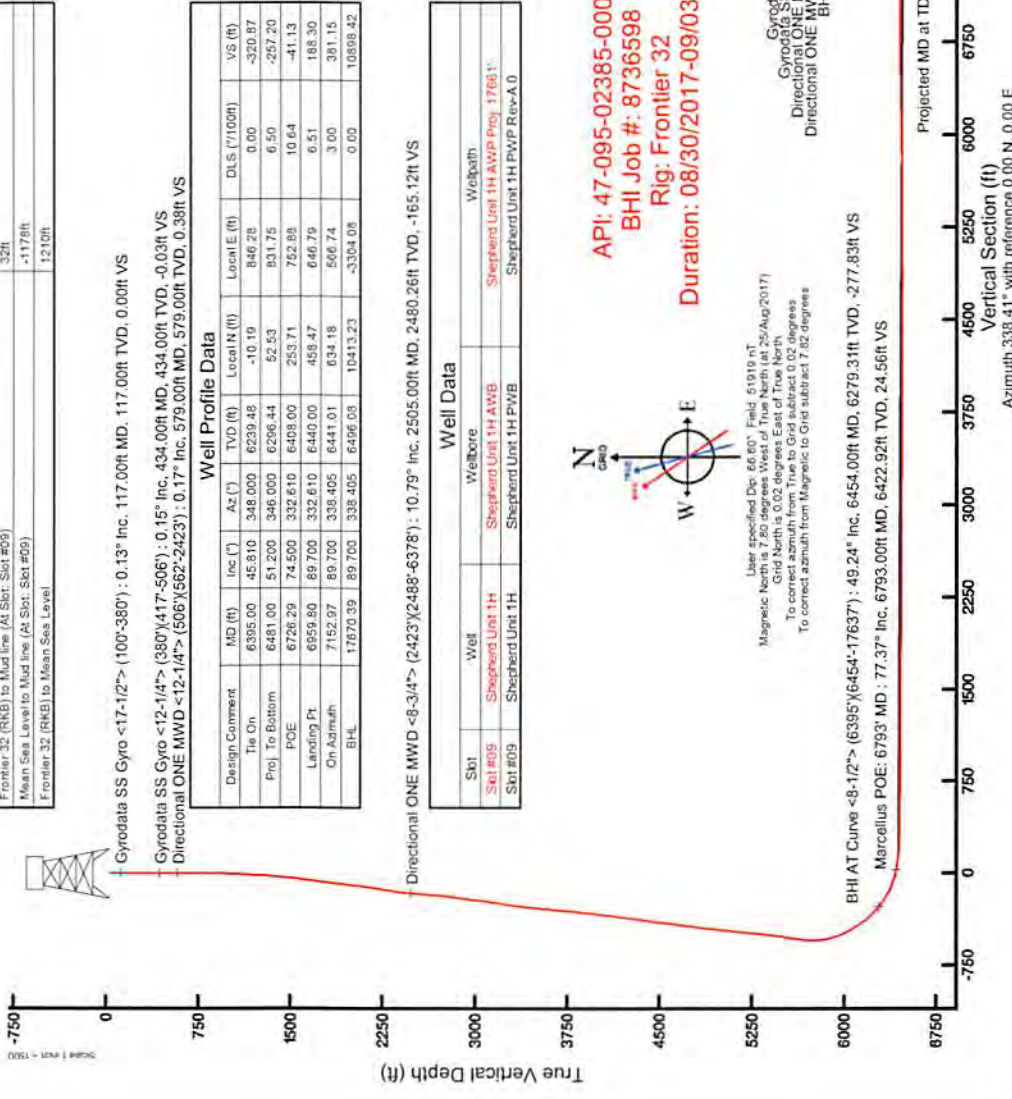
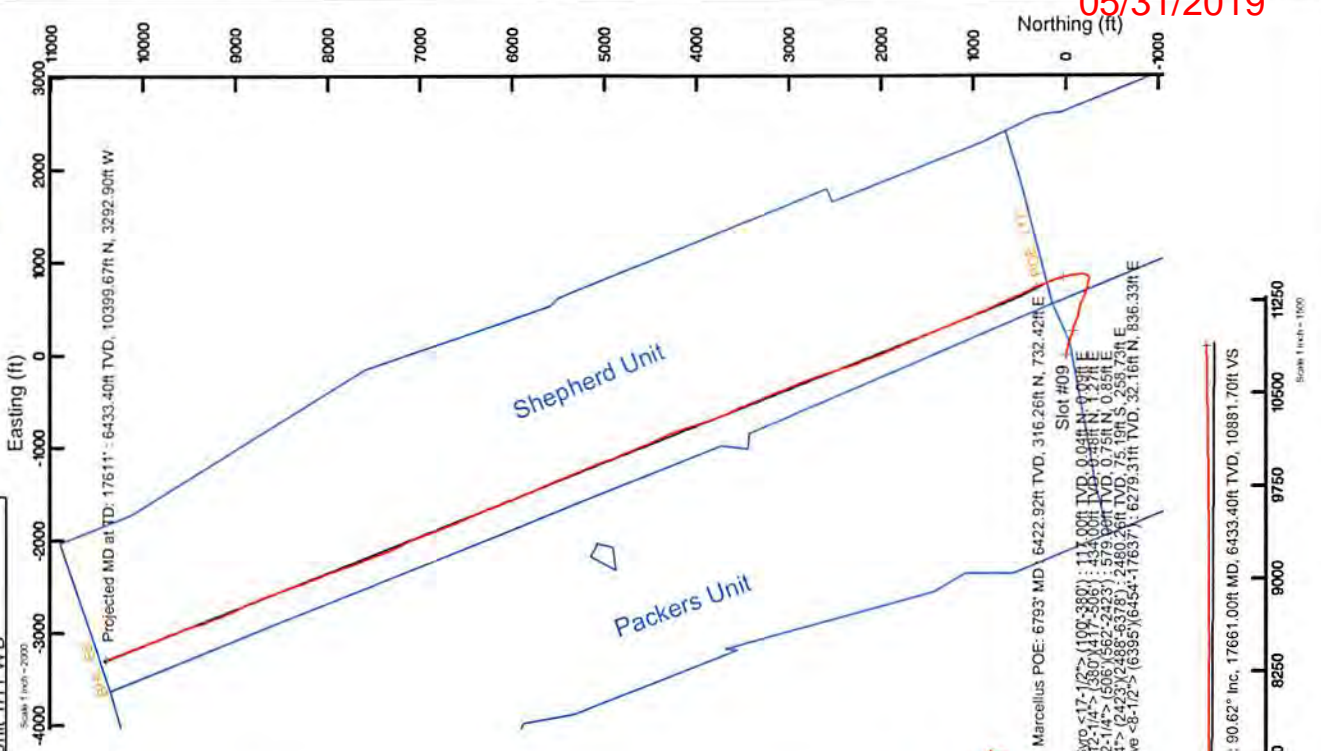
Well Profile Data						
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	VS (ft)
Tie On	6395.00	45.810	348.000	6239.48	-10.19	846.29
Proj To Bottom	6481.00	51.200	346.000	6296.44	52.53	831.75
POE	6726.29	74.500	332.610	6409.00	253.71	752.89
Landing Pt	6959.90	89.700	332.610	6440.00	459.47	646.79
On Azimuth	7152.97	89.700	339.405	6441.01	634.18	566.74
BHL	17870.39	89.700	338.405	6466.03	10413.23	-3304.08
						0.00
						10898.42

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #09	Shepherd Unit 1H	Shepherd Unit 1H AWB	Shepherd Unit 1H AWP Rev 1766 Y
Slot #09	Shepherd Unit 1H	Shepherd Unit 1H PWB	Shepherd Unit 1H PWP Rev-A.0



User specified Dip: 68.60° Field: 61919.0T
 Magnetic North is 7.60 degrees West of True North (at 25/Aug/2017)
 Grid North is 0.02 degrees East of True North
 To correct azimuth from True to Grid subtract 0.02 degrees
 To correct azimuth from Magnetic to Grid subtract 7.62 degrees

API: 47-095-02385-0000
 BHI Job #: 8736598
 Rig: Frontier 32
 Duration: 08/30/2017-09/03/2017



Vertical Section (ft)
 Azimuth 338.41° with reference 0.00 N, 0.00 E

Scale 1 inch = 100'

Scale 1 inch = 1500'



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'

Page 1 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Shepherd Unit 1H
Field	Tyler	Wellbore	Shepherd Unit 1H AWB
Facility	Ritchie Petroleum Pad		

REPORT SETUP INFORMATION	
Projection System	NAD27 / UTM Zone 17 North, US feet
North Reference	Grid
Scale	0.999600
Convergence at slot	0.02° East
Software System	WellArchitect® 5.0
User	Delaset
Report Generated	06/Oct/2017 at 11:05
Database/Source file	WA_MPL_EasternUS_Defn/Shepherd_Unit_1H_AWP_Proj_17661_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-23.27	-19.63	1647355.15	14292715.28	39°21'33.060"N	80°58'31.630"W
Facility Reference Pt			1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM	
Calculation method	Minimum curvature
Horizontal Reference Pt	Slot
Vertical Reference Pt	Frontier 32 (RKB)
MD Reference Pt	Frontier 32 (RKB)
Field Vertical Reference	Mean Sea Level
	Frontier 32 (RKB) to Facility Vertical Datum
	Frontier 32 (RKB) to Mean Sea Level
	Frontier 32 (RKB) to Mud Line at Slot (Slot #09)
	Section Origin
	Section Azimuth
	32.00ft
	1210.00ft
	32.00ft
	N 0.00, E 0.00 ft
	338.41°

05/31/2019



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'

Page 2 of 11



REFERENCE WELLPATH IDENTIFICATION		Slot #09
Operator	ANTERO RESOURCES CORPORATION	Shepherd Unit 1H
Area	Tyler County, WV	Well
Field	Tyler	Wellbore
Facility	Richie Petroleum Pad	Shepherd Unit 1H AWB

WELLPATH DATA (214 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 (F/100ft)	Build Rate (F/100ft)	Turn Rate (F/100ft)	Comments
0.00	0.000	66.800	0.00	0.00	0.00	0.00	1647355.15	14292715.28	39°21'33.060"N	80°58'31.630"W	0.00	0.000	0.00	0.00	0.00	
32.00	0.000	66.800	32.00	0.00	0.00	0.00	1647355.15	14292715.28	39°21'33.060"N	80°58'31.630"W	0.00	0.000	0.00	0.00	0.00	
117.00	0.130	66.800	117.00	0.00	0.04	0.09	1647355.24	14292715.32	39°21'33.060"N	80°58'31.629"W	0.10	66.800	0.15	0.15	78.59	Gyrodata SS Gyro <17-1/2"> (100'-380')
217.00	0.180	81.220	217.00	-0.03	0.11	0.35	1647355.50	14292715.38	39°21'33.061"N	80°58'31.626"W	0.36	72.967	0.06	0.05	14.42	
317.00	0.250	67.170	317.00	-0.06	0.22	0.70	1647355.65	14292715.49	39°21'33.062"N	80°58'31.621"W	0.74	73.007	0.09	0.07	-14.05	
397.00	0.440	70.770	397.00	-0.07	0.38	1.16	1647356.30	14292715.66	39°21'33.064"N	80°58'31.615"W	1.22	71.607	0.24	0.24	4.50	
434.00	0.150	339.080	434.00	-0.03	0.48	1.27	1647356.42	14292715.75	39°21'33.065"N	80°58'31.614"W	1.36	69.478	1.27	-0.78	-247.81	Gyrodata SS Gyro <12-1/4"> (380')(417'-506')
523.00	0.270	298.240	523.00	0.25	0.68	1.05	1647356.19	14292715.96	39°21'33.067"N	80°58'31.617"W	1.25	56.806	0.21	0.13	-45.89	
579.00	0.170	268.960	579.00	0.38	0.75	0.85	1647355.99	14292716.02	39°21'33.067"N	80°58'31.619"W	1.13	48.645	0.26	-0.18	-52.29	Directional ONE MWD <12-1/4"> (506')(562'-2423')
669.00	0.170	148.240	669.00	0.30	0.63	0.78	1647355.93	14292715.91	39°21'33.066"N	80°58'31.620"W	1.00	51.227	0.33	0.00	-134.13	
759.00	0.450	150.980	759.00	-0.19	0.21	1.03	1647356.17	14292715.48	39°21'33.062"N	80°58'31.617"W	1.05	78.602	0.31	0.31	3.04	
849.00	0.840	123.940	848.99	-1.14	-0.51	1.81	1647356.96	14292714.76	39°21'33.055"N	80°58'31.607"W	1.88	105.879	0.64	0.54	-30.04	
940.00	2.450	113.020	939.95	-3.13	-1.69	4.22	1647359.36	14292713.59	39°21'33.043"N	80°58'31.576"W	4.55	111.855	1.69	1.66	-12.00	
1028.00	3.950	106.360	1027.81	-6.31	-3.28	8.86	1647364.00	14292712.00	39°21'33.028"N	80°58'31.517"W	9.45	110.326	1.75	1.70	-7.57	
1116.00	5.490	100.730	1115.51	-10.43	-4.92	15.90	1647371.04	14292710.36	39°21'33.011"N	80°58'31.428"W	16.65	107.188	1.83	1.75	-6.40	
1204.00	6.420	97.490	1203.03	-15.07	-6.34	24.92	1647380.05	14292708.94	39°21'32.997"N	80°58'31.313"W	25.71	104.285	1.12	1.06	-3.68	
1293.00	7.640	99.140	1291.36	-20.51	-7.93	35.69	1647390.82	14292707.35	39°21'32.982"N	80°58'31.176"W	36.56	102.530	1.39	1.37	1.85	
1381.00	8.900	100.020	1378.44	-27.07	-10.05	48.17	1647403.30	14292705.24	39°21'32.961"N	80°58'31.017"W	49.21	101.780	1.44	1.43	1.00	
1469.00	10.390	103.420	1465.20	-35.19	-13.07	62.59	1647417.72	14292702.21	39°21'32.931"N	80°58'30.833"W	63.94	101.796	1.81	1.69	3.86	
1557.00	11.280	108.770	1551.63	-45.31	-17.68	78.46	1647433.56	14292697.60	39°21'32.885"N	80°58'30.631"W	80.43	102.701	1.53	1.01	6.08	
1645.00	11.640	108.720	1637.87	-56.63	-23.30	95.02	1647450.13	14292691.98	39°21'32.829"N	80°58'30.420"W	97.83	103.779	0.41	0.41	-0.06	
1734.00	10.690	105.400	1725.19	-67.41	-28.38	111.48	1647466.58	14292686.91	39°21'32.779"N	80°58'30.211"W	115.04	104.281	1.29	-1.07	-3.73	
1822.00	10.590	103.310	1811.68	-76.94	-32.41	127.22	1647482.32	14292682.89	39°21'32.739"N	80°58'30.010"W	131.28	104.290	0.45	-0.11	-2.38	
1910.00	10.000	107.920	1898.26	-86.43	-36.62	142.36	1647497.45	14292678.67	39°21'32.698"N	80°58'29.816"W	146.99	104.425	1.15	-0.67	5.24	
1998.00	9.420	106.310	1985.00	-95.72	-40.99	156.54	1647511.62	14292674.30	39°21'32.654"N	80°58'29.637"W	161.82	104.674	0.73	-0.66	-1.83	
2087.00	11.470	109.510	2072.52	-106.01	-45.99	171.87	1647526.95	14292669.30	39°21'32.605"N	80°58'29.442"W	177.92	104.991	2.39	2.30	3.60	
2175.00	13.490	111.760	2158.44	-118.81	-52.72	189.66	1647544.73	14292662.58	39°21'32.538"N	80°58'29.216"W	196.85	105.535	2.36	2.30	2.56	
2263.00	13.910	110.450	2243.94	-132.94	-60.22	209.10	1647564.16	14292655.08	39°21'32.464"N	80°58'28.968"W	217.60	106.067	0.59	0.48	-1.49	
2352.00	13.340	107.830	2330.43	-146.62	-67.10	228.90	1647583.95	14292648.20	39°21'32.396"N	80°58'28.716"W	238.53	106.339	0.94	-0.64	-2.94	
2440.00	11.070	104.330	2418.44	-158.02	-72.30	246.75	1647601.80	14292643.00	39°21'32.345"N	80°58'28.489"W	257.12	106.332	2.71	-2.58	-3.98	



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 176661'
Page 3 of 11



REFERENCE WELLPATH IDENTIFICATION		Slot #09
Operator	ANTERO RESOURCES CORPORATION	Shepherd Unit 1H
Area	Tyler County, WV	Shepherd Unit 1H AWB
Field	Tyler	
Facility	Richie Petroleum Pad	

WELLPATH DATA (214 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	VertSect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Turn Rate (°/100ft)				
2505.00	10.780	102.780	2480.26	-165.12	-75.19	258.73	1647613.77	14292640.11	39°21'32.316"N	80°58'28.336"W	269.43	106.205	0.62	-0.43	-2.38	Directional ONE MWD <8-3/4"> (2423')(2488'-6378')
2553.00	10.100	100.150	2527.46	-169.87	-76.93	267.25	1647622.29	14292638.38	39°21'32.299"N	80°58'28.228"W	278.11	106.058	1.75	-1.44	-5.48	
2641.00	10.410	94.290	2614.06	-177.40	-78.88	282.78	1647637.81	14292636.43	39°21'32.280"N	80°58'28.030"W	293.57	105.587	1.24	0.35	-6.66	
2729.00	8.820	102.340	2700.82	-184.64	-80.92	297.30	1647652.33	14292634.39	39°21'32.259"N	80°58'27.845"W	308.11	105.226	2.36	-1.81	9.15	
2818.00	9.270	112.920	2788.72	-193.47	-85.17	310.57	1647665.59	14292630.14	39°21'32.217"N	80°58'27.676"W	322.03	105.336	1.93	0.51	11.89	
2906.00	9.480	118.440	2875.55	-204.00	-91.38	323.47	1647678.49	14292623.93	39°21'32.156"N	80°58'27.512"W	336.13	105.775	1.05	0.24	6.27	
2997.00	9.430	117.900	2965.31	-215.41	-98.44	336.65	1647691.66	14292616.88	39°21'32.086"N	80°58'27.344"W	350.74	106.300	0.11	-0.05	-0.59	
3085.00	10.820	116.610	3051.94	-227.05	-105.51	350.40	1647705.41	14292609.81	39°21'32.016"N	80°58'27.169"W	365.94	106.758	1.60	1.58	-1.47	
3173.00	11.980	115.780	3138.20	-239.92	-113.19	366.01	1647721.01	14292602.14	39°21'31.940"N	80°58'26.971"W	383.11	107.184	1.33	1.32	-0.94	
3261.00	12.630	111.690	3224.18	-253.24	-120.71	383.18	1647738.17	14292594.61	39°21'31.866"N	80°58'26.752"W	401.74	107.486	1.24	0.74	-4.65	
3349.00	11.530	107.950	3310.24	-265.43	-126.98	400.48	1647755.47	14292588.35	39°21'31.804"N	80°58'26.532"W	420.13	107.592	1.53	-1.25	-4.25	
3438.00	10.570	105.470	3397.58	-276.02	-131.90	416.81	1647771.79	14292583.43	39°21'31.755"N	80°58'26.324"W	437.18	107.560	1.20	-1.08	-2.79	
3526.00	9.720	102.360	3484.21	-285.03	-135.64	431.85	1647786.82	14292579.69	39°21'31.718"N	80°58'26.133"W	452.65	107.437	1.15	-0.97	-3.53	
3614.00	11.340	104.750	3570.72	-294.31	-139.43	447.47	1647802.44	14292575.90	39°21'31.681"N	80°58'25.934"W	468.69	107.307	1.91	1.84	2.72	
3703.00	10.640	99.170	3658.06	-303.77	-143.00	464.20	1647819.15	14292572.34	39°21'31.645"N	80°58'25.721"W	485.72	107.121	1.33	-0.56	-6.27	
3791.00	9.790	93.980	3744.64	-311.23	-144.83	479.83	1647834.79	14292570.50	39°21'31.627"N	80°58'25.522"W	501.21	106.796	1.59	-1.19	-5.90	
3879.00	10.860	99.890	3831.22	-318.79	-146.78	495.46	1647850.41	14292568.56	39°21'31.608"N	80°58'25.323"W	516.75	106.502	1.71	1.22	6.72	
3968.00	11.500	100.490	3918.55	-327.82	-149.81	512.34	1647867.28	14292565.52	39°21'31.578"N	80°58'25.108"W	533.80	106.299	0.58	0.56	0.67	
4056.00	11.500	104.130	4004.81	-337.55	-153.53	529.37	1647884.30	14292561.81	39°21'31.541"N	80°58'24.891"W	551.19	106.174	0.83	0.16	4.14	
4144.00	11.290	104.630	4091.07	-347.76	-157.85	546.21	1647901.14	14292557.49	39°21'31.498"N	80°58'24.677"W	568.56	106.119	0.26	-0.24	0.57	
4232.00	10.440	117.650	4177.51	-358.89	-163.73	561.61	1647916.53	14292551.62	39°21'31.440"N	80°58'24.481"W	584.99	106.253	2.94	-0.97	14.80	
4321.00	10.010	115.460	4265.09	-370.66	-170.79	575.74	1647930.65	14292544.55	39°21'31.370"N	80°58'24.301"W	600.54	106.523	0.65	-0.48	-2.46	
4409.00	10.620	118.610	4351.67	-382.49	-177.97	589.76	1647944.67	14292537.38	39°21'31.299"N	80°58'24.122"W	616.03	106.792	0.94	0.69	3.58	
4497.00	10.020	115.760	4438.25	-394.35	-185.18	603.78	1647958.68	14292530.18	39°21'31.228"N	80°58'23.944"W	631.53	107.051	0.90	-0.68	-3.24	
4585.00	9.410	112.810	4524.99	-405.01	-191.29	617.30	1647972.20	14292524.06	39°21'31.168"N	80°58'23.772"W	646.26	107.217	0.89	-0.69	-3.35	
4673.00	11.010	117.400	4611.59	-416.39	-197.95	631.40	1647986.29	14292517.41	39°21'31.102"N	80°58'23.592"W	661.70	107.407	2.04	1.82	5.22	
4762.00	10.780	115.620	4698.99	-428.31	-205.46	646.45	1648001.33	14292509.90	39°21'31.028"N	80°58'23.401"W	678.31	107.532	0.46	-0.26	-2.00	
4850.00	10.580	112.810	4785.46	-440.60	-212.15	661.31	1648016.20	14292503.21	39°21'30.961"N	80°58'23.212"W	694.51	107.786	0.63	-0.23	-3.19	
4938.00	9.750	106.970	4872.08	-450.90	-217.46	675.89	1648030.76	14292497.91	39°21'30.909"N	80°58'23.026"W	710.01	107.835	1.50	-0.94	-6.64	
5027.00	8.980	102.580	4959.90	-459.50	-221.17	688.88	1648044.75	14292494.20	39°21'30.872"N	80°58'22.848"W	724.47	107.775	1.17	-0.85	-4.92	



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'

Page 4 of 11



REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Richie Petroleum Pad
Slot	Slot #09
Well	Shepherd Unit 1H
Wellbore	Shepherd Unit 1H AWB

WELLPATH DATA (214 stations) * = interpolated/extrapolated station																
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
5115.00	11.140	108.920	5046.54	-468.89	-225.43	704.64	1648059.50	14292489.94	39°21'30.830"N	80°58'22.660"W	739.82	107.740	2.74	2.44	2.44	
5203.00	11.490	104.360	5132.83	-479.56	-230.36	721.17	1648076.03	14292485.01	39°21'30.781"N	80°58'22.450"W	757.07	107.715	1.09	0.40	0.40	-5.18
5292.00	11.430	98.510	5220.06	-489.19	-233.86	738.48	1648093.33	14292481.51	39°21'30.747"N	80°58'22.229"W	774.62	107.572	1.31	-0.07	-0.07	-6.57
5390.00	11.270	94.180	5306.34	-497.30	-235.78	755.68	1648110.52	14292479.59	39°21'30.728"N	80°58'22.010"W	791.61	107.328	0.99	-0.18	-0.18	-4.92
5488.00	12.050	98.720	5392.53	-505.67	-237.80	773.34	1648128.17	14292477.58	39°21'30.708"N	80°58'21.785"W	809.07	107.092	1.37	0.89	0.89	5.16
5556.00	11.270	109.380	5478.72	-515.95	-242.04	790.53	1648145.36	14292473.33	39°21'30.665"N	80°58'21.567"W	826.75	107.024	2.60	-0.89	-0.89	12.11
5644.00	10.910	121.740	5565.09	-528.27	-249.28	805.73	1648160.55	14292466.10	39°21'30.594"N	80°58'21.373"W	843.41	107.191	2.73	-0.41	-0.41	14.05
5733.00	10.280	112.330	5652.58	-540.53	-256.73	820.24	1648175.05	14292458.65	39°21'30.520"N	80°58'21.188"W	859.47	107.380	2.07	-0.71	-0.71	-10.57
5777.00	9.730	92.220	5695.92	-544.76	-258.36	827.59	1648182.40	14292452.20	39°21'30.504"N	80°58'21.095"W	866.98	107.338	8.00	-1.25	-1.25	-45.70
5821.00	10.750	71.470	5739.23	-546.48	-257.20	835.19	1648190.01	14292458.18	39°21'30.516"N	80°58'20.998"W	873.90	107.117	8.65	2.32	2.32	-47.16
5865.00	12.550	55.360	5782.34	-545.62	-253.18	843.02	1648197.83	14292452.20	39°21'30.555"N	80°58'20.898"W	880.22	106.716	8.42	4.11	4.11	-36.61
5909.00	13.850	38.800	5825.19	-541.93	-246.35	850.26	1648205.07	14292469.02	39°21'30.623"N	80°58'20.806"W	885.23	106.158	9.05	2.93	2.93	-37.64
5953.00	16.620	28.810	5867.54	-535.32	-236.73	856.60	1648211.40	14292478.64	39°21'30.718"N	80°58'20.725"W	888.71	105.449	8.65	6.30	6.30	-22.70
5997.00	19.340	16.710	5909.51	-525.58	-224.23	861.73	1648216.53	14292491.14	39°21'30.841"N	80°58'20.660"W	890.42	104.586	10.47	6.18	6.18	-27.50
6041.00	23.230	9.880	5950.50	-512.46	-208.70	865.31	1648220.11	14292506.66	39°21'30.995"N	80°58'20.614"W	890.12	103.580	10.47	8.84	8.84	-16.52
6086.00	26.190	3.500	5991.39	-495.89	-190.04	867.44	1648222.24	14292525.32	39°21'31.179"N	80°58'20.587"W	888.01	102.357	8.85	6.58	6.58	-14.18
6130.00	28.710	358.820	6030.43	-477.19	-169.77	867.82	1648222.62	14292545.57	39°21'31.380"N	80°58'20.582"W	884.27	101.069	7.54	5.73	5.73	-10.64
6174.00	31.960	356.320	6068.40	-456.19	-147.57	866.85	1648221.65	14292567.77	39°21'31.599"N	80°58'20.595"W	879.32	99.661	7.97	7.43	7.43	-5.68
6218.00	34.780	354.110	6105.14	-433.01	-123.45	864.82	1648219.62	14292591.87	39°21'31.837"N	80°58'20.620"W	873.58	98.124	6.94	6.36	6.36	-5.02
6262.00	37.640	352.170	6140.94	-407.88	-97.66	861.70	1648216.50	14292617.66	39°21'32.082"N	80°58'20.660"W	867.21	96.466	7.00	6.50	6.50	-4.41
6307.00	40.810	350.820	6175.50	-380.16	-69.52	857.48	1648212.28	14292645.79	39°21'32.370"N	80°58'20.714"W	860.29	94.635	7.30	7.04	7.04	-3.00
6351.00	43.380	349.270	6208.14	-351.27	-40.47	852.37	1648207.17	14292674.82	39°21'32.658"N	80°58'20.779"W	853.33	92.718	6.30	5.84	5.84	-3.52
6395.00	45.810	348.000	6239.48	-320.87	-10.19	846.28	1648201.08	14292705.09	39°21'32.957"N	80°58'20.856"W	846.34	90.690	5.88	5.52	5.52	-2.89
6434.00	49.240	345.620	6279.31	-277.83	32.16	836.33	1648191.14	14292747.42	39°21'33.375"N	80°58'20.983"W	835.94	87.798	6.53	5.81	5.81	-4.03
6484.00	51.230	344.380	6298.50	-254.93	54.43	830.35	1648185.17	14292769.68	39°21'33.596"N	80°58'21.068"W	832.14	86.250	7.36	6.63	6.63	-4.13
6487.00	51.430	344.260	6300.38	-252.60	56.69	829.72	1648184.53	14292771.94	39°21'33.618"N	80°58'21.067"W	831.65	86.092	7.36	6.66	6.66	-4.00
6534.00	56.770	342.620	6327.93	-214.69	93.16	818.86	1648173.67	14292808.40	39°21'33.978"N	80°58'21.205"W	824.14	83.510	11.71	11.36	11.36	-3.49
6582.00	61.910	341.500	6352.40	-173.49	132.42	806.13	1648160.96	14292847.85	39°21'34.367"N	80°58'21.367"W	816.94	80.671	10.89	10.71	10.71	-2.33
6629.00	66.180	339.990	6372.96	-131.28	172.31	792.19	1648147.02	14292887.51	39°21'34.761"N	80°58'21.544"W	810.71	77.729	9.53	9.09	9.09	-3.21
6677.00	70.080	338.620	6390.84	-86.75	213.97	775.44	1648131.28	14292929.16	39°21'35.173"N	80°58'21.744"W	805.39	74.593	8.57	8.15	8.15	-2.85



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'
Page 5 of 11



REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Richlie Petroleum Pad
Slot #09	Shepherd Unit 1H
Well	Shepherd Unit 1H AWB
Wellbore	Shepherd Unit 1H AWB

WELLPATH DATA (214 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 (ft/100ft)	Comments
6689.00	70.935	338.361	6394.84	-75.44	224.49	772.30	1648127.13	14292939.68	39°21'35.27"N	80°58'21.79"W	804.26	73.792	7.33	7.04	-2.16	Burkett: 6669' MD
6724.00	73.400	337.620	6405.56	-42.12	255.38	759.81	1648114.65	14292970.55	39°21'35.58"N	80°58'21.95"W	801.58	71.422	7.33	7.04	-2.12	
6762.00	75.648	335.485	6415.70	-5.52	288.97	745.24	1648100.08	14293004.13	39°21'35.91"N	80°58'22.14"W	799.30	68.806	8.02	5.91	-5.62	Tully: 6762' MD
6772.00	76.240	334.930	6418.13	4.16	297.78	741.17	1648096.02	14293012.93	39°21'36.00"N	80°58'22.193"W	798.75	68.111	8.02	5.94	-5.55	
6793.00	77.365	334.418	6422.92	24.58	316.26	732.42	1648087.28	14293031.41	39°21'36.184"N	80°58'22.304"W	797.78	66.646	5.86	5.36	-2.44	Marcellus POE: 6793' MD
6819.00	78.760	333.790	6428.30	49.93	339.14	721.31	1648076.17	14293054.28	39°21'36.410"N	80°58'22.446"W	797.06	64.819	5.86	5.36	-2.41	
6867.00	80.920	334.040	6436.77	97.03	381.57	700.54	1648055.41	14293096.70	39°21'36.829"N	80°58'22.710"W	797.72	61.424	4.53	4.50	0.52	
6914.00	82.320	336.030	6443.62	143.44	423.72	680.92	1648035.79	14293138.83	39°21'37.246"N	80°58'22.960"W	801.99	58.107	5.14	2.98	4.23	
6962.00	85.320	337.120	6448.78	191.13	467.50	661.95	1648016.83	14293182.59	39°21'37.679"N	80°58'23.201"W	810.39	54.768	6.65	6.25	2.27	
7009.00	86.950	337.150	6451.95	238.01	510.71	643.73	1647998.62	14293225.78	39°21'38.106"N	80°58'23.433"W	821.71	51.573	3.47	3.47	0.06	
7057.00	88.770	337.160	6453.74	285.97	554.91	625.11	1647980.00	14293269.97	39°21'38.543"N	80°58'23.670"W	835.88	48.404	3.79	3.79	0.02	
7152.00	88.950	335.600	6455.63	380.88	641.93	587.05	1647941.96	14293356.95	39°21'39.403"N	80°58'24.154"W	869.89	42.443	1.65	0.19	-1.64	
7247.00	88.890	334.470	6457.42	475.70	728.04	546.96	1647901.89	14293443.03	39°21'40.254"N	80°58'24.664"W	910.61	36.917	1.19	-0.06	-1.19	
7342.00	89.630	334.410	6458.65	570.46	813.74	505.98	1647860.92	14293528.69	39°21'41.101"N	80°58'25.185"W	958.22	31.873	0.78	0.78	-0.06	
7438.00	89.570	337.550	6459.32	666.36	901.41	466.91	1647821.87	14293616.33	39°21'41.968"N	80°58'25.682"W	1015.16	27.383	3.27	-0.06	3.27	
7533.00	89.720	338.610	6459.91	761.36	989.54	431.44	1647786.42	14293704.42	39°21'42.839"N	80°58'26.134"W	1079.51	23.557	1.13	0.16	1.12	
7628.00	89.720	336.690	6460.37	856.34	1077.40	395.32	1647750.31	14293792.24	39°21'43.707"N	80°58'26.593"W	1147.63	20.149	2.02	0.00	-2.02	
7723.00	89.780	337.780	6460.79	951.32	1165.00	358.56	1647713.57	14293879.80	39°21'44.573"N	80°58'27.061"W	1218.93	17.107	1.15	0.06	1.15	
7819.00	89.780	338.470	6461.16	1047.32	1254.08	322.79	1647677.81	14293968.86	39°21'45.454"N	80°58'27.516"W	1294.96	14.434	0.72	0.00	0.72	
7914.00	89.850	337.500	6461.46	1142.32	1342.15	287.18	1647642.22	14294056.89	39°21'46.325"N	80°58'27.969"W	1372.53	12.078	1.02	0.07	-1.02	
8010.00	89.780	337.570	6461.77	1238.30	1430.87	250.50	1647605.55	14294145.57	39°21'47.201"N	80°58'28.436"W	1452.63	9.930	0.10	-0.07	0.07	
8106.00	89.720	337.510	6462.19	1334.29	1519.59	213.83	1647568.89	14294234.25	39°21'48.078"N	80°58'28.902"W	1534.56	8.010	0.09	-0.06	-0.06	
8201.00	89.780	336.610	6462.61	1429.26	1607.07	176.80	1647531.88	14294321.70	39°21'48.843"N	80°58'29.373"W	1616.77	6.278	0.95	0.06	-0.95	
8296.00	89.780	335.470	6462.97	1524.21	1694.22	138.98	1647494.07	14294408.81	39°21'49.805"N	80°58'29.855"W	1699.91	4.690	0.15	0.00	-0.15	
8392.00	89.880	335.770	6463.26	1620.13	1782.00	100.12	1647455.22	14294496.56	39°21'50.672"N	80°58'30.349"W	1784.81	3.216	0.74	0.10	-0.73	
8488.00	89.660	335.510	6463.64	1716.02	1869.45	60.52	1647415.64	14294583.98	39°21'51.537"N	80°58'30.853"W	1870.43	1.854	0.35	-0.23	-0.27	
8583.00	89.750	338.480	6464.13	1810.98	1956.88	23.40	1647378.54	14294671.38	39°21'52.401"N	80°58'31.325"W	1957.02	0.685	3.13	0.09	3.13	
8678.00	89.780	339.140	6464.52	1905.98	2045.46	-10.94	1647344.21	14294759.92	39°21'53.277"N	80°58'31.762"W	2045.49	359.694	0.70	0.03	0.69	
8773.00	89.750	340.200	6464.91	2000.95	2134.54	-43.95	1647311.22	14294848.96	39°21'54.157"N	80°58'32.182"W	2134.99	358.821	1.12	-0.03	1.12	
8868.00	89.910	337.890	6465.19	2095.94	2223.25	-77.92	1647277.26	14294937.83	39°21'55.034"N	80°58'32.614"W	2224.62	357.993	2.44	0.17	-2.43	



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'
Page 6 of 11



REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Richie Petroleum Pad
Slot	Slot #09
Well	Shepherd Unit 1H
Wellbore	Shepherd Unit 1H AWB

WELLPATH DATA (214 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
8964.00	89.780	340.460	6465.45	2191.92	2312.97	-112.04	1647243.15	14295027.32	39°21'55.921"N	80°58'33.049"W	2315.68	357.227	2.68	-0.14	2.68	
9059.00	89.720	343.740	6465.87	2286.71	2403.36	-141.24	1647213.96	14295117.67	39°21'56.814"N	80°58'33.420"W	2407.51	356.637	3.45	-0.06	3.45	
9154.00	89.750	342.800	6466.31	2381.37	2494.34	-168.59	1647186.63	14295208.61	39°21'57.713"N	80°58'33.788"W	2500.03	356.133	0.99	0.03	-0.99	
9249.00	89.750	341.880	6466.72	2476.14	2584.86	-197.41	1647157.82	14295299.10	39°21'58.608"N	80°58'34.134"W	2592.38	355.633	0.97	0.00	-0.97	
9344.00	89.880	342.030	6467.03	2570.96	2675.18	-226.83	1647128.41	14295389.39	39°21'59.501"N	80°58'34.509"W	2684.78	355.153	0.21	0.14	0.16	
9438.00	89.940	340.430	6467.18	2664.84	2764.18	-257.08	1647098.17	14295478.35	39°22'00.391"N	80°58'34.894"W	2776.11	354.687	1.70	0.06	-1.70	
9534.00	89.750	338.100	6467.44	2760.83	2853.96	-291.06	1647064.20	14295568.09	39°22'01.268"N	80°58'35.326"W	2868.76	354.177	2.44	-0.20	-2.43	
9628.00	89.780	337.520	6467.52	2854.82	2940.99	-326.57	1647028.71	14295655.09	39°22'02.128"N	80°58'35.778"W	2959.07	353.664	0.62	0.03	-0.62	
9723.00	89.780	337.710	6468.19	2949.81	3028.83	-362.74	1646992.55	14295742.89	39°22'02.997"N	80°58'36.238"W	3050.48	353.171	0.20	0.00	0.20	
9818.00	89.690	338.670	6468.63	3044.81	3117.03	-398.04	1646957.27	14295831.08	39°22'03.869"N	80°58'36.687"W	3142.34	352.723	1.01	-0.09	1.01	
9913.00	89.850	338.140	6469.01	3139.81	3205.36	-433.00	1646922.32	14295919.35	39°22'04.742"N	80°58'37.132"W	3234.48	352.307	0.58	0.17	-0.56	
10008.00	89.850	335.280	6469.26	3234.75	3292.61	-470.56	1646884.78	14296006.57	39°22'05.604"N	80°58'37.610"W	3326.07	351.857	3.01	0.00	-3.01	
10103.00	89.780	338.710	6469.56	3329.71	3380.04	-507.68	1646847.67	14296093.96	39°22'06.468"N	80°58'38.082"W	3417.96	351.458	3.61	-0.07	3.61	
10198.00	89.750	338.880	6469.95	3424.71	3468.61	-542.04	1646813.32	14296182.49	39°22'07.344"N	80°58'38.520"W	3510.71	351.118	0.18	-0.03	0.18	
10293.00	89.780	335.700	6470.34	3519.68	3556.23	-578.71	1646776.67	14296270.08	39°22'08.210"N	80°58'38.986"W	3603.01	350.757	3.35	0.03	-3.35	
10389.00	89.690	333.830	6470.79	3615.48	3643.07	-619.64	1646735.76	14296356.88	39°22'09.068"N	80°58'39.507"W	3695.39	350.347	1.95	-0.08	-1.95	
10484.00	89.820	336.750	6471.19	3710.32	3729.36	-659.35	1646696.06	14296443.14	39°22'09.921"N	80°58'40.013"W	3787.20	349.974	3.08	0.14	3.07	
10579.00	89.820	340.330	6471.49	3805.31	3817.76	-694.10	1646661.33	14296531.50	39°22'10.795"N	80°58'40.455"W	3880.34	349.696	3.77	0.00	3.77	
10674.00	89.720	342.350	6471.87	3900.18	3907.76	-724.49	1646630.95	14296621.47	39°22'11.685"N	80°58'40.841"W	3974.35	349.497	2.13	-0.11	2.13	
10769.00	89.820	342.940	6472.25	3994.92	3998.43	-752.83	1646602.62	14296712.10	39°22'12.581"N	80°58'41.202"W	4068.69	349.337	0.63	0.11	0.62	
10864.00	89.850	342.930	6472.53	4089.62	4089.25	-780.71	1646574.75	14296802.88	39°22'13.478"N	80°58'41.557"W	4163.11	349.191	0.03	0.03	-0.01	
10960.00	89.880	341.430	6472.75	4185.41	4180.64	-810.08	1646545.39	14296894.24	39°22'14.382"N	80°58'41.930"W	4258.40	349.034	1.56	0.03	-1.56	
11055.00	89.820	338.710	6473.00	4280.36	4269.94	-842.46	1646513.02	14296983.50	39°22'15.264"N	80°58'42.343"W	4352.26	348.839	2.86	-0.06	-2.86	
11150.00	89.660	334.230	6473.43	4375.28	4357.02	-880.38	1646475.12	14297070.55	39°22'16.125"N	80°58'42.825"W	4445.08	348.577	4.72	-0.17	-4.72	
11244.00	89.850	333.630	6473.83	4468.99	4441.46	-921.69	1646438.83	14297154.95	39°22'16.960"N	80°58'43.351"W	4536.08	348.276	0.67	0.20	-0.64	
11339.00	89.910	337.220	6474.03	4563.85	4527.84	-961.19	1646394.34	14297241.29	39°22'17.814"N	80°58'43.854"W	4628.73	348.015	3.78	0.06	3.78	
11434.00	90.000	338.570	6474.11	4658.84	4615.85	-996.94	1646358.61	14297329.27	39°22'18.684"N	80°58'44.308"W	4722.28	347.812	1.42	0.09	1.42	
11530.00	89.780	337.040	6474.29	4754.83	4704.73	-1033.20	1646322.36	14297418.12	39°22'19.562"N	80°58'44.770"W	4816.85	347.614	1.61	-0.23	-1.59	
11625.00	90.090	336.240	6474.40	4849.79	4791.95	-1070.87	1646284.71	14297505.30	39°22'20.424"N	80°58'45.249"W	4910.14	347.403	0.90	0.33	-0.84	
11719.00	90.150	337.350	6474.20	4843.75	4878.34	-1107.91	1646247.88	14297591.66	39°22'21.278"N	80°58'45.721"W	5002.57	347.205	1.18	0.06	1.18	



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'

Page 7 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Shepherd Unit 1H
Field	Tyler	Wellbore	Shepherd Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (214 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
11815.00	90.150	341.220	6473.95	5039.72	4988.12	-1141.86	1646213.75	14297681.40	39°22'22.166"N	80°58'46.153"W	5097.65	347.056	4.03	0.00	4.03	
11910.00	90.280	339.850	6473.60	5134.65	5057.68	-1173.52	1646182.10	14297770.93	39°22'23.051"N	80°58'46.556"W	5192.04	346.937	1.45	0.14	-1.44	
12005.00	90.030	336.740	6473.34	5229.64	5145.94	-1208.65	1646146.99	14297859.15	39°22'23.923"N	80°58'47.003"W	5285.97	346.782	3.28	-0.26	-3.27	
12101.00	90.280	336.410	6473.08	5325.59	5234.03	-1246.81	1646108.84	14297947.20	39°22'24.794"N	80°58'47.488"W	5380.48	346.601	0.43	0.26	-0.34	
12195.00	90.280	338.040	6472.62	5419.56	5320.69	-1283.20	1646072.47	14298033.83	39°22'25.651"N	80°58'47.951"W	5473.24	346.441	1.73	0.00	1.73	
12290.00	90.220	339.240	6472.21	5514.56	5409.16	-1317.80	1646037.88	14298122.27	39°22'26.525"N	80°58'48.392"W	5567.37	346.308	1.26	-0.06	-1.26	
12386.00	90.460	338.340	6471.64	5610.56	5498.66	-1352.53	1646003.16	14298211.73	39°22'27.410"N	80°58'48.834"W	5662.56	346.181	0.97	0.25	-0.94	
12480.00	90.620	336.290	6470.75	5704.53	5585.38	-1388.78	1645966.93	14298298.41	39°22'28.267"N	80°58'49.295"W	5756.45	346.037	2.19	0.17	-2.18	
12575.00	90.620	336.480	6469.72	5799.46	5672.42	-1426.83	1645928.89	14298385.42	39°22'29.127"N	80°58'49.780"W	5849.12	345.981	0.20	0.00	0.20	
12670.00	90.800	337.900	6468.54	5894.43	5759.98	-1463.66	1645892.08	14298472.94	39°22'29.993"N	80°58'50.248"W	5943.03	345.742	1.51	0.19	1.49	
12765.00	90.890	338.680	6467.14	5989.42	5848.23	-1498.79	1645856.96	14298561.16	39°22'30.865"N	80°58'50.695"W	6037.23	345.626	0.83	0.09	0.82	
12861.00	90.550	338.360	6465.94	6085.41	5937.56	-1533.94	1645821.82	14298650.45	39°22'31.748"N	80°58'51.143"W	6132.50	345.515	0.49	-0.35	-0.33	
12956.00	90.860	337.220	6464.77	6180.40	6025.50	-1569.85	1645785.93	14298738.35	39°22'32.617"N	80°58'51.600"W	6226.64	345.397	1.24	0.33	-1.20	
13052.00	90.920	337.920	6463.28	6276.38	6114.22	-1606.47	1645749.32	14298827.04	39°22'33.494"N	80°58'52.066"W	6321.75	345.279	0.73	0.08	0.73	
13147.00	91.230	342.670	6461.48	6371.28	6203.62	-1638.49	1645717.31	14298916.40	39°22'34.378"N	80°58'52.473"W	6416.35	345.205	5.01	0.33	5.00	
13242.00	90.770	339.600	6459.84	6466.15	6293.49	-1669.20	1645686.62	14299006.24	39°22'35.266"N	80°58'52.864"W	6511.09	345.146	3.27	-0.48	-3.23	
13337.00	90.680	334.540	6458.63	6561.08	6380.95	-1706.20	1645649.63	14299093.66	39°22'36.131"N	80°58'53.335"W	6605.12	345.030	5.33	-0.09	-5.33	
13432.00	90.120	334.680	6457.97	6655.87	6466.77	-1746.93	1645608.92	14299179.45	39°22'36.979"N	80°58'53.854"W	6698.57	344.883	0.61	-0.59	0.15	
13528.00	90.520	336.400	6457.43	6751.75	6554.15	-1786.68	1645569.19	14299266.79	39°22'37.843"N	80°58'54.360"W	6793.31	344.752	1.84	0.42	1.79	
13623.00	90.370	338.400	6456.69	6846.72	6641.85	-1823.18	1645532.70	14299354.46	39°22'38.710"N	80°58'54.824"W	6887.54	344.650	2.11	-0.16	2.11	
13718.00	90.520	338.820	6455.96	6941.72	6730.30	-1857.83	1645496.06	14299442.87	39°22'39.584"N	80°58'55.285"W	6982.01	344.568	0.47	0.16	0.44	
13813.00	90.550	339.140	6455.07	7036.71	6818.98	-1891.90	1645464.00	14299531.51	39°22'40.460"N	80°58'55.699"W	7076.56	344.493	0.34	0.03	0.34	
13908.00	90.370	337.860	6454.31	7131.71	6907.36	-1926.72	1645429.20	14299619.86	39°22'41.334"N	80°58'56.142"W	7171.05	344.414	1.36	-0.19	-1.35	
14004.00	90.220	341.160	6453.81	7227.67	6997.27	-1960.32	1645395.62	14299709.74	39°22'42.223"N	80°58'56.570"W	7266.68	344.350	3.44	-0.16	3.44	
14100.00	90.680	337.370	6453.06	7323.64	7087.04	-1994.30	1645361.65	14299799.47	39°22'43.110"N	80°58'57.002"W	7362.29	344.283	3.98	0.48	-3.95	
14196.00	90.000	333.310	6452.49	7419.48	7174.26	-2034.35	1645321.62	14299886.66	39°22'43.972"N	80°58'57.512"W	7457.12	344.169	4.29	-0.71	-4.23	
14291.00	89.850	333.310	6452.61	7514.11	7259.14	-2077.02	1645278.97	14299971.50	39°22'44.811"N	80°58'58.055"W	7550.44	344.033	0.16	-0.16	0.00	
14386.00	89.910	336.600	6452.81	7608.92	7345.19	-2117.23	1645238.77	14300057.52	39°22'45.662"N	80°58'58.567"W	7644.25	343.921	3.46	0.06	3.46	
14480.00	89.850	340.610	6453.01	7702.90	7432.70	-2151.51	1645204.50	14300144.99	39°22'46.527"N	80°58'59.003"W	7737.83	343.856	4.27	-0.06	4.27	
14576.00	89.910	340.250	6453.21	7798.84	7523.15	-2183.67	1645172.36	14300235.41	39°22'47.421"N	80°58'59.413"W	7833.66	343.814	0.38	0.06	-0.38	



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'

Page 8 of 11



REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Ritchie Petroleum Pad
Slot #09	Shepherd Unit 1H
Well	Shepherd Unit 1H AWB
Wellbore	Shepherd Unit 1H AWB

WELLPATH DATA (214 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 (F/100ft)	Build Rate (F/100ft)	Turn Rate (F/100ft)	Comments
14671.00	89.820	340.160	6453.43	7893.79	7612.54	-2215.84	1645140.20	14300324.76	39°22'48.304"N	80°58'59.822"W	7928.47	343.771	0.13	-0.09	-0.09	
14767.00	89.820	339.210	6453.74	7989.77	7702.57	-2249.17	1645106.88	14300414.75	39°22'49.194"N	80°59'00.246"W	8024.23	343.722	0.99	0.00	-0.99	
14862.00	89.940	341.000	6453.93	8084.72	7791.89	-2281.49	1645074.57	14300504.04	39°22'50.077"N	80°59'00.658"W	8119.04	343.680	1.89	0.13	1.88	
14957.00	90.000	340.710	6453.98	8179.64	7881.64	-2312.65	1645043.43	14300593.75	39°22'50.964"N	80°59'01.054"W	8213.93	343.647	0.31	0.06	-0.31	
15052.00	89.910	338.560	6454.06	8274.61	7970.69	-2345.71	1645010.38	14300682.77	39°22'51.844"N	80°59'01.475"W	8308.69	343.601	2.27	-0.09	-2.26	
15147.00	89.780	338.290	6454.32	8369.61	8059.04	-2380.64	1644975.46	14300771.08	39°22'52.717"N	80°59'01.920"W	8403.31	343.543	0.32	-0.14	-0.28	
15242.00	89.970	337.380	6454.52	8464.60	8147.02	-2416.48	1644939.64	14300859.02	39°22'53.587"N	80°59'02.376"W	8497.84	343.479	0.98	0.20	-0.96	
15337.00	90.310	339.710	6454.29	8559.59	8235.43	-2451.23	1644904.90	14300947.39	39°22'54.461"N	80°59'02.818"W	8592.48	343.425	2.48	0.36	2.45	
15433.00	90.180	341.860	6453.88	8655.51	8326.07	-2482.82	1644873.32	14301038.00	39°22'55.357"N	80°59'03.221"W	8688.38	343.366	2.24	-0.14	2.24	
15528.00	90.250	340.100	6453.52	8750.41	8415.88	-2513.78	1644842.38	14301127.78	39°22'56.245"N	80°59'03.615"W	8783.29	343.369	1.85	0.07	-1.85	
15623.00	90.400	339.250	6452.99	8845.38	8504.96	-2546.78	1644809.39	14301216.82	39°22'57.125"N	80°59'04.035"W	8878.09	343.330	0.91	0.16	-0.89	
15718.00	90.250	339.740	6452.45	8940.36	8593.94	-2580.05	1644776.13	14301305.77	39°22'58.005"N	80°59'04.458"W	8972.88	343.289	0.54	-0.16	0.52	
15814.00	90.340	339.730	6451.95	9036.33	8684.00	-2613.30	1644742.89	14301395.79	39°22'58.895"N	80°59'04.881"W	9068.69	343.252	0.09	0.09	-0.01	
15908.00	90.150	337.000	6451.55	9130.32	8771.37	-2647.96	1644708.25	14301483.12	39°22'59.758"N	80°59'05.323"W	9162.35	343.202	2.91	-0.20	-2.90	
16004.00	90.220	335.530	6451.24	9226.25	8859.25	-2686.60	1644669.63	14301570.96	39°23'00.627"N	80°59'05.815"W	9257.65	343.130	1.53	0.07	-1.53	
16099.00	90.340	333.280	6450.78	9321.01	8944.92	-2727.63	1644628.61	14301658.60	39°23'01.474"N	80°59'06.337"W	9351.55	343.042	2.37	0.13	-2.37	
16194.00	90.460	334.190	6450.11	9415.70	9030.11	-2769.67	1644586.59	14301741.75	39°23'02.316"N	80°59'06.872"W	9445.31	342.948	0.97	0.13	0.96	
16289.00	90.340	338.560	6449.45	9510.61	9117.12	-2807.73	1644548.54	14301828.73	39°23'03.176"N	80°59'07.357"W	9539.67	342.863	4.60	-0.13	4.60	
16385.00	90.460	339.190	6448.78	9606.60	9206.67	-2842.33	1644513.96	14301918.24	39°23'04.061"N	80°59'07.797"W	9635.43	342.843	0.67	0.13	0.66	
16480.00	90.680	337.440	6447.83	9701.60	9294.94	-2877.43	1644478.87	14302006.48	39°23'04.933"N	80°59'08.244"W	9730.43	342.799	1.86	0.23	-1.84	
16574.00	90.770	342.730	6446.64	9795.51	9383.28	-2909.44	1644446.88	14302094.78	39°23'05.807"N	80°59'08.651"W	9823.99	342.773	5.63	0.10	5.63	
16668.00	90.770	344.430	6445.38	9889.12	9473.43	-2936.00	1644420.32	14302184.90	39°23'06.698"N	80°59'09.990"W	9917.96	342.781	1.81	0.00	1.81	
16762.00	90.680	340.190	6444.19	9982.87	9562.96	-2964.56	1644391.78	14302274.39	39°23'07.583"N	80°59'09.353"W	10011.93	342.776	4.51	-0.10	-4.51	
16858.00	90.770	337.660	6442.98	10078.85	9652.52	-2999.07	1644357.28	14302363.92	39°23'08.468"N	80°59'09.793"W	10107.70	342.740	2.64	0.09	-2.64	
16953.00	90.740	338.020	6441.72	10173.84	9740.50	-3034.90	1644321.46	14302451.86	39°23'09.337"N	80°59'10.249"W	10202.35	342.694	0.38	-0.03	0.38	
17048.00	90.520	337.220	6440.68	10268.83	9828.34	-3071.07	1644285.31	14302539.66	39°23'10.206"N	80°59'10.709"W	10296.97	342.647	0.87	-0.23	-0.84	
17143.00	90.680	338.980	6439.68	10363.82	9916.47	-3106.50	1644249.89	14302627.76	39°23'11.077"N	80°59'11.160"W	10391.67	342.606	1.86	0.17	1.85	
17239.00	90.680	339.760	6438.54	10459.78	10006.31	-3140.32	1644216.09	14302717.56	39°23'11.965"N	80°59'11.591"W	10487.51	342.576	0.81	0.00	0.81	
17334.00	90.680	338.650	6437.42	10554.78	10095.11	-3174.05	1644182.37	14302806.33	39°23'12.842"N	80°59'12.020"W	10582.34	342.546	1.17	0.00	-1.17	
17429.00	90.770	339.050	6436.21	10649.77	10183.71	-3208.32	1644148.11	14302894.89	39°23'13.718"N	80°59'12.457"W	10677.13	342.513	0.43	0.09	0.42	

05/31/2019



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'
Page 9 of 11



REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Ritchie Petroleum Pad
Slot #09	Shepherd Unit 1H
Well	Shepherd Unit 1H AWB
Wellbore	Shepherd Unit 1H AWB

WELLPATH DATA (214 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)	DLS (F/100ft)	Build Rate (F/100ft)	Turn Rate (F/100ft)	Comments	
17524.00	90.710	340.030	6434.99	10744.74	10272.70	-3241.53	1644114.92	14302993.85	39°23'14.598"N	80°59'12.879"W	10772.00	342.487	1.03	-0.06	1.03	
17619.00	90.650	337.230	6433.86	10839.72	10361.16	-3276.14	1644080.33	14303072.27	39°23'15.472"N	80°59'13.320"W	10866.77	342.453	2.95	-0.06	-2.95	
17637.00	90.620	336.280	6433.66	10857.71	10377.70	-3283.24	1644073.22	14303088.80	39°23'15.636"N	80°59'13.410"W	10884.68	342.444	5.28	-0.17	-5.28	
17661.00	90.620	336.280	6433.40	10881.70	10399.67	-3292.90	1644063.57	14303110.76	39°23'15.853"N	80°59'13.533"W	10908.54	342.430	0.00	0.00	0.00	Projected MD at TD: 17611'

HOLE & CASING SECTIONS - Ref Wellbore: Shepherd Unit 1H AWB Ref Wellpath: Shepherd Unit 1H AWP Proj: 17661'											
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)	Start Rate (ft)	End Rate (ft)
20in Conductor	32.00	112.00	80.00	32.00	112.00	0.00	0.00	0.00	0.00	0.00	0.08
17.5in Open Hole	112.00	414.00	302.00	112.00	414.00	0.03	0.08	0.43	0.43	0.08	1.25
13.375in Casing Surface	32.00	414.00	382.00	32.00	414.00	0.00	0.00	0.43	0.43	0.00	1.25
12.25in Open Hole	414.00	2495.60	2081.60	414.00	2471.03	0.43	1.25	-74.80	-74.80	1.25	257.01
9.625in Casing Intermediate	32.00	2495.60	2463.60	32.00	2471.03	0.00	0.00	0.00	-74.80	0.00	257.01
8.75in Open Hole	2495.60	6481.00	3985.40	2471.03	6296.62	-74.80	257.01	52.18	830.98	257.01	830.98
8.5in Open Hole	6481.00	17661.00	11180.00	6296.62	6433.40	52.18	830.98	10399.67	-3292.90	830.98	-3292.90
5.5in Casing Production	32.00	17661.00	17629.00	32.00	6433.40	0.00	0.00	10399.67	-3292.90	0.00	-3292.90



Actual Wellpath Report

Shepherd Unit 1H AWP Proj: 17661'

Page 10 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Shepherd Unit 1H
Field	Tyler	Wellbore	Shepherd Unit 1H AWB
Facility	Ritchie Petroleum Pad		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Shepherd Unit 1H POE - Rev-2	6408.00	253.71	752.88	1648107.73	14292968.88	39°21'35.565"N	80°58'22.044"W	point
Shepherd Unit 1H LP - Rev-2	6440.00	458.47	646.79	1648001.68	14293173.56	39°21'37.589"N	80°58'23.394"W	point
Shepherd Unit 1H BHL - Rev-2	6496.08	10413.23	-3304.08	1644052.39	14303124.32	39°23'15.987"N	80°59'13.676"W	point

WELLPATH COMPOSITION - Ref Wellbore: Shepherd Unit 1H AWB

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
32.00	397.00	Gyrodata standard - Single-shot	01 Gyrodata SS Gyro <17-1/2">(100-380)	Shepherd Unit 1H AWB
397.00	523.00	Gyrodata standard - Single-shot	02 Gyrodata SS Gyro <12-1/4">(380)(417-506)	Shepherd Unit 1H AWB
523.00	2440.00	ISCWSA MWD, Rev. 4 (Standard)	03 Directional ONE MWD <12-1/4">(506)(562-2423)	Shepherd Unit 1H AWB
2440.00	6395.00	ISCWSA MWD, Rev. 4 (Standard)	04 Directional ONE MWD <8-3/4">(2423)(2488-6378)	Shepherd Unit 1H AWB
6395.00	17637.00	BHI AutoTrak Curve (Short)	05 BHI AT Curve <8-1/2">(6395)(6454-17637)	Shepherd Unit 1H AWB
17637.00	17661.00	Blind Drilling (std)	Projection to bit	Shepherd Unit 1H AWB

05/31/2019

REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Shepherd Unit 1H
Field	Tyler	Wellbore	Shepherd Unit 1H AWB
Facility	Ritchie Petroleum Pad		

COMMENTS
<p>Wellpath general comments API: 47-095-02385-0000 BHI Job #: 8736598 Rig: Frontier 32 Duration: 08/30/2017-09/03/2017 Gyrodata SS Gyro <17-1/2"> (100'-380') Gyrodata SS Gyro <12-1/4"> (380')(417'-506') Directional ONE MWD <12-1/4"> (506')(562'-2423') Directional ONE MWD <8-3/4"> (2423')(2488'-6378') BHI AT Curve <8-1/2"> (6395')(6454'-17637') Middlesex: 6484' MD Burkett: 6689' MD Tully: 6762' MD Marcellus POE: 6793' MD Projected MD at TD: 17661'</p>