

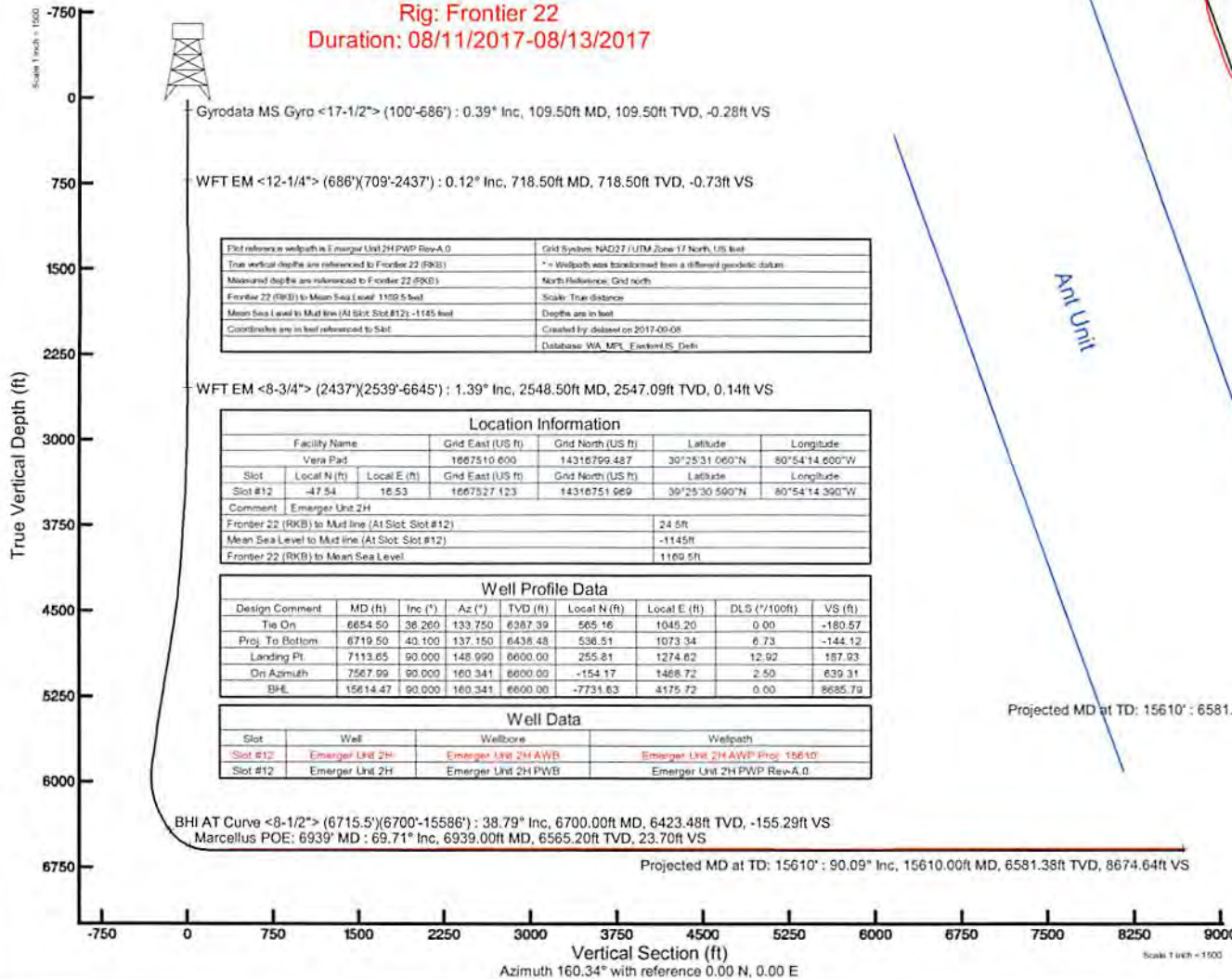
ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
 Field: Tyler
 Facility: Vera Pad

Slot: Slot #12
 Well: Emerger Unit 2H
 Wellbore: Emerger Unit 2H PWB



API: 47-095-02378-0000
 BHI Job #: 8696636
 Rig: Frontier 22
 Duration: 08/11/2017-08/13/2017



Gyrodata MS Gyro <17-1/2"> (100'-686') : 0.39° Inc, 109.50ft MD, 109.50ft TVD, -0.28ft VS

WFT EM <12-1/4"> (686')(709'-2437') : 0.12° Inc, 718.50ft MD, 718.50ft TVD, -0.73ft VS

WFT EM <8-3/4"> (2437')(2539'-6645') : 1.39° Inc, 2548.50ft MD, 2547.09ft TVD, 0.14ft VS

BHI AT Curve <8-1/2"> (6715.5')(6700'-15586') : 38.79° Inc, 6700.00ft MD, 6423.48ft TVD, -155.29ft VS
 Marcellus POE: 6939' MD : 69.71° Inc, 6939.00ft MD, 6565.20ft TVD, 23.70ft VS

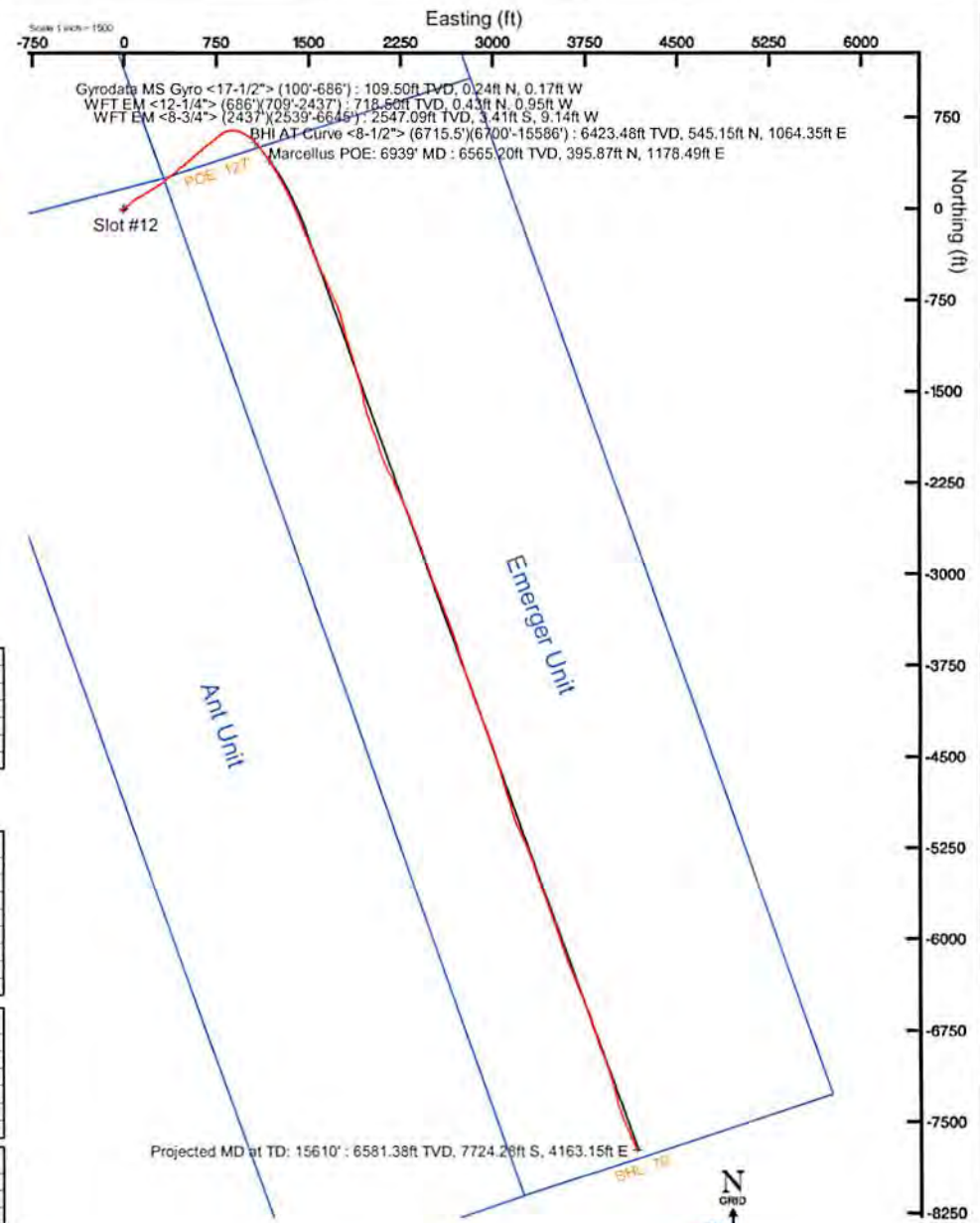
Projected MD at TD: 15610' : 90.09° Inc, 15610.00ft MD, 6581.38ft TVD, 8674.64ft VS

Plot reference wellpath is Emerger Unit 2H PWB Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 22 (F203)	* = Wellpath was transformed from a different geoidic datum
Measured depths are referenced to Frontier 22 (F203)	North Reference: Grid north
Frontier 22 (F203) to Mean Sea Level: 1102.5 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot Slot#12): -1145 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: dlabed on 2017-09-08
	Database: WA_MPL_Electrod IS_Data

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Vera Pad	1667510.600	14316799.487	30°25'31.060"N	80°54'14.600"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #12	-47.54	16.53	1667527.123	14316751.969
			30°25'30.560"N	80°54'14.390"W
Comment	Emerger Unit 2H			
Frontier 22 (RKB) to Mud line (At Slot Slot#12)	24 ft			
Mean Sea Level to Mud line (At Slot Slot#12)	-1145ft			
Frontier 22 (RKB) to Mean Sea Level	1160 ft			

Well Profile Data							
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	6654.50	36.260	133.750	6287.39	565.16	1045.20	-180.57
Proj. To Bottom	6719.50	40.100	137.150	6438.48	538.51	1073.34	-144.12
Landing Pt.	7113.65	90.000	148.990	6600.00	255.81	1274.62	187.93
On Azimuth	7567.99	90.000	160.341	6600.00	-154.17	1468.72	639.31
BHL	15614.47	90.000	160.341	6600.00	-7731.83	4175.72	8685.79

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #12	Emerger Unit 2H	Emerger Unit 2H AWB	Emerger Unit 2H AWP (Proj: 15610)
Slot #12	Emerger Unit 2H	Emerger Unit 2H PWB	Emerger Unit 2H PWB Rev-A.0



Gyrodata MS Gyro <17-1/2"> (100'-686') : 109.50ft MD, 0.24ft N, 0.17ft W
 WFT EM <12-1/4"> (686')(709'-2437') : 718.50ft TVD, 0.43ft N, 0.95ft W
 WFT EM <8-3/4"> (2437')(2539'-6645') : 2547.09ft TVD, 3.4ft S, 9.14ft W
 BHI AT Curve <8-1/2"> (6715.5')(6700'-15586') : 6423.48ft TVD, 545.15ft N, 1064.35ft E
 Marcellus POE: 6939' MD : 6565.20ft TVD, 395.87ft N, 1178.49ft E

Projected MD at TD: 15610' : 6581.38ft TVD, 7724.26ft S, 4163.15ft E

User specified Dip: 66.71° Field: 52015 nT
 Magnetic North is 7.63 degrees West of True North (at 10/Aug/2017)
 Grid North is 0.06 degrees East of True North
 To correct azimuth from True to Grid subtract 0.06 degrees
 To correct azimuth from Magnetic to Grid subtract 7.69 degrees

Vertical Section (ft)
 Azimuth 160.34° with reference 0.00 N, 0.00 E



Actual Wellpath Report

Emerger Unit 2H AWP Proj: 15610'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Tyler County, WV	Well	Emerger Unit 2H
Field	Tyler	Wellbore	Emerger Unit 2H AWB
Facility	Vera Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Delaset
Scale	0.999601	Report Generated	08/Sep/2017 at 18:23
Convergence at slot	0.06° East	Database/Source file	WA_MPL_EasternUS_Defn/Emerger_Unit_2H_AWP_Proj_15610_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-47.54	16.53	1667527.12	14316751.97	39°25'30.590"N	80°54'14.390"W
Facility Reference Pt			1667510.60	14316799.49	39°25'31.060"N	80°54'14.600"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 22 (RKB) to Facility Vertical Datum	24.50ft
Horizontal Reference Pt	Slot	Frontier 22 (RKB) to Mean Sea Level	1169.50ft
Vertical Reference Pt	Frontier 22 (RKB)	Frontier 22 (RKB) to Mud Line at Slot (Slot #12)	24.50ft
MD Reference Pt	Frontier 22 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	160.34°

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Actual Wellpath Report

Emerger Unit 2H AWP Proj: 15610

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Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Vera Pad
Slot	Slot #12
Well	Emerger Unit 2H
Wellbore	Emerger Unit 2H AWB

WELLPATH DATA (188 stations) = Interpolated/extrapolated station												
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir
ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	1667527.12	14316751.97	39°25'30.590"N	80°54'14.390"W	0.00	0.00
24.50	0.000	324.400	24.50	0.00	0.00	0.00	1667527.12	14316751.97	39°25'30.590"N	80°54'14.390"W	0.00	0.00
109.50	0.390	324.400	109.50	-0.28	0.24	-0.17	1667526.95	14316752.20	39°25'30.592"N	80°54'14.392"W	0.29	324.400
209.50	0.370	278.920	209.50	-0.76	0.56	-0.69	1667526.44	14316752.53	39°25'30.596"N	80°54'14.399"W	0.89	309.347
309.50	0.140	320.990	309.50	-1.03	0.71	-1.08	1667526.04	14316752.68	39°25'30.597"N	80°54'14.404"W	1.29	303.123
409.50	0.150	164.850	409.50	-1.01	0.67	-1.13	1667526.00	14316752.64	39°25'30.597"N	80°54'14.404"W	1.31	300.902
509.50	0.100	177.710	509.50	-0.80	0.46	-1.09	1667526.04	14316752.43	39°25'30.595"N	80°54'14.404"W	1.18	292.931
609.50	0.140	138.970	609.50	-0.62	0.30	-0.98	1667526.14	14316752.27	39°25'30.593"N	80°54'14.403"W	1.03	287.227
718.50	0.120	108.730	718.50	-0.73	0.43	-0.95	1667526.17	14316752.40	39°25'30.594"N	80°54'14.402"W	1.04	292.678
830.50	0.780	255.080	830.49	-0.72	0.20	-1.58	1667525.55	14316752.17	39°25'30.592"N	80°54'14.410"W	1.59	277.207
926.50	1.770	249.020	926.47	-0.74	-0.50	-3.59	1667523.53	14316751.47	39°25'30.585"N	80°54'14.436"W	1.04	282.078
1021.50	2.440	246.000	1021.40	-0.55	-1.85	-6.81	1667520.32	14316750.12	39°25'30.572"N	80°54'14.477"W	7.06	254.818
1115.50	2.750	238.980	1115.31	0.04	-3.82	-10.57	1667516.56	14316748.15	39°25'30.552"N	80°54'14.525"W	11.24	250.112
1210.50	3.240	234.680	1210.18	1.22	-6.55	-14.71	1667512.42	14316745.42	39°25'30.525"N	80°54'14.578"W	16.10	245.985
1304.50	3.740	228.350	1304.00	3.09	-10.13	-19.17	1667507.96	14316741.84	39°25'30.490"N	80°54'14.634"W	21.68	242.139
1398.50	3.310	220.280	1397.82	5.60	-14.24	-23.21	1667503.92	14316737.74	39°25'30.450"N	80°54'14.686"W	27.23	238.473
1493.50	2.300	222.590	1492.71	7.86	-17.73	-26.27	1667500.86	14316734.24	39°25'30.415"N	80°54'14.725"W	31.70	235.982
1588.50	0.470	300.100	1587.68	8.45	-18.94	-27.90	1667499.23	14316733.03	39°25'30.403"N	80°54'14.746"W	33.72	235.827
1683.50	2.060	267.80	1682.66	6.98	-17.22	-27.47	1667499.66	14316734.75	39°25'30.420"N	80°54'14.740"W	32.42	237.913
1777.50	2.430	28.630	1776.59	4.49	-13.97	-25.75	1667501.38	14316738.01	39°25'30.422"N	80°54'14.718"W	29.30	241.530
1872.50	2.770	33.240	1871.49	1.76	-10.28	-23.53	1667503.60	14316741.70	39°25'30.489"N	80°54'14.690"W	25.68	246.405
1969.50	3.420	38.420	1968.35	-1.18	-6.05	-20.45	1667506.68	14316745.92	39°25'30.530"N	80°54'14.651"W	21.32	253.516
2063.50	2.760	43.630	2062.21	-3.68	-2.22	-17.14	1667509.99	14316749.75	39°25'30.568"N	80°54'14.608"W	17.29	262.636
2159.50	1.110	67.150	2158.15	-4.77	-0.18	-14.69	1667512.44	14316751.79	39°25'30.588"N	80°54'14.577"W	14.69	269.292
2253.50	0.720	122.440	2252.14	-4.36	-0.14	-13.35	1667513.77	14316751.82	39°25'30.589"N	80°54'14.560"W	13.35	269.379
2348.50	0.960	126.510	2347.13	-3.22	-0.94	-12.21	1667514.92	14316751.03	39°25'30.581"N	80°54'14.546"W	12.25	265.605
2446.50	1.080	127.440	2445.12	-1.77	-1.99	-10.82	1667516.31	14316749.98	39°25'30.570"N	80°54'14.528"W	11.00	259.585
2548.50	1.390	132.610	2547.09	0.14	-3.41	-9.14	1667517.98	14316748.56	39°25'30.556"N	80°54'14.507"W	9.76	249.546
2643.50	1.110	40.700	2642.08	0.70	-3.49	-7.70	1667519.43	14316748.48	39°25'30.556"N	80°54'14.488"W	8.45	245.588
MFT EM <8-3/4"> (2437)(2539-6645)	5.07	0.30	0.30	0.30	-0.29	-96.75						

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Actual Wellpath Report

Emerger Unit 2H AWP Proj: 15610'
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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Vera Pad
Slot	Slot #12
Well	Emerger Unit 2H
Wellbore	Emerger Unit 2H AWB

WELLPATH DATA (188 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
2738.50	1.000	42.840	2737.06	-0.14	-2.19	-6.53	1667520.59	14316749.78	39°25'30.568"N	80°54'14.473"W	6.89	251.486	0.12	-0.12	2.25	
2833.50	0.880	41.590	2832.05	-0.87	-1.03	-5.48	1667521.64	14316750.94	39°25'30.590"N	80°54'14.460"W	5.58	259.324	0.13	-0.13	-1.32	
2928.50	1.050	20.320	2927.04	-1.89	0.33	-4.70	1667522.43	14316752.30	39°25'30.593"N	80°54'14.450"W	4.71	273.995	0.41	0.18	-22.39	
3024.50	3.120	53.910	3022.97	-3.30	2.69	-2.28	1667524.84	14316754.66	39°25'30.617"N	80°54'14.419"W	3.53	319.732	2.42	2.16	34.99	
3119.50	5.450	55.140	3117.70	-5.22	6.79	3.51	1667530.63	14316758.76	39°25'30.657"N	80°54'14.345"W	7.65	27.330	2.45	2.45	1.29	
3213.50	6.740	49.760	3211.17	-8.33	12.91	11.39	1667538.50	14316764.87	39°25'30.717"N	80°54'14.245"W	17.21	41.410	1.50	1.37	-5.72	
3308.50	7.560	58.090	3305.43	-11.61	19.81	20.95	1667548.05	14316771.78	39°25'30.786"N	80°54'14.123"W	28.83	46.591	1.39	0.86	8.77	
3403.50	8.680	53.190	3399.48	-15.05	27.41	31.99	1667559.10	14316779.37	39°25'30.861"N	80°54'13.982"W	42.13	49.407	1.38	1.18	-5.16	
3498.50	9.790	50.320	3493.24	-19.93	36.87	43.95	1667571.05	14316788.82	39°25'30.954"N	80°54'13.829"W	57.36	50.008	1.26	1.17	-3.02	
3592.50	11.610	46.950	3585.61	-26.42	48.43	57.01	1667584.11	14316800.38	39°25'31.058"N	80°54'13.663"W	74.80	49.655	2.05	1.94	-3.59	
3687.50	12.570	51.750	3678.50	-33.51	61.35	72.11	1667599.21	14316813.30	39°25'31.196"N	80°54'13.470"W	94.68	49.610	1.46	1.01	5.05	
3782.50	13.900	57.950	3770.98	-39.26	73.81	89.91	1667616.99	14316825.75	39°25'31.319"N	80°54'13.243"W	116.32	50.616	2.05	1.40	6.53	
3876.50	14.530	58.800	3862.10	-44.04	85.91	109.56	1667636.64	14316837.84	39°25'31.438"N	80°54'12.993"W	139.23	51.900	0.71	0.67	0.90	
3971.50	16.920	59.980	3953.54	-48.91	99.00	131.73	1667658.80	14316850.93	39°25'31.567"N	80°54'12.710"W	164.78	53.074	2.54	2.52	1.24	
4065.50	19.210	59.730	4042.90	-54.22	113.64	156.93	1667683.99	14316865.56	39°25'31.712"N	80°54'12.389"W	193.76	54.090	2.44	2.44	-0.27	
4160.50	21.060	57.090	4132.09	-61.01	130.79	184.76	1667711.81	14316882.71	39°25'31.881"N	80°54'12.034"W	226.37	54.705	2.17	1.95	-2.78	
4255.50	23.050	57.700	4220.14	-69.99	150.01	214.62	1667741.85	14316901.92	39°25'32.070"N	80°54'11.651"W	262.01	55.073	2.11	2.09	0.64	
4350.50	23.760	58.360	4307.32	-77.03	169.99	246.83	1667773.85	14316921.89	39°25'32.267"N	80°54'11.242"W	299.70	55.446	0.80	0.75	0.69	
4445.50	25.200	56.090	4393.78	-85.99	191.31	279.91	1667806.92	14316943.20	39°25'32.478"N	80°54'10.820"W	339.04	55.649	1.81	1.52	-2.39	
4540.50	24.810	53.300	4479.88	-96.80	214.51	312.68	1667839.67	14316966.39	39°25'32.707"N	80°54'10.403"W	379.18	55.549	1.31	-0.41	-2.94	
4635.50	24.190	50.710	4566.33	-109.18	238.74	343.72	1667870.71	14316990.62	39°25'32.946"N	80°54'10.007"W	418.50	55.217	1.31	-0.65	-2.73	
4730.50	25.260	51.730	4652.62	-122.19	263.62	374.70	1667901.67	14317015.49	39°25'33.192"N	80°54'09.612"W	458.15	54.871	1.21	1.13	1.07	
4825.50	25.140	50.500	4738.58	-135.51	289.01	406.19	1667933.15	14317040.87	39°25'33.442"N	80°54'09.210"W	498.51	54.567	0.57	-0.13	-1.29	
4920.50	24.880	48.360	4824.67	-149.84	315.13	436.69	1667963.64	14317066.97	39°25'33.700"N	80°54'08.821"W	538.52	54.185	0.99	-0.27	-2.25	
5015.50	25.720	51.060	4910.56	-164.13	341.36	467.66	1667994.60	14317093.20	39°25'33.959"N	80°54'08.426"W	579.00	53.873	1.50	0.88	2.84	
5110.50	25.130	50.480	4996.36	-177.78	367.16	499.26	1668026.18	14317118.98	39°25'34.213"N	80°54'08.023"W	619.73	53.669	0.67	-0.62	-0.61	
5204.50	24.630	47.210	5081.64	-192.26	393.17	529.03	1668055.94	14317144.98	39°25'34.470"N	80°54'07.643"W	659.13	53.381	1.56	-0.53	-3.48	
5299.50	24.610	50.780	5168.01	-206.66	419.12	559.88	1668085.78	14317170.92	39°25'34.726"N	80°54'07.262"W	698.58	53.133	1.57	-0.02	3.76	
5393.50	24.970	50.330	5253.34	-220.00	444.16	589.32	1668116.21	14317195.96	39°25'34.974"N	80°54'06.874"W	737.96	52.995	0.43	0.38	-0.48	
5488.50	24.900	47.710	5339.49	-234.56	470.42	619.55	1668146.42	14317222.20	39°25'35.233"N	80°54'06.489"W	777.91	52.791	1.16	-0.07	-2.78	

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Actual Wellpath Report

Emerger Unit 2H AWP Proj: 15610'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION		Slot #12
Area	Tyler County, WV		Well
Field	Tyler		Wellbore
Facility	Vera Pad		Emerger Unit 2H AWP

WELLPATH DATA (188 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 (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
5582.50	24.350	49.350	5424.94	-249.12	496.36	648.89	1668175.75	14317248.13	39°25'35.489"N	80°54'06.114"W	816.97	52.586	0.93	-0.59	1.74	
5677.50	24.180	53.920	5511.56	-261.63	520.58	679.48	1668206.33	14317272.34	39°25'35.728"N	80°54'05.724"W	855.98	52.543	1.98	-0.18	4.81	
5772.50	24.110	52.230	5598.25	-273.16	543.92	710.54	1668237.38	14317295.67	39°25'35.958"N	80°54'05.328"W	894.83	52.566	0.73	-0.07	-1.78	
5866.50	23.480	48.780	5684.26	-285.01	568.02	739.80	1668266.63	14317319.77	39°25'36.196"N	80°54'04.955"W	932.72	52.483	1.63	-0.67	-3.67	
5961.50	23.710	52.020	5771.32	-298.97	592.25	769.10	1668295.91	14317343.98	39°25'36.435"N	80°54'04.581"W	970.70	52.402	1.39	0.24	3.41	
6056.50	24.290	52.870	5858.11	-310.84	615.80	799.73	1668326.53	14317367.52	39°25'36.666"N	80°54'04.190"W	1009.34	52.403	0.71	0.61	0.89	
6087.50	23.220	57.300	5886.49	-314.13	622.95	809.96	1668336.75	14317374.67	39°25'36.738"N	80°54'04.060"W	1021.81	52.436	6.71	-3.45	14.29	
6118.50	22.470	62.150	5915.06	-316.36	629.02	820.34	1668347.13	14317380.74	39°25'36.798"N	80°54'03.928"W	1033.74	52.520	6.54	-2.42	15.65	
6150.50	22.180	67.660	5944.66	-317.51	634.17	831.33	1668358.12	14317385.89	39°25'36.849"N	80°54'03.787"W	1045.60	52.662	6.60	-0.91	17.22	
6182.50	22.050	73.140	5974.31	-317.50	638.21	842.67	1668369.45	14317389.92	39°25'36.889"N	80°54'03.643"W	1057.07	52.861	6.46	0.41	17.13	
6213.50	22.320	78.570	6003.02	-316.37	641.07	854.01	1668380.79	14317392.78	39°25'36.917"N	80°54'03.498"W	1067.85	53.106	6.67	0.87	17.52	
6245.50	22.760	84.040	6032.58	-314.04	642.91	866.12	1668392.90	14317394.62	39°25'36.935"N	80°54'03.344"W	1078.66	53.414	6.69	1.37	17.09	
6276.50	23.980	88.530	6061.04	-310.65	643.70	878.39	1668405.16	14317395.41	39°25'36.943"N	80°54'03.188"W	1088.99	53.765	6.96	3.94	14.48	
6308.50	25.370	93.040	6090.12	-305.97	643.50	891.73	1668418.50	14317395.21	39°25'36.940"N	80°54'03.018"W	1099.67	54.185	7.31	4.34	14.09	
6340.50	26.560	97.410	6118.89	-300.07	642.21	905.68	1668432.44	14317393.93	39°25'36.928"N	80°54'02.840"W	1110.26	54.660	7.04	3.72	13.66	
6371.50	27.920	101.940	6146.45	-293.11	639.82	919.65	1668446.41	14317391.53	39°25'36.904"N	80°54'02.662"W	1120.32	55.173	8.00	4.39	14.61	
6403.50	29.190	106.500	6174.56	-284.58	636.05	934.47	1668461.21	14317387.77	39°25'36.866"N	80°54'02.473"W	1130.39	55.759	7.88	3.97	14.25	
6434.50	29.160	111.370	6201.63	-275.16	631.15	948.75	1668475.49	14317382.87	39°25'36.818"N	80°54'02.291"W	1139.51	56.366	7.66	-0.10	15.71	
6465.50	29.380	115.710	6228.68	-264.79	625.10	962.64	1668489.37	14317376.82	39°25'36.758"N	80°54'02.114"W	1147.79	57.002	6.88	0.71	14.00	
6497.50	30.520	119.500	6256.41	-253.06	617.69	976.78	1668503.51	14317369.41	39°25'36.684"N	80°54'01.934"W	1155.70	57.892	6.90	3.56	11.84	
6529.50	31.750	123.710	6283.80	-240.15	609.02	990.86	1668517.59	14317360.74	39°25'36.599"N	80°54'01.755"W	1163.06	58.424	7.81	3.84	13.16	
6560.50	33.110	126.820	6309.97	-226.55	599.42	1004.42	1668531.14	14317351.14	39°25'36.504"N	80°54'01.582"W	1169.69	59.172	6.94	4.39	10.03	
6591.50	33.880	128.940	6335.82	-212.11	588.91	1017.92	1668544.64	14317340.64	39°25'36.400"N	80°54'01.410"W	1176.00	59.949	4.52	2.48	6.84	
6623.50	35.060	130.710	6362.20	-196.51	577.31	1031.83	1668558.54	14317329.05	39°25'36.285"N	80°54'01.233"W	1182.35	60.773	4.84	3.69	5.53	
6654.50	36.260	133.750	6387.39	-180.57	565.16	1045.20	1668571.91	14317316.90	39°25'36.165"N	80°54'01.063"W	1188.21	61.599	6.90	3.87	9.81	
6687.00†	38.047	137.292	6413.30	-162.76	551.15	1058.94	1668585.64	14317302.90	39°25'36.026"N	80°54'00.888"W	1193.78	62.504	8.58	5.50	10.90	Middlesex; 6687' MD
6700.00	38.790	138.630	6423.48	-155.29	545.15	1064.35	1668591.04	14317296.90	39°25'35.967"N	80°54'00.819"W	1195.84	62.879	8.58	5.72	10.29	BHI AT Curve <-8-1/2"> (6715.5')(6700'-15586')
6768.00	43.750	140.690	6474.58	-113.33	510.95	1093.34	1668620.02	14317262.72	39°25'35.628"N	80°54'00.450"W	1206.84	64.952	7.56	7.29	3.03	
6815.00	51.660	142.420	6506.18	-80.43	483.73	1114.91	1668641.59	14317235.50	39°25'35.359"N	80°54'00.176"W	1215.33	66.545	17.05	16.83	3.68	
6816.00†	51.832	142.454	6506.80	-79.68	483.11	1115.39	1668642.07	14317234.88	39°25'35.353"N	80°54'00.170"W	1215.52	66.581	17.39	17.19	3.36	Burket; 6816' MD

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Actual Wellpath Report

Emerger Unit 2H AWP Proj: 15610'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Tyler County, WV	Well	Emerger Unit 2H
Field	Tyler	Wellbore	Emerger Unit 2H AWP
Facility	Vera Pad		

WELLPATH DATA (188 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
9327.00	90.060	158.250	6582.78	2397.97	-1821.23	2029.81	1669556.12	14314931.47	39°25'12.568"N	80°53'48.550"W	2727.09	131.900	3.03	-0.62	-2.97	
9422.00	90.150	162.350	6582.61	2492.95	-1910.65	2051.83	1669588.13	14314842.08	39°25'11.684"N	80°53'48.144"W	2811.01	132.821	4.32	0.09	4.32	
9518.00	90.000	162.380	6582.48	2588.89	-2002.14	2090.92	1669617.20	14314750.63	39°25'10.779"N	80°53'47.775"W	2894.91	133.758	0.16	-0.16	0.03	
9612.00	89.660	156.100	6582.76	2682.83	-2090.00	2124.22	1669650.49	14314662.81	39°25'09.910"N	80°53'47.351"W	2980.00	134.535	6.69	-0.36	-6.68	
9706.00	89.720	153.530	6583.27	2778.38	-2175.05	2164.21	1669690.47	14314577.79	39°25'09.069"N	80°53'46.843"W	3068.33	135.143	2.73	0.06	-2.73	
9801.00	89.850	156.040	6583.62	2870.93	-2260.99	2204.68	1669730.92	14314491.88	39°25'08.219"N	80°53'46.329"W	3157.96	135.722	2.65	0.14	2.64	
9896.00	90.000	155.610	6583.75	2965.63	-2347.63	2243.66	1669769.89	14314405.29	39°25'07.363"N	80°53'45.833"W	3247.36	136.297	0.58	0.16	-0.56	
9991.00	90.030	156.300	6583.72	3060.34	-2434.35	2282.45	1669808.65	14314318.60	39°25'06.505"N	80°53'45.340"W	3337.01	136.845	0.83	0.03	0.83	
10086.00	90.090	158.420	6583.62	3155.21	-2522.02	2319.01	1669845.21	14314230.96	39°25'05.638"N	80°53'44.876"W	3426.14	137.401	2.23	0.06	2.23	
10181.00	90.280	160.220	6583.32	3250.19	-2610.90	2352.56	1669878.74	14314142.12	39°25'04.759"N	80°53'44.450"W	3514.44	137.979	1.91	0.20	1.89	
10275.00	90.310	159.340	6582.83	3344.18	-2699.10	2385.05	1669911.21	14314053.95	39°25'03.887"N	80°53'44.037"W	3601.89	138.535	0.94	0.03	-0.94	
10370.00	90.280	160.080	6582.34	3439.17	-2788.21	2417.99	1669944.14	14313964.88	39°25'03.006"N	80°53'43.619"W	3690.63	139.067	0.78	-0.03	0.78	
10465.00	90.090	160.910	6582.04	3534.17	-2877.75	2449.71	1669975.85	14313875.37	39°25'02.121"N	80°53'43.216"W	3779.22	139.594	0.90	-0.20	0.87	
10560.00	90.340	161.400	6581.68	3629.16	-2967.66	2480.40	1670006.52	14313785.50	39°25'01.232"N	80°53'42.826"W	3867.73	140.111	0.58	0.26	0.52	
10655.00	90.280	159.230	6581.17	3724.15	-3057.10	2512.39	1670038.51	14313696.10	39°25'00.348"N	80°53'42.420"W	3957.02	140.586	2.29	-0.06	-2.28	
10750.00	89.850	157.680	6581.06	3819.10	-3145.46	2547.28	1670073.38	14313607.77	39°24'59.474"N	80°53'41.976"W	4047.54	140.998	1.69	-0.45	-1.63	
10845.00	89.910	158.350	6581.26	3914.02	-3233.55	2582.84	1670108.93	14313519.72	39°24'58.603"N	80°53'41.525"W	4138.47	141.383	0.71	0.06	0.71	
10939.00	89.880	159.390	6581.43	4007.99	-3321.23	2616.73	1670142.80	14313432.07	39°24'57.736"N	80°53'41.094"W	4228.22	141.766	1.11	-0.03	1.11	
11034.00	89.850	160.130	6581.66	4102.98	-3410.36	2649.59	1670175.65	14313342.98	39°24'56.854"N	80°53'40.677"W	4318.67	142.155	0.78	-0.03	0.78	
11129.00	89.850	162.010	6581.90	4197.97	-3500.22	2680.41	1670206.46	14313253.15	39°24'55.988"N	80°53'40.285"W	4408.64	142.556	1.98	0.00	1.98	
11224.00	90.000	163.990	6582.03	4292.86	-3591.06	2708.19	1670234.22	14313162.35	39°24'55.068"N	80°53'39.933"W	4497.78	142.978	2.09	0.16	2.08	
11319.00	89.820	163.040	6582.18	4387.71	-3682.16	2735.14	1670261.17	14313071.29	39°24'54.167"N	80°53'39.591"W	4586.86	143.395	1.02	-0.19	-1.00	
11414.00	89.660	162.750	6582.61	4482.62	-3772.95	2763.08	1670289.10	14312980.53	39°24'53.270"N	80°53'39.236"W	4676.52	143.783	0.35	-0.17	-0.31	
11509.00	89.940	161.880	6582.94	4577.56	-3863.46	2791.94	1670317.95	14312890.06	39°24'52.375"N	80°53'38.870"W	4766.69	144.146	0.96	0.29	-0.92	
11604.00	89.720	161.700	6583.22	4672.53	-3953.71	2821.63	1670347.62	14312799.85	39°24'51.482"N	80°53'38.493"W	4857.30	144.486	0.30	-0.23	-0.19	
11699.00	89.880	159.460	6583.55	4767.52	-4043.29	2853.22	1670379.19	14312710.30	39°24'50.597"N	80°53'38.092"W	4948.64	144.791	2.36	0.17	-2.36	
11794.00	89.940	158.960	6583.70	4862.50	-4132.11	2886.94	1670412.90	14312621.52	39°24'49.718"N	80°53'37.664"W	5040.71	145.060	0.53	0.06	-0.53	
11890.00	89.910	157.850	6583.83	4958.45	-4221.37	2922.27	1670448.22	14312532.29	39°24'48.836"N	80°53'37.215"W	5134.16	145.307	1.16	-0.03	-1.16	
11984.00	89.850	159.150	6584.03	5052.40	-4308.83	2956.72	1670482.65	14312444.87	39°24'47.971"N	80°53'36.777"W	5225.72	145.542	1.38	-0.06	1.38	
12080.00	89.850	160.810	6584.28	5148.39	-4399.02	2989.58	1670515.50	14312354.71	39°24'47.079"N	80°53'36.360"W	5318.74	145.800	1.73	0.00	1.73	

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Actual Wellpath Report

Emerger Unit 2H AWP Proj: 15610



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Vera Pad
Slot	Slot #12
Well	Emerger Unit 2H
Wellbore	Emerger Unit 2H AWB

WELLPATH DATA (188 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	ft	ft	ft	ft	ft	ft/100ft	ft/100ft	
12175.00	89.910	162.840	6584.48	5243.35	-4489.28	3019.21	1670545.12	14312264.49	39°24'46.18"N	80°53'35.98"W	5410.11	146.078	2.14	0.06	2.14	
12270.00	89.850	163.240	6584.67	5338.25	-4580.14	3046.92	1670572.82	14312173.66	39°24'45.288"N	80°53'35.632"W	5501.04	146.366	0.43	-0.06	0.42	
12364.00	89.850	163.210	6584.92	5432.13	-4670.14	3074.05	1670599.94	14312083.70	39°24'44.399"N	80°53'35.288"W	5591.07	146.646	0.03	0.00	-0.03	
12459.00	89.880	163.170	6585.14	5527.01	-4761.08	3101.53	1670627.41	14311992.80	39°24'43.499"N	80°53'34.939"W	5682.20	146.918	0.05	0.03	-0.04	
12554.00	89.880	163.440	6585.34	5621.88	-4852.08	3128.82	1670654.69	14311901.84	39°24'42.600"N	80°53'34.593"W	5773.40	147.184	0.28	0.00	0.28	
12649.00	90.090	163.500	6585.37	5716.74	-4943.15	3155.85	1670681.70	14311810.80	39°24'41.699"N	80°53'34.250"W	5864.65	147.445	0.23	0.22	0.06	
12743.00	90.460	160.100	6584.92	5810.70	-5032.44	3185.20	1670711.05	14311721.55	39°24'40.816"N	80°53'33.877"W	5955.75	147.669	3.64	0.39	-3.62	
12838.00	90.090	154.680	6584.46	5905.53	-5120.10	3221.71	1670747.54	14311633.92	39°24'39.950"N	80°53'33.413"W	6049.37	147.821	5.72	-0.39	-5.71	
12934.00	90.030	155.740	6584.36	6001.15	-5207.25	3261.96	1670787.78	14311546.81	39°24'39.088"N	80°53'32.902"W	6144.58	147.936	1.11	-0.06	1.10	
13029.00	90.060	159.670	6584.29	6096.08	-5295.13	3298.00	1670823.80	14311458.96	39°24'38.219"N	80°53'32.444"W	6238.21	148.084	4.14	0.03	4.14	
13124.00	90.090	160.660	6584.16	6191.03	-5384.50	3330.23	1670856.02	14311369.63	39°24'37.335"N	80°53'32.035"W	6331.13	148.264	1.04	0.03	1.04	
13218.00	90.280	162.060	6583.86	6285.01	-5473.56	3360.27	1670886.05	14311280.60	39°24'36.455"N	80°53'31.653"W	6422.72	148.454	1.50	0.20	1.49	
13313.00	90.060	159.930	6583.58	6380.00	-5563.38	3391.21	1670916.97	14311190.82	39°24'35.566"N	80°53'31.280"W	6515.48	148.635	2.25	-0.23	-2.24	
13407.00	90.060	160.520	6583.48	6474.00	-5651.84	3423.01	1670948.76	14311102.40	39°24'34.692"N	80°53'30.857"W	6607.59	148.799	0.63	0.00	0.63	
13502.00	90.060	161.760	6583.38	6568.99	-5741.73	3453.72	1670979.46	14311012.54	39°24'33.803"N	80°53'30.467"W	6700.42	148.973	1.31	0.00	1.31	
13597.00	89.970	160.410	6583.35	6663.97	-5834.52	3484.52	1671010.24	14310922.71	39°24'32.914"N	80°53'30.076"W	6793.34	149.141	1.42	-0.09	-1.42	
13692.00	90.090	160.020	6583.30	6758.97	-5920.99	3516.67	1671042.38	14310833.35	39°24'32.031"N	80°53'29.667"W	6886.59	149.293	0.43	0.13	-0.41	
13787.00	89.880	162.550	6583.33	6853.95	-6010.96	3547.15	1671072.85	14310743.42	39°24'31.141"N	80°53'29.280"W	6979.54	149.455	2.67	-0.22	2.66	
13881.00	90.120	161.400	6583.33	6947.91	-6100.35	3576.24	1671101.93	14310654.07	39°24'30.257"N	80°53'28.911"W	7071.33	149.620	1.25	0.26	-1.22	
13975.00	90.030	158.010	6583.21	7041.89	-6188.50	3608.84	1671134.51	14310565.95	39°24'29.386"N	80°53'28.497"W	7163.88	149.751	3.61	-0.10	-3.61	
14070.00	90.060	159.660	6583.13	7136.86	-6277.09	3643.14	1671168.80	14310477.40	39°24'28.510"N	80°53'28.062"W	7257.70	149.870	1.74	0.03	1.74	
14166.00	90.120	157.460	6582.98	7232.81	-6366.44	3678.22	1671203.87	14310388.08	39°24'27.626"N	80°53'27.616"W	7352.61	149.983	2.29	0.06	-2.29	
14262.00	90.060	156.510	6582.83	7327.59	-6453.55	3716.13	1671241.76	14310301.01	39°24'26.765"N	80°53'27.135"W	7447.00	150.065	2.05	-0.06	-2.05	
14356.00	90.090	158.250	6582.71	7422.40	-6540.91	3753.43	1671279.04	14310213.69	39°24'25.901"N	80°53'26.661"W	7541.33	150.151	2.88	0.03	2.88	
14451.00	90.120	161.740	6582.53	7517.39	-6630.16	3785.92	1671311.52	14310124.47	39°24'25.018"N	80°53'26.248"W	7634.93	150.273	3.67	0.03	3.67	
14545.00	90.060	163.960	6582.38	7611.29	-6719.98	3813.64	1671339.23	14310034.69	39°24'24.130"N	80°53'25.896"W	7726.70	150.425	2.36	-0.06	2.36	
14640.00	90.120	160.120	6582.23	7706.20	-6810.73	3841.69	1671367.27	14309943.97	39°24'23.233"N	80°53'25.540"W	7819.50	150.574	2.39	0.06	-2.39	
14735.00	90.000	159.580	6582.14	7801.19	-6900.35	3873.19	1671398.76	14309854.38	39°24'22.347"N	80°53'25.141"W	7913.06	150.694	2.22	-0.13	-2.22	
14830.00	89.970	159.250	6582.16	7896.18	-6989.29	3906.59	1671432.14	14309765.49	39°24'21.467"N	80°53'24.716"W	8006.97	150.797	0.35	-0.03	-0.35	
14925.00	90.120	161.640	6582.09	7991.17	-7078.80	3938.38	1671463.93	14309676.01	39°24'20.582"N	80°53'24.313"W	8100.64	150.910	2.52	0.16	2.52	

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Actual Wellpath Report

Emerger Unit 2H AWP Proj: 15610'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Tyler County, WV	Well	Emerger Unit 2H
Field	Tyler	Wellbore	Emerger Unit 2H AWB
Facility	Vera Pad		

WELLPATH DATA (188 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	
15019.00	90.150	164.800	6581.86	8085.04	-7168.79	3965.52	1671491.05	14309586.06	39°24'19.693"N	80°53'23.968"W	8192.49	151.050	3.36	0.03	3.36		
15114.00	90.030	166.010	6581.71	8179.67	-7260.72	3989.46	1671514.98	14309494.16	39°24'18.784"N	80°53'23.665"W	8284.55	151.213	1.28	-0.13	1.27		
15209.00	90.060	164.270	6581.64	8274.33	-7352.54	4013.82	1671539.33	14309402.38	39°24'17.876"N	80°53'23.356"W	8376.79	151.369	1.83	0.03	-1.83		
15304.00	90.030	158.640	6581.57	8369.27	-7442.57	4044.02	1671569.52	14309312.38	39°24'16.986"N	80°53'22.973"W	8470.30	151.482	5.93	-0.03	-5.93		
15399.00	89.940	158.170	6581.59	8464.22	-7530.90	4078.98	1671604.47	14309224.09	39°24'16.112"N	80°53'22.529"W	8564.61	151.559	0.50	-0.09	-0.49		
15493.00	90.090	157.910	6581.57	8558.14	-7618.08	4114.14	1671639.61	14309136.94	39°24'15.250"N	80°53'22.082"W	8658.02	151.629	0.32	0.16	-0.28		
15586.00	90.090	153.450	6581.42	8650.81	-7702.81	4152.43	1671677.88	14309052.25	39°24'14.412"N	80°53'21.596"W	8750.77	151.672	4.80	0.00	-4.80		
15610.00	90.090	153.450	6581.38	8674.64	-7724.28	4163.15	1671688.61	14309030.79	39°24'14.200"N	80°53'21.459"W	8774.75	151.677	0.00	0.00	0.00	Projected MD at TD: 15610'	

HOLE & CASING SECTIONS - Ref Wellbore: Emerger Unit 2H AWB Ref Wellpath: Emerger Unit 2H AWP Proj: 15610'										
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]	
20in Conductor	24.50	104.50	80.00	24.50	104.50	0.00	0.00	0.21	-0.15	
17.5in Open Hole	104.50	722.10	617.60	104.50	722.10	0.21	-0.15	0.43	-0.94	
13.375in Casing Surface	24.50	722.10	697.60	24.50	722.10	0.00	0.00	0.43	-0.94	
12.25in Open Hole	722.10	2488.10	1766.00	722.10	2488.71	0.43	-0.94	-2.51	-10.17	
9.625in Casing Intermediate	24.50	2488.10	2463.60	24.50	2488.71	0.00	0.00	-2.51	-10.17	

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Emerger Unit 2H BHL - Rev-3	6600.00	-7731.63	4175.72	1671701.17	14309023.44	39°24'14.127"N	80°53'21.299"W	point
Emerger Unit 2H LP - Rev-1	6600.00	255.81	1274.62	1668801.23	14317007.68	39°25'33.105"N	80°53'58.144"W	point

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Facility	Vera Pad		

WELLPATH COMPOSITION - Ref Wellbore: Emerger Unit 2H AWB Ref Wellpath: Emerger Unit 2H AWP Proj: 15610'				
Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.50	695.50	Gyrodata standard - Drop gyro or Multi-shot	01 Gyrodata MS Gyro <17-1/2">(100'-686')	Emerger Unit 2H AWB
695.50	2446.50	ISCWSA MWD, Rev. 4 (Standard)	02 WFT EM <12-1/4">(686')(709'-2437')	Emerger Unit 2H AWB
2446.50	6654.50	ISCWSA MWD, Rev. 4 (Standard)	03 WFT EM <8-3/4">(2437')(2539'-6645')	Emerger Unit 2H AWB
6654.50	15586.00	BHI AutoTrak Curve (Short)	04 BHI AT Curve <8-1/2">(6654.5)(6700'-15586')	Emerger Unit 2H AWB
15586.00	15610.00	Blind Drilling (std)	Projection to bit	Emerger Unit 2H AWB

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COMMENTS
<p>Wellpath general comments API: 47-095-02378-0000 BHI Job #: 8696636 Rig: Frontier 22 Duration: 08/11/2017-08/13/2017 Gyrodata MS Gyro <17-1/2"> (100'-686') WFT EM <12-1/4"> (686')(709'-2437') WFT EM <8-3/4"> (2437')(2539'-6645') BHI AT Curve <8-1/2"> (6715.5')(6700'-15586') Middlesex: 6687' MD Burket: 6816' MD Tully: 6863' MD Marcellus POE: 6939' MD Projected MD at TD: 15610'</p>

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