

ANTERO RESOURCES CORPORATION

Location: Doddridge Co., WV
 Field: Doddridge
 Facility: Balli Pad

Slot: Slot #12
 Well: Hawk Unit 2H ST01
 Wellbore: Hawk Unit 2H ST01 PWB



API: 47-017-06795-0100
 BHI Job #: 8633649A
 Rig: Frontier 32
 Duration: 07/18/2017-07/19/2017



Plot reference wellbore is Hawk Unit 2H ST01 PWB #44-D
 Old System: NAD2011 UTM Zone 17 North, US #44-D
 * Wellbore was transformed from a different geographic datum
 Measured depths are referenced to Frontier 32 (RKB)
 True Vertical Depth (TVD) is calculated from a different geographic datum
 North: True distance
 Scale: True distance
 Depth: True distance
 Coordinates are listed referenced to Slot
 Created by: dclinton on 2017-07-27
 Database: WBL_PWB_Estimate.Dat

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude
Balli Pad	1694490.110	14272033.240	39°18'08.198"N
Slot #12	2.44	110.51	1694600.580
Slot #12	Local E (ft)	Local N (US ft)	Grid North (US ft)
Comment: Hawk Unit 2H			14272035.680
Frontier 32 (RKB) to Mean Sea Level (1167 ft)			39°18'08.220"N
Frontier 32 (RKB) to Mud line (At Slot Slot #12)	32ft		
Mean Sea Level to Mean Sea Level (1135 ft)			-1135ft
Frontier 32 (RKB) to Mean Sea Level			1167ft

Well Data			
Slot	Well	Wellbore	
Slot #12	Hawk Unit 2H	Hawk Unit 2H AWP	Hawk Unit 2H AWP Head 20450'
Slot #12	Hawk Unit 2H ST01	Hawk Unit 2H ST01 AWP	Hawk Unit 2H ST01 AWP Ring 18014'
Slot #12	Hawk Unit 2H ST01	Hawk Unit 2H ST01 PWB	Hawk Unit 2H ST01 PWB #44-D

Gyrodata MS Gyro <17-1/2> (100-327) : 0.42' Inc. 119.00ft MD. 119.00ft TVD. -0.32ft VS
 Gyrodata MS Gyro <12-1/4> (227)(351-410) : 0.55' Inc. 370.00ft MD. 369.99ft TVD. -2.62ft VS
 Directional ONE MWD <12-1/4> (410)(528-2584) : 2.70' Inc. 547.00ft MD. 546.92ft TVD. -5.67ft VS

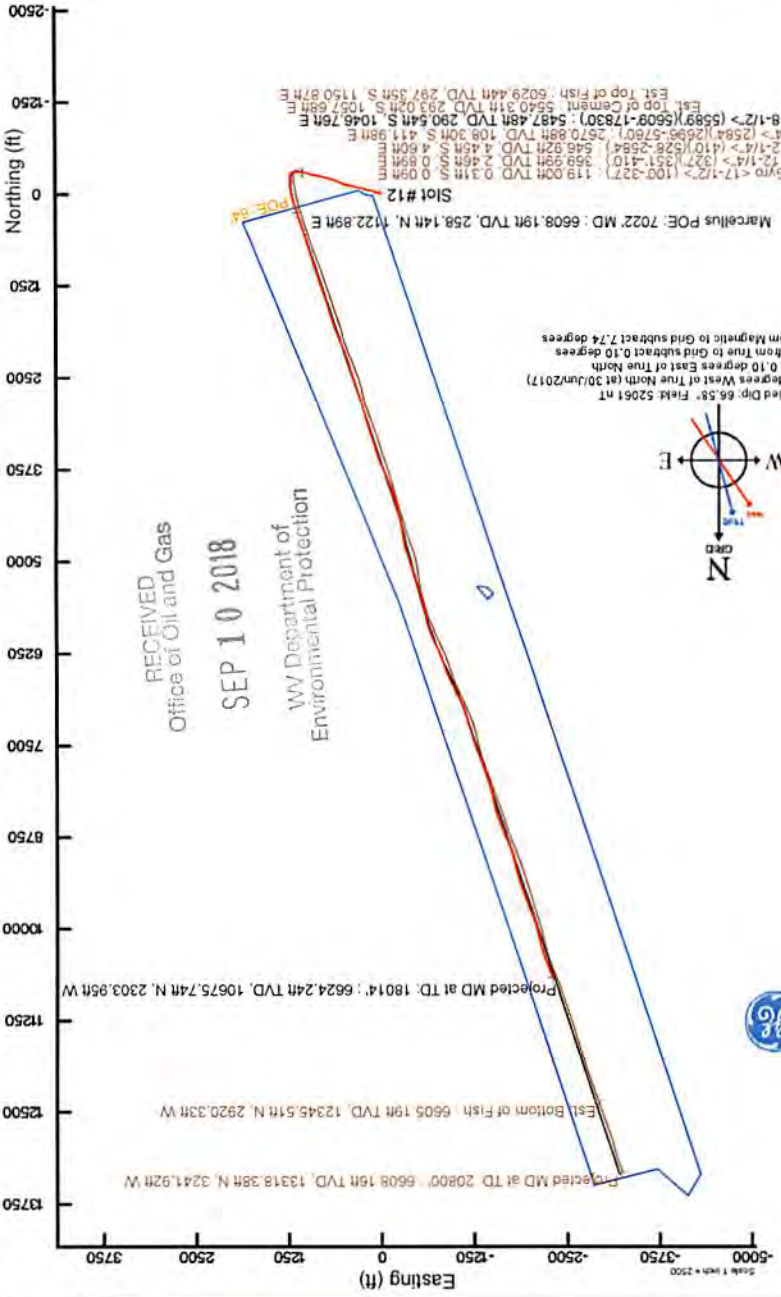
Directional ONE MWD <8-3/4> (2584)(2696-5760) : 10.97' Inc. 2715.00ft MD. 2670.88ft TVD. -332.12ft VS

Well Profile Data			
Design Comment	MD (ft)	Inc (') Az (°)	Local E (ft)
	5598.00	17.130	99.650
TD on	5598.00	17.130	99.650
Est. Top of Cement	5693.00	11.838	104.300
ST KOP (100' Buffer)	5703.00	12.646	111.465
End of 3D Arc	5895.40	16.564	92.444
Curve KOP	5992.18	16.564	92.444
POE	7004.90	24.645	341.706
Landing Pt	7185.31	90.000	341.706
API #1	11166.31	90.000	341.706
End of Turn	11544.77	90.000	345.300
API #2	12544.77	90.000	345.300
End of 3D Arc	13917.77	90.000	334.570
On Azimuth	14304.34	90.000	341.706
BHI AT Curve <8-1/2> (5589)(5609-17830) : 11.81' Inc. 5609.00ft MD. 5487.48ft TVD. -604.36ft VS	17830.34	90.000	341.706
Est. Top of Cement	1183' Inc. 5663.00ft MD. 5540.31ft TVD. -610.14ft VS	13347.55	6631.00
			-3207.01
			13079.68

Est. Top of Fish : 14.33' Inc. 6163.00ft MD. 6029.44ft TVD. -643.50ft VS

Marcellus POE: 7022' MD : 73.88' Inc. 7022.00ft MD. 6608.19ft TVD. -107.29ft VS

Projected MD at Side Track TD: 18014' : 90.95' Inc. 18014.00ft MD. 6624.24ft TVD. 10859.45ft VS
 Est. Bottom of Fish : 89.51' Inc. 19775.00ft MD. 6605.19ft TVD. 12638.28ft VS
 Projected MD at TD (Original Path Hole): 20800' : 90.03' Inc. 20800.00ft MD. 6609.15ft TVD. 13662.94ft VS
 Azimuth 341.71' with reference 0.00 N, 0.00 E
 Scale 1 inch = 2000'



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Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWP
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Delaset
Scale	0.999602	Report Generated	27/Jul/2017 at 10:01
Convergence at slot	0.10° East	Database/Source file	WA_MPL_EasternUS_Defn/Hawk_Unit_2H_ST01_AWP_Proj_18014_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	2.44	110.51	1684600.58	14272035.68	39°18'08.220"N	80°50'37.720"W
Facility Reference Pt			1684490.11	14272033.24	39°18'08.198"N	80°50'39.126"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 32 (RKB) to Facility Vertical Datum	32.00ft
Horizontal Reference Pt	Slot	Frontier 32 (RKB) to Mean Sea Level	1167.00ft
Vertical Reference Pt	Frontier 32 (RKB)	Frontier 32 (RKB) to Mud Line at Slot (Slot #12)	32.00ft
MD Reference Pt	Frontier 32 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	341.71°

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Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWP
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

WELLPATH DATA (225 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)	(US ft)	(US ft)			(ft)	(°)	("/100ft)	("/100ft)	("/100ft)	
0.00	0.00	163.810	0.00	0.00	0.00	0.00	1684600.58	14272035.68	39°18'08.220"N	80°50'37.720"W	0.00	0.000	0.00	0.00	0.00	
32.00	0.00	163.810	32.00	0.00	0.00	0.00	1684600.58	14272035.68	39°18'08.220"N	80°50'37.720"W	0.00	0.000	0.00	0.00	0.00	
119.00	0.42	163.810	119.00	-0.32	-0.31	0.09	1684600.67	14272035.37	39°18'08.217"N	80°50'37.719"W	0.32	163.810	0.48	0.48	188.29	Gyrodata MS Gyro <17-1/2"> (100'-327')
219.00	0.40	149.400	219.00	-1.03	-0.96	0.37	1684600.95	14272034.72	39°18'08.211"N	80°50'37.715"W	1.03	158.959	0.10	-0.02	-14.41	
319.00	0.73	167.500	318.99	-2.00	-1.88	0.68	1684601.28	14272033.80	39°18'08.201"N	80°50'37.711"W	2.00	160.008	0.37	0.33	18.10	
346.00	0.75	160.830	345.99	-2.35	-2.22	0.78	1684601.36	14272033.47	39°18'08.198"N	80°50'37.710"W	2.35	160.617	0.33	0.07	-24.70	
370.00	0.55	146.990	369.99	-2.62	-2.46	0.89	1684601.47	14272033.22	39°18'08.196"N	80°50'37.709"W	2.62	160.036	1.05	-0.83	-57.67	Gyrodata MS Gyro <12-1/4"> (327')(351'-410')
429.00	0.83	135.400	428.98	-3.27	-3.00	1.35	1684601.93	14272032.68	39°18'08.190"N	80°50'37.703"W	3.29	155.818	0.53	0.47	-19.64	
547.00	2.70	107.550	546.92	-5.67	-4.45	4.60	1684605.18	14272031.23	39°18'08.176"N	80°50'37.662"W	6.40	134.055	1.70	1.58	-23.60	Directional ONE MWD <12-1/4"> (410')(528'-2584')
607.00	3.97	111.100	606.82	-7.81	-5.62	7.88	1684608.46	14272030.06	39°18'08.164"N	80°50'37.620"W	9.68	125.498	2.14	2.12	5.92	
668.00	5.32	107.430	667.62	-10.80	-7.23	12.55	1684613.13	14272028.45	39°18'08.148"N	80°50'37.561"W	14.49	119.943	2.26	2.21	-6.02	
728.00	5.73	105.840	727.34	-14.11	-8.88	18.09	1684618.66	14272026.80	39°18'08.132"N	80°50'37.490"W	20.15	116.152	0.73	0.68	-2.65	
788.00	6.00	112.320	787.03	-17.83	-10.89	23.87	1684624.44	14272024.79	39°18'08.112"N	80°50'37.417"W	26.24	114.523	1.19	0.45	10.80	
847.00	7.39	107.790	845.62	-22.07	-13.22	30.34	1684630.90	14272022.46	39°18'08.089"N	80°50'37.334"W	33.09	113.547	2.52	2.36	-7.68	
913.00	8.12	103.940	911.02	-27.06	-15.64	38.90	1684639.47	14272020.05	39°18'08.065"N	80°50'37.226"W	41.93	111.902	1.36	1.11	-5.83	
976.00	9.09	105.660	973.31	-32.21	-18.06	48.01	1684648.57	14272017.63	39°18'08.041"N	80°50'37.110"W	51.29	110.609	1.59	1.54	2.73	
1039.00	10.25	107.420	1035.41	-38.26	-21.08	58.15	1684658.71	14272014.61	39°18'08.011"N	80°50'36.981"W	61.85	109.923	1.90	1.84	2.79	
1102.00	10.90	108.310	1097.34	-45.08	-24.63	69.16	1684669.71	14272011.06	39°18'07.975"N	80°50'36.841"W	73.41	109.601	1.06	1.03	1.41	
1166.00	12.34	108.990	1160.03	-52.83	-28.75	81.37	1684681.92	14272006.94	39°18'07.934"N	80°50'36.686"W	86.30	109.461	2.26	2.25	1.05	
1229.00	13.16	108.300	1221.48	-61.19	-33.19	94.54	1684695.09	14272002.50	39°18'07.890"N	80°50'36.518"W	100.20	109.346	1.32	1.30	-1.08	
1292.00	12.94	105.190	1282.85	-69.35	-37.29	108.16	1684708.70	14271998.40	39°18'07.850"N	80°50'36.345"W	114.41	109.024	1.17	-0.35	-4.94	
1355.00	13.66	100.270	1344.16	-76.80	-40.47	122.29	1684722.82	14271995.23	39°18'07.818"N	80°50'36.165"W	128.81	108.311	2.13	1.14	-7.81	
1418.00	13.17	97.830	1405.44	-83.52	-42.77	136.72	1684737.24	14271992.93	39°18'07.795"N	80°50'35.982"W	143.25	107.372	1.19	-0.78	-3.87	
1481.00	12.69	97.660	1466.85	-89.70	-44.67	150.69	1684751.21	14271991.03	39°18'07.776"N	80°50'35.804"W	157.17	106.513	0.76	-0.76	-0.27	
1545.00	12.34	96.900	1529.33	-95.69	-46.43	164.44	1684764.96	14271989.27	39°18'07.758"N	80°50'35.629"W	170.87	105.767	0.60	-0.55	-1.19	
1608.00	12.63	103.070	1590.84	-102.14	-48.80	177.83	1684778.34	14271986.90	39°18'07.735"N	80°50'35.459"W	184.41	105.344	2.17	0.46	9.79	
1671.00	12.42	107.110	1652.34	-109.65	-52.35	191.02	1684791.52	14271983.35	39°18'07.699"N	80°50'35.291"W	198.06	105.325	1.43	-0.33	6.41	
1734.00	12.18	107.660	1713.89	-117.48	-56.36	203.83	1684804.33	14271979.35	39°18'07.659"N	80°50'35.128"W	211.47	105.456	0.42	-0.38	0.87	
1797.00	11.63	108.530	1775.54	-125.18	-60.39	216.18	1684816.67	14271975.31	39°18'07.619"N	80°50'34.971"W	224.46	105.608	0.92	-0.87	1.38	
1860.00	11.39	109.230	1837.27	-132.78	-64.46	228.08	1684828.58	14271971.25	39°18'07.579"N	80°50'34.820"W	237.01	105.781	0.44	-0.38	1.11	

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MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
1923.00	11.880	110.970	1898.98	-140.67	-68.83	240.00	14271966.88	39°18'07.536"N	80°50'34.669"W	249.68	106.002	0.96	2.76	-1.08	2.76	
1987.00	11.190	108.210	1961.68	-148.53	-73.13	252.06	1684852.53	39°18'07.493"N	80°50'34.515"W	262.45	106.179	1.38	-4.31	-1.08		
2050.00	12.110	102.790	2023.39	-155.58	-76.50	264.31	1684864.78	39°18'07.459"N	80°50'34.360"W	275.16	106.142	2.27	-8.60	-1.46		
2113.00	12.840	102.240	2084.90	-162.55	-79.45	277.59	1684878.06	39°18'07.430"N	80°50'34.191"W	288.74	105.971	1.17	-0.87			
2176.00	14.860	102.210	2146.07	-170.21	-82.64	292.33	1684892.79	39°18'07.398"N	80°50'34.003"W	303.79	105.785	3.21	-0.05			
2239.00	14.710	102.870	2206.98	-178.45	-86.13	308.02	1684908.48	39°18'07.363"N	80°50'33.804"W	319.84	105.622	0.36	1.05			
2302.00	13.520	100.570	2268.08	-186.14	-89.26	323.06	1684923.51	39°18'07.332"W	80°50'33.612"W	335.17	105.446	2.09	-3.65			
2365.00	12.500	98.140	2329.46	-192.73	-91.58	337.05	1684937.50	39°18'07.309"N	80°50'33.435"W	349.27	105.201	1.84	-3.86			
2429.00	13.370	101.460	2391.84	-199.48	-94.03	351.16	1684951.60	39°18'07.285"N	80°50'33.255"W	363.53	104.990	1.79	5.19			
2492.00	13.910	102.260	2453.06	-206.85	-97.09	365.70	1684966.13	39°18'07.254"N	80°50'33.070"W	378.37	104.868	0.91	1.27			
2555.00	13.290	104.300	2514.29	-214.70	-100.48	380.12	1684980.54	39°18'07.220"N	80°50'32.887"W	393.17	104.807	1.24	3.24			
2603.00	12.010	105.240	2561.13	-220.43	-103.16	390.28	1684990.70	39°18'07.194"N	80°50'32.758"W	403.68	104.806	2.70	1.96			
2715.00	10.970	101.250	2670.88	-232.12	-108.30	411.98	1685012.39	39°18'07.143"N	80°50'32.482"W	425.97	104.729	1.17	-3.56			Directional ONE MWD <8-3/4"> (2584)(2696-5760)
2779.00	11.810	102.450	2733.62	-238.47	-110.90	424.34	1685024.75	39°18'07.117"N	80°50'32.325"W	438.60	104.646	1.36	1.88			
2844.00	12.300	104.860	2858.73	-252.52	-116.99	450.69	1685051.09	39°18'07.088"N	80°50'31.990"W	452.16	104.580	0.75	-0.08			
2907.00	12.390	102.400	2927.19	-252.52	-113.82	437.60	1685038.01	39°18'07.056"N	80°50'31.561"W	465.63	104.552	0.85	3.90			
2970.00	12.670	105.290	2920.23	-260.04	-120.55	463.89	1685064.28	39°18'07.021"N	80°50'31.822"W	479.29	104.567	0.47	0.68			
3033.00	13.740	103.830	2981.56	-267.84	-124.16	477.82	1685078.20	39°18'06.985"N	80°50'31.645"W	493.68	104.566	1.78	-2.32			
3096.00	14.630	102.400	3042.64	-275.88	-127.66	492.85	1685093.23	39°18'06.950"N	80°50'31.453"W	509.12	104.522	1.52	-2.77			
3160.00	14.480	108.200	3104.59	-284.76	-131.89	508.35	1685108.72	39°18'06.908"N	80°50'31.256"W	526.18	104.454	2.29	9.06			
3223.00	14.460	116.580	3165.60	-295.00	-137.87	522.86	1685123.24	39°18'06.848"N	80°50'31.072"W	540.74	104.772	3.32	13.30			
3286.00	15.320	117.550	3226.48	-306.52	-145.24	537.28	1685137.64	39°18'06.775"N	80°50'30.889"W	556.56	105.127	1.42	1.54			
3349.00	15.270	117.860	3287.25	-318.47	-152.97	551.99	1685152.35	39°18'06.699"N	80°50'30.702"W	572.80	105.489	0.15	0.49			
3412.00	14.780	116.830	3348.10	-330.15	-160.47	566.50	1685166.85	39°18'06.624"N	80°50'30.517"W	588.79	105.816	0.89	-1.63			
3507.00	13.760	109.590	3440.17	-345.67	-169.73	587.96	1685188.30	39°18'06.532"N	80°50'30.245"W	611.97	106.102	2.16	-7.62			
3602.00	14.250	114.660	3532.35	-360.58	-178.40	609.23	1685209.56	39°18'06.446"N	80°50'29.974"W	634.81	106.321	1.39	5.34			
3696.00	14.120	111.100	3623.49	-375.74	-187.35	630.44	1685230.77	39°18'06.357"N	80°50'29.705"W	657.69	106.551	0.94	-3.79			
3791.00	13.020	104.180	3715.84	-388.84	-194.15	651.63	1685251.95	39°18'06.290"N	80°50'29.435"W	679.93	106.591	2.06	-7.28			
3866.00	12.190	102.910	3808.55	-399.78	-199.01	671.78	1685272.09	39°18'06.242"N	80°50'29.179"W	700.64	106.501	0.92	-1.34			
3980.00	11.210	103.860	3900.60	-409.78	-203.41	690.32	1685290.63	39°18'06.195"N	80°50'28.943"W	719.67	106.418	1.06	1.01			

Operator	Area	Field	Facility
ANTERO RESOURCES CORPORATION	Doddridge Co., WV	Doddridge	Balli Pad
		Wellbore	Sidetrack from
		Well	Hawk Unit 2H ST01 AWB
		Slot	Hawk Unit 2H ST01 AWB



Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'

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REFERENCE WELLPATH IDENTIFICATION			
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Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWB
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

WELLPATH DATA (225 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 (ft/100ft)	Comments
4075.00	11.110	107.190	3993.80	-420.01	-208.33	708.03	1685308.33	14271827.43	39°18'06.149"N	80°50'28.718"W	738.05	106.396	0.69	-0.11	3.51	
4170.00	12.760	108.230	4086.75	-431.56	-214.32	726.74	1685327.03	14271821.45	39°18'06.089"N	80°50'28.480"W	757.69	106.431	1.75	1.74	1.09	
4264.00	12.900	105.540	4178.40	-443.58	-220.38	746.71	1685346.99	14271815.39	39°18'06.029"N	80°50'28.226"W	778.55	106.443	0.65	0.15	-2.86	
4361.00	13.180	103.990	4272.90	-455.52	-225.95	767.88	1685368.15	14271809.82	39°18'05.974"N	80°50'27.957"W	800.43	106.397	0.46	0.29	-1.60	
4456.00	13.250	101.710	4365.38	-466.74	-230.78	789.05	1685389.31	14271804.99	39°18'05.925"N	80°50'27.688"W	822.10	106.303	0.55	0.07	-2.40	
4550.00	12.910	100.400	4456.94	-477.17	-234.86	809.92	1685410.18	14271800.91	39°18'05.885"N	80°50'27.422"W	843.29	106.171	0.48	-0.36	-1.39	
4644.00	13.280	101.060	4548.50	-487.51	-238.83	830.85	1685431.09	14271796.95	39°18'05.845"N	80°50'27.156"W	864.49	106.037	0.42	0.39	0.70	
4739.00	14.050	97.810	4640.81	-497.93	-242.49	852.98	1685453.22	14271793.29	39°18'05.809"N	80°50'26.875"W	886.78	105.870	1.14	0.81	-3.42	
4833.00	13.280	99.650	4732.15	-508.01	-245.85	874.93	1685475.16	14271789.93	39°18'05.775"N	80°50'26.596"W	908.81	105.695	0.94	-0.82	1.96	
4928.00	12.640	104.920	4824.73	-518.81	-250.35	895.73	1685495.95	14271785.43	39°18'05.730"N	80°50'26.331"W	930.06	105.616	1.41	-0.67	5.55	
5022.00	13.360	105.810	4916.32	-530.53	-255.96	916.12	1685516.33	14271779.82	39°18'05.674"N	80°50'26.072"W	951.20	105.610	0.79	0.77	0.95	
5117.00	13.740	110.150	5008.68	-543.70	-262.84	937.27	1685537.48	14271772.95	39°18'05.606"N	80°50'25.803"W	973.43	105.665	1.14	0.40	4.57	
5211.00	13.690	106.970	5100.00	-557.06	-269.93	958.39	1685558.59	14271765.86	39°18'05.536"N	80°50'25.535"W	995.68	105.730	0.80	-0.05	-3.38	
5306.00	14.000	101.820	5192.25	-569.32	-275.57	980.39	1685580.58	14271760.22	39°18'05.479"N	80°50'25.255"W	1018.38	105.700	1.34	0.33	-5.42	
5401.00	13.540	104.350	5284.52	-581.08	-280.68	1002.41	1685602.59	14271755.12	39°18'05.429"N	80°50'24.975"W	1040.97	105.642	0.80	-0.48	2.66	
5495.00	12.560	103.530	5376.09	-592.40	-285.79	1023.01	1685623.18	14271750.00	39°18'05.378"N	80°50'24.713"W	1062.18	105.609	1.06	-1.04	-0.87	
5589.00	12.120	99.650	5467.92	-602.42	-289.84	1042.68	1685642.84	14271745.96	39°18'05.337"N	80°50'24.463"W	1082.21	105.535	1.00	-0.47	-4.13	
5609.00	11.810	99.730	5487.48	-604.36	-290.54	1046.76	1685646.93	14271745.26	39°18'05.330"N	80°50'24.411"W	1086.34	105.512	1.55	-1.55	0.40	BHI AT Curve <8-1/2"> (5589')(5609'-17830')
5704.00	16.600	80.850	5579.60	-611.09	-290.02	1069.77	1685669.92	14271745.77	39°18'05.335"N	80°50'24.118"W	1108.39	105.169	6.95	5.04	-19.87	
5751.00	17.460	90.310	5624.55	-614.41	-288.99	1083.45	1685683.60	14271746.80	39°18'05.345"N	80°50'23.944"W	1121.33	104.935	6.16	1.83	20.13	
5798.00	18.830	102.120	5669.22	-620.50	-290.62	1097.92	1685698.06	14271745.17	39°18'05.329"N	80°50'23.760"W	1135.74	104.826	8.33	2.91	25.13	
5845.00	19.050	114.040	5713.70	-629.51	-295.34	1112.35	1685712.48	14271740.45	39°18'05.282"N	80°50'23.577"W	1150.89	104.870	8.23	0.47	25.36	
5893.00	18.270	109.320	5759.18	-639.38	-301.02	1126.60	1685726.73	14271734.78	39°18'05.225"N	80°50'23.396"W	1166.13	104.960	3.54	-1.63	-9.83	
5940.00	15.910	96.360	5804.11	-646.56	-304.18	1139.97	1685740.09	14271731.62	39°18'05.194"N	80°50'23.226"W	1179.85	104.940	9.50	-5.02	-27.57	
5988.00	15.480	86.720	5850.33	-650.97	-304.54	1152.90	1685753.02	14271731.26	39°18'05.190"N	80°50'23.061"W	1192.45	104.797	5.50	-0.90	-20.08	
6035.00	14.040	78.150	5895.78	-653.23	-303.01	1164.75	1685764.86	14271732.79	39°18'05.205"N	80°50'22.910"W	1203.51	104.582	5.56	-3.06	-18.23	
6083.00	14.030	71.210	5942.36	-653.83	-299.94	1175.95	1685776.08	14271735.86	39°18'05.235"N	80°50'22.768"W	1213.60	104.309	3.50	-0.02	-14.46	
6130.00	14.460	58.400	5987.92	-652.43	-295.03	1186.35	1685786.45	14271740.77	39°18'05.284"N	80°50'22.635"W	1222.48	103.965	6.76	0.91	-27.26	
6177.00	15.880	42.250	6033.30	-647.92	-287.19	1195.67	1685795.77	14271748.60	39°18'05.361"N	80°50'22.517"W	1229.68	103.506	9.45	3.02	-34.36	
6224.00	17.640	29.610	6078.32	-639.98	-276.23	1203.52	1685803.62	14271759.56	39°18'05.469"N	80°50'22.417"W	1234.81	102.927	8.59	3.74	-26.89	

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Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWB
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

WELLPATH DATA (225 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
6272.00	18.980	20.780	6123.90	-629.04	-262.61	1209.88	1685809.98	14271773.18	39°18'05.604"N	80°50'22.335"W	1238.05	102.246	6.41	2.79	-18.40	
6319.00	23.420	11.270	6167.72	-614.97	-246.29	1214.42	1685814.52	14271789.49	39°18'05.765"N	80°50'22.277"W	1239.15	101.464	11.92	9.45	-20.23	
6368.00	26.800	7.470	6212.08	-596.54	-225.78	1217.76	1685817.86	14271809.99	39°18'05.967"N	80°50'22.234"W	1238.52	100.504	7.64	6.90	-7.76	
6415.00	30.650	3.560	6253.30	-575.87	-203.31	1219.89	1685819.98	14271832.45	39°18'06.189"N	80°50'22.207"W	1236.71	99.462	9.11	8.19	-8.32	
6462.00	34.330	0.430	6292.94	-552.19	-178.09	1220.73	1685820.82	14271857.66	39°18'06.439"N	80°50'22.195"W	1233.65	98.300	8.61	7.83	-6.66	
6509.00	37.710	357.160	6330.95	-525.77	-150.47	1220.12	1685820.21	14271885.27	39°18'06.712"N	80°50'22.203"W	1229.36	97.030	8.27	7.19	-6.96	
6557.00	41.240	354.800	6368.00	-496.20	-120.04	1217.95	1685818.05	14271915.69	39°18'07.013"N	80°50'22.229"W	1223.86	95.629	7.99	7.35	-4.92	
6604.00	44.960	352.420	6402.31	-464.78	-88.14	1214.36	1685814.45	14271947.58	39°18'07.328"N	80°50'22.274"W	1217.55	94.151	8.64	7.91	-5.06	
6633.00†	47.396	351.233	6422.39	-444.19	-67.43	1211.38	1685811.48	14271968.28	39°18'07.533"N	80°50'22.312"W	1213.25	93.186	8.90	8.40	-4.09	Middlesex: 6633' MD
6650.00	48.830	350.580	6433.74	-431.69	-54.93	1209.38	1685809.48	14271980.77	39°18'07.656"N	80°50'22.337"W	1210.63	92.601	8.90	8.43	-3.84	
6697.00	52.430	349.720	6463.55	-395.76	-19.14	1203.16	1685803.26	14272016.55	39°18'08.010"N	80°50'22.415"W	1203.31	90.911	7.79	7.66	-1.83	
6743.00	55.680	348.280	6490.55	-358.82	17.41	1196.04	1685796.15	14272053.08	39°18'08.371"N	80°50'22.505"W	1196.17	89.166	7.51	7.07	-3.13	
6790.00	58.940	346.030	6515.93	-319.45	55.96	1187.24	1685787.34	14272091.62	39°18'08.753"N	80°50'22.616"W	1188.56	87.301	8.02	6.94	-4.79	
6839.00	62.850	344.370	6539.76	-276.73	97.34	1176.29	1685776.40	14272132.98	39°18'09.162"N	80°50'22.755"W	1180.31	85.270	8.51	7.98	-3.39	
6844.00†	63.268	344.186	6542.03	-272.28	101.63	1175.09	1685775.20	14272137.27	39°18'09.204"N	80°50'22.770"W	1179.47	85.057	8.99	8.36	-3.68	Burket: 6844' MD
6886.00	66.790	342.690	6559.76	-234.23	138.11	1164.23	1685764.34	14272173.74	39°18'09.565"N	80°50'22.907"W	1172.39	83.234	8.99	8.39	-3.56	
6920.00†	66.817	341.576	6573.15	-202.98	167.86	1154.64	1685754.76	14272203.47	39°18'09.859"N	80°50'23.028"W	1166.78	81.728	3.01	0.08	-3.28	Tully: 6920' MD
6933.00	66.830	341.150	6578.26	-191.03	179.18	1150.82	1685750.94	14272214.79	39°18'09.971"N	80°50'23.077"W	1164.69	81.150	3.01	0.10	-3.28	
6980.00	70.520	340.360	6595.35	-147.26	220.51	1136.39	1685736.51	14272256.10	39°18'10.380"N	80°50'23.259"W	1157.58	79.019	8.01	7.85	-1.68	
7022.00†	73.880	340.176	6608.19	-107.29	258.14	1122.89	1685723.02	14272293.72	39°18'10.752"N	80°50'23.430"W	1152.18	77.053	8.01	8.00	-0.44	Marcellus POE: 7022' MD
7028.00	74.360	340.150	6609.83	-101.52	263.57	1120.93	1685721.06	14272299.15	39°18'10.806"N	80°50'23.455"W	1151.50	76.768	8.01	8.00	-0.43	
7075.00	79.130	341.000	6620.61	-55.79	306.71	1105.72	1685705.86	14272342.26	39°18'11.232"N	80°50'23.648"W	1147.47	74.497	10.30	10.15	1.81	
7122.00	83.400	342.370	6627.74	-9.35	350.80	1091.13	1685691.28	14272386.34	39°18'11.668"N	80°50'23.832"W	1146.14	72.178	9.53	9.09	2.91	
7169.00	88.310	343.550	6631.14	37.50	395.60	1077.40	1685677.55	14272431.12	39°18'12.111"N	80°50'24.006"W	1147.73	69.838	10.74	10.45	2.51	
7216.00	89.940	344.390	6631.86	84.45	440.77	1064.42	1685664.58	14272476.27	39°18'12.558"N	80°50'24.170"W	1152.07	67.506	3.90	3.47	1.79	
7311.00	89.910	342.900	6631.98	179.40	531.92	1037.67	1685637.84	14272567.39	39°18'13.459"N	80°50'24.508"W	1166.06	62.860	1.57	-0.03	-1.57	
7405.00	89.940	342.400	6632.10	273.38	621.64	1009.64	1685609.82	14272657.07	39°18'14.347"N	80°50'24.863"W	1185.67	58.379	0.53	0.03	-0.53	
7500.00	89.850	342.780	6632.28	368.37	712.29	981.22	1685581.41	14272747.69	39°18'15.243"N	80°50'25.222"W	1212.50	54.023	0.41	-0.09	0.40	
7594.00	90.000	342.250	6632.40	462.36	801.95	952.98	1685553.17	14272837.31	39°18'16.130"N	80°50'25.579"W	1245.50	49.919	0.59	0.16	-0.56	
7690.00	89.940	342.940	6632.45	558.35	893.55	924.26	1685524.47	14272928.87	39°18'17.036"N	80°50'25.943"W	1285.57	45.968	0.72	-0.06	0.72	

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Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWB
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

WELLPATH DATA (225 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
7784.00	90.030	343.050	6632.48	652.33	983.44	896.77	1685496.99	14273018.73	39°18'17.925"N	80°50'26.290"W	1330.92	42.361	0.15	0.10	0.12	
7879.00	89.050	342.020	6633.24	747.31	1074.06	868.26	1685468.49	14273109.31	39°18'18.821"N	80°50'26.651"W	1381.11	38.952	1.50	-1.03	-1.08	
7974.00	89.910	341.420	6634.10	842.31	1164.26	838.46	1685438.71	14273199.47	39°18'19.713"N	80°50'27.028"W	1434.75	35.760	1.10	0.91	-0.63	
8069.00	90.000	340.420	6634.17	937.30	1254.04	807.41	1685407.67	14273289.22	39°18'20.601"N	80°50'27.421"W	1491.48	32.775	1.06	0.09	-1.05	
8164.00	89.970	340.020	6634.20	1032.26	1343.43	775.26	1685375.53	14273378.57	39°18'21.485"N	80°50'27.828"W	1551.08	29.988	0.42	-0.03	-0.42	
8258.00	89.880	342.850	6634.32	1126.25	1432.53	745.34	1685345.62	14273467.64	39°18'22.366"N	80°50'28.207"W	1614.83	27.488	3.01	-0.10	3.01	
8353.00	90.220	342.460	6634.24	1221.24	1523.21	717.01	1685317.31	14273558.28	39°18'23.263"N	80°50'28.565"W	1683.53	25.208	0.54	0.36	-0.41	
8448.00	90.340	343.650	6633.78	1316.21	1614.08	689.33	1685289.63	14273649.12	39°18'24.161"N	80°50'28.915"W	1755.12	23.126	1.26	0.13	1.25	
8542.00	90.280	342.920	6633.27	1410.17	1704.11	662.29	1685262.61	14273739.11	39°18'25.051"N	80°50'29.257"W	1828.28	21.238	0.78	-0.06	-0.78	
8637.00	90.180	341.500	6632.89	1505.17	1794.56	633.27	1685233.59	14273829.53	39°18'25.946"N	80°50'29.624"W	1903.02	19.437	1.50	-0.11	-1.49	
8732.00	90.090	338.340	6632.66	1600.11	1883.78	600.65	1685200.99	14273918.71	39°18'26.828"N	80°50'30.037"W	1977.22	17.685	3.33	-0.09	-3.33	
8827.00	90.220	337.080	6632.40	1694.88	1971.68	564.62	1685164.98	14274006.57	39°18'27.698"N	80°50'30.494"W	2050.93	15.980	1.33	0.14	-1.33	
8920.00	90.340	336.230	6631.95	1787.51	2057.06	527.77	1685128.14	14274091.92	39°18'28.542"N	80°50'30.961"W	2123.69	14.390	0.92	0.13	-0.91	
9015.00	90.180	340.340	6631.52	1882.32	2145.30	492.63	1685093.01	14274180.12	39°18'29.415"N	80°50'31.406"W	2201.14	12.933	4.33	-0.17	4.33	
9110.00	90.120	340.360	6631.27	1977.29	2234.77	460.68	1685061.08	14274269.55	39°18'30.300"N	80°50'31.810"W	2281.76	11.648	0.07	-0.06	0.02	
9204.00	90.150	343.020	6631.05	2071.28	2324.00	431.16	1685031.56	14274358.75	39°18'31.182"N	80°50'32.184"W	2363.66	10.510	2.83	0.03	2.83	
9299.00	90.310	343.780	6630.67	2166.24	2415.04	404.02	1685004.43	14274449.75	39°18'32.083"N	80°50'32.527"W	2448.60	9.497	0.82	0.17	0.80	
9395.00	90.310	341.810	6630.15	2262.22	2506.74	375.62	1684976.05	14274541.42	39°18'32.989"N	80°50'32.886"W	2534.72	8.522	2.05	0.00	-2.05	
9489.00	90.280	342.720	6629.66	2356.21	2596.27	346.99	1684947.43	14274630.91	39°18'33.875"N	80°50'33.249"W	2619.35	7.612	0.97	-0.03	0.97	
9585.00	90.250	341.110	6629.22	2452.21	2687.52	317.19	1684917.64	14274722.13	39°18'34.777"N	80°50'33.626"W	2706.18	6.731	1.68	-0.03	-1.68	
9680.00	90.280	341.520	6628.78	2547.20	2777.51	286.75	1684887.22	14274812.08	39°18'35.667"N	80°50'34.011"W	2792.28	5.894	0.43	0.03	0.43	
9775.00	90.340	343.820	6628.27	2642.18	2868.19	258.46	1684858.94	14274902.73	39°18'36.564"N	80°50'34.369"W	2879.82	5.149	2.42	0.06	2.42	
9871.00	90.280	344.600	6627.75	2738.09	2960.57	232.34	1684832.82	14274995.07	39°18'37.477"N	80°50'34.699"W	2969.67	4.487	0.81	-0.06	0.81	
9965.00	90.250	344.580	6627.31	2831.97	3051.19	207.36	1684807.86	14275085.65	39°18'38.373"N	80°50'35.015"W	3058.23	3.888	0.04	-0.03	-0.02	
10060.00	90.310	343.650	6626.85	2926.88	3142.56	181.36	1684781.86	14275176.98	39°18'39.277"N	80°50'35.344"W	3147.79	3.303	0.98	0.06	-0.98	
10155.00	90.090	342.340	6626.52	3021.86	3233.40	153.57	1684754.09	14275267.79	39°18'40.175"N	80°50'35.695"W	3237.05	2.719	1.40	-0.23	-1.38	
10250.00	90.520	340.840	6626.01	3116.85	3323.54	123.57	1684724.10	14275357.89	39°18'41.067"N	80°50'36.075"W	3325.83	2.129	1.64	0.45	-1.58	
10346.00	90.340	341.990	6625.29	3212.85	3414.53	92.98	1684693.52	14275448.84	39°18'41.966"N	80°50'36.462"W	3415.79	1.560	1.21	-0.19	1.20	
10441.00	90.860	344.080	6624.30	3307.81	3505.38	65.26	1684665.82	14275539.66	39°18'42.865"N	80°50'36.813"W	3505.99	1.067	2.27	0.55	2.20	
10536.00	89.720	341.500	6623.81	3402.78	3596.12	37.16	1684637.72	14275630.36	39°18'43.762"N	80°50'37.168"W	3596.31	0.592	2.97	-1.20	-2.72	

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Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWP
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

WELLPATH DATA (225 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
10630.00	89.600	335.500	6624.37	3496.59	3683.54	2.72	1684603.30	14275717.74	39°18'44.627"N	80°50'37.604"W	3683.54	0.042	6.38	-0.13	-6.38	
10725.00	89.690	335.930	6624.96	3591.07	3770.13	-36.35	1684564.25	14275804.30	39°18'45.483"N	80°50'38.100"W	3770.30	359.448	0.46	0.09	0.45	
10820.00	89.570	336.570	6625.57	3685.64	3857.08	-74.61	1684526.00	14275891.22	39°18'46.343"N	80°50'38.585"W	3857.80	358.892	0.69	-0.13	0.67	
10915.00	89.480	338.650	6626.36	3780.38	3944.91	-110.79	1684489.83	14275979.01	39°18'47.212"N	80°50'39.043"W	3946.47	358.391	2.19	-0.09	2.19	
11010.00	89.660	339.590	6627.08	3875.28	4033.67	-144.65	1684455.99	14276067.74	39°18'48.090"N	80°50'39.472"W	4036.26	357.946	1.01	0.19	0.99	
11104.00	89.690	344.780	6627.61	3969.25	4123.13	-173.40	1684427.25	14276157.16	39°18'48.975"N	80°50'39.836"W	4126.77	357.592	5.52	0.03	5.52	
11199.00	89.720	346.980	6628.10	4063.99	4215.25	-196.57	1684404.09	14276249.25	39°18'49.886"N	80°50'40.128"W	4219.83	357.330	2.32	0.03	2.32	
11294.00	89.660	346.090	6628.61	4158.65	4307.64	-218.69	1684381.98	14276341.60	39°18'50.799"N	80°50'40.408"W	4313.19	357.094	0.94	-0.06	-0.94	
11388.00	89.940	345.010	6628.94	4252.44	4398.66	-242.15	1684358.53	14276432.58	39°18'51.699"N	80°50'40.704"W	4405.32	356.849	1.19	0.30	-1.15	
11483.00	90.030	347.860	6628.97	4347.10	4491.00	-264.43	1684336.26	14276524.89	39°18'52.612"N	80°50'40.986"W	4498.78	356.630	3.00	0.09	3.00	
11578.00	90.120	351.040	6628.84	4441.23	4584.38	-281.82	1684318.87	14276618.23	39°18'53.535"N	80°50'41.205"W	4593.04	356.482	3.35	0.09	3.35	
11673.00	90.060	350.630	6628.69	4535.02	4678.17	-296.95	1684303.75	14276711.98	39°18'54.463"N	80°50'41.395"W	4687.59	356.368	0.44	-0.06	-0.43	
11768.00	90.150	346.670	6628.52	4629.31	4771.30	-315.64	1684285.06	14276805.07	39°18'55.383"N	80°50'41.631"W	4781.72	356.215	4.17	0.09	-4.17	
11862.00	90.090	341.530	6628.32	4723.19	4861.67	-341.39	1684259.33	14276895.40	39°18'56.277"N	80°50'41.957"W	4873.64	355.983	5.47	-0.06	-5.47	
11957.00	90.060	341.290	6628.20	4818.19	4951.71	-371.67	1684229.06	14276985.41	39°18'57.167"N	80°50'42.340"W	4965.64	355.707	0.25	-0.03	-0.25	
12052.00	90.060	342.700	6628.10	4913.19	5042.06	-401.04	1684199.70	14277075.72	39°18'58.061"N	80°50'42.712"W	5057.98	355.452	1.48	0.00	1.48	
12147.00	90.000	346.330	6628.05	5008.06	5133.59	-426.39	1684174.36	14277167.22	39°18'58.966"N	80°50'43.032"W	5151.27	355.252	3.82	-0.06	3.82	
12242.00	90.060	342.730	6628.00	5102.93	5225.14	-451.73	1684149.03	14277258.73	39°18'59.871"N	80°50'43.353"W	5244.63	355.059	3.79	0.06	-3.79	
12337.00	90.030	338.470	6627.92	5197.89	5314.72	-483.28	1684117.49	14277348.28	39°19'00.757"N	80°50'43.752"W	5336.65	354.804	4.48	-0.03	-4.48	
12432.00	89.750	339.760	6628.10	5292.79	5403.48	-517.14	1684083.64	14277437.00	39°19'01.635"N	80°50'44.181"W	5428.17	354.533	1.39	-0.29	1.36	
12489.00	89.630	345.620	6628.41	5349.76	5457.87	-534.10	1684066.70	14277491.37	39°19'02.173"N	80°50'44.396"W	5483.94	354.411	10.28	-0.21	10.28	
12687.00	89.540	346.550	6629.85	5547.17	5550.05	-581.71	1684019.10	14277683.48	39°19'04.073"N	80°50'44.997"W	5679.92	354.122	0.47	-0.05	0.47	
12717.00	89.720	348.960	6630.04	5577.00	5679.37	-588.07	1684012.74	14277712.78	39°19'04.363"N	80°50'45.078"W	5709.73	354.088	8.06	0.60	8.03	
12812.00	89.820	351.150	6630.42	5670.99	5772.93	-604.48	1683996.34	14277806.31	39°19'05.288"N	80°50'45.284"W	5804.50	354.022	2.31	0.11	2.31	
12907.00	89.820	343.880	6630.72	5765.44	5865.63	-625.00	1683975.83	14277898.96	39°19'06.205"N	80°50'45.543"W	5898.83	353.918	7.65	0.00	-7.65	
13002.00	89.630	339.670	6631.18	5860.42	5955.84	-654.71	1683946.14	14277989.14	39°19'07.097"N	80°50'45.919"W	5991.72	353.727	4.44	-0.20	-4.43	
13097.00	89.600	337.790	6631.82	5955.28	6044.36	-689.17	1683911.69	14278077.63	39°19'07.972"N	80°50'46.356"W	6083.52	353.495	1.98	-0.03	-1.98	
13192.00	89.690	331.230	6632.41	6049.48	6130.07	-730.03	1683870.85	14278163.29	39°19'08.820"N	80°50'46.874"W	6173.38	353.209	6.91	0.09	-6.91	
13287.00	89.540	336.470	6633.04	6143.55	6215.31	-771.88	1683829.01	14278248.51	39°19'09.663"N	80°50'47.405"W	6263.06	352.921	5.52	-0.16	5.52	
13382.00	89.850	340.670	6633.55	6238.39	6303.72	-806.58	1683794.32	14278336.88	39°19'10.538"N	80°50'47.844"W	6355.11	352.708	4.43	0.33	4.42	

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Hawk Unit 2H ST01 AWP Proj: 18014

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Operator	Area	Field	Facility
ANTERO RESOURCES CORPORATION	Doddridge Co., WV	Doddridge	Balli Pad
		Wellbore	Sidetrack from
		Well	Hawk Unit 2H ST01 AWB
			Hawk Unit 2H ST01
			Slot #12

REFERENCE WELLPATH IDENTIFICATION

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)	(N)	(W)	(ft)	(°)	(ft/100ft)	(ft/100ft)	(ft/100ft)	
13477.00	89.690	341.460	6633.93	6333.38	6393.58	-837.41	1683763.51	14278426.70	39°19'11.426"N	80°50'48.235"W	6448.19	352.538	0.85	-0.17	0.83	
13573.00	89.720	340.340	6634.43	6429.37	6484.29	-868.82	1683732.11	14278517.39	39°19'12.323"N	80°50'48.632"W	6542.24	352.368	1.17	0.03	-1.17	
13668.00	89.940	335.960	6634.71	6524.16	6572.44	-904.17	1683696.77	14278605.50	39°19'13.195"N	80°50'49.080"W	6634.35	352.167	4.62	0.23	-4.61	
13763.00	89.690	332.520	6635.01	6618.34	6657.99	-945.45	1683655.51	14278691.01	39°19'14.041"N	80°50'49.604"W	6724.78	351.918	3.63	-0.26	-3.62	
13858.00	89.660	336.400	6635.55	6712.56	6743.69	-986.40	1683614.58	14278776.67	39°19'14.899"N	80°50'50.123"W	6815.46	351.678	4.08	-0.03	4.08	
13953.00	89.780	333.860	6636.02	6806.92	6829.87	-1026.35	1683574.64	14278862.82	39°19'15.742"N	80°50'50.629"W	6906.56	351.454	2.68	0.13	-2.67	
14049.00	89.600	332.640	6636.54	6901.88	6915.59	-1069.56	1683531.45	14278948.51	39°19'16.589"N	80°50'51.177"W	6997.81	351.208	1.28	-0.19	-1.27	
14144.00	88.950	339.130	6637.74	6996.33	7002.25	-1108.35	1683492.68	14279035.13	39°19'17.447"N	80°50'51.669"W	7089.42	351.006	6.87	-0.68	6.83	
14239.00	89.780	345.260	6638.79	7091.27	7092.65	-1137.38	1683463.66	14279125.49	39°19'18.341"N	80°50'52.037"W	7183.27	350.890	6.51	0.87	6.45	
14334.00	89.780	344.160	6639.16	7186.14	7184.29	-1162.43	1683438.61	14279217.09	39°19'19.247"N	80°50'52.353"W	7277.72	350.809	1.16	0.00	-1.16	
14429.00	89.820	342.900	6639.49	7281.09	7275.39	-1189.36	1683411.69	14279308.16	39°19'20.148"N	80°50'52.694"W	7371.96	350.716	1.33	0.04	-1.33	
14525.00	90.120	342.250	6639.54	7377.08	7366.98	-1218.11	1683382.96	14279399.71	39°19'21.053"N	80°50'53.058"W	7467.01	350.611	0.75	-0.31	-0.68	
14620.00	89.720	341.980	6639.67	7472.07	7457.39	-1247.29	1683353.79	14279490.09	39°19'21.947"N	80°50'53.427"W	7560.98	350.505	0.51	-0.42	-0.28	
14715.00	89.820	341.580	6640.06	7567.07	7547.62	-1276.99	1683324.10	14279580.29	39°19'22.840"N	80°50'53.803"W	7654.89	350.397	0.43	0.11	-0.42	
14810.00	89.970	338.960	6640.23	7662.03	7637.04	-1309.06	1683292.05	14279669.67	39°19'23.724"N	80°50'54.209"W	7748.42	350.274	2.76	-0.16	-2.76	
14907.00	90.180	338.170	6640.02	7821.79	7785.97	-1367.53	1683233.60	14279818.54	39°19'25.197"N	80°50'54.950"W	7905.15	350.038	0.51	0.13	-0.49	
14998.00	90.120	335.450	6639.95	7849.69	7811.71	-1378.55	1683222.58	14279844.26	39°19'25.451"N	80°50'55.090"W	7932.41	349.992	9.72	-0.21	-9.71	
15096.00	90.120	342.160	6639.74	7947.51	7903.02	-1413.96	1683187.18	14279935.55	39°19'26.355"N	80°50'55.539"W	8028.52	349.856	6.85	0.00	6.85	
15191.00	90.150	345.090	6639.52	8042.44	7994.16	-1440.74	1683160.41	14280026.64	39°19'27.256"N	80°50'55.877"W	8122.95	349.784	3.08	0.03	3.08	
15286.00	90.550	345.650	6638.94	8137.25	8086.08	-1464.74	1683136.43	14280181.53	39°19'28.165"N	80°50'56.181"W	8217.67	349.733	0.72	0.42	0.59	
15477.00	90.150	349.270	6637.77	8327.25	8272.49	-1506.20	1683094.98	14280304.86	39°19'30.008"N	80°50'56.704"W	8408.49	349.681	1.91	-0.21	1.90	
15572.00	90.310	344.640	6637.39	8421.82	8365.01	-1527.64	1683073.55	14280397.35	39°19'30.923"N	80°50'56.975"W	8503.36	349.651	4.88	-0.17	-4.87	
15667.00	90.250	340.590	6636.92	8516.79	8455.65	-1556.02	1683045.19	14280487.95	39°19'31.819"N	80°50'57.334"W	8597.63	349.573	4.26	-0.06	-4.26	
15762.00	90.180	340.990	6636.57	8611.78	8545.36	-1587.27	1683013.94	14280577.62	39°19'32.706"N	80°50'57.730"W	8691.52	349.477	0.43	-0.07	0.42	
15857.00	90.280	337.770	6636.19	8706.69	8634.26	-1620.72	1682980.50	14280666.49	39°19'33.685"N	80°50'58.154"W	8785.06	349.369	3.39	0.11	-3.39	
15952.00	89.690	338.000	6636.21	8801.47	8722.27	-1656.49	1682944.75	14280754.46	39°19'34.456"N	80°50'58.607"W	8878.17	349.247	0.67	-0.62	0.24	
16142.00	90.030	337.250	6636.67	8990.99	8897.96	-1728.81	1682872.46	14280930.09	39°19'36.193"N	80°50'59.524"W	9064.36	349.005	0.43	0.18	-0.39	
16238.00	90.030	343.300	6636.62	9086.92	8988.29	-1761.20	1682840.08	14281112.55	39°19'37.087"N	80°50'59.934"W	9159.21	348.914	6.30	0.00	6.30	
16333.00	89.970	349.040	6636.62	9181.59	9080.50	-1783.90	1682817.39	14281204.28	39°19'37.998"N	80°51'00.221"W	9254.07	348.886	6.04	-0.06	6.04	
16427.00	90.090	346.010	6636.58	9275.09	9172.27	-1804.20	1682797.10	14281204.28	39°19'38.906"N	80°51'00.478"W	9348.03	348.872	3.23	0.13	-3.22	

WELLPATH DATA (225 stations)

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Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWB
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

WELLPATH DATA (225 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
16522.00	90.120	343.900	6636.40	9369.94	9264.01	-1828.86	1682772.45	14281295.98	39°19'39.813"N	80°51'00.789"W	9442.80	348.833	2.22	0.03	-2.22	
16617.00	90.120	342.320	6636.20	9464.90	9354.90	-1856.46	1682744.86	14281386.84	39°19'40.712"N	80°51'01.139"W	9537.33	348.776	1.66	0.00	-1.66	
16712.00	90.250	341.440	6635.90	9559.90	9445.19	-1886.01	1682715.33	14281477.10	39°19'41.605"N	80°51'01.513"W	9631.65	348.708	0.94	0.14	-0.93	
16807.00	90.250	341.010	6635.48	9654.90	9535.14	-1916.58	1682684.76	14281567.00	39°19'42.494"N	80°51'01.900"W	9725.85	348.635	0.45	0.00	-0.45	
16903.00	90.120	338.790	6635.17	9750.84	9625.28	-1949.57	1682651.79	14281657.11	39°19'43.386"N	80°51'02.318"W	9820.74	348.550	2.32	-0.14	-2.31	
16998.00	90.180	338.220	6634.92	9845.69	9713.67	-1984.38	1682616.99	14281745.47	39°19'44.260"N	80°51'02.759"W	9914.29	348.454	0.60	0.06	-0.60	
17093.00	90.090	338.400	6634.70	9940.53	9801.95	-2019.49	1682581.90	14281833.71	39°19'45.133"N	80°51'03.204"W	10007.82	348.358	0.21	-0.09	0.19	
17220.00	90.550	340.150	6633.99	10067.40	9920.72	-2064.43	1682536.97	14281952.44	39°19'46.308"N	80°51'03.773"W	10133.24	348.245	1.42	0.36	1.38	
17283.00	90.460	346.110	6633.43	10130.35	9980.98	-2082.71	1682518.71	14282012.67	39°19'46.903"N	80°51'04.005"W	10195.96	348.213	9.46	-0.14	9.46	
17378.00	90.680	346.620	6632.49	10225.04	10073.30	-2105.10	1682496.32	14282104.95	39°19'47.816"N	80°51'04.288"W	10290.91	348.196	0.58	0.23	0.54	
17473.00	90.650	347.200	6631.39	10319.64	10165.82	-2126.61	1682474.82	14282197.44	39°19'48.731"N	80°51'04.560"W	10385.88	348.185	0.61	-0.03	0.61	
17568.00	90.650	345.890	6630.31	10414.29	10258.21	-2148.72	1682452.72	14282289.79	39°19'49.644"N	80°51'04.839"W	10480.83	348.170	1.38	0.00	-1.38	
17726.00	90.550	339.900	6628.65	10572.18	10409.14	-2195.16	1682406.29	14282440.66	39°19'51.137"N	80°51'05.427"W	10638.09	348.091	3.79	-0.06	-3.79	
17830.00	90.950	337.340	6627.29	10676.01	10505.97	-2233.07	1682368.40	14282537.45	39°19'52.095"N	80°51'05.907"W	10740.67	348.000	2.49	0.38	-2.46	
18014.00	90.950	337.340	6624.24	10859.45	10675.74	-2303.95	1682297.55	14282707.16	39°19'53.774"N	80°51'06.806"W	10921.52	347.822	0.00	0.00	0.00	Projected MD at TD: 18014'

TARGETS								
Name	TVD (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Shape
Hawk Unit 2H ST01 POE	6607.00	247.00	1128.00	1685728.13	14272282.58	39°18'10.642"N	80°50'23.365"W	point
Hawk Unit 2H ST01 BHL	6631.00	13347.56	-3207.00	1681394.86	14285377.90	39°20'20.195"N	80°51'18.243"W	point
Hawk Unit 2H ST01 LP	6631.00	416.25	1072.04	1685672.19	14272451.77	39°18'12.316"N	80°50'24.073"W	point

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Actual Wellpath Report

Hawk Unit 2H ST01 AWP Proj: 18014'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWB
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

WELLPATH COMPOSITION - Ref Wellbore: Hawk Unit 2H ST01 AWB Ref Wellpath: Hawk Unit 2H ST01 AWP Proj: 18014'				
Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment	Wellbore
32.00	346.00	Gyrodatta standard - Drop gyro or Multi-shot	01 Gyrodatta MS Gyro <17-1/2">(100'-327')	Hawk Unit 2H AWB
346.00	429.00	Gyrodatta standard - Drop gyro or Multi-shot	02 Gyrodatta MS Gyro <12-1/4"> (327')(351'-410')	Hawk Unit 2H AWB
429.00	2603.00	ISCWSA MWD, Rev. 4 (Standard)	03 Directional ONE MWD <12-1/4">(410')(528'-2584')	Hawk Unit 2H AWB
2603.00	5589.00	ISCWSA MWD, Rev. 4 (Standard)	04 Directional ONE MWD <8-3/4">(2584')(2696'-5760')	Hawk Unit 2H AWB
5589.00	17830.00	BHI AutoTrak Curve (Short)	06 BHI AT Curve <8-1/2">(5589')(5609'-17830')	Hawk Unit 2H ST01 AWB
17830.00	18014.00	Blind Drilling (std)	Projection to bit	Hawk Unit 2H ST01 AWB

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Hawk Unit 2H ST01 AWP Proj: 18014'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #12
Area	Doddridge Co., WV	Well	Hawk Unit 2H ST01
Field	Doddridge	Wellbore	Hawk Unit 2H ST01 AWB
Facility	Balli Pad	Sidetrack from	Hawk Unit 2H AWP Proj: 20800' at 5589.00 MD

COMMENTS
<p>Wellpath general comments API: 47-017-06795-0100 BHI Job #: 8633649A Rig: Frontier 32 Duration: 07/18/2017-07/19/2017 BHI AT Curve <8-1/2"> (5589')(5609'-17830') Middlesex: 6633' MD Burket: 6844' MD Tully: 6920' MD Marcellus POE: 7022' MD Projected MD at TD: 18014' API: 47-017-06795-0000 BHI Job #: 8633649 Rig: Frontier 32 Duration: 07/05/2017-07/06/2017 Gyrodata MS Gyro <17-1/2"> (100'-327') Gyrodata MS Gyro <12-1/4"> (327')(351'-410') Directional ONE MWD <12-1/4"> (410')(528'-2584') Directional ONE MWD <8-3/4"> (2584')(2696'-5760') Est. Top of Cement: 5663' MD BHI AT Curve <8-1/2"> (5779')(5814'-20776') Est. Top of Fish: 6163' MD Middlesex: 6614' MD Burket: 6824' MD Tully: 6896' MD Marcellus POE: 7021' MD Est. Bottom of Fish: 19775' MD Projected MD at TD: 20800'</p>

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