



# ANTERO RESOURCES CORPORATION

Location: Tyler County, WV  
 Field: Tyler  
 Facility: Ritchie Petroleum Pad

Slot: Slot #08  
 Well: Shepherd Unit 2H  
 Wellbore: Shepherd Unit 2H PWB



Plot reference wellpath is Shepherd Unit 2H PWB Rev A.0  
 True vertical depths are referenced to Frontier 32 (RK6)  
 Measured depths are referenced to Frontier 32 (RK6)  
 Frontier 32 (RK6) to Mean Sea Level: 1210 feet  
 Mean Sea Level to Mud line (At Slot: Slot #08): -1178 feet  
 Coordinates are in feet referenced to Slot  
 Grid System: NAD83 / UTM, Zone 17 North, US Feet  
 \* = Wellbore was transformed from a different geoidic datum  
 North Reference: Grid North  
 Scale: True distance  
 Depths are in feet  
 Created by: debreit on 2017-10-05  
 Database: WA\_MPL\_Enterprise\_US\_Data

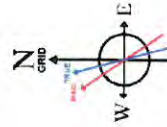
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Ritchie Petroleum Pad	1647374.770	14292738.540	80°58'31.380"W
Slot	-15.18	+13.35	
Slot #08	1647361.426	14292723.371	80°58'31.550"W
Comment			
Shepherd Unit 2H			
Frontier 32 (RK6) to Mud line (At Slot: Slot #08)			32ft
Mean Sea Level to Mud line (At Slot: Slot #08)			-1178ft
Frontier 32 (RK6) to Mean Sea Level			1210ft

Gyrodata SS Gyro <17-1/2°> (100°-323°) : 0.26° Inc, 117.00ft MD, 117.00ft TVD, 0.17ft VS  
 Gyrodata SS Gyro <12-1/4°> (323°)(416°-776°) : 0.13° Inc, 433.00ft MD, 433.00ft TVD, 0.74ft VS  
 Directional ONE MWD <12-1/4°> (776°)(832°-2534°) : 4.07° Inc, 849.00ft MD, 848.84ft TVD, -4.65ft VS

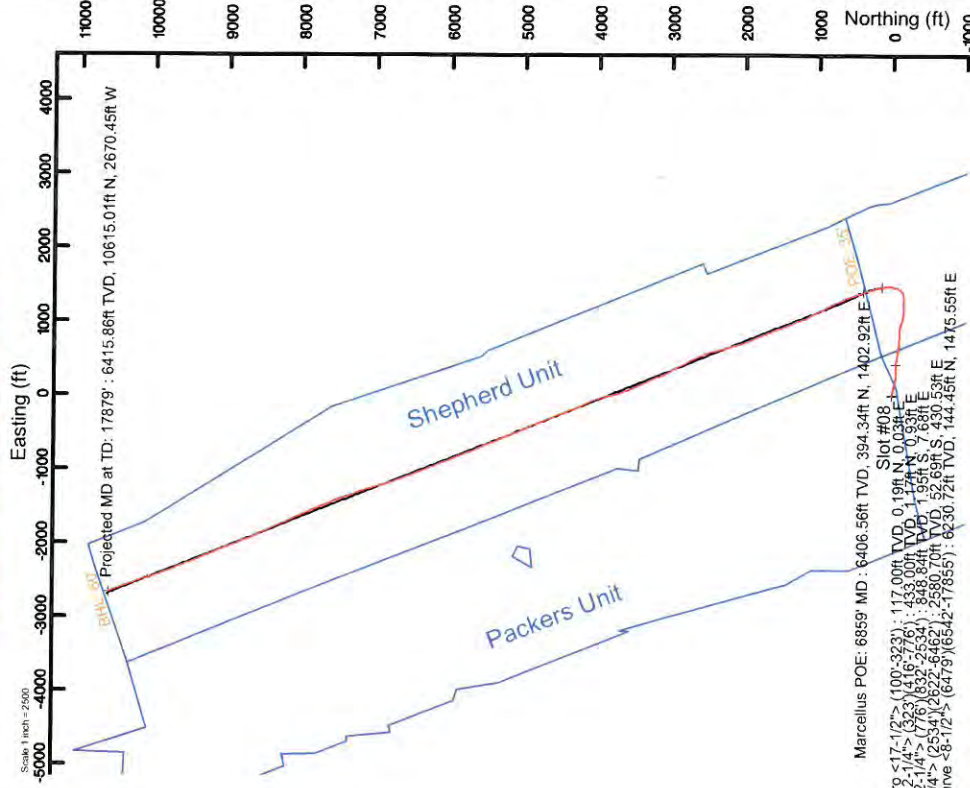
Well Profile Data									
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	Local N (ft)	DLS (°/100ft)	VS (ft)	
Tie On	6479.00	43.190	354.610	6186.21	100.28	1481.42	6.33	-454.33	
Proj. To Bottom	6565.00	47.500	350.000	6246.66	160.84	1473.15	6.29	-395.00	
End of 3D Arc	6693.10	54.139	344.678	6327.57	257.56	1451.20	6.10	-297.02	
POE	6896.56	69.867	333.992	6423.00	424.34	1386.98	9.00	-118.31	
Landing Pt.	7094.88	89.700	334.007	6459.00	598.89	1301.85	10.00	75.34	
On Azimuth	7238.62	89.700	338.312	6468.75	730.33	1243.76	3.00	218.95	
BHL	17890.63	189.700	338.312	6514.47	10618.69	-2688.89	0.00	10860.81	

Directional ONE MWD <8-3/4°> (2534°)(2622°-6462°) : 15.16° Inc, 2639.00ft MD, 2580.70ft TVD, -208.07ft VS

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #08	Shepherd Unit 2H	Shepherd Unit 2H PWB	Shepherd Unit 2H AWP Proj. T.17879
Slot #08	Shepherd Unit 2H	Shepherd Unit 2H PWB	Shepherd Unit 2H PWB Rev A.0



User specified Dip: 65.59ft Field: 51916 JT  
 Magnetic North is 7.60 degrees West of True North (at 03/Sep/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



Vertical Section (ft)  
 Azimuth 338.31° with reference 0.00 N, 0.00 E  
 Scale 1 inch = 1500



# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Ritchie Petroleum Pad
Slot	Slot #08
Well	Shepherd Unit 2H
Wellbore	Shepherd Unit 2H AWB

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	05/Oct/2017 at 15:31
Database/Source file	WA_MPL_EasternUS_Defn/Shepherd_Unit_2H_AWP_Proj_17879_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-15.18	-13.35	1647361.43	14292723.37	39°21'33.140"N	80°58'31.550"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 #08)
	Section Origin
	Section Azimuth
	32.00ft
	1210.00ft
	32.00ft
	N 0.00, E 0.00 ft
	338.31°





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot #08
ANTERO RESOURCES CORPORATION	Shepherd Unit 2H
Tyler County, WV	Wellbore
Tyler	
Ritchie Petroleum Pad	

## WELLPATH DATA (219 stations) † = interpolated/extrapolated station

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	ft	ft	°	°	ft	°	ft/100ft	ft/100ft	°/100ft	
0.00†	0.000	7.680	0.00	0.00	0.00	0.00	1647361.43	14292723.37	39°21'33.140"N	80°58'31.550"W	0.00	0.00	0.00	0.00	0.00	
32.00	0.000	7.680	32.00	0.00	0.00	0.00	1647361.43	14292723.37	39°21'33.140"N	80°58'31.550"W	0.00	0.00	0.00	0.00	0.00	
117.00	0.260	7.680	117.00	0.17	0.19	0.03	1647361.45	14292723.56	39°21'33.142"N	80°58'31.550"W	0.19	7.680	0.31	0.31	9.04	Byrodata SS Gyro <17-1/2"> (100-323)
217.00	0.200	27.720	217.00	0.48	0.57	0.14	1647361.56	14292723.94	39°21'33.146"N	80°58'31.548"W	0.59	13.530	0.10	-0.06	20.04	
317.00	0.410	52.430	317.00	0.69	0.94	0.50	1647361.93	14292724.31	39°21'33.149"N	80°58'31.544"W	1.07	28.027	0.24	0.21	24.71	
340.00	0.340	51.310	340.00	0.73	1.04	0.62	1647362.05	14292724.41	39°21'33.150"N	80°58'31.542"W	1.21	30.921	0.31	-0.30	-4.87	
433.00	0.130	110.330	433.00	0.74	1.17	0.93	1647362.36	14292724.54	39°21'33.152"N	80°58'31.538"W	1.50	38.582	0.32	-0.23	63.46	Byrodata SS Gyro <12-1/4"> (323)(416-776)
521.00	0.250	161.080	521.00	0.48	0.96	1.09	1647362.52	14292724.33	39°21'33.149"N	80°58'31.536"W	1.45	48.780	0.22	0.14	57.67	
613.00	0.300	202.030	612.99	0.11	0.54	1.07	1647362.49	14292723.91	39°21'33.145"N	80°58'31.536"W	1.20	63.021	0.22	0.05	44.51	
703.00	1.010	121.540	702.99	-0.70	-0.09	1.65	1647363.08	14292723.28	39°21'33.139"N	80°58'31.529"W	1.66	93.150	1.12	0.79	-89.43	
793.00	2.790	105.350	792.94	-2.65	-1.09	4.44	1647363.87	14292722.29	39°21'33.129"N	80°58'31.493"W	4.57	103.737	2.05	1.98	-17.99	
849.00	4.070	104.700	848.84	-4.65	-1.95	7.68	1647369.10	14292721.42	39°21'33.121"N	80°58'31.452"W	7.92	104.256	2.29	2.29	-1.16	Directional ONE MWD <12-1/4"> (776)(832-2534)
939.00	5.500	95.770	938.52	-8.53	-3.20	15.06	1647376.48	14292720.18	39°21'33.108"N	80°58'31.358"W	15.39	101.979	1.79	1.59	-9.92	
1027.00	6.510	90.050	1026.04	-12.93	-3.62	24.24	1647385.66	14292719.75	39°21'33.104"N	80°58'31.241"W	24.51	98.500	1.33	1.15	-6.50	
1116.00	7.730	91.170	1114.35	-16.52	-3.75	35.27	1647396.69	14292719.62	39°21'33.103"N	80°58'31.101"W	35.47	96.068	1.38	1.37	1.26	
1204.00	8.560	97.810	1201.46	-22.05	-4.76	47.68	1647409.09	14292718.61	39°21'33.093"N	80°58'30.943"W	47.92	95.702	1.42	0.94	7.55	
1292.00	9.810	101.070	1288.33	-29.33	-7.09	61.53	1647422.93	14292716.28	39°21'33.070"N	80°58'30.767"W	61.93	96.574	1.54	1.42	3.70	
1380.00	11.210	101.020	1374.86	-38.01	-10.17	77.28	1647438.68	14292713.21	39°21'33.039"N	80°58'30.566"W	77.95	97.493	1.59	1.59	-0.06	
1468.00	12.720	102.510	1460.94	-48.08	-13.90	95.14	1647458.52	14292709.48	39°21'33.002"N	80°58'30.339"W	96.15	98.312	1.75	1.72	1.69	
1557.00	14.660	104.760	1547.41	-60.28	-18.89	115.59	1647476.97	14292704.49	39°21'32.953"N	80°58'30.078"W	117.13	99.282	2.26	2.18	2.53	
1645.00	16.860	106.850	1632.10	-74.84	-25.43	138.58	1647499.95	14292699.95	39°21'32.888"N	80°58'29.786"W	140.89	100.398	2.58	2.50	2.37	
1733.00	17.050	106.660	1716.27	-90.80	-32.83	163.15	1647524.51	14292690.56	39°21'32.815"N	80°58'29.473"W	166.42	101.376	0.22	0.22	-0.22	
1821.00	16.230	103.830	1800.59	-105.95	-39.46	187.45	1647548.80	14292683.92	39°21'32.749"N	80°58'29.164"W	191.56	101.889	1.31	-0.93	-3.22	
1910.00	15.600	99.360	1886.18	-119.35	-44.38	211.34	1647572.68	14292679.00	39°21'32.701"N	80°58'28.860"W	215.95	101.861	1.55	-0.71	-5.02	
1998.00	16.050	96.470	1870.84	-131.19	-47.68	235.10	1647596.43	14292675.71	39°21'32.668"N	80°58'28.557"W	239.89	101.464	1.03	0.51	-3.28	
2086.00	17.800	92.070	2055.03	-142.36	-49.54	260.63	1647621.96	14292673.85	39°21'32.650"N	80°58'28.232"W	265.30	100.761	2.46	1.99	-5.00	
2174.00	21.230	91.560	2137.97	-154.07	-50.46	290.01	1647651.32	14292672.93	39°21'32.641"N	80°58'27.858"W	294.37	99.869	3.90	3.90	-0.58	
2262.00	20.840	92.190	2220.10	-166.69	-51.49	321.58	1647682.88	14292671.90	39°21'32.630"N	80°58'27.456"W	325.68	99.096	0.51	-0.44	0.72	
2351.00	19.370	90.550	2303.68	-178.69	-52.23	352.16	1647713.45	14292671.16	39°21'32.623"N	80°58'27.067"W	356.01	98.437	1.77	-1.65	-1.84	
2439.00	16.360	88.030	2387.42	-188.40	-51.95	379.15	1647740.42	14292671.44	39°21'32.626"N	80°58'26.723"W	382.69	97.802	3.53	-3.42	-2.86	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Area	Field	Facility	Slot	Slot #08
ANTERO RESOURCES CORPORATION	Tyler County, WV	Tyler	Ritchie Petroleum Pad	Well	Shepherd Unit 2H
				Wellbore	Shepherd Unit 2H AWB

## WELLPATH DATA (219 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	ft	ft	°	°	ft	°	ft/100ft	ft/100ft	°/100ft	
2227.00	14.270	90.920	2472.30	-196.75	-51.70	402.38	1647763.65	14292671.69	39°21'32.628"N	80°58'26.427"W	405.69	97.321	2.53	-2.38	3.28	
2251.00	14.160	91.460	2495.56	-199.04	-51.82	408.27	1647769.53	14292671.57	39°21'32.627"N	80°58'26.352"W	411.55	97.233	0.72	-0.46	2.25	
2639.00	15.160	92.950	2580.70	-208.07	-52.69	430.53	1647791.28	14292670.71	39°21'32.618"N	80°58'26.069"W	433.74	96.977	1.21	1.14	1.69	Directional ONE MWD <-8-3/4"> [2634] [2622] [6462]
2727.00	14.510	91.320	2665.76	-217.18	-53.53	453.04	1647814.78	14292669.86	39°21'32.610"N	80°58'25.783"W	456.19	96.739	0.88	-0.74	-1.85	
2815.00	14.740	96.340	2750.91	-226.75	-55.02	475.19	1647836.42	14292668.37	39°21'32.595"N	80°58'25.501"W	478.36	96.605	1.46	0.26	5.70	
2903.00	15.010	98.850	2835.97	-237.80	-58.01	497.57	1647858.80	14292665.38	39°21'32.565"N	80°58'25.216"W	500.94	96.650	0.79	0.31	2.85	
2994.00	16.230	102.280	2923.61	-250.89	-62.53	521.64	1647882.86	14292660.87	39°21'32.521"N	80°58'24.909"W	525.38	96.835	1.68	1.34	3.77	
3082.00	16.340	104.200	3008.08	-265.02	-68.18	545.66	1647906.87	14292655.22	39°21'32.465"N	80°58'24.603"W	549.90	97.122	0.62	0.12	2.18	
3170.00	17.540	103.350	3092.26	-279.89	-74.28	570.57	1647931.76	14292649.12	39°21'32.404"N	80°58'24.286"W	575.38	97.417	1.39	1.36	-0.97	
3259.00	16.290	101.500	3177.40	-294.43	-79.87	595.85	1647957.03	14292643.54	39°21'32.349"N	80°58'23.965"W	601.18	97.634	1.53	-1.40	-2.08	
3347.00	15.230	97.570	3262.10	-306.83	-83.85	619.40	1647980.58	14292639.56	39°21'32.310"N	80°58'23.665"W	625.05	97.709	1.71	-1.20	-4.47	
3435.00	15.180	94.730	3347.02	-317.61	-86.32	642.34	1648003.51	14292637.08	39°21'32.285"N	80°58'23.373"W	648.11	97.654	0.85	-0.06	-3.23	
3523.00	13.240	93.960	3432.32	-327.10	-87.97	663.88	1648025.04	14292635.44	39°21'32.269"N	80°58'23.098"W	669.68	97.548	2.21	-2.20	-0.88	
3612.00	13.810	93.540	3518.85	-336.04	-89.33	684.65	1648045.80	14292634.08	39°21'32.255"N	80°58'22.834"W	690.45	97.434	0.65	0.64	-0.47	
3700.00	14.310	92.790	3604.22	-345.02	-90.51	705.99	1648067.14	14292632.90	39°21'32.243"N	80°58'22.562"W	711.77	97.305	0.60	0.57	-0.85	
3788.00	15.510	91.440	3689.25	-354.15	-91.33	728.62	1648089.75	14292632.08	39°21'32.235"N	80°58'22.274"W	734.32	97.145	1.42	1.36	-1.53	
3876.00	14.640	98.100	3774.23	-364.47	-93.39	751.36	1648112.49	14292630.02	39°21'32.215"N	80°58'21.985"W	757.15	97.085	2.47	-0.99	8.70	
3964.00	16.070	102.260	3859.09	-376.96	-97.73	774.25	1648135.36	14292625.68	39°21'32.172"N	80°58'21.693"W	780.39	97.194	1.88	1.62	3.59	
4053.00	16.330	97.080	3944.56	-389.86	-101.89	798.70	1648159.81	14292621.52	39°21'32.131"N	80°58'21.382"W	805.18	97.270	1.65	0.29	-5.82	
4141.00	16.670	89.460	4028.95	-400.37	-103.30	823.61	1648184.70	14292620.12	39°21'32.117"N	80°58'21.065"W	830.06	97.149	2.49	0.39	-8.66	
4229.00	17.650	85.680	4113.03	-408.91	-102.17	849.53	1648210.62	14292621.24	39°21'32.128"N	80°58'20.735"W	855.65	96.858	1.69	1.11	-4.30	
4317.00	17.470	85.980	4196.93	-416.90	-100.24	876.01	1648237.08	14292623.17	39°21'32.147"N	80°58'20.398"W	881.73	96.528	0.23	-0.20	0.34	
4405.00	16.840	89.170	4281.02	-425.45	-99.13	901.93	1648263.00	14292624.28	39°21'32.158"N	80°58'20.068"W	907.36	96.272	1.29	-0.72	3.62	
4494.00	15.060	104.010	4366.62	-436.80	-101.74	926.05	1648287.11	14292621.67	39°21'32.132"N	80°58'19.761"W	931.63	96.270	4.98	-2.00	16.67	
4582.00	14.360	106.280	4451.74	-450.18	-107.57	947.62	1648308.67	14292615.84	39°21'32.074"N	80°58'19.486"W	953.71	96.476	1.03	-0.80	2.58	
4670.00	15.130	111.110	4536.84	-464.70	-114.77	968.81	1648329.85	14292608.65	39°21'32.003"N	80°58'19.216"W	975.59	96.756	1.65	0.88	5.49	
4759.00	16.510	110.500	4622.47	-481.08	-123.38	991.49	1648352.52	14292600.04	39°21'31.918"N	80°58'18.928"W	999.14	97.093	1.56	1.55	-0.69	
4847.00	18.130	104.400	4706.48	-497.55	-131.16	1016.47	1648377.49	14292592.26	39°21'31.841"N	80°58'18.610"W	1024.90	97.353	2.76	1.84	-6.93	
4935.00	17.050	104.760	4790.37	-513.28	-137.86	1042.21	1648403.22	14292585.57	39°21'31.774"N	80°58'18.282"W	1051.29	97.535	1.23	-1.23	0.41	
5024.00	18.240	101.780	4875.18	-528.71	-144.02	1068.46	1648429.46	14292579.40	39°21'31.713"N	80°58'17.948"W	1078.13	97.677	1.68	1.34	-3.35	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #08
Operator	ANTERO RESOURCES CORPORATION	Well	Shepherd Unit 2H
Area	Tyler County, WV	Wellbore	Shepherd Unit 2H AWP
Field	Tyler		
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (219 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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (°/100ft)	Comments
5112.00	18.220	96.460	4958.77	-542.80	-148.38	1095.62	1648456.60	14292575.05	39°21'31.670"N	80°58'17.602"W	1105.62	97.713	1.89	-0.02	-6.05	
5200.00	16.930	93.050	5042.66	-554.65	-150.61	1122.08	1648483.06	14292572.82	39°21'31.648"N	80°58'17.265"W	1132.15	97.645	1.88	-1.47	-3.88	
5288.00	16.220	91.520	5127.01	-564.86	-151.62	1147.16	1648508.13	14292571.81	39°21'31.638"N	80°58'16.946"W	1157.14	97.529	0.95	-0.81	-1.74	
5377.00	15.080	89.650	5212.71	-573.97	-151.88	1171.17	1648532.12	14292571.55	39°21'31.635"N	80°58'16.640"W	1180.98	97.389	1.40	-1.29	-2.10	
5465.00	18.150	93.030	5297.02	-583.87	-152.53	1196.31	1648557.25	14292570.90	39°21'31.629"N	80°58'16.320"W	1205.99	97.266	3.66	3.49	3.84	
5553.00	17.430	86.900	5380.82	-593.81	-152.55	1223.16	1648584.09	14292570.89	39°21'31.629"N	80°58'15.978"W	1232.64	97.109	2.28	-0.82	-6.97	
5597.00	20.280	87.180	5422.46	-598.37	-151.81	1237.36	1648598.29	14292571.62	39°21'31.636"N	80°58'15.988"W	1246.64	96.995	6.48	6.48	0.64	
5641.00	22.490	85.310	5463.43	-603.30	-150.75	1253.36	1648614.29	14292572.68	39°21'31.646"N	80°58'15.594"W	1262.40	96.858	5.26	5.02	-4.25	
5685.00	23.630	91.320	5503.91	-609.21	-150.27	1270.57	1648631.49	14292573.16	39°21'31.651"N	80°58'15.375"W	1279.43	96.745	5.94	2.59	13.66	
5729.00	26.090	95.920	5543.84	-617.14	-151.47	1289.01	1648649.92	14292571.96	39°21'31.639"N	80°58'15.140"W	1297.88	96.702	7.11	5.59	10.45	
5773.00	28.660	96.750	5582.91	-626.65	-153.71	1309.12	1648670.02	14292569.73	39°21'31.617"N	80°58'14.884"W	1318.11	96.697	5.90	5.84	1.89	
5817.00	30.160	92.750	5621.24	-636.25	-155.48	1330.64	1648691.53	14292567.96	39°21'31.599"N	80°58'14.610"W	1339.69	96.664	5.62	3.41	-9.09	
5862.00	29.800	82.800	5660.44	-643.65	-154.66	1352.70	1648713.58	14292568.77	39°21'31.607"N	80°58'14.329"W	1361.51	96.523	11.28	-3.02	-22.11	
5906.00	27.850	72.610	5699.19	-647.07	-150.26	1373.04	1648733.91	14292573.17	39°21'31.651"N	80°58'14.070"W	1381.23	96.245	11.19	-2.16	-23.16	
5950.00	27.000	67.240	5738.25	-647.66	-143.32	1392.02	1648752.93	14292580.11	39°21'31.719"N	80°58'13.828"W	1399.42	95.878	5.94	-1.93	-12.20	
5994.00	25.890	57.990	5777.66	-645.75	-134.36	1409.42	1648770.28	14292589.06	39°21'31.808"N	80°58'13.607"W	1415.81	95.446	9.69	-2.52	-21.02	
6038.00	25.680	46.700	5817.31	-640.51	-122.72	1424.52	1648785.37	14292600.70	39°21'31.923"N	80°58'13.415"W	1429.79	94.924	11.16	-0.48	-25.66	
6082.00	27.550	38.600	5856.66	-631.96	-108.23	1437.81	1648798.66	14292615.19	39°21'32.066"N	80°58'13.246"W	1441.87	94.305	9.27	4.25	-18.41	
6126.00	28.100	30.910	5895.58	-620.61	-91.38	1449.48	1648810.33	14292632.03	39°21'32.233"N	80°58'13.097"W	1452.36	93.607	8.25	1.25	-17.48	
6170.00	28.190	27.960	5934.38	-607.59	-73.31	1459.68	1648820.52	14292650.09	39°21'32.411"N	80°58'12.967"W	1461.52	92.875	3.15	0.20	-6.66	
6215.00	29.730	21.520	5973.76	-592.58	-53.54	1468.76	1648829.60	14292669.86	39°21'32.607"N	80°58'12.851"W	1469.74	92.087	7.74	3.42	-14.36	
6259.00	32.360	15.330	6011.47	-575.22	-32.02	1475.88	1648836.72	14292691.36	39°21'32.819"N	80°58'12.761"W	1476.23	91.243	9.99	5.98	-14.07	
6303.00	34.100	8.660	6048.28	-555.16	-8.46	1480.86	1648841.69	14292714.91	39°21'33.052"N	80°58'12.697"W	1480.98	90.327	9.20	3.95	-15.16	
6347.00	36.260	4.080	6084.25	-532.80	16.72	1483.64	1648844.47	14292740.08	39°21'33.301"N	80°58'12.662"W	1483.73	89.354	7.75	4.91	-10.41	
6391.00	37.660	359.860	6119.41	-508.57	43.14	1484.54	1648845.37	14292766.50	39°21'33.562"N	80°58'12.650"W	1485.16	88.335	6.56	3.18	-9.55	
6435.00	40.770	356.670	6153.50	-482.43	70.94	1483.67	1648844.50	14292794.28	39°21'33.837"N	80°58'12.661"W	1485.37	87.263	8.44	7.07	-7.30	
6479.00	43.190	354.610	6186.21	-454.33	100.28	1481.42	1648842.26	14292823.61	39°21'34.127"N	80°58'12.689"W	1484.81	86.128	6.33	5.50	-4.68	
6542.00	46.920	350.380	6230.72	-411.12	144.45	1475.55	1648836.38	14292867.76	39°21'34.563"N	80°58'12.764"W	1482.60	84.409	7.59	5.92	-6.71	BH IAT Curve <-8.1/2"> (6479)(6542)-17855)
6553.00	46.570	350.080	6238.26	-403.28	152.35	1474.19	1648835.03	14292875.65	39°21'34.641"N	80°58'12.781"W	1482.04	84.100	3.75	-3.18	-2.73	
6600.00	47.010	346.640	6270.44	-369.56	185.89	1467.28	1648828.11	14292909.18	39°21'34.973"N	80°58'12.869"W	1479.01	82.780	5.42	0.94	-7.32	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879

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REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #08
Operator	ANTERO RESOURCES CORPORATION	Well	Shepherd Unit 2H
Area	Tyler County, WV	Wellbore	Shepherd Unit 2H AWB
Field	Tyler		
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (219 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
6612.00†	47.885	345.992	6278.56	-360.80	194.48	1465.19	1648826.02	14292917.77	39°21'35.058"N	80°58'12.896"W	1478.04	82.439	8.31	7.29	-5.40	Middlesex: 6612 MD
6648.00	50.530	344.150	6302.07	-333.74	220.80	1458.16	1648819.00	14292944.09	39°21'35.318"N	80°58'12.985"W	1474.78	81.389	8.31	7.35	-5.12	
6695.00	54.950	343.190	6330.52	-296.51	256.69	1447.63	1648808.48	14292979.96	39°21'35.673"N	80°58'13.119"W	1470.22	79.945	9.54	9.40	-2.04	
6743.00	58.870	342.990	6356.72	-256.44	295.16	1435.94	1648796.79	14293018.41	39°21'36.053"N	80°58'13.268"W	1465.96	78.385	8.17	8.17	-0.42	
6783.00†	62.725	341.962	6376.24	-221.62	328.44	1425.42	1648786.27	14293051.68	39°21'36.382"N	80°58'13.401"W	1462.77	77.024	9.89	9.64	-2.57	Burkett: 6783 MD
6790.00	63.400	341.790	6379.41	-215.40	334.38	1423.48	1648784.33	14293057.61	39°21'36.441"N	80°58'13.426"W	1462.22	76.781	9.89	9.65	-2.46	
6836.00†	68.057	340.888	6398.31	-173.53	374.09	1410.06	1648770.92	14293097.31	39°21'36.833"N	80°58'13.597"W	1458.84	75.142	10.28	10.12	-1.96	Lully: 6836 MD
6838.00	68.260	340.850	6399.06	-171.68	375.85	1409.45	1648770.31	14293099.06	39°21'36.851"N	80°58'13.605"W	1458.74	75.069	10.28	10.13	-1.89	
6859.00†	69.885	340.221	6405.56	-152.08	394.34	1402.92	1648763.78	14293117.55	39°21'37.033"N	80°58'13.795"W	1457.28	74.300	8.23	7.74	-3.00	Marcellus POE: 6859 MD
6885.00	71.900	339.460	6415.07	-127.52	417.40	1394.45	1648755.31	14293140.60	39°21'37.261"N	80°58'13.952"W	1455.58	73.336	8.23	7.75	-2.93	
6933.00	76.740	339.690	6428.04	-81.33	460.69	1378.33	1648739.20	14293183.88	39°21'37.689"N	80°58'14.000"W	1453.28	71.518	10.09	10.08	0.48	
6980.00	82.260	339.780	6436.60	-35.15	504.03	1362.33	1648723.21	14293227.20	39°21'38.118"N	80°58'14.204"W	1452.58	69.697	11.75	11.74	0.19	
7028.00	86.710	339.210	6441.21	12.60	548.77	1345.59	1648706.48	14293271.92	39°21'38.560"N	80°58'14.417"W	1453.19	67.813	9.35	9.27	-1.19	
7075.00	89.660	338.150	6442.70	59.57	592.58	1328.52	1648689.41	14293315.66	39°21'38.992"N	80°58'14.634"W	1454.66	65.963	6.67	6.28	-2.26	
7123.00	89.750	336.810	6442.95	107.57	636.86	1310.13	1648671.03	14293359.98	39°21'39.431"N	80°58'14.868"W	1456.72	64.075	2.80	0.19	-2.79	
7218.00	89.600	334.690	6443.48	202.46	723.47	1271.12	1648632.03	14293446.55	39°21'40.287"N	80°58'15.364"W	1462.58	60.353	2.24	-0.16	-2.23	
7313.00	89.290	334.860	6444.40	297.28	809.41	1230.63	1648591.56	14293532.46	39°21'41.136"N	80°58'15.879"W	1472.96	56.666	0.37	-0.33	0.18	
7408.00	89.880	334.160	6445.09	392.07	895.16	1189.75	1648550.70	14293618.17	39°21'41.984"N	80°58'16.400"W	1488.90	53.042	0.96	0.62	-0.74	
7504.00	89.690	334.120	6445.45	487.81	981.55	1147.88	1648508.84	14293704.52	39°21'42.838"N	80°58'16.932"W	1510.32	49.466	0.20	-0.20	-0.04	
7599.00	90.180	332.330	6445.56	582.43	1066.36	1105.08	1648466.07	14293789.30	39°21'43.676"N	80°58'17.477"W	1535.68	46.022	1.95	0.52	-1.88	
7694.00	89.660	334.910	6445.69	677.11	1151.48	1062.88	1648423.88	14293874.36	39°21'44.517"N	80°58'18.014"W	1567.02	42.709	2.77	-0.55	2.72	
7788.00	89.750	337.900	6446.18	771.04	1237.59	1025.26	1648386.27	14293960.46	39°21'45.369"N	80°58'18.492"W	1607.10	39.639	3.18	0.10	3.18	
7883.00	89.850	338.890	6446.51	866.04	1325.91	990.28	1648351.31	14294048.75	39°21'46.242"N	80°58'18.937"W	1654.90	36.755	1.05	0.11	1.04	
7978.00	89.780	338.900	6446.82	961.04	1414.54	956.07	1648317.11	14294137.34	39°21'47.118"N	80°58'19.373"W	1707.33	34.054	0.07	-0.07	0.01	
8073.00	89.660	338.100	6447.28	1056.03	1502.93	921.25	1648282.81	14294225.69	39°21'47.992"N	80°58'19.816"W	1762.81	31.507	0.85	-0.13	-0.84	
8168.00	89.880	338.210	6447.66	1151.03	1591.10	885.90	1648246.97	14294313.84	39°21'48.863"N	80°58'20.265"W	1821.11	29.108	0.26	0.23	0.12	
8263.00	89.820	337.030	6447.91	1246.02	1678.95	849.73	1648210.82	14294401.64	39°21'49.732"N	80°58'20.725"W	1881.73	26.844	1.24	-0.06	-1.24	
8358.00	89.750	337.640	6448.27	1341.01	1766.61	813.16	1648174.23	14294489.27	39°21'50.598"N	80°58'21.191"W	1944.76	24.715	0.65	-0.07	0.64	
8453.00	89.780	337.350	6448.66	1436.00	1854.37	776.76	1648137.88	14294577.00	39°21'51.466"N	80°58'21.654"W	2010.49	22.728	0.31	0.03	-0.31	
8547.00	89.820	338.080	6448.98	1529.99	1941.95	741.12	1648102.25	14294663.94	39°21'52.325"N	80°58'22.107"W	2078.00	20.895	0.78	0.04	0.78	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Ritchie Petroleum Pad
Slot	Slot #08
Well	Shepherd Unit 2H
Wellbore	Shepherd Unit 2H AWB

WELLPATH DATA (219 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (JUS ft)	Grid North (JUS ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
8642.00	89.880	340.690	6449.23	1624.97	2030.26	707.67	1648068.82	14294752.82	39°21'53.204"N	80°58'22.533"W	2150.06	19.217	2.75	0.06	2.75	
8738.00	90.550	343.440	6448.87	1720.75	2121.59	678.11	1648039.27	14294844.10	39°21'54.107"N	80°58'22.909"W	2227.32	17.725	2.95	0.70	2.86	
8833.00	89.660	343.900	6448.70	1815.33	2212.75	651.40	1648012.57	14294935.23	39°21'55.008"N	80°58'23.249"W	2306.64	16.404	1.05	-0.94	0.48	
8928.00	89.780	345.680	6449.16	1909.72	2304.42	626.48	1647987.66	14295026.86	39°21'55.914"N	80°58'23.566"W	2388.06	15.209	1.88	0.13	1.87	
9023.00	90.490	345.830	6448.94	2003.92	2396.50	603.11	1647964.29	14295118.90	39°21'56.824"N	80°58'23.863"W	2471.22	14.126	0.76	0.75	0.16	
9118.00	90.620	340.550	6448.02	2098.54	2487.40	575.64	1647936.84	14295209.77	39°21'57.723"N	80°58'24.212"W	2553.14	13.030	5.56	0.14	-5.56	
9214.00	89.750	337.230	6447.71	2194.52	2576.95	541.07	1647902.28	14295299.28	39°21'58.608"N	80°58'24.652"W	2633.14	11.858	3.58	-0.91	-3.46	
9308.00	89.970	335.430	6447.94	2288.46	2663.03	503.34	1647864.56	14295385.33	39°21'59.459"N	80°58'25.132"W	2710.18	10.703	1.93	0.23	-1.91	
9404.00	89.260	332.960	6448.58	2384.20	2749.45	461.55	1647822.79	14295471.72	39°22'00.313"N	80°58'25.664"W	2787.92	9.529	2.68	-0.74	-2.57	
9499.00	88.950	333.270	6450.07	2478.80	2834.17	418.60	1647779.86	14295556.40	39°22'01.151"N	80°58'26.210"W	2864.92	8.402	0.46	-0.33	0.33	
9594.00	88.830	333.650	6451.91	2573.44	2919.15	376.16	1647737.43	14295641.34	39°22'01.991"N	80°58'26.750"W	2943.28	7.343	0.42	-0.13	0.40	
9689.00	88.890	333.880	6453.80	2668.12	3004.34	334.17	1647695.46	14295726.51	39°22'02.833"N	80°58'27.285"W	3022.87	6.347	0.25	0.06	0.24	
9783.00	89.420	335.310	6455.18	2761.91	3089.24	293.85	1647655.16	14295811.37	39°22'03.672"N	80°58'27.798"W	3103.19	5.434	1.62	0.56	1.52	
9878.00	89.350	336.110	6456.20	2856.81	3175.83	254.77	1647616.10	14295897.92	39°22'04.528"N	80°58'28.295"W	3186.03	4.587	0.85	-0.07	0.84	
9973.00	89.540	336.590	6457.12	2951.75	3262.84	216.67	1647578.00	14295984.90	39°22'05.388"N	80°58'28.780"W	3270.03	3.799	0.54	0.20	0.51	
10068.00	90.060	337.110	6457.45	3046.72	3350.19	179.32	1647540.67	14296072.22	39°22'06.251"N	80°58'29.255"W	3354.99	3.064	0.77	0.55	0.55	
10162.00	90.060	336.180	6457.36	3140.67	3436.49	142.05	1647503.42	14296158.48	39°22'07.104"N	80°58'29.729"W	3439.42	2.367	0.99	0.00	-0.99	
10258.00	89.510	335.290	6457.72	3236.58	3524.01	102.60	1647463.99	14296245.96	39°22'07.970"N	80°58'30.231"W	3525.50	1.668	1.09	-0.57	-0.93	
10353.00	89.290	338.360	6458.71	3331.53	3611.32	65.22	1647426.62	14296333.24	39°22'08.833"N	80°58'30.707"W	3611.91	1.035	3.24	-0.23	3.23	
10448.00	89.200	342.390	6459.96	3426.44	3700.78	33.33	1647394.74	14296422.66	39°22'09.717"N	80°58'31.113"W	3700.93	0.516	4.24	-0.09	4.24	
10543.00	89.690	346.840	6460.88	3520.83	3792.35	8.13	1647369.55	14296514.19	39°22'10.622"N	80°58'31.433"W	3792.36	0.123	4.71	0.52	4.68	
10638.00	89.850	346.520	6461.27	3614.82	3884.79	-13.76	1647347.67	14296606.60	39°22'11.536"N	80°58'31.712"W	3884.82	359.797	0.38	0.17	-0.34	
10733.00	90.590	342.980	6460.90	3709.21	3976.43	-38.74	1647322.70	14296698.20	39°22'12.442"N	80°58'32.030"W	3976.62	359.442	3.81	0.78	-3.73	
10828.00	91.230	337.770	6459.39	3804.10	4065.87	-70.63	1647290.82	14296787.61	39°22'13.326"N	80°58'32.435"W	4066.48	359.005	5.52	0.67	-5.48	
10923.00	90.120	335.770	6458.27	3899.05	4153.16	-108.10	1647253.37	14296874.86	39°22'14.188"N	80°58'32.912"W	4154.56	358.509	2.41	-1.17	-2.11	
11018.00	89.910	337.100	6458.25	3994.00	4240.23	-146.08	1647215.41	14296961.90	39°22'15.049"N	80°58'33.395"W	4242.75	358.027	1.42	-0.22	1.40	
11114.00	90.250	335.510	6458.11	4089.94	4328.14	-184.66	1647176.85	14297049.77	39°22'15.918"N	80°58'33.886"W	4322.07	357.557	1.69	0.35	-1.66	
11209.00	90.310	337.760	6457.65	4184.89	4415.34	-222.33	1647139.19	14297136.93	39°22'16.780"N	80°58'34.366"W	4420.93	357.117	2.37	0.06	2.37	
11304.00	90.280	340.250	6457.16	4279.87	4504.02	-256.36	1647105.17	14297225.68	39°22'17.657"N	80°58'34.799"W	4511.31	356.742	2.62	-0.03	2.62	
11398.00	90.250	338.920	6456.72	4373.85	4592.12	-289.15	1647072.39	14297313.64	39°22'18.527"N	80°58'35.216"W	4601.21	356.397	1.42	-0.03	-1.41	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #08
ANTERO RESOURCES CORPORATION	Well	Shepherd Unit 2H
Tyler	Wellbore	Shepherd Unit 2H AWB
Ritchie Petroleum Pad		

## WELLPATH DATA (219 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert.Sect (ft)	North (ft)	East (ft)	Grid East (IUS ft)	Grid North (IUS ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
11494.00	90.150	337.110	6456.39	4469.84	4681.13	-325.09	1647036.47	14297402.62	39°22'19.407"N	80°58'35.673"W	4892.41	356.027	1.89	-0.10	-1.89	
11589.00	90.280	338.680	6456.03	4564.83	4769.15	-360.83	1647000.74	14297490.60	39°22'20.277"N	80°58'36.128"W	4782.78	355.673	1.66	0.14	1.65	
11684.00	90.220	337.480	6455.62	4659.83	4857.27	-396.30	1646965.29	14297578.69	39°22'21.148"N	80°58'36.579"W	4873.41	355.336	1.26	-0.06	-1.26	
11779.00	90.280	335.240	6455.20	4754.77	4944.30	-434.39	1646927.21	14297665.68	39°22'22.009"N	80°58'37.064"W	4963.34	354.979	2.36	0.06	-2.36	
11874.00	90.340	338.090	6454.69	4849.72	5031.52	-472.02	1646889.60	14297752.86	39°22'22.871"N	80°58'37.543"W	5053.61	354.641	3.00	0.06	3.00	
11970.00	90.370	340.280	6454.10	4945.70	5121.24	-506.13	1646855.50	14297842.55	39°22'23.758"N	80°58'37.977"W	5146.19	354.356	2.28	0.03	2.28	
12065.00	90.150	338.680	6453.66	5040.68	5210.21	-539.43	1646822.22	14297931.49	39°22'24.637"N	80°58'38.401"W	5238.06	354.089	1.70	-0.23	-1.68	
12160.00	90.250	338.230	6453.33	5135.68	5298.57	-574.31	1646787.34	14298019.81	39°22'25.510"N	80°58'38.845"W	5329.61	353.814	0.49	0.11	-0.47	
12255.00	90.180	336.810	6452.98	5230.66	5386.35	-610.64	1646751.04	14298107.56	39°22'26.378"N	80°58'39.307"W	5420.85	353.532	1.50	-0.07	-1.49	
12350.00	90.180	336.260	6452.68	5325.62	5473.49	-648.46	1646713.22	14298194.66	39°22'27.239"N	80°58'39.788"W	5511.77	353.243	0.58	0.00	-0.58	
12446.00	90.310	336.290	6452.27	5421.56	5561.38	-687.09	1646674.61	14298282.52	39°22'28.108"N	80°58'40.280"W	5603.66	352.957	0.14	0.14	0.03	
12542.00	90.120	337.630	6451.91	5517.53	5649.72	-724.66	1646637.06	14298370.82	39°22'28.981"N	80°58'40.758"W	5696.00	352.691	1.41	-0.20	1.40	
12636.00	90.220	339.550	6451.63	5611.52	5737.23	-758.97	1646602.76	14298458.29	39°22'29.846"N	80°58'41.195"W	5787.21	352.464	2.05	0.11	2.04	
12731.00	90.250	338.020	6451.24	5706.51	5825.79	-793.35	1646568.40	14298546.82	39°22'30.722"N	80°58'41.632"W	5879.56	352.245	1.61	0.03	-1.61	
12827.00	90.250	338.890	6450.82	5802.51	5915.08	-828.60	1646533.16	14298636.07	39°22'31.604"N	80°58'42.081"W	5972.83	352.026	0.91	0.00	0.91	
12922.00	90.120	337.660	6450.51	5897.51	6003.33	-863.76	1646498.01	14298724.29	39°22'32.477"N	80°58'42.528"W	6065.15	351.812	1.30	-0.14	-1.29	
13017.00	90.280	338.260	6450.18	5992.51	6091.38	-899.41	1646462.38	14298812.31	39°22'33.347"N	80°58'42.982"W	6157.43	351.601	0.65	0.17	0.63	
13112.00	90.120	337.930	6449.85	6087.50	6179.52	-934.85	1646426.95	14298900.41	39°22'34.218"N	80°58'43.433"W	6249.84	351.397	0.39	-0.17	-0.35	
13206.00	90.280	337.300	6449.52	6181.50	6266.44	-970.65	1646391.17	14298987.29	39°22'35.077"N	80°58'43.889"W	6341.17	351.195	0.89	0.17	-0.67	
13302.00	90.220	338.860	6449.10	6277.49	6355.50	-1006.49	1646355.34	14299076.31	39°22'35.958"N	80°58'44.345"W	6434.70	351.001	1.63	-0.06	1.62	
13397.00	90.220	339.220	6448.74	6372.48	6444.21	-1040.47	1646321.37	14299164.99	39°22'36.835"N	80°58'44.777"W	6527.67	350.828	0.38	0.00	0.38	
13493.00	90.060	338.240	6448.50	6468.48	6533.67	-1075.30	1646286.56	14299254.41	39°22'37.719"N	80°58'45.221"W	6621.56	350.654	1.03	-0.17	-1.02	
13588.00	90.340	338.190	6448.17	6563.48	6621.88	-1110.55	1646251.32	14299342.59	39°22'38.591"N	80°58'45.669"W	6714.36	350.480	0.30	0.29	-0.05	
13683.00	90.680	340.250	6447.33	6658.46	6710.70	-1144.25	1646217.63	14299431.37	39°22'39.469"N	80°58'46.098"W	6807.55	350.323	2.20	0.36	2.17	
13778.00	90.180	339.530	6446.61	6753.42	6799.90	-1176.91	1646184.98	14299520.54	39°22'40.350"N	80°58'46.514"W	6901.00	350.181	0.92	-0.53	-0.76	
13874.00	90.550	343.470	6446.00	6849.25	6890.92	-1207.37	1646154.54	14299611.52	39°22'41.250"N	80°58'46.901"W	6995.89	350.062	4.12	0.39	4.10	
13969.00	91.020	343.120	6444.70	6943.88	6981.90	-1234.67	1646127.25	14299702.47	39°22'42.149"N	80°58'47.249"W	7090.23	349.972	0.62	0.49	-0.37	
14064.00	90.830	345.440	6443.17	7038.34	7073.33	-1260.41	1646101.53	14299793.86	39°22'43.053"N	80°58'47.576"W	7184.75	349.896	2.45	-0.20	2.44	
14160.00	90.400	343.280	6442.13	7133.80	7165.76	-1286.29	1646075.66	14299886.25	39°22'43.967"N	80°58'47.906"W	7280.30	349.824	2.29	-0.45	-2.25	
14255.00	90.740	335.960	6441.19	7228.70	7254.75	-1319.34	1646042.61	14299975.21	39°22'44.846"N	80°58'48.326"W	7373.74	349.693	7.71	0.36	-7.71	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot #08
ANTERO RESOURCES CORPORATION	Shepherd Unit 2H
Tyler County, WV	Well
Tyler	Wellbore
Ritchie Petroleum Pad	Shepherd Unit 2H_AWB

## WELLPATH DATA (219 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 (°/100ft)	Comments
14350.00	90.980	341.400	6439.76	7323.66	7343.21	-1353.87	1645008.10	14300063.63	39°22'45.72"N	80°58'48.766"W	7466.97	349.554	5.73	0.25	5.73	
14444.00	90.980	343.000	6438.15	7417.42	7432.69	-1382.60	1645979.38	14300153.08	39°22'46.605"N	80°58'49.131"W	7560.19	349.463	1.70	0.00	1.70	
14540.00	90.980	334.330	6436.50	7513.32	7522.01	-1417.49	1645944.51	14300242.36	39°22'47.488"N	80°58'49.575"W	7654.41	349.328	9.03	0.01	-9.03	
14635.00	91.260	336.120	6434.64	7608.16	7608.25	-1457.29	1645904.72	14300328.56	39°22'48.340"N	80°58'50.082"W	7746.56	349.157	1.91	0.28	1.88	
14730.00	90.710	342.160	6433.00	7703.09	7698.97	-1491.09	1645870.93	14300417.25	39°22'49.217"N	80°58'50.512"W	7840.07	349.036	6.38	-0.58	6.36	
14826.00	91.420	337.430	6431.22	7799.01	7787.02	-1524.23	1645837.80	14300507.26	39°22'50.107"N	80°58'50.934"W	7934.80	348.925	4.98	0.74	-4.93	
14920.00	90.280	334.940	6429.82	7892.93	7873.00	-1562.18	1645799.87	14300597.27	39°22'50.957"N	80°58'51.417"W	8026.49	348.777	2.91	-1.21	-2.65	
15015.00	90.520	335.070	6429.16	7987.77	7959.10	-1602.32	1645759.75	14300683.10	39°22'51.808"N	80°58'51.928"W	8118.79	348.617	0.29	0.25	0.14	
15111.00	90.370	335.390	6428.41	8083.62	8046.26	-1642.54	1645719.84	14300768.40	39°22'52.670"N	80°58'52.440"W	8212.21	348.462	0.37	-0.16	0.33	
15206.00	90.430	336.470	6427.75	8178.54	8133.00	-1681.29	1645680.81	14300853.10	39°22'53.527"N	80°58'52.933"W	8304.96	348.320	1.14	0.06	1.14	
15302.00	90.430	336.660	6427.03	8274.49	8221.08	-1719.47	1645642.65	14300941.15	39°22'54.388"N	80°58'53.419"W	8398.97	348.187	0.20	0.00	0.20	
15397.00	90.280	335.580	6426.44	8369.42	8307.94	-1757.92	1645604.21	14301027.97	39°22'55.256"N	80°58'53.909"W	8491.89	348.053	1.15	-0.16	-1.14	
15492.00	89.720	336.650	6426.44	8464.35	8394.81	-1796.39	1645565.76	14301114.80	39°22'56.115"N	80°58'54.398"W	8584.86	347.922	1.27	-0.59	1.13	
15587.00	89.680	335.910	6426.93	8559.29	8481.78	-1834.60	1645527.96	14301201.74	39°22'56.975"N	80°58'54.885"W	8677.92	347.795	0.78	-0.03	-0.78	
15682.00	89.750	336.450	6427.39	8654.22	8568.69	-1872.97	1645489.21	14301288.61	39°22'57.834"N	80°58'55.373"W	8771.00	347.670	0.57	0.08	0.57	
15777.00	90.220	336.730	6427.42	8749.18	8655.87	-1910.71	1645451.48	14301375.76	39°22'58.695"N	80°58'55.854"W	8864.24	347.552	0.58	0.49	0.29	
15873.00	89.970	337.600	6427.26	8845.15	8744.34	-1947.97	1645414.24	14301464.20	39°22'59.570"N	80°58'56.328"W	8958.69	347.441	0.94	-0.26	0.91	
15967.00	90.000	337.930	6427.28	8939.15	8831.35	-1983.54	1645378.68	14301551.17	39°23'00.430"N	80°58'56.781"W	9051.36	347.341	0.35	0.03	0.35	
16061.00	90.060	338.840	6427.23	9033.15	8918.74	-2018.17	1645344.07	14301638.52	39°23'01.294"N	80°58'57.222"W	9144.23	347.250	0.97	0.06	0.97	
16156.00	90.220	338.810	6427.00	9128.15	9007.32	-2052.48	1645309.77	14301727.07	39°23'02.169"N	80°58'57.658"W	9238.21	347.163	0.17	0.17	-0.03	
16251.00	90.220	339.420	6426.64	9223.13	9096.08	-2086.35	1645275.92	14301815.80	39°23'03.047"N	80°58'58.089"W	9332.29	347.082	0.64	0.00	0.64	
16346.00	90.250	337.550	6426.25	9318.13	9184.46	-2121.19	1645241.09	14301904.14	39°23'03.920"N	80°58'58.533"W	9426.22	346.995	1.97	0.03	-1.97	
16441.00	90.150	335.470	6425.92	9413.08	9271.58	-2159.05	1645203.24	14301991.22	39°23'04.781"N	80°58'59.015"W	9519.65	346.891	2.19	-0.11	-2.19	
16537.00	90.180	337.020	6425.64	9509.01	9359.44	-2197.72	1645164.59	14302079.05	39°23'05.650"N	80°58'59.507"W	9614.01	346.786	1.61	0.03	1.61	
16632.00	90.220	338.320	6425.31	9604.00	9447.32	-2233.81	1645128.51	14302166.89	39°23'06.518"N	80°58'59.967"W	9707.82	346.697	1.37	0.04	1.37	
16727.00	90.310	338.740	6424.87	9699.00	9535.72	-2268.58	1645093.75	14302255.26	39°23'07.392"N	80°59'00.408"W	9801.86	346.618	0.45	0.09	0.44	
16822.00	90.220	339.050	6424.43	9793.99	9624.35	-2302.79	1645059.56	14302343.85	39°23'08.268"N	80°59'00.845"W	9896.01	346.544	0.34	-0.09	0.33	
16918.00	90.400	337.890	6423.91	9889.99	9713.65	-2338.02	1645024.34	14302433.12	39°23'09.151"N	80°59'01.293"W	9991.06	346.467	1.22	0.19	-1.21	
17013.00	90.400	337.700	6423.25	9984.98	9801.60	-2373.92	1644988.46	14302521.03	39°23'10.020"N	80°59'01.750"W	10084.98	346.385	0.20	0.00	-0.20	
17109.00	90.520	339.760	6422.48	10080.97	9891.05	-2408.75	1644953.64	14302610.45	39°23'10.904"N	80°59'02.194"W	10180.13	346.313	2.14	0.12	2.14	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Ritchie Petroleum Pad
Slot #08	Shepherd Unit 2H
Well	Wellbore
Wellbore	Shepherd Unit 2H AWP

WELLPATH DATA (219 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
17204.00	90.490	341.150	6421.64	10175.90	9980.57	-2440.54	1644921.87	14302599.93	39°23'11.789"N	80°59'02.598"W	10274.63	346.259	1.47	-0.03	1.47	
17300.00	90.400	340.590	6420.89	10271.80	10071.26	-2472.00	1644890.42	14302790.59	39°23'12.686"N	80°59'02.999"W	10370.20	346.209	0.59	-0.09	-0.58	
17395.00	90.490	341.340	6420.15	10366.70	10161.07	-2502.98	1644859.45	14302880.35	39°23'13.573"N	80°59'03.393"W	10464.81	346.162	0.80	0.09	0.79	
17490.00	90.460	340.970	6419.37	10461.58	10250.97	-2533.67	1644828.78	14302970.22	39°23'14.462"N	80°59'03.784"W	10559.44	346.117	0.39	-0.03	-0.39	
17585.00	90.460	340.800	6418.60	10556.48	10340.79	-2564.78	1644797.68	14303059.94	39°23'15.349"N	80°59'04.180"W	10654.05	346.070	0.18	0.00	-0.18	
17681.00	90.550	339.560	6417.76	10652.42	10431.04	-2597.32	1644765.15	14303150.22	39°23'16.242"N	80°59'04.594"W	10749.54	346.018	1.30	0.09	-1.29	
17776.00	90.590	338.650	6416.81	10747.41	10519.78	-2631.20	1644731.28	14303238.93	39°23'17.119"N	80°59'05.025"W	10843.85	345.957	0.96	0.04	-0.96	
17855.00	90.490	336.950	6416.07	10826.40	10592.92	-2661.05	1644701.44	14303312.04	39°23'17.842"N	80°59'05.405"W	10922.05	345.899	2.16	-0.13	-2.15	
17879.00	90.490	336.950	6415.86	10850.39	10615.01	-2670.45	1644692.05	14303334.11	39°23'18.060"N	80°59'05.525"W	10945.76	345.879	0.00	0.00	0.00	Projected MD at TD: 17879'

HOLE & CASING SECTIONS - Ref Wellbore: Shepherd Unit 2H AWP																
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 MD [ft]	End MD [ft]	Interval [ft]	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	32.00	112.00	80.00	112.00	32.00	80.00	112.00	32.00	112.00	0.00	0.00	0.17	0.00	0.17	0.02	
17.5in Open Hole	112.00	375.00	263.00	375.00	112.00	263.00	375.00	112.00	375.00	0.17	0.17	1.14	0.02	1.14	0.77	
13.375in Casing Surface	32.00	375.00	343.00	375.00	32.00	32.00	375.00	32.00	375.00	0.00	0.00	1.14	0.00	1.14	0.77	
12.25in Open Hole	375.00	2625.00	2250.00	2625.00	375.00	2250.00	2625.00	375.00	2625.00	1.14	1.14	-52.51	0.77	-52.51	426.89	
9.625in Casing Intermediate	32.00	2625.00	2593.00	2625.00	32.00	2593.00	2625.00	32.00	2567.18	0.00	0.00	-52.51	0.00	-52.51	426.89	
8.75in Open Hole	2625.00	6565.00	3940.00	6565.00	2625.00	3940.00	6565.00	2625.00	6246.50	-52.51	-52.51	160.93	426.89	160.93	1472.62	
8.5in Open Hole	6565.00	17879.00	11314.00	17879.00	6565.00	11314.00	17879.00	6565.00	6415.86	160.93	160.93	10615.01	1472.62	10615.01	-2670.45	
5.5in Casing Production	32.00	17879.00	17847.00	17879.00	32.00	17847.00	17879.00	32.00	6415.86	0.00	0.00	10615.01	0.00	10615.01	-2670.45	





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Area	Field	Facility	Slot	Slot #08
ANTERO RESOURCES CORPORATION	Tyler County, WV	Tyler	Ritchie Petroleum Pad	Well	Shepherd Unit 2H
				Wellbore	Shepherd Unit 2H AWB

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Shepherd Unit 2H POE - Rev-2	6423.00	424.34	1386.98	1648747.85	14293147.54	39°21'37.330"N	80°58'13.890"W	point
Shepherd Unit 2H LP - Rev-2	6458.00	598.89	1301.85	1648662.75	14293322.02	39°21'39.055"N	80°58'14.974"W	point
Shepherd Unit 2H BHL - Rev-2	6514.47	10618.89	-2688.89	1644673.62	14303337.99	39°23'18.098"N	80°59'05.760"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Shepherd Unit 2H AWB

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
32.00	340.00	Gyrodata standard - Single-shot	01_Gyrodata SS Gyro <17-1/2">(100'-323')	Shepherd Unit 2H AWB
340.00	793.00	Gyrodata standard - Single-shot	02_Gyrodata SS Gyro <12-1/4">(323')(416'-776')	Shepherd Unit 2H AWB
793.00	2551.00	ISCWSA MWD, Rev. 4 (Standard)	03_Directional ONE MWD <12-1/4">(776')(832'-2534')	Shepherd Unit 2H AWB
2551.00	6479.00	ISCWSA MWD, Rev. 4 (Standard)	04_Directional ONE MWD <8-3/4">(2534')(2622'-6462')	Shepherd Unit 2H AWB
6479.00	17855.00	BHI AutoTrak Curve (Short)	05_BHI AT Curve <8-1/2">(6479')(6542'-17855')	Shepherd Unit 2H AWB
17855.00	17879.00	Blind Drilling (std)	Projection to bit	Shepherd Unit 2H AWB





# Actual Wellpath Report

Shepherd Unit 2H AWP Proj: 17879'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Area	Field	Facility	Slot	Slot #08
ANTERO RESOURCES CORPORATION	Tyler County, WV	Tyler	Ritchie Petroleum Pad	Well	Shepherd Unit 2H
				Wellbore	Shepherd Unit 2H AWB

## COMMENTS

### Wellpath general comments

API: 47-095-02386-0000  
 BHI Job #: 8740588  
 Rig: Frontier 32  
 Duration: 09/07/2017-09/09/2017  
 Gyrodatta SS Gyro <17-1/2"> (100'-323')  
 Gyrodatta SS Gyro <12-1/4"> (323')(416'-776')  
 Directional ONE MWD <12-1/4"> (776')(832'-2534')  
 Directional ONE MWD <8-3/4"> (2534')(2622'-6462')  
 BHI AT Curve <8-1/2"> (6479')(6542'-17855')  
 Middlesex: 6612' MD  
 Burkett: 6783' MD  
 Tully: 6836' MD  
 Marcellus POE: 6859' MD  
 Projected MD at TD: 17879'