



ANTERO RESOURCES CORPORATION

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

Slot: Slot #09
 Well: Abu Unit 4H ST01
 Wellbore: Abu Unit 4H ST01 PWB



Grid System: NAD83 UTM Zone 17 North, US Feet
True vertical depths are referenced to H&P 519 (RKB)
Measured depths are referenced to H&P 519 (RKB)
H&P 519 (RKB) to Mean Sea Level: 880 feet
Mean Sea Level to Ground level (At Slot, Slot #09): -450 feet
Coordinates are in feet referenced to Slot

Location Information

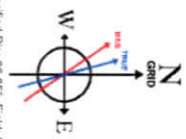
Facility Name	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
Reel Pad	1873387.320	1435884.750	39°32'24.730"N	80°52'58.090"W
Slot #09	13.31	1873400.020	1435885.1843	39°32'24.800"N
H&P 519 (RKB) to Ground level (At Slot, Slot #09)			30ft	-850ft
Mean Sea Level to Ground level (At Slot, Slot #09)				880ft

Well Profile Data

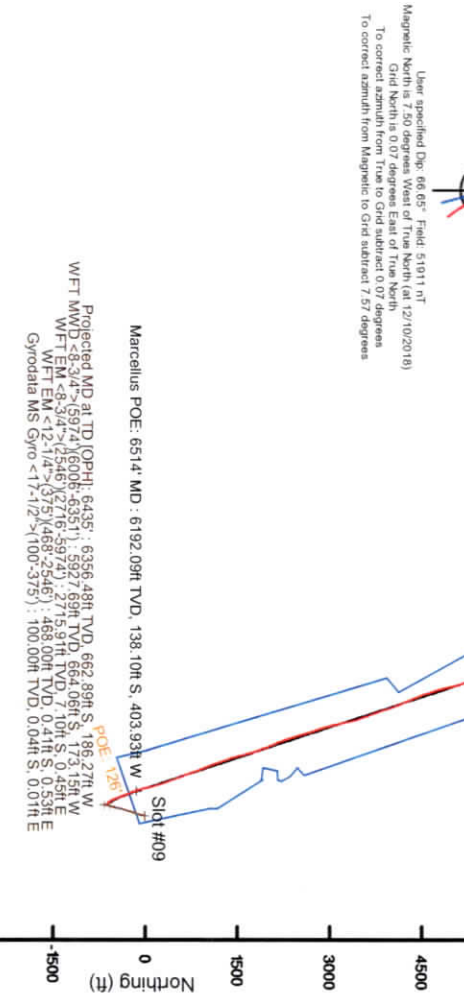
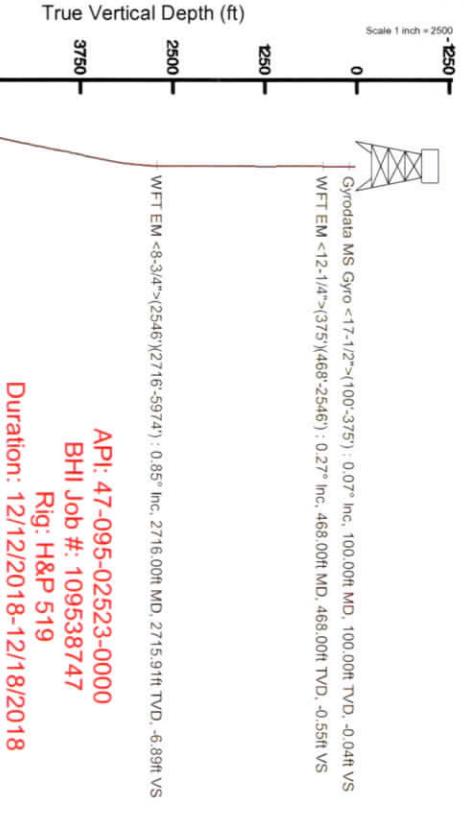
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
The On	5420.00	14.950	197.550	5353.67	-557.45	-102.21	2.40	-480.82
Est. Top of Cement	5520.00	15.116	191.602	5479.28	-590.07	-163.64	1.55	-502.60
ST KOP	5550.00	14.561	189.920	5479.28	-590.07	-163.64	2.34	-509.32
End of 3D Arc	6169.61	49.515	335.808	6035.55	-439.60	-265.76	10.00	-325.36
POE	6514.72	73.535	341.792	6190.00	-155.38	-392.03	7.12	-24.73
Landing Pt	6745.67	90.000	341.792	6232.00	61.28	-464.23	7.12	203.35
BHL	21324.28	90.000	341.792	6232.00	13908.82	-5021.93	0.00	14781.66

Well Data

Slot	Well	Wellbore	Wallpath
Slot #09	Abu Unit 4H (PWB)	Abu Unit 4H AWB	Abu Unit 4H AWB Proj: 6435
Slot #09	Abu Unit 4H ST01	Abu Unit 4H ST01 AWB	Abu Unit 4H ST01 AWB Proj: 21334
Slot #09	Abu Unit 4H ST01	Abu Unit 4H ST01 PWB	Abu Unit 4H ST01 PWB Rev: A.0



User specified Dip: 66.65° Field: 51911 nT
 Magnetic North is 7.50 degrees West of True North (at 12/10/2018)
 To correct azimuths from True to Grid subtract: 0.07 degrees
 To correct azimuths from Magnetic to Grid subtract: 7.57 degrees



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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 1 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Abu Unit 4H ST01
Field	Tyler	Wellbore	Abu Unit 4H ST01 AWB
Facility	Reel Pad	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect@ 5.1
North Reference	Grid	User	Delaset
Scale	0.999601	Report Generated	12/20/2018 at 10:02:55 PM
Convergence at slot	0.07° East	Database/Source file	WA_MPL_EasternUS_Defn/Abu_Unit_4H_ST01_AWP_Proj_21334_.xml

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Easting(US ft)	Northing(US ft)	Latitude	Longitude
Slot Location	7.10	13.31	1673400.62	14358651.84	39°32'24.800"N	80°52'58.820"W
Facility Reference Pt			1673387.32	14358644.75	39°32'24.730"N	80°52'58.990"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature		30.00ft
Horizontal Reference Pt	Slot	H&P 519 (RKB) to Facility Vertical Datum	880.00ft
Vertical Reference Pt	H&P 519 (RKB)	H&P 519 (RKB) to Mean Sea Level	30.00ft
MD Reference Pt	H&P 519 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	341.78°

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11/12/2021



Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 2 of 12



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Field	Tyler	Wellbore	Abu Unit 4H ST01 AWP
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WELLPATH DATA (252 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
ftH	°	°	ftH	ftH	ftH	ftH	US ftH	US ftH			ftH	°	ft/100ftH	ft/100ftH	°/100ftH	
0.00†	0.000	170.790	0.00	0.00	0.00	0.00	1673400.62	14356651.84	39°32'24.800"N	80°52'58.820"W	0.00	0.000	0.00	0.00	0.00	
30.00	0.000	170.790	30.00	0.00	0.00	0.00	1673400.62	14356651.84	39°32'24.800"N	80°52'58.820"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.070	170.790	100.00	-0.04	-0.04	0.01	1673400.63	14356651.80	39°32'24.800"N	80°52'58.820"W	0.04	170.790	0.10	0.16	243.99	Gyrodata MS Gyro <17-1/2>-(100-375)
125.00	0.100	138.080	125.00	-0.08	-0.07	0.02	1673400.64	14356651.77	39°32'24.799"N	80°52'58.820"W	0.08	162.017	0.22	0.12	-130.84	
150.00	0.086	125.940	150.00	-0.11	-0.10	0.05	1673400.67	14356651.74	39°32'24.798"N	80°52'58.819"W	0.11	152.268	0.11	-0.06	-48.56	
175.00	0.020	29.810	175.00	-0.12	-0.11	0.07	1673400.69	14356651.74	39°32'24.799"N	80°52'58.819"W	0.13	147.099	0.34	-0.24	-384.52	
200.00	0.066	158.200	200.00	-0.13	-0.11	0.08	1673400.70	14356651.73	39°32'24.799"N	80°52'58.819"W	0.14	146.534	0.30	0.16	513.56	
225.00	0.070	190.020	225.00	-0.16	-0.14	0.08	1673400.70	14356651.70	39°32'24.799"N	80°52'58.819"W	0.16	151.190	0.15	0.04	127.28	
250.00	0.030	136.530	250.00	-0.18	-0.16	0.08	1673400.70	14356651.68	39°32'24.798"N	80°52'58.819"W	0.18	153.705	0.23	-0.16	-213.96	
275.00	0.086	70.220	275.00	-0.18	-0.16	0.10	1673400.72	14356651.68	39°32'24.798"N	80°52'58.819"W	0.19	147.873	0.29	0.26	-265.24	
300.00	0.140	81.200	300.00	-0.19	-0.15	0.15	1673400.77	14356651.69	39°32'24.799"N	80°52'58.818"W	0.21	135.497	0.25	0.24	43.92	
325.00	0.160	126.200	325.00	-0.22	-0.16	0.20	1673400.82	14356651.68	39°32'24.798"N	80°52'58.817"W	0.26	128.909	0.45	0.04	180.00	
350.00	0.100	134.650	350.00	-0.27	-0.20	0.25	1673400.87	14356651.64	39°32'24.798"N	80°52'58.817"W	0.32	129.024	0.21	-0.20	33.80	
375.00	0.130	100.980	375.00	-0.30	-0.22	0.29	1673400.91	14356651.62	39°32'24.798"N	80°52'58.816"W	0.36	127.259	0.29	0.12	-134.68	
400.00	0.270	139.680	400.00	-0.55	-0.41	0.53	1673401.15	14356651.44	39°32'24.796"N	80°52'58.813"W	0.67	127.295	0.20	0.15	-41.61	WT EM <12-1/4>-(375)(468-2546)
425.00	0.260	180.810	425.00	-0.96	-0.73	0.86	1673401.48	14356651.12	39°32'24.793"N	80°52'58.809"W	1.13	130.185	0.06	0.03	-10.80	
450.00	0.310	160.270	450.00	-1.41	-1.11	1.13	1673401.75	14356650.73	39°32'24.789"N	80°52'58.806"W	1.58	134.592	0.18	0.01	33.55	
475.00	0.260	180.810	475.00	-1.85	-1.55	1.21	1673401.83	14356650.29	39°32'24.785"N	80°52'58.805"W	1.97	142.142	0.12	-0.05	22.33	
500.00	0.170	179.110	500.00	-2.18	-1.89	1.21	1673401.83	14356649.95	39°32'24.781"N	80°52'58.805"W	2.25	147.511	0.10	-0.10	-1.87	
525.00	0.330	242.380	525.00	-2.37	-2.18	0.95	1673401.57	14356649.67	39°32'24.782"N	80°52'58.808"W	2.38	156.337	0.30	0.16	63.27	
550.00	0.650	325.830	550.00	-1.90	-1.86	0.41	1673401.03	14356649.98	39°32'24.782"N	80°52'58.815"W	1.91	167.443	0.74	0.34	88.78	
575.00	1.270	339.150	575.00	-0.31	-0.42	-0.27	1673400.35	14356651.43	39°32'24.796"N	80°52'58.823"W	0.50	212.951	0.68	0.65	13.88	
600.00	0.340	26.220	600.00	0.94	0.82	0.52	1673400.10	14356652.66	39°32'24.808"N	80°52'58.827"W	0.97	327.623	1.12	-0.98	49.55	
625.00	0.780	137.790	625.00	0.55	0.39	0.04	1673400.66	14356652.44	39°32'24.806"N	80°52'58.819"W	0.60	3.742	1.01	0.46	117.44	
650.00	1.280	141.730	650.00	-1.02	-0.70	1.12	1673401.74	14356651.14	39°32'24.793"N	80°52'58.806"W	1.32	122.174	0.54	0.53	4.19	
675.00	0.460	166.200	675.00	-2.40	-1.91	1.87	1673402.49	14356649.94	39°32'24.781"N	80°52'58.796"W	2.67	135.610	0.93	-0.86	25.76	
700.00	0.250	271.440	700.00	-2.70	-2.27	1.75	1673402.37	14356649.58	39°32'24.778"N	80°52'58.798"W	2.87	142.320	0.62	-0.22	111.96	
725.00	0.056	14.460	725.00	-2.60	-2.22	1.56	1673402.17	14356649.62	39°32'24.778"N	80°52'58.800"W	2.71	145.025	0.28	-0.21	108.44	
750.00	0.200	65.230	750.00	-2.54	-2.11	1.72	1673402.34	14356649.73	39°32'24.779"N	80°52'58.798"W	2.72	140.925	0.18	0.16	53.44	
775.00	0.200	202.080	775.00	-2.65	-2.20	1.80	1673402.42	14356649.65	39°32'24.778"N	80°52'58.797"W	2.84	140.614	0.39	0.06	144.05	

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 3 of 12



11/12/2021

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		Area	Tyler County, WV	Well	Abu Unit 4H ST01
		Field	Tyler	Wellbore	Abu Unit 4H ST01 AWB
		Facility	Reel Pad	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD

WELLPATH DATA (252 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	D/S	Build Rate	Turn Rate	Comments
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(F/100ft)	(F/100ft)	(°/100ft)	
1977.00	0.580	228.870	1976.93	-2.97	-2.67	1.38	1673402.00	14358648.18	39°32'24.774"N	80°52'58.802"W	3.00	152.649	0.43	0.40	28.20	
2071.00	0.980	225.840	2070.92	-3.50	-3.54	0.44	1673401.06	14358648.30	39°32'24.765"N	80°52'58.814"W	3.57	172.838	0.43	0.43		-3.22
2166.00	0.400	221.410	2165.92	-4.03	-4.36	-0.36	1673400.26	14358647.49	39°32'24.757"N	80°52'58.825"W	4.37	184.689	0.61	-0.61		-4.66
2261.00	0.160	158.890	2260.92	-4.33	-4.73	-0.53	1673400.09	14358647.12	39°32'24.753"N	80°52'58.827"W	4.76	186.382	0.37	-0.25		-65.81
2357.00	0.210	157.420	2356.92	-4.63	-5.02	-0.41	1673400.21	14358646.83	39°32'24.750"N	80°52'58.825"W	5.03	184.707	0.05	0.05		-1.53
2453.00	0.360	139.900	2452.91	-5.09	-5.41	-0.15	1673400.47	14358646.44	39°32'24.747"N	80°52'58.822"W	5.41	181.601	0.18	0.16		-18.25
2546.00	0.300	109.700	2545.91	-5.51	-5.71	0.27	1673400.89	14358646.13	39°32'24.744"N	80°52'58.817"W	5.72	177.332	0.20	-0.06		-32.47
2716.00	0.850	190.530	2715.91	-6.89	-7.10	0.45	1673401.07	14358644.74	39°32'24.730"N	80°52'58.814"W	7.12	176.337	0.50	0.32		47.55
2843.00	4.330	202.350	2842.76	-11.36	-12.47	-1.54	1673399.08	14358639.38	39°32'24.677"N	80°52'58.840"W	12.56	187.047	2.76	2.74		9.31
2937.00	6.040	190.040	2936.37	-18.41	-20.62	-3.75	1673396.87	14358631.23	39°32'24.596"N	80°52'58.868"W	20.96	190.316	2.16	1.82		-13.10
3032.00	6.220	192.970	3030.83	-27.22	-30.56	-5.78	1673394.84	14358621.30	39°32'24.498"N	80°52'58.894"W	31.10	190.711	0.38	0.19		3.08
3127.00	7.700	193.560	3125.13	-37.03	-41.76	-8.43	1673392.20	14358610.10	39°32'24.387"N	80°52'58.928"W	42.60	191.409	1.56	1.56		0.62
3223.00	9.830	195.600	3220.00	-49.31	-55.90	-12.14	1673388.49	14358595.96	39°32'24.248"N	80°52'58.976"W	57.21	192.251	2.24	2.22		-2.13
3317.00	12.390	194.470	3312.23	-64.46	-73.40	-16.82	1673383.81	14358578.47	39°32'24.075"N	80°52'59.036"W	75.30	192.905	2.73	2.72		-1.20
3425.00	14.400	194.310	3417.29	-85.54	-97.63	-23.03	1673377.60	14358554.25	39°32'23.835"N	80°52'59.116"W	100.31	193.274	1.86	1.86		-0.15
3519.00	12.520	194.500	3508.70	-103.97	-118.83	-28.47	1673372.16	14358533.06	39°32'23.626"N	80°52'59.185"W	122.19	193.475	2.00	-2.00		0.20
3615.00	13.410	195.260	3602.25	-122.01	-139.64	-34.01	1673366.63	14358512.26	39°32'23.420"N	80°52'59.256"W	143.72	193.687	0.94	0.93		0.79
3710.00	15.390	193.120	3694.26	-141.96	-162.55	-39.77	1673360.87	14358489.36	39°32'23.194"N	80°52'59.330"W	167.34	193.748	2.16	2.08		-2.25
3806.00	14.390	198.320	3787.04	-162.43	-186.28	-46.41	1673354.23	14358465.64	39°32'22.960"N	80°52'59.415"W	191.97	193.990	1.74	-1.04		5.42
3901.00	14.490	201.920	3879.04	-181.00	-208.51	-54.56	1673346.08	14358443.41	39°32'22.740"N	80°52'59.520"W	215.53	194.663	0.95	0.11		3.79
3995.00	14.550	202.470	3970.04	-198.94	-230.33	-63.46	1673337.18	14358421.60	39°32'22.524"N	80°52'59.634"W	238.92	195.404	0.16	0.06		0.59
4089.00	14.100	200.380	4061.12	-216.84	-251.98	-71.96	1673328.69	14358399.97	39°32'22.311"N	80°52'59.743"W	262.05	195.939	0.73	-0.48		-2.22
4184.00	14.380	200.810	4153.20	-235.05	-273.85	-80.18	1673320.47	14358378.10	39°32'22.094"N	80°52'59.848"W	285.35	196.320	0.32	0.29		0.45
4278.00	14.490	199.990	4244.23	-253.36	-295.81	-88.35	1673312.31	14358356.15	39°32'21.878"N	80°52'59.953"W	308.73	196.629	0.25	0.12		-0.87
4373.00	14.000	199.210	4336.31	-271.82	-317.84	-96.19	1673304.46	14358334.13	39°32'21.660"N	80°53'00.053"W	332.07	196.839	0.55	-0.52		-0.82
4468.00	13.970	197.420	4428.50	-290.27	-339.63	-103.41	1673297.25	14358312.35	39°32'21.445"N	80°53'00.146"W	355.02	196.934	0.46	-0.03		-1.88
4562.00	14.290	196.610	4519.65	-309.01	-361.57	-110.12	1673290.54	14358290.42	39°32'21.228"N	80°53'00.232"W	377.97	196.939	0.40	0.34		-0.86
4667.00	13.990	193.560	4611.78	-328.40	-383.97	-116.17	1673284.50	14358268.03	39°32'21.007"N	80°53'00.309"W	401.16	196.833	0.85	-0.32		-3.21
4762.00	13.240	189.730	4704.11	-347.77	-405.86	-120.70	1673279.97	14358246.15	39°32'20.790"N	80°53'00.367"W	423.42	196.562	1.23	-0.79		-4.03
4846.00	13.340	191.350	4795.59	-366.71	-427.10	-124.65	1673276.02	14358224.92	39°32'20.580"N	80°53'00.418"W	444.92	196.270	0.41	0.11		1.72

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'

Page 4 of 12



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		Facility	Reel Pad	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD

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(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(ft/100ft)	(ft/100ft)	(°/100ft)	
4942.00	13.150	189.080	4889.04	-386.05	-448.74	-128.55	1673272.12	14358203.28	39°32'20.367"N	80°53'00.468"W	466.79	195.986	0.58	-0.20	-2.36	
5038.00	14.030	190.890	4982.35	-405.92	-470.95	-132.47	1673266.20	14358181.08	39°32'20.147"N	80°53'00.519"W	489.23	195.711	1.02	0.92	1.89	
5134.00	14.000	194.660	5075.49	-425.84	-493.61	-137.61	1673263.06	14358158.43	39°32'19.923"N	80°53'00.585"W	512.44	195.578	0.95	-0.03	3.93	
5229.00	13.110	193.970	5167.85	-444.61	-515.19	-143.12	1673257.56	14358136.86	39°32'19.710"N	80°53'00.655"W	534.70	195.526	0.95	-0.94	-0.73	
5326.00	12.690	197.360	5262.40	-462.58	-536.03	-148.96	1673251.72	14358116.03	39°32'19.504"N	80°53'00.730"W	556.34	195.530	0.89	-0.43	3.46	
5420.00	14.960	197.550	5353.67	-480.82	-557.45	-155.69	1673244.99	14358094.62	39°32'19.293"N	80°53'00.816"W	578.78	195.605	2.40	2.40	0.20	
5457.00	16.150	196.510	5389.32	-488.92	-566.93	-158.60	1673242.09	14358085.14	39°32'19.039"N	80°53'00.912"W	588.70	195.629	3.33	3.24	-2.81	BH AT Curve <8-1/2">(5420)(5457-21310)
5520.00	14.780	194.590	5450.04	-502.88	-583.11	-163.11	1673237.58	14358068.97	39°32'18.922"N	80°53'00.922"W	605.49	195.628	2.32	-2.17	-3.05	
5567.00	11.140	208.510	5495.84	-511.03	-592.91	-166.79	1673233.90	14358059.17	39°32'18.942"N	80°53'00.959"W	615.92	195.712	10.15	-7.74	29.62	
5616.00	9.730	246.830	5544.09	-514.64	-598.70	-172.86	1673227.83	14358053.38	39°32'18.885"N	80°53'01.036"W	623.16	196.105	14.17	-2.88	78.20	
5663.00	11.200	272.340	5590.33	-513.38	-600.08	-181.08	1673219.61	14358052.00	39°32'18.872"N	80°53'01.141"W	626.81	196.792	10.25	3.13	54.28	
5710.00	12.510	281.370	5636.33	-509.26	-598.89	-190.63	1673210.06	14358053.19	39°32'18.883"N	80°53'01.263"W	628.50	197.657	4.82	2.79	19.21	
5757.00	14.010	288.500	5682.08	-503.34	-596.08	-201.02	1673199.68	14358056.00	39°32'18.911"N	80°53'01.396"W	629.06	198.636	4.72	3.19	15.17	
5805.00	16.320	302.220	5728.42	-494.67	-590.64	-212.24	1673188.47	14358061.44	39°32'18.965"N	80°53'01.539"W	627.62	199.765	8.86	4.81	28.58	
5852.00	19.900	317.040	5773.11	-482.30	-581.26	-223.29	1673177.42	14358070.82	39°32'19.056"N	80°53'01.680"W	622.67	201.014	12.36	7.62	31.53	
5899.00	24.040	326.740	5816.70	-465.78	-567.39	-234.00	1673166.72	14358084.68	39°32'19.195"N	80°53'01.816"W	613.75	202.412	11.69	8.45	20.64	
5946.00	28.010	331.640	5858.93	-445.66	-549.66	-244.49	1673156.22	14358102.40	39°32'19.371"N	80°53'01.950"W	601.59	203.980	9.60	10.43	10.43	
5994.00	32.540	334.600	5900.37	-421.74	-528.07	-255.39	1673145.33	14358123.98	39°32'19.584"N	80°53'02.089"W	586.59	205.810	9.93	9.44	6.17	
6041.00	37.170	336.730	5938.93	-395.04	-503.59	-266.43	1673134.30	14358148.45	39°32'19.826"N	80°53'02.229"W	569.73	207.881	10.18	9.85	4.53	
6089.00	42.040	338.640	5975.90	-364.53	-475.29	-278.02	1673122.71	14358176.75	39°32'20.106"N	80°53'02.376"W	550.63	210.326	10.46	10.15	3.98	
6136.00	46.750	339.640	6009.48	-331.69	-444.57	-289.71	1673111.02	14358207.45	39°32'20.410"N	80°53'02.525"W	530.63	213.091	10.13	10.02	2.13	
6183.00	51.250	339.590	6040.31	-296.26	-411.32	-302.07	1673098.68	14358240.68	39°32'20.739"N	80°53'02.682"W	510.33	216.293	9.57	9.57	-0.11	
6230.00	52.557	338.914	6053.26	-279.75	-395.87	-307.92	1673092.82	14358256.13	39°32'20.891"N	80°53'02.757"W	501.53	217.877	6.72	6.22	-3.22	Middlesex 6204' MID
6279.00	54.180	338.110	6068.78	-258.92	-376.46	-315.56	1673085.18	14358275.54	39°32'21.083"N	80°53'02.854"W	491.22	219.971	6.72	6.24	-3.09	
6326.00	56.650	337.190	6096.59	-218.69	-339.15	-330.91	1673069.84	14358312.83	39°32'21.452"N	80°53'03.049"W	473.84	224.295	5.27	5.04	-1.88	
6374.00	61.080	338.310	6120.88	-178.57	-301.93	-346.13	1673054.63	14358350.04	39°32'21.820"N	80°53'03.243"W	459.31	228.902	9.64	9.43	2.38	
6413.00	66.060	340.680	6142.24	-135.63	-261.68	-361.16	1673039.60	14358390.27	39°32'22.218"N	80°53'03.434"W	445.99	234.075	11.28	10.38	4.94	Burkett: 6374' MID
6413.00†	68.061	340.913	6157.45	-99.73	-227.76	-372.97	1673027.80	14358424.17	39°32'22.554"N	80°53'03.584"W	437.02	238.589	5.14	5.11	0.60	Tully: 6413' MID
6421.00	68.460	340.960	6160.41	-92.30	-220.74	-375.40	1673025.37	14358431.19	39°32'22.623"N	80°53'03.615"W	435.49	239.544	5.14	5.11	0.59	
6469.00	70.170	341.090	6177.37	-47.40	-178.27	-390.00	1673010.78	14358473.64	39°32'23.043"N	80°53'03.801"W	428.81	245.434	3.57	3.56	0.27	

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11/12/2021



Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 5 of 12



11/12/2021

REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #09
Operator	ANTERO RESOURCES CORPORATION	Well	Abu Unit 4H ST01
Area	Tyler County, WV	Wellbore	Abu Unit 4H ST01 AWP
Field	Tyler	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD
Facility	Reel Pad		

WELLPATH DATA (252 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
6514.00†	71.616	340.669	6192.09	-4.88	-138.10	-403.93	1672996.85	14356513.80	39°32'23.440"N	80°53'03.978"W	426.88	251.125	3.33	3.21	-0.94	Marcellus POE: 6514 MD
6516.00	71.680	340.650	6192.72	-2.98	-136.31	-404.56	1672996.22	14358515.59	39°32'23.458"N	80°53'03.986"W	426.90	251.380	3.33	3.21	-0.93	
6564.00	75.240	341.280	6206.39	43.02	-92.82	-419.56	1672981.23	14358559.06	39°32'23.888"N	80°53'04.177"W	429.70	257.526	7.52	7.42	1.31	
6611.00	79.880	343.540	6216.51	88.90	-49.08	-433.42	1672967.38	14358602.78	39°32'24.320"N	80°53'04.353"W	436.19	263.539	10.93	9.87	4.81	
6655.00	83.640	345.700	6223.25	135.34	-4.24	-445.75	1672955.05	14358647.60	39°32'24.764"N	80°53'04.510"W	445.77	269.455	9.20	8.00	4.60	
6705.00	87.540	345.470	6226.86	182.09	41.14	-457.41	1672943.39	14358682.96	39°32'25.212"N	80°53'04.658"W	459.26	275.139	8.31	8.30	-0.49	
6752.00	90.490	345.880	6227.67	228.97	86.66	-469.04	1672931.77	14358738.47	39°32'25.662"N	80°53'04.805"W	476.98	280.468	6.34	6.28	0.87	
6847.00	90.590	343.460	6226.77	323.84	178.27	-494.15	1672906.66	14358830.04	39°32'26.568"N	80°53'05.124"W	525.32	289.838	2.55	2.55	-2.55	
6944.00	90.520	343.160	6225.83	420.80	271.18	-522.01	1672878.82	14358922.92	39°32'27.487"N	80°53'05.479"W	588.24	297.452	0.32	-0.07	-0.31	
7039.00	90.430	340.970	6225.04	515.79	361.56	-551.26	1672849.58	14359013.25	39°32'28.380"N	80°53'05.850"W	659.25	303.260	2.31	-0.09	-2.31	
7133.00	90.520	340.410	6224.27	609.77	450.26	-582.34	1672818.51	14359101.93	39°32'29.258"N	80°53'06.246"W	736.11	307.711	0.60	0.10	-0.60	
7229.00	90.490	340.050	6223.42	705.73	540.60	-614.81	1672786.06	14359192.23	39°32'30.151"N	80°53'06.659"W	818.68	311.325	0.38	-0.03	-0.38	
7323.00	89.970	339.090	6223.04	799.66	628.69	-647.62	1672753.26	14359280.28	39°32'31.022"N	80°53'07.076"W	902.59	314.150	1.16	-0.55	-1.02	
7419.00	90.000	338.240	6223.07	895.51	718.11	-682.55	1672718.35	14359369.66	39°32'31.906"N	80°53'07.520"W	990.73	316.454	0.89	0.03	-0.89	
7513.00	90.030	338.980	6223.04	989.37	805.63	-716.83	1672684.08	14359457.15	39°32'32.771"N	80°53'07.957"W	1078.37	318.338	0.79	0.03	-0.79	
7608.00	90.030	340.720	6222.99	1084.31	894.81	-749.55	1672651.37	14359546.30	39°32'33.653"N	80°53'08.373"W	1167.27	320.048	1.83	0.00	1.83	
7703.00	90.030	339.690	6222.94	1179.27	984.20	-781.73	1672619.21	14359635.65	39°32'34.537"N	80°53'08.782"W	1256.88	321.541	1.08	0.00	-1.08	
7799.00	89.940	338.120	6222.97	1275.15	1073.76	-816.28	1672584.67	14359725.18	39°32'35.423"N	80°53'09.222"W	1348.81	322.758	1.64	-0.09	-1.64	
7894.00	90.000	340.740	6223.02	1370.06	1162.70	-849.65	1672551.31	14359814.08	39°32'36.302"N	80°53'09.646"W	1440.06	323.842	2.76	0.06	2.76	
7989.00	90.090	341.480	6222.94	1465.06	1252.58	-880.41	1672520.56	14359903.92	39°32'37.191"N	80°53'10.037"W	1531.04	324.898	0.78	0.09	0.78	
8084.00	89.820	342.360	6223.02	1560.05	1342.89	-909.89	1672491.09	14359994.19	39°32'38.084"N	80°53'10.412"W	1622.11	325.880	0.97	-0.28	0.93	
8179.00	90.310	342.880	6222.91	1655.04	1433.55	-938.27	1672462.73	14360084.82	39°32'38.980"N	80°53'10.773"W	1713.31	326.795	0.75	0.52	0.55	
8273.00	90.520	344.020	6222.23	1749.00	1523.65	-965.04	1672435.96	14360174.89	39°32'39.871"N	80°53'11.113"W	1803.56	327.651	1.23	0.22	1.21	
8368.00	90.430	346.060	6221.44	1843.84	1615.43	-989.56	1672411.45	14360266.62	39°32'40.778"N	80°53'11.425"W	1894.42	328.510	2.15	-0.09	2.15	
8463.00	91.230	345.930	6220.07	1938.57	1707.59	-1012.55	1672388.47	14360358.75	39°32'41.689"N	80°53'11.717"W	1985.23	329.333	0.85	0.84	-0.14	
8558.00	90.960	341.660	6218.26	2033.47	1798.78	-1039.05	1672361.98	14360449.90	39°32'42.591"N	80°53'12.054"W	2077.32	329.987	4.50	-0.29	-4.49	
8653.00	90.920	339.680	6216.71	2128.44	1888.41	-1070.49	1672330.55	14360539.49	39°32'43.477"N	80°53'12.454"W	2170.72	330.452	2.08	-0.03	-2.08	
8748.00	90.960	338.580	6215.16	2223.32	1977.16	-1104.33	1672296.73	14360628.21	39°32'44.355"N	80°53'12.854"W	2264.67	330.815	1.16	0.03	-1.16	
8843.00	90.860	338.170	6213.66	2318.14	2065.46	-1139.34	1672261.74	14360716.48	39°32'45.228"N	80°53'13.330"W	2358.86	331.118	0.44	-0.09	-0.43	
8938.00	90.890	337.730	6212.21	2412.92	2153.50	-1175.00	1672226.09	14360804.48	39°32'46.099"N	80°53'13.783"W	2453.20	331.382	0.46	0.03	-0.46	

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'

Page 6 of 12



REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #09
Operator	ANTERO RESOURCES CORPORATION	Well	Abu Unit 4H ST01
Area	Tyler County, WV	Wellbore	Abu Unit 4H ST01 AWP
Field	Tyler	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD
Facility	Reel Pad		

WELLPATH DATA (252 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
9032.00	90.950	338.460	6210.70	2506.71	2240.71	-1210.06	1672151.04	14360891.65	39°32'46.961"N	80°53'14.230"W	2546.57	331.629	0.78	0.06	0.78	
9127.00	90.680	341.770	6209.34	2601.65	2330.02	-1242.37	1672158.75	14360980.93	39°32'47.844"N	80°53'14.640"W	2640.54	331.933	3.50	-0.28	3.48	
9223.00	90.580	343.760	6208.29	2697.62	2421.70	-1270.81	1672130.32	14361072.57	39°32'48.750"N	80°53'15.002"W	2734.88	332.311	2.08	-0.10	2.07	
9319.00	90.680	344.350	6207.23	2793.54	2514.00	-1297.18	1672103.96	14361164.84	39°32'49.663"N	80°53'15.337"W	2828.93	332.707	0.62	0.10	0.61	
9413.00	90.550	343.230	6206.22	2887.48	2604.26	-1323.42	1672077.73	14361255.06	39°32'50.555"N	80°53'15.671"W	2921.23	333.061	1.20	-0.14	-1.19	
9508.00	90.580	341.060	6205.29	2982.46	2694.67	-1352.54	1672048.62	14361345.43	39°32'51.449"N	80°53'16.041"W	3015.07	333.346	2.28	0.03	-2.28	
9603.00	90.580	341.630	6204.33	3077.46	2784.68	-1382.93	1672018.25	14361435.40	39°32'52.339"N	80°53'16.428"W	3109.17	333.590	0.60	0.00	0.60	
9697.00	90.580	343.560	6203.37	3171.44	2874.36	-1411.04	1671990.14	14361525.05	39°32'53.226"N	80°53'16.785"W	3202.03	333.853	2.05	0.00	2.05	
9792.00	90.580	344.560	6202.41	3266.36	2965.70	-1437.13	1671964.06	14361616.36	39°32'54.129"N	80°53'17.117"W	3295.57	334.146	1.05	0.00	1.05	
9887.00	90.620	345.060	6201.42	3361.22	3057.38	-1462.02	1671939.18	14361708.00	39°32'55.035"N	80°53'17.433"W	3388.96	334.443	0.53	0.04	0.53	
9981.00	90.710	346.140	6200.33	3455.00	3148.42	-1485.40	1671915.82	14361799.00	39°32'55.935"N	80°53'17.730"W	3481.23	334.742	1.15	0.10	1.15	
10076.00	90.710	348.020	6199.15	3549.58	3241.00	-1506.64	1671894.59	14361891.55	39°32'56.851"N	80°53'18.000"W	3574.08	335.068	1.98	0.00	1.98	
10170.00	90.400	347.250	6198.24	3643.09	3332.82	-1526.76	1671874.47	14361983.32	39°32'57.758"N	80°53'18.255"W	3665.88	335.387	0.88	-0.33	-0.82	
10264.00	90.370	345.260	6197.61	3736.79	3424.12	-1549.10	1671852.14	14362074.59	39°32'58.661"N	80°53'18.539"W	3758.23	335.658	2.12	-0.03	-2.12	
10359.00	90.280	341.310	6197.07	3831.74	3515.09	-1576.41	1671824.84	14362165.52	39°32'59.560"N	80°53'18.886"W	3852.39	335.845	4.16	-0.09	-4.16	
10453.00	90.250	338.620	6196.63	3925.68	3603.39	-1608.61	1671792.65	14362253.79	39°33'00.433"N	80°53'19.296"W	3946.14	335.943	2.86	-0.03	-2.86	
10548.00	90.220	338.510	6196.24	4020.53	3691.82	-1643.33	1671757.95	14362342.18	39°33'01.308"N	80°53'19.737"W	4041.04	336.005	0.12	-0.03	-0.12	
10643.00	90.180	341.000	6195.91	4115.47	3780.94	-1676.20	1671725.09	14362431.27	39°33'02.189"N	80°53'20.156"W	4135.84	336.091	2.62	-0.04	-2.62	
10737.00	90.310	342.100	6195.51	4209.46	3870.11	-1705.95	1671695.35	14362520.40	39°33'03.071"N	80°53'20.534"W	4229.42	336.212	1.18	0.14	1.17	
10832.00	90.650	340.880	6194.71	4304.46	3960.19	-1736.11	1671665.21	14362610.44	39°33'03.961"N	80°53'20.918"W	4324.02	336.328	1.33	0.36	-1.28	
10927.00	90.740	340.290	6193.56	4399.43	4049.78	-1767.68	1671633.64	14362700.00	39°33'04.847"N	80°53'21.319"W	4418.76	336.419	0.63	0.09	-0.62	
11022.00	90.680	338.870	6192.38	4494.35	4138.80	-1800.83	1671600.52	14362788.98	39°33'05.727"N	80°53'21.741"W	4513.60	336.486	1.50	-0.06	-1.49	
11116.00	90.710	337.320	6191.24	4588.14	4226.00	-1835.89	1671565.46	14362876.15	39°33'06.590"N	80°53'22.187"W	4607.56	336.519	1.65	0.03	-1.65	
11212.00	90.620	336.200	6190.13	4683.77	4314.21	-1873.77	1671527.60	14362964.32	39°33'07.462"N	80°53'22.669"W	4703.55	336.523	1.17	-0.09	-1.17	
11308.00	90.620	338.120	6189.09	4779.45	4402.67	-1911.03	1671490.36	14363052.75	39°33'08.337"N	80°53'23.144"W	4799.53	336.536	2.00	0.00	2.00	
11403.00	90.650	338.910	6188.04	4874.29	4491.06	-1945.82	1671455.58	14363141.10	39°33'09.211"N	80°53'23.586"W	4894.47	336.575	0.83	0.03	0.83	
11499.00	90.550	340.370	6187.03	4970.21	4581.06	-1979.22	1671422.20	14363231.06	39°33'10.101"N	80°53'24.011"W	4990.33	336.634	1.52	-0.10	-1.52	
11595.00	90.620	342.190	6186.05	5066.20	4671.97	-2010.02	1671391.40	14363321.94	39°33'11.099"N	80°53'24.403"W	5086.01	336.721	1.90	0.07	1.90	
11690.00	90.710	343.880	6184.95	5161.17	4762.83	-2037.74	1671363.70	14363412.76	39°33'11.898"N	80°53'24.756"W	5180.43	336.837	1.78	0.09	1.78	
11785.00	90.620	346.620	6183.85	5255.98	4854.68	-2061.92	1671339.50	14363504.58	39°33'12.806"N	80°53'25.063"W	5274.42	336.988	2.89	-0.09	-2.88	

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11/12/2021



Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 7 of 12



REFERENCE WELLPATH IDENTIFICATION									
Operator	ANTERO RESOURCES CORPORATION								
Area	Tyler County, WV								
Field	Tyler								
Facility	Reel Pad								
Slot	Slot #09								
Well	Abu Unit 4H ST01								
Wellbore	Abu Unit 4H ST01 AWB								
Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD								

WELLPATH DATA (252 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
11879.00	90.580	346.390	6182.86	5349.65	4946.08	-2083.86	1671317.60	14363595.94	39°33'13.709"N	80°53'25.342"W	5367.14	337.154	0.25	-0.04	-0.24	
11974.00	93.200	346.180	6179.73	5444.30	5038.31	-2106.37	1671295.10	14363688.14	39°33'14.621"N	80°53'25.628"W	5460.90	337.312	2.77	2.76	-0.22	
12069.00	90.650	341.480	6176.54	5539.15	5129.47	-2132.80	1671268.67	14363779.26	39°33'15.522"N	80°53'25.964"W	5555.21	337.423	5.63	-2.68	-4.95	
12165.00	90.030	339.730	6175.97	5635.12	5220.02	-2164.68	1671236.81	14363869.77	39°33'16.418"N	80°53'26.369"W	5651.05	337.477	1.93	-0.65	-1.82	
12260.00	91.320	339.850	6174.86	5730.06	5309.16	-2197.50	1671204.00	14363958.87	39°33'17.299"N	80°53'26.787"W	5745.97	337.515	1.36	1.36	0.13	
12356.00	90.150	339.110	6173.62	5825.97	5399.06	-2231.14	1671170.37	14364048.74	39°33'18.188"N	80°53'27.215"W	5841.90	337.547	1.44	-1.22	-0.77	
12451.00	91.010	337.030	6172.65	5920.76	5487.17	-2266.62	1671134.91	14364136.82	39°33'19.059"N	80°53'27.667"W	5936.89	337.566	2.37	0.91	-2.19	
12546.00	91.380	338.950	6170.67	6015.53	5575.23	-2302.21	1671099.33	14364224.84	39°33'19.930"N	80°53'28.120"W	6031.86	337.562	2.06	0.39	2.02	
12642.00	90.800	341.160	6168.85	6111.46	5665.45	-2334.95	1671066.60	14364315.02	39°33'20.822"N	80°53'28.536"W	6127.75	337.602	2.38	-0.60	2.30	
12737.00	90.710	342.550	6167.60	6206.45	5755.71	-2364.54	1671037.03	14364405.25	39°33'21.715"N	80°53'28.912"W	6222.48	337.666	1.47	-0.09	1.46	
12833.00	90.150	343.770	6166.75	6306.32	5847.74	-2391.84	1671009.74	14364497.24	39°33'22.624"N	80°53'29.260"W	6317.99	337.754	2.01	-0.58	1.93	
12927.00	90.000	343.770	6166.75	6396.32	5938.14	-2417.61	1670983.97	14364587.60	39°33'23.518"N	80°53'29.587"W	6411.42	337.847	0.69	-0.16	-0.67	
13022.00	90.120	344.210	6166.65	6491.25	6029.45	-2443.82	1670957.78	14364678.88	39°33'24.421"N	80°53'29.920"W	6505.88	337.937	0.48	0.13	0.46	
13116.00	90.060	345.130	6166.50	6585.13	6120.11	-2468.67	1670932.94	14364769.59	39°33'25.317"N	80°53'30.236"W	6599.24	338.032	0.98	-0.06	0.98	
13211.00	90.180	344.860	6166.31	6679.98	6211.87	-2493.26	1670908.36	14364861.22	39°33'26.224"N	80°53'30.549"W	6693.55	338.131	0.31	0.13	-0.28	
13306.00	90.150	342.200	6166.03	6774.93	6302.96	-2520.19	1670881.44	14364952.28	39°33'27.125"N	80°53'30.891"W	6788.13	338.206	2.80	-0.03	-2.80	
13401.00	90.090	340.350	6165.83	6869.92	6392.93	-2550.69	1670850.95	14365042.21	39°33'28.015"N	80°53'31.279"W	6882.99	338.249	1.95	-0.06	-1.95	
13497.00	90.090	341.470	6165.68	6965.91	6483.65	-2582.09	1670819.57	14365132.89	39°33'28.912"N	80°53'31.679"W	6978.89	338.285	1.17	0.00	1.17	
13591.00	89.970	341.670	6165.63	7059.91	6572.83	-2611.80	1670789.86	14365222.03	39°33'29.793"N	80°53'32.057"W	7072.73	338.329	0.25	-0.13	0.21	
13687.00	90.220	344.340	6165.47	7155.88	6664.62	-2639.86	1670761.82	14365313.80	39°33'30.701"N	80°53'32.414"W	7168.41	338.391	2.79	0.26	2.78	
13782.00	90.340	342.250	6165.01	7250.84	6755.61	-2667.17	1670734.52	14365404.74	39°33'31.600"N	80°53'32.761"W	7263.06	338.456	2.20	0.13	-2.20	
13876.00	90.250	338.420	6164.53	7344.79	6844.11	-2698.79	1670702.91	14365493.21	39°33'32.475"N	80°53'33.163"W	7356.99	338.480	4.08	-0.10	-4.07	
13971.00	90.340	337.610	6164.04	7439.58	6932.20	-2734.36	1670667.36	14365581.26	39°33'33.346"N	80°53'33.616"W	7451.99	338.474	0.86	0.09	-0.85	
14066.00	91.690	339.370	6162.35	7534.40	7020.56	-2769.18	1670632.55	14365669.59	39°33'34.220"N	80°53'34.059"W	7546.96	338.474	2.33	1.42	1.85	
14162.00	90.150	335.470	6160.81	7630.09	7109.17	-2806.03	1670595.71	14365758.17	39°33'35.096"N	80°53'34.528"W	7642.91	338.461	4.37	-1.60	-4.06	
14258.00	90.180	332.850	6160.53	7725.24	7195.57	-2847.87	1670553.89	14365844.53	39°33'35.951"N	80°53'35.061"W	7738.64	338.407	2.73	0.03	-2.73	
14354.00	90.620	333.970	6159.86	7820.21	7281.41	-2890.84	1670510.94	14365930.33	39°33'36.800"N	80°53'35.609"W	7834.27	338.346	1.25	0.46	1.17	
14451.00	90.650	333.810	6158.79	7916.28	7368.50	-2933.53	1670468.27	14366017.39	39°33'37.661"N	80°53'36.152"W	7930.98	338.292	0.17	0.03	-0.16	
14545.00	90.710	335.860	6157.67	8009.58	7453.57	-2973.49	1670428.32	14366102.43	39°33'38.502"N	80°53'36.661"W	8024.80	338.251	2.18	0.06	2.18	
14640.00	90.580	340.590	6156.60	8104.37	7541.76	-3008.72	1670393.10	14366190.58	39°33'39.374"N	80°53'37.110"W	8119.77	338.251	4.98	-0.14	4.98	

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 8 of 12



REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #09
Operator	ANTERO RESOURCES CORPORATION	Well	Abu Unit 4H ST01
Area	Tyler County, WV	Wellbore	Abu Unit 4H ST01 AWB
Field	Tyler	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD
Facility	Reel Pad		

WELLPATH DATA (252 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	US ft	US ft			ft	°	ft/100ft	°/100ft	°/100ft	
14735.00	90.680	344.530	6155.56	8199.33	7632.37	-3037.19	1670364.65	14366281.16	39°33'40.270"N	80°53'37.472"W	8214.48	338.301	4.15	0.11	4.15	
14831.00	90.710	347.000	6154.39	8295.09	7725.41	-3060.79	1670341.06	14366374.16	39°33'41.190"N	80°53'37.772"W	8309.66	338.387	2.57	0.03	2.57	
14926.00	90.830	347.820	6153.12	8389.62	7818.12	-3081.49	1670320.36	14366466.83	39°33'42.106"N	80°53'38.035"W	8403.49	338.488	0.87	0.13	0.86	
15020.00	90.710	350.590	6151.85	8482.81	7910.44	-3099.10	1670302.77	14366559.11	39°33'43.019"N	80°53'38.258"W	8495.85	338.606	2.95	-0.13	2.95	
15115.00	90.340	347.750	6150.98	8577.01	8003.73	-3116.94	1670284.93	14366652.37	39°33'43.941"N	80°53'38.485"W	8589.24	338.722	3.01	-0.39	-2.99	
15211.00	90.310	343.600	6150.44	8672.77	8096.72	-3140.69	1670261.19	14366745.32	39°33'44.861"N	80°53'38.786"W	8684.52	338.799	4.32	-0.03	-4.32	
15306.00	90.340	344.110	6149.90	8767.70	8187.98	-3167.11	1670234.78	14366839.54	39°33'45.763"N	80°53'39.122"W	8779.15	338.854	0.54	0.03	0.54	
15402.00	90.260	348.450	6149.41	8863.38	8281.21	-3189.87	1670212.03	14366929.74	39°33'46.684"N	80°53'39.412"W	8874.33	338.934	4.52	-0.09	4.52	
15498.00	90.520	351.040	6148.76	8958.45	8375.67	-3206.96	1670194.95	14367024.16	39°33'47.618"N	80°53'39.628"W	8968.64	339.049	2.71	0.28	2.70	
15593.00	90.460	348.760	6147.95	9052.48	8469.19	-3223.62	1670178.29	14367117.64	39°33'48.543"N	80°53'39.840"W	9061.94	339.162	2.40	-0.06	-2.40	
15688.00	90.520	346.730	6147.13	9146.96	8562.01	-3243.78	1670158.14	14367210.43	39°33'49.460"N	80°53'40.096"W	9155.88	339.250	2.14	0.06	-2.14	
15783.00	90.460	346.310	6146.32	9241.63	8654.39	-3265.92	1670136.00	14367302.77	39°33'50.374"N	80°53'40.377"W	9250.12	339.325	0.45	-0.06	-0.44	
15878.00	90.460	345.380	6145.56	9336.39	8746.51	-3289.16	1670112.78	14367394.84	39°33'51.284"N	80°53'40.672"W	9344.51	339.391	0.98	0.00	-0.98	
15973.00	90.430	340.660	6144.82	9431.34	8837.34	-3316.89	1670085.06	14367485.64	39°33'52.182"N	80°53'41.025"W	9439.29	339.428	4.97	-0.03	-4.97	
16067.00	90.490	335.950	6144.07	9525.14	8924.65	-3351.63	1670050.34	14367572.92	39°33'53.046"N	80°53'41.467"W	9533.25	339.416	5.01	0.06	-5.01	
16162.00	90.430	336.260	6143.30	9619.67	9011.50	-3390.11	1670011.87	14367659.74	39°33'53.904"N	80°53'41.957"W	9628.09	339.384	0.33	-0.06	0.33	
16257.00	90.520	338.840	6142.52	9714.40	9099.29	-3426.38	1669975.61	14367747.49	39°33'54.772"N	80°53'42.419"W	9723.03	339.366	2.72	0.09	2.72	
16352.00	90.370	337.950	6141.78	9809.23	9187.62	-3461.36	1669940.65	14367835.78	39°33'55.646"N	80°53'42.865"W	9818.01	339.357	0.95	-0.16	-0.94	
16448.00	90.490	340.480	6141.06	9905.12	9277.36	-3495.42	1669906.60	14367925.48	39°33'56.533"N	80°53'43.298"W	9914.00	339.355	2.64	0.12	2.64	
16542.00	90.460	340.690	6140.28	9999.10	9366.01	-3526.67	1669875.37	14368014.10	39°33'57.410"N	80°53'43.696"W	10007.97	339.367	0.23	-0.03	0.22	
16637.00	90.340	339.900	6139.62	10094.06	9455.44	-3558.70	1669843.35	14368103.60	39°33'58.294"N	80°53'44.104"W	10102.96	339.375	0.84	-0.13	-0.83	
16732.00	90.520	343.290	6138.90	10189.04	9545.57	-3588.69	1669813.37	14368193.69	39°33'59.186"N	80°53'44.485"W	10197.87	339.396	3.57	0.19	3.57	
16829.00	90.490	345.000	6138.05	10285.95	9638.87	-3615.19	1669786.88	14368286.85	39°34'00.107"N	80°53'44.822"W	10294.53	339.441	1.76	-0.03	1.76	
16924.00	90.520	344.300	6137.21	10380.83	9730.48	-3640.33	1669761.75	14368378.42	39°34'01.013"N	80°53'45.142"W	10389.14	339.488	0.74	0.03	-0.74	
17019.00	90.490	342.580	6136.37	10475.78	9821.53	-3667.41	1669734.68	14368469.44	39°34'01.913"N	80°53'45.486"W	10483.91	339.524	1.81	-0.03	-1.81	
17114.00	90.430	340.730	6135.61	10570.78	9911.70	-3697.31	1669704.80	14368559.57	39°34'02.805"N	80°53'45.867"W	10578.84	339.543	1.95	-0.06	-1.95	
17210.00	90.460	338.860	6134.86	10666.71	10001.78	-3730.46	1669671.65	14368649.62	39°34'03.685"N	80°53'46.289"W	10674.83	339.546	1.95	0.03	-1.95	
17304.00	90.430	337.850	6134.13	10760.54	10089.15	-3765.13	1669637.00	14368736.95	39°34'04.569"N	80°53'46.730"W	10768.80	339.535	1.07	-0.03	-1.07	
17399.00	90.550	339.120	6133.32	10855.38	10177.53	-3799.97	1669602.17	14368825.29	39°34'05.433"N	80°53'47.174"W	10863.78	339.526	1.34	0.13	1.34	
17494.00	90.650	339.170	6132.33	10950.27	10266.30	-3833.79	1669568.37	14368914.03	39°34'06.311"N	80°53'47.604"W	10958.78	339.523	0.12	0.11	0.05	

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 9 of 12



11/12/2021

REFERENCE WELLPATH IDENTIFICATION									
Operator	ANTERO RESOURCES CORPORATION								
Area	Tyler County, WV								
Field	Tyler								
Facility	Reel Pad								
Slot	Well								
Slot #09	Abu Unit 4H ST01								
Wellbore	Abu Unit 4H ST01 AWP								
Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD								

WELLPATH DATA (252 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
17589.00	90.580	341.510	6131.31	11045.23	10355.75	-3865.75	1669536.42	14369003.44	39°34'07.195"N	80°53'48.01"W	11053.75	339.530	2.46	-0.07	2.46	
17683.00	90.520	342.320	6130.40	11139.22	10445.10	-3894.92	1669507.26	14369092.76	39°34'08.079"N	80°53'48.382"W	11147.67	339.550	0.86	-0.06	0.86	
17777.00	90.710	342.100	6129.40	11233.22	10534.60	-3923.64	1669478.55	14369182.22	39°34'08.964"N	80°53'48.748"W	11241.56	339.572	0.31	0.20	-0.23	
17873.00	90.740	341.790	6128.18	11329.21	10625.86	-3953.39	1669448.81	14369273.45	39°34'09.866"N	80°53'49.126"W	11337.47	339.592	0.32	0.03	-0.32	
17969.00	90.710	343.110	6126.97	11425.19	10717.39	-3982.34	1669419.88	14369364.93	39°34'10.771"N	80°53'49.494"W	11433.35	339.616	1.38	-0.03	1.37	
18064.00	90.710	343.360	6125.79	11520.15	10808.34	-4009.74	1669392.49	14369455.85	39°34'11.670"N	80°53'49.843"W	11528.15	339.646	0.26	0.00	0.26	
18160.00	90.800	342.920	6124.52	11616.12	10900.21	-4037.58	1669364.66	14369547.68	39°34'12.578"N	80°53'50.545"W	11623.96	339.675	0.47	0.09	-0.46	
18255.00	90.860	343.620	6123.15	11711.08	10991.18	-4064.92	1669337.33	14369638.61	39°34'13.478"N	80°53'50.545"W	11718.77	339.704	0.74	0.06	0.74	
18349.00	90.770	343.850	6121.81	11805.01	11081.40	-4091.25	1669311.01	14369728.81	39°34'14.370"N	80°53'50.880"W	11812.53	339.736	0.26	-0.10	0.24	
18444.00	90.860	343.830	6120.46	11899.94	11172.64	-4117.69	1669284.58	14369820.01	39°34'15.272"N	80°53'51.216"W	11907.28	339.769	0.10	0.09	-0.02	
18533.00	90.860	344.570	6119.03	11994.83	11264.12	-4143.27	1669259.01	14369911.45	39°34'16.176"N	80°53'51.542"W	12001.96	339.805	1.15	0.00	1.15	
18633.00	90.920	344.570	6117.57	12088.69	11354.80	-4168.00	1669234.29	14370002.09	39°34'17.073"N	80°53'51.856"W	12095.60	339.843	0.38	0.06	-0.37	
18727.00	90.860	343.810	6116.11	12182.60	11445.23	-4193.61	1669208.69	14370092.48	39°34'17.967"N	80°53'52.182"W	12189.32	339.877	0.81	-0.06	-0.81	
18821.00	90.770	342.620	6114.78	12276.56	11535.21	-4220.75	1669181.56	14370182.43	39°34'18.856"N	80°53'52.527"W	12283.15	339.902	1.27	-0.10	-1.27	
18917.00	90.740	341.380	6113.51	12372.55	11626.50	-4250.41	1669151.91	14370273.69	39°34'19.759"N	80°53'52.904"W	12379.08	339.919	1.29	-0.03	-1.29	
19011.00	90.370	337.010	6112.60	12466.42	11714.35	-4283.79	1669128.55	14370361.50	39°34'20.627"N	80°53'53.329"W	12473.04	339.913	4.67	-0.39	-4.65	
19105.00	90.520	332.670	6111.87	12559.71	11799.41	-4323.74	1669078.61	14370446.52	39°34'21.469"N	80°53'53.838"W	12566.65	339.875	0.16	0.16	-4.62	
19200.00	90.580	333.350	6110.96	12653.59	11884.06	-4366.85	1669035.52	14370531.14	39°34'22.306"N	80°53'54.388"W	12660.97	339.824	0.72	0.06	0.72	
19295.00	90.220	337.340	6110.29	12747.97	11970.38	-4406.47	1668995.91	14370617.42	39°34'23.159"N	80°53'54.892"W	12755.66	339.791	4.22	-0.38	4.20	
19389.00	90.030	339.700	6110.09	12841.82	12057.84	-4440.89	1668961.51	14370704.85	39°34'24.024"N	80°53'55.331"W	12849.63	339.781	2.52	-0.20	2.51	
19483.00	90.000	342.420	6110.06	12935.80	12146.74	-4471.40	1668931.01	14370793.72	39°34'24.903"N	80°53'55.719"W	12943.60	339.791	2.89	-0.03	2.89	
19578.00	90.060	348.350	6110.01	13030.57	12238.63	-4495.36	1668907.06	14370885.57	39°34'25.811"N	80°53'56.024"W	13038.11	339.831	6.24	0.06	6.24	
19672.00	90.090	351.220	6109.89	13123.64	12331.13	-4512.03	1668890.40	14370978.03	39°34'26.726"N	80°53'56.235"W	13130.69	339.902	3.05	0.03	3.05	
19767.00	90.000	347.280	6109.82	13217.82	12424.44	-4529.75	1668872.69	14371071.31	39°34'27.648"N	80°53'56.460"W	13224.42	339.969	4.15	-0.09	-4.15	
19862.00	90.090	342.760	6109.74	13312.64	12516.19	-4554.29	1668848.15	14371163.02	39°34'28.555"N	80°53'56.772"W	13319.03	340.005	4.76	0.08	-4.76	
19957.00	90.060	339.480	6109.62	13407.62	12606.07	-4585.03	1668817.43	14371252.86	39°34'29.444"N	80°53'57.164"W	13414.00	340.013	3.45	-0.03	-3.45	
20052.00	90.000	337.040	6109.57	13502.44	12694.30	-4620.22	1668782.26	14371341.06	39°34'30.316"N	80°53'57.612"W	13508.95	340.001	2.57	-0.06	-2.57	
20147.00	90.060	335.970	6109.52	13597.03	12781.43	-4658.09	1668744.40	14371428.15	39°34'31.178"N	80°53'58.044"W	13603.77	339.976	1.13	0.06	-1.13	
20241.00	89.970	335.670	6109.49	13690.52	12867.18	-4696.59	1668705.91	14371513.87	39°34'32.026"N	80°53'58.565"W	13697.53	339.948	0.33	-0.10	-0.32	
20336.00	89.600	335.850	6109.85	13785.00	12953.80	-4735.59	1668666.92	14371600.45	39°34'32.882"N	80°53'59.081"W	13792.28	339.919	0.43	-0.39	0.19	

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'

Page 10 of 12



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Abu Unit 4H ST01
Field	Tyler	Wellbore	Abu Unit 4H ST01 AWP
Facility	Reel Pad	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD

WELLPATH DATA (252 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
20431.00	89.690	339.040	6110.44	13879.71	13041.52	-4772.03	1668630.501	14371688.14	39°34'33.750"N	80°53'59.545"W	13887.17	339.902	3.36	0.09	3.36	
20525.00	89.630	340.920	6111.00	13973.66	13129.84	-4804.21	1668598.34	14371776.42	39°34'34.623"N	80°53'59.955"W	13981.17	339.902	2.00	-0.06	2.00	
20619.00	89.690	343.930	6111.55	14067.64	13219.44	-4832.59	1668569.97	14371865.98	39°34'35.509"N	80°54'00.316"W	14075.06	339.919	3.20	0.06	3.20	
20713.00	89.690	345.950	6112.06	14161.49	13310.20	-4857.01	1668545.56	14371956.71	39°34'36.406"N	80°54'00.627"W	14168.70	339.953	2.15	0.00	2.15	
20808.00	89.720	346.510	6112.55	14256.21	13402.47	-4879.62	1668522.95	14372048.94	39°34'37.318"N	80°54'00.914"W	14263.13	339.994	0.59	0.03	0.59	
20902.00	89.880	345.930	6112.88	14349.92	13493.76	-4902.01	1668500.57	14372140.20	39°34'38.221"N	80°54'01.199"W	14356.58	340.035	0.64	0.17	-0.62	
20997.00	89.940	346.810	6113.03	14444.62	13586.09	-4924.40	1668478.20	14372232.49	39°34'39.133"N	80°54'01.762"W	14451.00	340.077	0.93	0.06	0.93	
21092.00	90.030	346.500	6113.05	14539.27	13678.52	-4946.33	1668456.28	14372324.88	39°34'40.047"N	80°54'01.484"W	14545.38	340.119	0.34	0.09	-0.33	
21186.00	90.030	344.710	6113.01	14633.06	13769.57	-4969.69	1668432.92	14372415.89	39°34'40.947"N	80°54'02.059"W	14638.95	340.155	1.90	0.00	-1.90	
21280.00	89.910	342.110	6113.05	14727.01	13859.65	-4996.53	1668406.09	14372505.94	39°34'41.838"N	80°54'02.401"W	14732.79	340.175	2.77	-0.13	-2.77	
21310.00	90.000	341.080	6113.08	14787.01	13888.11	-5006.00	1668386.62	14372554.39	39°34'42.119"N	80°54'02.521"W	14762.78	340.178	3.45	0.00	-3.43	
21334.00	90.000	341.080	6113.08	14781.01	13910.82	-5013.78	1668388.85	14372557.08	39°34'42.344"N	80°54'02.621"W	14786.78	340.180	0.00	0.00	0.00	Projected MD at TD [ST01]: 21334'

HOLE & CASING SECTIONS - Ref Wellbore: Abu Unit 4H ST01 AWP										Ref Wellpath: Abu Unit 4H ST01 AWP Proj: 21334'									
String/Diameter	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start N/S	Start EW	End N/S	End EW	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start N/S	Start EW	End N/S	End EW	
20in Conductor	30.00	153.00	123.00	30.00	153.00	0.00	0.00	-0.10	0.06	30.00	153.00	123.00	30.00	153.00	0.00	0.00	-0.10	0.06	
17.5in Open Hole	153.00	383.10	230.10	153.00	383.10	-0.10	0.06	-0.22	0.31	153.00	383.10	230.10	153.00	383.10	0.00	0.00	-0.22	0.31	
13.375in Casing Surface	30.00	383.10	353.10	30.00	383.10	0.00	0.00	-0.22	0.49	30.00	383.10	353.10	30.00	383.10	0.00	0.00	-0.22	0.49	
12.25in Open Hole	383.10	2608.30	2225.20	383.10	2608.21	-0.22	0.31	-5.97	0.49	383.10	2608.21	2225.20	383.10	2608.21	0.00	0.00	-5.97	0.49	
9.625in Casing Intermediate	30.00	2608.30	2578.30	30.00	2608.21	0.00	0.00	-5.97	0.49	30.00	2608.21	2578.30	30.00	2608.21	0.00	0.00	-5.97	0.49	
8.75in Open Hole	2608.30	5420.00	2811.70	2608.21	5420.00	-5.97	0.49	-155.69	13910.82	2608.30	5420.00	2811.70	2608.21	5420.00	-5.97	0.49	-155.69	13910.82	
8.5in Open Hole	5420.00	21334.00	15914.00	5353.67	6113.08	-557.45	-155.69	-5013.78		5420.00	21334.00	15914.00	5353.67	6113.08	-557.45	-155.69	-5013.78		
5.5in Casing Production	30.00	21334.00	21304.00	30.00	6113.08	0.00	0.00			30.00	21334.00	21304.00	30.00	6113.08	0.00	0.00			

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 11 of 12



11/12/2021

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Abu Unit 4H ST01
Field	Tyler	Wellbore	Abu Unit 4H ST01 AWB
Facility	Reel Pad	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD

TARGETS

Name	TVD (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Shape
Abu Unit 4H - POE - Rev-2	6199.00	-155.38	-392.93	1673007.85	14358496.53	39°32'23.269"N	80°53'03.838"W	point
Abu Unit 4H - Avoid - Rev-1	6232.00	7615.38	-2950.54	1670451.26	14366264.17	39°33'40.101"N	80°53'36.366"W	point
Abu Unit 4H - BHL - Rev-2	6232.00	13908.82	-5021.93	1668380.70	14372555.09	39°34'42.324"N	80°54'02.725"W	point
Abu Unit 4H - LP - Rev-2	6232.00	61.28	-464.23	1672936.57	14358713.09	39°32'25.412"N	80°53'04.745"W	point

WELLPATH COMPOSITION - Ref Wellbore: Abu Unit 4H ST01 AWB Ref Wellpath: Abu Unit 4H ST01 AWP Proj: 21334'

Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment	Wellbore
30.00	375.00	Gyrodatta standard - Drop gyro or Multi-shot	01 Gyrodatta MS Gyro <17'-1/2">(100'-375')	Abu Unit 4H AWB
375.00	2546.00	ISCWSA MWD, Rev. 4 (Standard)	02 WFT EM <12-1/4">(375)(488'-2546')	Abu Unit 4H AWB
2546.00	5420.00	ISCWSA MWD, Rev. 4 (Standard)	03 WFT EM <8-3/4">(2546)(2716'-5974')	Abu Unit 4H AWB
5420.00	21310.00	BH AutoTrak Curve (Short)	05 BH AT Curve <8-1/2">(5420)(5457'-21310')	Abu Unit 4H ST01 AWB
21310.00	21334.00	Blind Drilling (sid)	Protection to bit	Abu Unit 4H ST01 AWB

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Actual Wellpath Report

Abu Unit 4H ST01 AWP Proj: 21334'
Page 12 of 12



11/12/2021

REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Tyler County, WV	Well	Abu Unit 4H ST01
Field	Tyler	Wellbore	Abu Unit 4H ST01 AWB
Facility	Reel Pad	Sidetrack from	Abu Unit 4H AWP Proj: 6435' at 5420.00 MD

COMMENTS

Wellpath general comments
 API: 47-095-02523-0000
 BHI Job #: 109538747
 Rig: H&P 519
 Duration: 12/12/2018-12/18/2018
 Gyrodatta MS Gyro <17-1/2">(100-375)
 WFT EM <12-1/4">(375)(468-2546)
 WFT EM <8-3/4">(2546)(2716-5974)
 WFT MWD <8-3/4">(5974)(6006-6351)
 BH AT Curve <8-1/2">(5420)(5457-21310)
 Middlesex: 6204' MD
 Burkett: 6374' MD
 Tully: 6413' MD
 Marcellus POE: 6514' MD
 Projected MD at TD [ST01]: 21334'

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