



# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999600	Report Generated	7/1/2019 at 5:24:40 PM
Convergence at slot	0.03° East	Database/Source file	WA_MPL_EasternUS_Defn/Riggs_Unit_1H_ST01_AWP_Proj__21669_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	25.30	15.73	1655939.94	14239851.34	39°12'50.320"N	80°56'42.700"W
Facility Reference Pt			1655924.22	14239826.05	39°12'50.070"N	80°56'42.900"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 342 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 342 (RKB) to Mean Sea Level	1174.00ft
Vertical Reference Pt	Patterson 342 (RKB)	Patterson 342 (RKB) to Ground Level at Slot (Slot #06)	25.00ft
MD Reference Pt	Patterson 342 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	341.11°

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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
0.00†	0.000	256.350	0.00	0.00	0.00	0.00	1655939.94	14239851.34	39°12'50.320"N	80°56'42.700"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	256.350	25.00	0.00	0.00	0.00	1655939.94	14239851.34	39°12'50.320"N	80°56'42.700"W	0.00	0.000	0.00	0.00	0.00	
110.00	0.440	256.350	110.00	0.03	-0.08	-0.32	1655939.63	14239851.26	39°12'50.319"N	80°56'42.704"W	0.33	256.350	0.52	0.52	-121.94	Gyrodata MS Gyro <17-1/2">(100'-577')
135.00	0.340	253.490	135.00	0.04	-0.12	-0.48	1655939.46	14239851.22	39°12'50.319"N	80°56'42.706"W	0.50	255.923	0.41	-0.40	-11.44	
160.00	0.360	276.240	160.00	0.08	-0.13	-0.63	1655939.31	14239851.21	39°12'50.319"N	80°56'42.708"W	0.64	258.067	0.56	0.08	91.00	
185.00	0.320	266.870	185.00	0.13	-0.13	-0.78	1655939.16	14239851.21	39°12'50.319"N	80°56'42.710"W	0.79	260.622	0.27	-0.16	-37.48	
210.00	0.240	275.520	210.00	0.17	-0.13	-0.90	1655939.04	14239851.21	39°12'50.319"N	80°56'42.711"W	0.91	261.949	0.36	-0.32	34.60	
235.00	0.260	282.630	235.00	0.22	-0.11	-1.01	1655938.94	14239851.23	39°12'50.319"N	80°56'42.713"W	1.01	263.776	0.15	0.08	28.44	
260.00	0.080	331.380	260.00	0.27	-0.08	-1.07	1655938.87	14239851.26	39°12'50.319"N	80°56'42.714"W	1.07	265.614	0.86	-0.72	195.00	
285.00	0.100	35.430	285.00	0.30	-0.05	-1.07	1655938.88	14239851.29	39°12'50.320"N	80°56'42.714"W	1.07	267.367	0.39	0.08	256.20	
310.00	0.080	321.760	310.00	0.33	-0.02	-1.07	1655938.88	14239851.32	39°12'50.320"N	80°56'42.714"W	1.07	269.053	0.44	-0.08	-294.68	
335.00	0.220	55.910	335.00	0.36	0.02	-1.04	1655938.91	14239851.36	39°12'50.320"N	80°56'42.713"W	1.04	271.272	0.96	0.56	376.60	
360.00	0.200	34.740	360.00	0.40	0.09	-0.97	1655938.97	14239851.43	39°12'50.321"N	80°56'42.712"W	0.98	275.043	0.32	-0.08	-84.68	
385.00	0.090	24.350	385.00	0.44	0.14	-0.94	1655939.00	14239851.48	39°12'50.321"N	80°56'42.712"W	0.95	278.452	0.45	-0.44	-41.56	
410.00	0.100	12.190	410.00	0.47	0.18	-0.93	1655939.02	14239851.52	39°12'50.322"N	80°56'42.712"W	0.94	280.922	0.09	0.04	-48.64	
435.00	0.050	53.550	435.00	0.49	0.21	-0.91	1655939.03	14239851.55	39°12'50.322"N	80°56'42.712"W	0.94	282.749	0.28	-0.20	165.44	
460.00	0.070	64.880	460.00	0.50	0.22	-0.89	1655939.05	14239851.56	39°12'50.322"N	80°56'42.711"W	0.92	283.851	0.09	0.08	45.32	
485.00	0.040	190.940	485.00	0.49	0.22	-0.88	1655939.07	14239851.56	39°12'50.322"N	80°56'42.711"W	0.90	283.907	0.40	-0.12	504.24	
510.00	0.070	122.390	510.00	0.47	0.20	-0.87	1655939.08	14239851.54	39°12'50.322"N	80°56'42.711"W	0.89	283.034	0.27	0.12	-274.20	
535.00	0.110	207.220	535.00	0.44	0.17	-0.86	1655939.08	14239851.51	39°12'50.322"N	80°56'42.711"W	0.88	281.193	0.50	0.16	339.32	
560.00	0.100	178.920	560.00	0.40	0.13	-0.88	1655939.07	14239851.47	39°12'50.321"N	80°56'42.711"W	0.88	278.317	0.21	-0.04	-113.20	
585.00	0.340	162.760	585.00	0.31	0.04	-0.85	1655939.09	14239851.38	39°12'50.320"N	80°56'42.711"W	0.85	272.371	0.98	0.96	-64.64	
587.00	0.370	160.340	587.00	0.30	0.02	-0.85	1655939.09	14239851.37	39°12'50.320"N	80°56'42.711"W	0.85	271.591	1.68	1.50	-121.00	
671.00	0.360	203.720	670.99	-0.17	-0.47	-0.86	1655939.08	14239850.87	39°12'50.315"N	80°56'42.711"W	0.99	241.280	0.32	-0.01	51.64	WFT EM <12-1/4">(577')(661'-2487')
724.00	0.430	220.110	723.99	-0.39	-0.78	-1.06	1655938.88	14239850.56	39°12'50.312"N	80°56'42.713"W	1.31	233.701	0.25	0.13	30.92	
794.00	0.370	233.730	793.99	-0.60	-1.11	-1.41	1655938.53	14239850.23	39°12'50.309"N	80°56'42.718"W	1.80	231.736	0.16	-0.09	19.46	
890.00	0.550	227.160	889.99	-0.88	-1.61	-2.00	1655937.95	14239849.73	39°12'50.304"N	80°56'42.725"W	2.57	231.156	0.20	0.19	-6.84	
975.00	0.580	255.730	974.98	-1.01	-1.99	-2.71	1655937.23	14239849.35	39°12'50.300"N	80°56'42.735"W	3.37	233.717	0.33	0.04	33.61	
1070.00	0.700	261.890	1069.98	-0.86	-2.19	-3.75	1655936.19	14239849.15	39°12'50.298"N	80°56'42.748"W	4.35	239.713	0.15	0.13	6.48	
1165.00	0.700	279.460	1164.97	-0.48	-2.18	-4.90	1655935.04	14239849.16	39°12'50.298"N	80°56'42.762"W	5.36	246.028	0.23	0.00	18.49	

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Riggs Unit 1H ST01 AWP Proj: 21669'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

## WELLPATH DATA (272 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
1259.00	0.920	285.930	1258.96	0.23	-1.88	-6.19	1655933.75	14239849.46	39°12'50.301"N	80°56'42.779"W	6.47	253.132	0.25	0.23	6.88	
1354.00	0.960	304.980	1353.95	1.31	-1.21	-7.58	1655932.37	14239850.13	39°12'50.308"N	80°56'42.796"W	7.68	260.911	0.33	0.04	20.05	
1449.00	0.950	350.930	1448.94	2.73	0.02	-8.36	1655931.59	14239851.36	39°12'50.320"N	80°56'42.806"W	8.36	270.147	0.78	-0.01	48.37	
1543.00	1.380	339.490	1542.92	4.62	1.85	-8.88	1655931.07	14239853.19	39°12'50.338"N	80°56'42.813"W	9.07	281.782	0.52	0.46	-12.17	
1638.00	1.080	7.290	1637.90	6.57	3.81	-9.16	1655930.78	14239855.15	39°12'50.358"N	80°56'42.816"W	9.92	292.583	0.69	-0.32	29.26	
1732.00	0.940	35.170	1731.88	7.82	5.32	-8.61	1655931.34	14239856.66	39°12'50.373"N	80°56'42.809"W	10.12	301.723	0.54	-0.15	29.66	
1827.00	0.730	76.930	1826.87	8.22	6.09	-7.57	1655932.38	14239857.43	39°12'50.380"N	80°56'42.796"W	9.72	308.843	0.66	-0.22	43.96	
1922.00	0.520	96.610	1921.87	7.97	6.18	-6.55	1655933.40	14239857.52	39°12'50.381"N	80°56'42.783"W	9.01	313.341	0.31	-0.22	20.72	
2017.00	0.460	103.030	2016.86	7.58	6.05	-5.75	1655934.20	14239857.38	39°12'50.380"N	80°56'42.773"W	8.34	316.434	0.09	-0.06	6.76	
2111.00	0.270	89.270	2110.86	7.31	5.96	-5.16	1655934.78	14239857.30	39°12'50.379"N	80°56'42.766"W	7.89	319.125	0.22	-0.20	-14.64	
2206.00	0.160	152.380	2205.86	7.11	5.85	-4.88	1655935.07	14239857.19	39°12'50.378"N	80°56'42.762"W	7.61	320.183	0.26	-0.12	66.43	
2301.00	0.330	98.700	2300.86	6.85	5.69	-4.54	1655935.40	14239857.03	39°12'50.376"N	80°56'42.758"W	7.28	321.389	0.28	0.18	-56.51	
2396.00	0.290	64.480	2395.86	6.75	5.75	-4.06	1655935.89	14239857.09	39°12'50.377"N	80°56'42.751"W	7.04	324.808	0.20	-0.04	-36.02	
2497.00	0.200	21.440	2496.86	6.92	6.03	-3.76	1655936.18	14239857.37	39°12'50.380"N	80°56'42.748"W	7.10	328.029	0.20	-0.09	-42.61	
2629.00	0.320	345.640	2628.86	7.46	6.60	-3.77	1655936.18	14239857.94	39°12'50.385"N	80°56'42.748"W	7.60	330.266	0.15	0.09	-27.12	WFT EM <8-3/4">(2487')(2619'-6031')
2724.00	0.390	315.690	2723.86	8.02	7.09	-4.06	1655935.88	14239858.42	39°12'50.390"N	80°56'42.752"W	8.17	330.188	0.21	0.07	-31.53	
2818.00	1.880	252.380	2817.84	8.34	6.85	-5.75	1655934.19	14239858.19	39°12'50.388"N	80°56'42.773"W	8.94	319.965	1.85	1.59	-67.35	
2913.00	3.840	242.700	2912.71	7.91	4.92	-10.07	1655929.88	14239856.26	39°12'50.369"N	80°56'42.828"W	11.20	296.035	2.12	2.06	-10.19	
3008.00	5.570	232.850	3007.39	6.00	0.67	-16.57	1655923.38	14239852.01	39°12'50.327"N	80°56'42.910"W	16.58	272.327	2.00	1.82	-10.37	
3102.00	6.620	230.270	3100.86	2.64	-5.55	-24.37	1655915.58	14239845.80	39°12'50.265"N	80°56'43.010"W	24.99	257.182	1.15	1.12	-2.74	
3199.00	7.720	229.340	3197.10	-1.76	-13.36	-33.61	1655906.34	14239837.98	39°12'50.188"N	80°56'43.127"W	36.17	248.318	1.14	1.13	-0.96	
3294.00	9.230	230.820	3291.06	-6.77	-22.34	-44.36	1655895.60	14239829.02	39°12'50.100"N	80°56'43.264"W	49.67	243.275	1.61	1.59	1.56	
3389.00	10.660	233.380	3384.63	-12.09	-32.39	-57.32	1655882.65	14239818.96	39°12'50.000"N	80°56'43.428"W	65.84	240.530	1.58	1.51	2.69	
3483.00	12.320	235.810	3476.74	-17.38	-43.21	-72.59	1655867.38	14239808.15	39°12'49.893"N	80°56'43.623"W	84.48	239.236	1.84	1.77	2.59	
3578.00	13.820	234.490	3569.28	-23.30	-55.50	-90.21	1655849.76	14239795.86	39°12'49.772"N	80°56'43.847"W	105.92	238.400	1.61	1.58	-1.39	
3673.00	15.670	231.630	3661.15	-30.83	-70.06	-109.51	1655830.48	14239781.31	39°12'49.628"N	80°56'44.092"W	130.00	237.393	2.09	1.95	-3.01	
3768.00	16.840	230.970	3752.35	-39.84	-86.89	-130.26	1655809.73	14239764.69	39°12'49.464"N	80°56'44.356"W	156.47	236.357	1.25	1.23	-0.69	
3863.00	17.160	228.400	3843.20	-49.99	-104.66	-151.43	1655788.57	14239746.73	39°12'49.287"N	80°56'44.625"W	184.08	235.351	0.86	0.34	-2.71	
3957.00	17.220	222.010	3933.01	-62.11	-124.20	-171.11	1655768.90	14239727.19	39°12'49.093"N	80°56'44.875"W	211.44	234.026	2.01	0.06	-6.80	
4052.00	17.350	220.830	4023.72	-76.10	-145.37	-189.79	1655750.23	14239706.03	39°12'48.884"N	80°56'45.112"W	239.06	232.549	0.39	0.14	-1.24	

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Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWP
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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)	(°)	(°/100ft)	(°/100ft)	(°/100ft)	
4147.00	16.800	217.940	4114.53	-90.75	-166.91	-207.49	1655732.54	14239684.49	39°12'48.671"N	80°56'45.337"W	266.29	231.185	1.06	-0.53	-3.04	
4242.00	16.660	216.640	4205.51	-105.97	-188.67	-224.06	1655715.98	14239662.75	39°12'48.457"N	80°56'45.548"W	292.91	229.901	0.42	-0.15	-1.37	
4336.00	17.150	222.010	4295.46	-120.34	-209.78	-241.37	1655698.66	14239641.65	39°12'48.248"N	80°56'45.768"W	319.80	229.006	1.74	0.52	5.71	
4431.00	17.090	219.180	4386.25	-134.53	-231.01	-259.57	1655680.48	14239620.43	39°12'48.038"N	80°56'46.000"W	347.48	228.332	0.88	-0.06	-2.98	
4528.00	16.750	218.740	4479.05	-149.55	-252.96	-277.32	1655662.73	14239598.48	39°12'47.821"N	80°56'46.225"W	375.36	227.630	0.37	-0.35	-0.45	
4623.00	16.890	221.550	4569.99	-163.69	-273.97	-295.04	1655645.02	14239577.49	39°12'47.614"N	80°56'46.450"W	402.62	227.121	0.87	0.15	2.96	
4718.00	16.810	219.100	4660.91	-177.78	-294.95	-312.86	1655627.21	14239556.51	39°12'47.407"N	80°56'46.677"W	429.97	226.687	0.75	-0.08	-2.58	
4813.00	16.960	215.960	4751.82	-193.04	-316.83	-329.66	1655610.42	14239534.64	39°12'47.190"N	80°56'46.891"W	457.23	226.137	0.97	0.16	-3.31	
4907.00	16.790	215.940	4841.77	-208.75	-338.92	-345.68	1655594.40	14239512.56	39°12'46.972"N	80°56'47.094"W	484.11	225.566	0.18	-0.18	-0.02	
5001.00	16.800	214.270	4931.76	-224.72	-361.14	-361.29	1655578.79	14239490.35	39°12'46.753"N	80°56'47.293"W	510.84	225.012	0.51	0.01	-1.78	
5096.00	16.310	211.970	5022.82	-241.37	-383.80	-376.09	1655564.01	14239467.70	39°12'46.529"N	80°56'47.481"W	537.35	224.419	0.86	-0.52	-2.42	
5191.00	15.600	212.520	5114.16	-257.76	-405.89	-390.02	1655550.08	14239445.62	39°12'46.311"N	80°56'47.658"W	562.90	223.858	0.76	-0.75	0.58	
5285.00	15.500	216.300	5204.72	-272.81	-426.67	-404.25	1655535.86	14239424.84	39°12'46.105"N	80°56'47.839"W	587.76	223.455	1.08	-0.11	4.02	
5380.00	15.840	217.780	5296.19	-287.18	-447.15	-419.71	1655520.40	14239404.38	39°12'45.903"N	80°56'48.036"W	613.27	223.187	0.55	0.36	1.56	
5474.00	16.570	220.190	5386.46	-301.12	-467.53	-436.22	1655503.90	14239384.00	39°12'45.702"N	80°56'48.246"W	639.43	223.016	1.06	0.78	2.56	
5569.00	16.500	222.150	5477.53	-314.61	-487.88	-454.01	1655486.11	14239363.66	39°12'45.501"N	80°56'48.472"W	666.45	222.941	0.59	-0.07	2.06	
5664.00	17.430	220.760	5568.40	-328.33	-508.66	-472.36	1655467.78	14239342.89	39°12'45.295"N	80°56'48.705"W	694.15	222.881	1.07	0.98	-1.46	
5695.00	16.400	225.020	5598.05	-332.60	-515.27	-478.48	1655461.65	14239336.28	39°12'45.230"N	80°56'48.783"W	703.17	222.880	5.20	-3.32	13.74	
5727.00	15.550	235.360	5628.82	-335.76	-520.90	-485.21	1655454.93	14239330.65	39°12'45.174"N	80°56'48.868"W	711.87	222.968	9.27	-2.66	32.31	
5758.00	14.210	243.790	5658.79	-337.37	-524.94	-492.04	1655448.10	14239326.61	39°12'45.134"N	80°56'48.955"W	719.49	223.147	8.20	-4.32	27.19	
5789.00	13.080	252.160	5688.92	-337.79	-527.70	-498.80	1655441.35	14239323.86	39°12'45.107"N	80°56'49.041"W	726.13	223.387	7.33	-3.65	27.00	
5821.00	11.280	259.500	5720.20	-337.27	-529.38	-505.32	1655434.82	14239322.18	39°12'45.091"N	80°56'49.124"W	731.84	223.668	7.41	-5.62	22.94	
5873.00	8.660	266.140	5771.41	-335.51	-530.57	-514.23	1655425.92	14239320.99	39°12'45.079"N	80°56'49.237"W	738.87	224.104	5.49	-5.04	12.77	BH ATCurve <8-1/2"> (5821')(5873'-21644')
5883.00	9.000	268.990	5781.29	-335.07	-530.63	-515.76	1655424.39	14239320.92	39°12'45.078"N	80°56'49.257"W	739.99	224.186	5.54	3.40	28.50	
5916.00	10.390	279.410	5813.82	-332.87	-530.19	-521.28	1655418.87	14239321.36	39°12'45.083"N	80°56'49.327"W	743.53	224.514	6.77	4.21	31.58	
5946.00	12.600	292.300	5843.22	-329.43	-528.51	-526.98	1655413.18	14239323.05	39°12'45.099"N	80°56'49.399"W	746.34	224.917	11.25	7.37	42.97	
5978.00	15.980	304.310	5874.23	-323.60	-524.70	-533.85	1655406.31	14239326.86	39°12'45.137"N	80°56'49.486"W	748.53	225.495	14.00	10.56	37.53	
6015.00	20.390	313.570	5909.38	-313.80	-517.38	-542.73	1655397.43	14239334.17	39°12'45.209"N	80°56'49.599"W	749.83	226.370	14.22	11.92	25.03	
6045.00	24.060	320.400	5937.16	-303.44	-509.06	-550.42	1655389.74	14239342.49	39°12'45.292"N	80°56'49.697"W	749.74	227.236	14.94	12.23	22.77	
6088.00	25.840	327.570	5976.15	-286.13	-494.39	-561.04	1655379.13	14239357.15	39°12'45.437"N	80°56'49.832"W	747.79	228.613	8.15	4.14	16.67	

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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
6113.00	25.350	328.350	5998.70	-275.61	-485.24	-566.77	1655373.40	14239366.30	39°12'45.527"N	80°56'49.904"W	746.11	229.431	2.38	-1.96	3.12	
6160.00	25.420	327.930	6041.16	-255.98	-468.12	-577.40	1655362.77	14239383.41	39°12'45.697"N	80°56'50.039"W	743.33	230.967	0.41	0.15	-0.89	
6208.00	30.470	330.020	6083.55	-233.99	-448.84	-588.96	1655351.22	14239402.68	39°12'45.887"N	80°56'50.186"W	740.49	232.689	10.72	10.52	4.35	
6255.00	36.800	331.330	6122.66	-208.40	-426.14	-601.68	1655338.50	14239425.37	39°12'46.112"N	80°56'50.347"W	737.31	234.692	13.56	13.47	2.79	
6303.00	40.870	329.360	6160.04	-178.84	-400.01	-616.59	1655323.80	14239451.50	39°12'46.370"N	80°56'50.537"W	734.98	237.027	8.86	8.48	-4.10	
6349.00	42.720	324.770	6194.35	-149.12	-374.30	-633.27	1655306.93	14239477.19	39°12'46.624"N	80°56'50.748"W	735.62	239.414	7.77	4.02	-9.98	
6397.00	45.770	326.860	6228.73	-116.82	-346.60	-652.07	1655288.14	14239504.89	39°12'46.898"N	80°56'50.987"W	738.46	242.008	7.04	6.35	4.35	
6402.00†	46.111	327.283	6232.21	-113.33	-343.58	-654.02	1655286.19	14239507.90	39°12'46.928"N	80°56'51.012"W	738.77	242.285	9.13	6.81	8.45	Middlesex: 6402' MD
6444.00	49.030	330.650	6260.54	-83.04	-317.02	-669.98	1655270.23	14239534.45	39°12'47.191"N	80°56'51.214"W	741.19	244.678	9.13	6.95	8.02	
6493.00	55.130	334.110	6290.65	-44.85	-282.77	-687.84	1655252.38	14239568.69	39°12'47.529"N	80°56'51.441"W	743.70	247.653	13.64	12.45	7.06	
6540.00	59.750	335.130	6315.94	-5.50	-246.99	-704.81	1655235.42	14239604.46	39°12'47.883"N	80°56'51.656"W	746.83	250.688	10.00	9.83	2.17	
6581.00†	64.532	336.438	6335.09	30.58	-213.93	-719.66	1655220.57	14239637.49	39°12'48.210"N	80°56'51.845"W	750.79	253.444	12.00	11.66	3.19	Burkett: 6581' MD
6588.00	65.350	336.650	6338.06	36.90	-208.12	-722.19	1655218.05	14239643.31	39°12'48.267"N	80°56'51.877"W	751.58	253.924	12.00	11.68	3.03	
6635.00	70.850	339.350	6355.58	80.42	-167.70	-738.50	1655201.74	14239683.71	39°12'48.667"N	80°56'52.084"W	757.30	257.206	12.86	11.70	5.74	
6671.00†	72.603	340.733	6366.87	114.60	-135.57	-750.16	1655190.08	14239715.83	39°12'48.984"N	80°56'52.232"W	762.31	259.766	6.08	4.87	3.84	Tully: 6671' MD
6682.00	73.140	341.150	6370.11	125.11	-125.63	-753.59	1655186.65	14239725.76	39°12'49.083"N	80°56'52.275"W	763.99	260.535	6.08	4.89	3.79	
6729.00	76.940	340.790	6382.24	170.51	-82.71	-768.40	1655171.85	14239768.66	39°12'49.507"N	80°56'52.463"W	772.84	263.856	8.12	8.09	-0.77	
6745.00†	77.807	340.696	6385.74	186.12	-67.97	-773.55	1655166.71	14239783.39	39°12'49.653"N	80°56'52.528"W	776.53	264.978	5.45	5.42	-0.59	Marcellus POE: 6745' MD
6777.00	79.540	340.510	6392.02	217.50	-38.38	-783.97	1655156.29	14239812.98	39°12'49.945"N	80°56'52.660"W	784.91	267.197	5.45	5.42	-0.58	
6824.00	82.650	341.420	6399.30	263.93	5.51	-799.11	1655141.16	14239856.85	39°12'50.379"N	80°56'52.852"W	799.13	270.395	6.89	6.62	1.94	
6872.00	86.640	341.830	6403.78	311.70	50.85	-814.17	1655126.10	14239902.18	39°12'50.827"N	80°56'53.044"W	815.76	273.574	8.36	8.31	0.85	
6919.00	89.820	342.680	6405.23	358.67	95.59	-828.49	1655111.79	14239946.89	39°12'51.270"N	80°56'53.225"W	833.98	276.582	7.00	6.77	1.81	
6966.00	90.370	341.440	6405.15	405.66	140.30	-842.96	1655097.32	14239991.59	39°12'51.712"N	80°56'53.409"W	854.56	279.450	2.89	1.17	-2.64	
7013.00	90.400	339.440	6404.83	452.65	184.59	-858.70	1655081.59	14240035.86	39°12'52.149"N	80°56'53.608"W	878.31	282.132	4.26	0.06	-4.26	
7061.00	91.020	338.820	6404.24	500.62	229.44	-875.79	1655064.50	14240080.68	39°12'52.593"N	80°56'53.825"W	905.35	284.680	1.83	1.29	-1.29	
7108.00	90.250	338.820	6403.72	547.58	273.26	-892.77	1655047.53	14240124.49	39°12'53.026"N	80°56'54.041"W	933.66	287.018	1.64	-1.64	0.00	
7156.00	90.400	341.700	6403.45	595.57	318.43	-908.98	1655031.32	14240169.64	39°12'53.473"N	80°56'54.246"W	963.15	289.306	6.01	0.31	6.00	
7202.00	90.620	343.630	6403.04	641.55	362.34	-922.69	1655017.62	14240213.53	39°12'53.907"N	80°56'54.420"W	991.28	291.440	4.22	0.48	4.20	
7250.00	90.340	345.540	6402.63	689.45	408.61	-935.45	1655004.87	14240259.78	39°12'54.364"N	80°56'54.582"W	1020.79	293.596	4.02	-0.58	3.98	
7346.00	89.910	345.550	6402.43	785.17	501.57	-959.41	1654980.92	14240352.71	39°12'55.283"N	80°56'54.886"W	1082.61	297.600	0.45	-0.45	0.01	

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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
7441.00	89.690	343.360	6402.76	880.00	593.09	-984.87	1654955.47	14240444.19	39°12'56.188"N	80°56'55.208"W	1149.66	301.056	2.32	-0.23	-2.31	
7535.00	90.650	343.130	6402.48	973.93	683.09	-1011.97	1654928.38	14240534.16	39°12'57.077"N	80°56'55.552"W	1220.94	304.020	1.05	1.02	-0.24	
7630.00	90.710	342.740	6401.35	1068.88	773.91	-1039.84	1654900.52	14240624.94	39°12'57.975"N	80°56'55.905"W	1296.23	306.659	0.42	0.06	-0.41	
7724.00	90.800	341.720	6400.11	1162.85	863.41	-1068.53	1654871.84	14240714.41	39°12'58.860"N	80°56'56.269"W	1373.77	308.940	1.09	0.10	-1.09	
7818.00	91.140	340.560	6398.52	1256.83	952.35	-1098.91	1654841.47	14240803.31	39°12'59.739"N	80°56'56.655"W	1454.16	310.913	1.29	0.36	-1.23	
7913.00	91.450	339.220	6396.37	1351.78	1041.53	-1131.56	1654808.83	14240892.46	39°13'00.621"N	80°56'57.069"W	1537.93	312.626	1.45	0.33	-1.41	
8007.00	91.200	339.480	6394.20	1445.72	1129.47	-1164.70	1654775.71	14240980.36	39°13'01.490"N	80°56'57.489"W	1622.42	314.120	0.38	-0.27	0.28	
8102.00	90.710	338.260	6392.62	1540.63	1218.07	-1198.95	1654741.48	14241068.92	39°13'02.366"N	80°56'57.924"W	1709.14	315.453	1.38	-0.52	-1.28	
8197.00	90.680	338.230	6391.46	1635.50	1306.30	-1234.15	1654706.29	14241157.11	39°13'03.238"N	80°56'58.370"W	1797.09	316.627	0.04	-0.03	-0.03	
8292.00	91.170	338.870	6389.93	1730.39	1394.70	-1268.89	1654671.56	14241245.49	39°13'04.112"N	80°56'58.811"W	1885.54	317.704	0.85	0.52	0.67	
8387.00	91.320	337.670	6387.87	1825.25	1482.93	-1304.05	1654636.41	14241333.68	39°13'04.985"N	80°56'59.257"W	1974.75	318.672	1.27	0.16	-1.26	
8481.00	90.550	336.900	6386.33	1919.03	1569.63	-1340.34	1654600.14	14241420.34	39°13'05.842"N	80°56'59.718"W	2064.04	319.505	1.16	-0.82	-0.82	
8576.00	90.620	336.920	6385.36	2013.77	1657.01	-1377.60	1654562.90	14241507.69	39°13'06.706"N	80°57'00.191"W	2154.87	320.261	0.08	0.07	0.02	
8671.00	90.710	336.580	6384.26	2108.49	1744.29	-1415.10	1654525.41	14241594.93	39°13'07.568"N	80°57'00.666"W	2246.12	320.948	0.37	0.09	-0.36	
8767.00	90.620	337.040	6383.15	2204.21	1832.53	-1452.90	1654487.63	14241683.13	39°13'08.441"N	80°57'01.146"W	2338.61	321.591	0.49	-0.09	0.48	
8861.00	90.650	337.040	6382.10	2297.97	1919.08	-1489.56	1654450.98	14241769.65	39°13'09.296"N	80°57'01.611"W	2429.33	322.182	0.03	0.03	0.00	
8956.00	90.430	336.860	6381.21	2392.71	2006.49	-1526.76	1654413.80	14241857.02	39°13'10.160"N	80°57'02.083"W	2521.31	322.732	0.30	-0.23	-0.19	
9051.00	90.650	337.160	6380.31	2487.47	2093.94	-1563.86	1654376.71	14241944.44	39°13'11.025"N	80°57'02.554"W	2613.47	323.246	0.39	0.23	0.32	
9146.00	90.520	338.170	6379.34	2582.29	2181.81	-1599.96	1654340.63	14242032.27	39°13'11.894"N	80°57'03.012"W	2705.58	323.747	1.07	-0.14	1.06	
9241.00	90.490	340.390	6378.51	2677.23	2270.65	-1633.57	1654307.03	14242121.08	39°13'12.772"N	80°57'03.439"W	2797.21	324.268	2.34	-0.03	2.34	
9335.00	90.220	341.940	6377.92	2771.23	2359.61	-1663.91	1654276.70	14242210.01	39°13'13.651"N	80°57'03.824"W	2887.28	324.810	1.67	-0.29	1.65	
9431.00	90.220	342.390	6377.55	2867.21	2451.00	-1693.32	1654247.31	14242301.36	39°13'14.555"N	80°57'04.197"W	2979.05	325.361	0.47	0.00	0.47	
9526.00	90.030	342.430	6377.35	2962.18	2541.56	-1722.03	1654218.61	14242391.88	39°13'15.450"N	80°57'04.561"W	3070.00	325.881	0.20	-0.20	0.04	
9622.00	90.060	343.330	6377.27	3058.14	2633.30	-1750.28	1654190.36	14242483.59	39°13'16.357"N	80°57'04.919"W	3161.93	326.389	0.94	0.03	0.94	
9717.00	89.940	343.240	6377.27	3153.07	2724.29	-1777.61	1654163.05	14242574.54	39°13'17.256"N	80°57'05.266"W	3252.94	326.875	0.16	-0.13	-0.09	
9811.00	90.030	343.740	6377.30	3246.99	2814.41	-1804.32	1654136.35	14242664.62	39°13'18.147"N	80°57'05.604"W	3343.13	327.336	0.54	0.10	0.53	
9906.00	89.970	345.130	6377.30	3341.82	2905.93	-1829.81	1654110.87	14242756.10	39°13'19.052"N	80°57'05.928"W	3434.04	327.802	1.46	-0.06	1.46	
10001.00	90.310	345.310	6377.06	3436.58	2997.78	-1854.05	1654086.64	14242847.92	39°13'19.960"N	80°57'06.235"W	3524.80	328.264	0.40	0.36	0.19	
10097.00	88.860	342.380	6377.76	3532.45	3089.98	-1880.75	1654059.95	14242940.08	39°13'20.871"N	80°57'06.574"W	3617.35	328.673	3.41	-1.51	-3.05	
10192.00	89.510	342.650	6379.11	3627.42	3180.58	-1909.29	1654031.42	14243030.64	39°13'21.767"N	80°57'06.936"W	3709.65	329.024	0.74	0.68	0.28	

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWP
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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
10287.00	90.370	342.120	6379.21	3722.39	3271.12	-1938.04	1654002.68	14243121.15	39°13'22.662"N	80°57'07.301"W	3802.14	329.355	1.06	0.91	-0.56	
10381.00	90.180	340.030	6378.76	3816.39	3360.04	-1968.53	1653972.21	14243210.03	39°13'23.541"N	80°57'07.687"W	3894.22	329.635	2.23	-0.20	-2.22	
10476.00	90.000	340.040	6378.61	3911.37	3449.33	-2000.96	1653939.78	14243299.28	39°13'24.424"N	80°57'08.099"W	3987.69	329.882	0.19	-0.19	0.01	
10571.00	89.820	339.720	6378.76	4006.35	3538.53	-2033.64	1653907.12	14243388.45	39°13'25.306"N	80°57'08.513"W	4081.28	330.113	0.39	-0.19	-0.34	
10666.00	89.910	341.500	6378.98	4101.34	3628.14	-2065.18	1653875.59	14243478.02	39°13'26.191"N	80°57'08.914"W	4174.73	330.351	1.89	0.09	1.87	
10761.00	90.770	343.410	6378.42	4196.31	3718.71	-2093.82	1653846.97	14243568.56	39°13'27.087"N	80°57'09.277"W	4267.65	330.618	2.20	0.91	2.01	
10857.00	90.150	341.440	6377.65	4292.27	3810.22	-2122.80	1653817.99	14243660.03	39°13'27.991"N	80°57'09.645"W	4361.66	330.876	2.15	-0.65	-2.05	
10951.00	90.060	342.890	6377.48	4386.25	3899.70	-2151.59	1653789.22	14243749.48	39°13'28.876"N	80°57'10.010"W	4453.88	331.113	1.55	-0.10	1.54	
11046.00	89.820	342.100	6377.58	4481.22	3990.30	-2180.17	1653760.65	14243840.04	39°13'29.772"N	80°57'10.372"W	4547.05	331.349	0.87	-0.25	-0.83	
11140.00	89.260	341.130	6378.33	4575.22	4079.50	-2209.81	1653731.02	14243929.20	39°13'30.653"N	80°57'10.748"W	4639.57	331.556	1.19	-0.60	-1.03	
11235.00	89.750	341.050	6379.15	4670.21	4169.37	-2240.60	1653700.24	14244019.03	39°13'31.542"N	80°57'11.139"W	4733.28	331.747	0.52	0.52	-0.08	
11330.00	89.820	340.940	6379.51	4765.21	4259.19	-2271.54	1653669.32	14244108.82	39°13'32.430"N	80°57'11.532"W	4827.07	331.928	0.14	0.07	-0.12	
11424.00	89.660	341.840	6379.93	4859.21	4348.27	-2301.53	1653639.33	14244197.87	39°13'33.310"N	80°57'11.912"W	4919.81	332.108	0.97	-0.17	0.96	
11519.00	89.690	342.440	6380.47	4954.19	4438.69	-2330.67	1653610.21	14244288.25	39°13'34.204"N	80°57'12.282"W	5013.38	332.297	0.63	0.03	0.63	
11613.00	89.880	343.360	6380.83	5048.14	4528.53	-2358.31	1653582.58	14244378.06	39°13'35.092"N	80°57'12.632"W	5105.80	332.491	1.00	0.20	0.98	
11708.00	89.820	345.100	6381.07	5143.00	4619.95	-2384.13	1653556.78	14244469.44	39°13'35.996"N	80°57'12.960"W	5198.85	332.704	1.83	-0.06	1.83	
11803.00	88.800	343.230	6382.22	5237.85	4711.34	-2410.04	1653530.87	14244560.79	39°13'36.899"N	80°57'13.289"W	5291.98	332.908	2.24	-1.07	-1.97	
11898.00	89.510	341.680	6383.62	5332.81	4801.91	-2438.68	1653502.24	14244651.32	39°13'37.795"N	80°57'13.652"W	5385.67	333.076	1.79	0.75	-1.63	
11993.00	89.230	341.420	6384.66	5427.80	4892.02	-2468.74	1653472.19	14244741.39	39°13'38.685"N	80°57'14.033"W	5479.65	333.222	0.40	-0.29	-0.27	
12087.00	88.980	342.940	6386.13	5521.77	4981.49	-2497.50	1653443.44	14244830.83	39°13'39.570"N	80°57'14.398"W	5572.50	333.373	1.64	-0.27	1.62	
12182.00	88.980	343.200	6387.82	5616.70	5072.36	-2525.16	1653415.79	14244921.67	39°13'40.468"N	80°57'14.749"W	5666.15	333.535	0.27	0.00	0.27	
12277.00	89.050	343.310	6389.46	5711.62	5163.32	-2552.53	1653388.44	14245012.59	39°13'41.367"N	80°57'15.096"W	5759.80	333.694	0.14	0.07	0.12	
12371.00	89.170	342.880	6390.92	5805.55	5253.25	-2579.86	1653361.12	14245102.48	39°13'42.256"N	80°57'15.443"W	5852.55	333.844	0.47	0.13	-0.46	
12465.00	89.880	345.110	6391.70	5899.42	5343.59	-2605.78	1653335.21	14245192.79	39°13'43.149"N	80°57'15.772"W	5945.09	334.004	2.49	0.76	2.37	
12559.00	89.940	344.640	6391.84	5993.22	5434.34	-2630.30	1653310.70	14245283.50	39°13'44.047"N	80°57'16.083"W	6037.43	334.172	0.50	0.06	-0.50	
12653.00	89.820	342.810	6392.04	6087.12	5524.57	-2656.64	1653284.37	14245373.69	39°13'44.938"N	80°57'16.417"W	6130.14	334.318	1.95	-0.13	-1.95	
12748.00	89.780	341.830	6392.37	6182.10	5615.08	-2685.50	1653255.53	14245464.16	39°13'45.833"N	80°57'16.783"W	6224.23	334.440	1.03	-0.04	-1.03	
12842.00	89.660	340.190	6392.83	6276.09	5703.96	-2716.08	1653224.95	14245553.01	39°13'46.712"N	80°57'17.171"W	6317.61	334.537	1.75	-0.13	-1.74	
12937.00	89.910	339.630	6393.19	6371.07	5793.18	-2748.71	1653192.33	14245642.19	39°13'47.594"N	80°57'17.585"W	6412.20	334.617	0.65	0.26	-0.59	
13031.00	89.880	341.220	6393.36	6465.06	5881.74	-2780.21	1653160.85	14245730.72	39°13'48.469"N	80°57'17.985"W	6505.72	334.701	1.69	-0.03	1.69	

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWP
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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
13126.00	89.820	340.810	6393.61	6560.06	5971.57	-2811.11	1653129.96	14245820.52	39°13'49.357"N	80°57'18.377"W	6600.15	334.791	0.44	-0.06	-0.43	
13221.00	89.780	341.740	6393.94	6655.06	6061.54	-2841.61	1653099.48	14245910.45	39°13'50.247"N	80°57'18.764"W	6694.55	334.883	0.98	-0.04	0.98	
13315.00	89.630	340.340	6394.43	6749.05	6150.44	-2872.15	1653068.95	14245999.31	39°13'51.126"N	80°57'19.152"W	6788.01	334.968	1.50	-0.16	-1.49	
13409.00	89.690	339.830	6394.98	6843.04	6238.82	-2904.17	1653036.94	14246087.65	39°13'51.999"N	80°57'19.558"W	6881.64	335.038	0.55	0.06	-0.54	
13503.00	89.750	339.130	6395.44	6937.00	6326.85	-2937.12	1653004.01	14246175.65	39°13'52.869"N	80°57'19.976"W	6975.36	335.098	0.75	0.06	-0.74	
13598.00	89.720	339.720	6395.88	7031.95	6415.79	-2970.50	1652970.63	14246264.55	39°13'53.749"N	80°57'20.400"W	7070.09	335.156	0.62	-0.03	0.62	
13692.00	89.630	340.210	6396.42	7125.93	6504.10	-3002.71	1652938.44	14246352.83	39°13'54.622"N	80°57'20.809"W	7163.77	335.219	0.53	-0.10	0.52	
13786.00	89.750	340.570	6396.92	7219.92	6592.64	-3034.25	1652906.91	14246441.34	39°13'55.497"N	80°57'21.209"W	7257.39	335.286	0.40	0.13	0.38	
13881.00	89.510	339.910	6397.54	7314.91	6682.05	-3066.37	1652874.80	14246530.71	39°13'56.381"N	80°57'21.617"W	7352.03	335.350	0.74	-0.25	-0.69	
13975.00	89.600	339.460	6398.27	7408.88	6770.20	-3099.00	1652842.18	14246618.82	39°13'57.252"N	80°57'22.031"W	7445.77	335.404	0.49	0.10	-0.48	
14070.00	89.690	338.370	6398.86	7503.81	6858.84	-3133.18	1652808.02	14246707.42	39°13'58.128"N	80°57'22.464"W	7540.59	335.449	1.15	0.09	-1.15	
14165.00	89.850	338.500	6399.24	7598.70	6947.18	-3168.10	1652773.12	14246795.74	39°13'59.002"N	80°57'22.908"W	7635.46	335.486	0.22	0.17	0.14	
14260.00	89.690	338.730	6399.62	7693.61	7035.64	-3202.74	1652738.49	14246884.16	39°13'59.876"N	80°57'23.347"W	7730.32	335.524	0.29	-0.17	0.24	
14356.00	89.690	338.860	6400.14	7789.53	7125.14	-3237.46	1652703.78	14246973.62	39°14'00.761"N	80°57'23.788"W	7826.16	335.564	0.14	0.00	0.14	
14451.00	89.660	339.460	6400.68	7884.47	7213.92	-3271.26	1652670.00	14247062.37	39°14'01.639"N	80°57'24.217"W	7920.97	335.607	0.63	-0.03	0.63	
14546.00	89.600	338.560	6401.29	7979.41	7302.62	-3305.29	1652635.99	14247151.03	39°14'02.516"N	80°57'24.649"W	8015.81	335.648	0.95	-0.06	-0.95	
14641.00	89.750	338.050	6401.83	8074.29	7390.89	-3340.40	1652600.88	14247239.26	39°14'03.388"N	80°57'25.095"W	8110.70	335.679	0.56	0.16	-0.54	
14736.00	89.720	339.030	6402.27	8169.19	7479.30	-3375.16	1652566.14	14247327.64	39°14'04.262"N	80°57'25.536"W	8205.58	335.712	1.03	-0.03	1.03	
14832.00	89.630	338.670	6402.81	8265.12	7568.83	-3409.79	1652531.52	14247417.13	39°14'05.147"N	80°57'25.975"W	8301.44	335.748	0.39	-0.09	-0.37	
14927.00	89.690	339.030	6403.38	8360.04	7657.43	-3444.07	1652497.26	14247505.70	39°14'06.023"N	80°57'26.411"W	8396.30	335.783	0.38	0.06	0.38	
15022.00	89.750	338.420	6403.84	8454.96	7745.95	-3478.54	1652462.80	14247594.18	39°14'06.898"N	80°57'26.848"W	8491.17	335.816	0.65	0.06	-0.64	
15117.00	89.720	339.130	6404.28	8549.88	7834.51	-3512.93	1652428.42	14247682.70	39°14'07.774"N	80°57'27.285"W	8586.05	335.849	0.75	-0.03	0.75	
15211.00	89.720	339.840	6404.74	8643.84	7922.55	-3545.88	1652395.49	14247770.70	39°14'08.644"N	80°57'27.703"W	8679.86	335.888	0.76	0.00	0.76	
15304.00	89.720	340.660	6405.19	8736.82	8010.07	-3577.30	1652364.08	14247858.20	39°14'09.509"N	80°57'28.102"W	8772.59	335.934	0.88	0.00	0.88	
15400.00	89.630	341.170	6405.74	8832.82	8100.79	-3608.69	1652332.70	14247948.88	39°14'10.406"N	80°57'28.500"W	8868.23	335.988	0.54	-0.09	0.53	
15495.00	89.660	340.800	6406.33	8927.82	8190.61	-3639.64	1652301.76	14248038.66	39°14'11.294"N	80°57'28.893"W	8962.87	336.041	0.39	0.03	-0.39	
15589.00	89.660	341.350	6406.89	9021.82	8279.53	-3670.13	1652271.29	14248127.54	39°14'12.173"N	80°57'29.280"W	9056.51	336.093	0.59	0.00	0.59	
15684.00	89.750	342.340	6407.37	9116.81	8369.79	-3699.73	1652241.70	14248217.77	39°14'13.065"N	80°57'29.655"W	9151.03	336.153	1.05	0.09	1.04	
15778.00	89.630	342.930	6407.88	9210.77	8459.51	-3727.78	1652213.66	14248307.45	39°14'13.952"N	80°57'30.011"W	9244.44	336.219	0.64	-0.13	0.63	
15873.00	89.720	342.730	6408.42	9305.73	8550.27	-3755.83	1652185.63	14248398.18	39°14'14.849"N	80°57'30.367"W	9338.81	336.286	0.23	0.09	-0.21	

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWP
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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	
15968.00	89.780	342.140	6408.84	9400.70	8640.84	-3784.50	1652156.97	14248488.71	39°14'15.745"N	80°57'30.731"W	9433.27	336.348	0.62	0.06	-0.62		
16063.00	89.820	341.710	6409.17	9495.69	8731.15	-3813.97	1652127.50	14248578.99	39°14'16.637"N	80°57'31.105"W	9527.82	336.403	0.45	0.04	-0.45		
16158.00	89.660	341.520	6409.60	9590.69	8821.30	-3843.93	1652097.55	14248669.10	39°14'17.528"N	80°57'31.486"W	9622.43	336.455	0.26	-0.17	-0.20		
16252.00	89.820	341.810	6410.03	9684.68	8910.53	-3873.50	1652068.00	14248758.29	39°14'18.410"N	80°57'31.861"W	9716.05	336.505	0.35	0.17	0.31		
16348.00	90.030	342.870	6410.15	9780.66	9002.00	-3902.63	1652036.89	14248849.73	39°14'19.315"N	80°57'32.230"W	9811.55	336.562	1.13	0.22	1.10		
16442.00	89.940	343.120	6410.18	9874.61	9091.89	-3930.12	1652011.41	14248939.58	39°14'20.203"N	80°57'32.579"W	9904.97	336.623	0.28	-0.10	0.27		
16537.00	89.820	346.640	6410.38	9969.39	9183.59	-3954.89	1651986.64	14249031.24	39°14'21.110"N	80°57'32.894"W	9998.98	336.701	3.71	-0.13	3.71		
16631.00	90.340	347.880	6410.24	10062.84	9275.27	-3975.62	1651965.92	14249122.89	39°14'22.016"N	80°57'33.157"W	10091.40	336.799	1.43	0.55	1.32		
16726.00	90.120	345.430	6409.86	10157.39	9367.70	-3997.55	1651944.00	14249215.28	39°14'22.930"N	80°57'33.435"W	10185.00	336.890	2.59	-0.23	-2.58		
16820.00	89.880	343.770	6409.86	10251.21	9458.32	-4022.51	1651919.05	14249305.87	39°14'23.825"N	80°57'33.751"W	10278.15	336.961	1.78	-0.26	-1.77		
16915.00	89.660	341.970	6410.24	10346.16	9549.10	-4050.49	1651891.08	14249396.61	39°14'24.723"N	80°57'34.107"W	10372.65	337.015	1.91	-0.23	-1.89		
17009.00	89.690	341.110	6410.78	10440.16	9638.27	-4080.25	1651861.33	14249485.74	39°14'25.604"N	80°57'34.484"W	10466.36	337.055	0.92	0.03	-0.91		
17104.00	89.780	340.920	6411.22	10535.16	9728.10	-4111.16	1651830.44	14249575.53	39°14'26.492"N	80°57'34.877"W	10561.13	337.091	0.22	0.09	-0.20		
17199.00	89.850	341.070	6411.52	10630.16	9817.92	-4142.09	1651799.51	14249665.32	39°14'27.380"N	80°57'35.269"W	10655.91	337.126	0.17	0.07	0.16		
17295.00	89.880	340.210	6411.75	10726.15	9908.49	-4173.92	1651767.70	14249755.85	39°14'28.275"N	80°57'35.673"W	10751.73	337.157	0.90	0.03	-0.90		
17390.00	89.880	340.460	6411.95	10821.14	9997.95	-4205.89	1651735.75	14249845.27	39°14'29.160"N	80°57'36.079"W	10846.59	337.185	0.26	0.00	0.26		
17486.00	89.780	341.020	6412.23	10917.14	10088.57	-4237.55	1651704.09	14249935.86	39°14'30.056"N	80°57'36.481"W	10942.40	337.216	0.59	-0.10	0.58		
17580.00	89.850	341.240	6412.54	11011.14	10177.52	-4267.95	1651673.70	14250024.77	39°14'30.935"N	80°57'36.867"W	11036.18	337.249	0.25	0.07	0.23		
17674.00	90.520	343.210	6412.23	11105.12	10267.03	-4296.65	1651645.02	14250114.25	39°14'31.820"N	80°57'37.231"W	11129.83	337.291	2.21	0.71	2.10		
17769.00	90.460	342.360	6411.42	11200.07	10357.77	-4324.76	1651616.92	14250204.95	39°14'32.717"N	80°57'37.588"W	11224.39	337.338	0.90	-0.06	-0.89		
17864.00	89.110	343.030	6411.78	11295.03	10448.46	-4353.02	1651588.67	14250295.61	39°14'33.613"N	80°57'37.947"W	11318.98	337.382	1.59	-1.42	0.71		
17960.00	90.280	341.450	6412.29	11391.01	10539.88	-4382.30	1651559.40	14250386.99	39°14'34.517"N	80°57'38.318"W	11414.63	337.423	2.05	1.22	-1.65		
18056.00	90.150	341.950	6411.93	11487.00	10631.03	-4412.45	1651529.27	14250478.10	39°14'35.418"N	80°57'38.701"W	11510.36	337.459	0.54	-0.14	0.52		
18151.00	89.450	342.510	6412.26	11581.98	10721.49	-4441.44	1651500.29	14250568.53	39°14'36.312"N	80°57'39.069"W	11605.03	337.498	0.94	-0.74	0.59		
18245.00	88.830	342.930	6413.67	11675.93	10811.24	-4469.36	1651472.38	14250658.24	39°14'37.199"N	80°57'39.423"W	11698.64	337.540	0.80	-0.66	0.45		
18340.00	88.980	338.410	6415.49	11770.89	10900.85	-4500.79	1651440.96	14250747.81	39°14'38.085"N	80°57'39.822"W	11793.45	337.565	4.76	0.16	-4.76		
18435.00	89.600	338.110	6416.66	11865.76	10989.08	-4535.97	1651405.79	14250836.01	39°14'38.957"N	80°57'40.269"W	11888.44	337.571	0.73	0.65	-0.32		
18530.00	89.850	338.720	6417.12	11960.65	11077.42	-4570.92	1651370.86	14250924.31	39°14'39.831"N	80°57'40.713"W	11983.43	337.577	0.69	0.26	0.64		
18625.00	89.630	340.270	6417.55	12055.61	11166.39	-4604.20	1651337.59	14251013.25	39°14'40.710"N	80°57'41.135"W	12078.37	337.592	1.65	-0.23	1.63		
18720.00	89.630	340.580	6418.16	12150.60	11255.90	-4636.03	1651305.78	14251102.72	39°14'41.595"N	80°57'41.539"W	12173.25	337.614	0.33	0.00	0.33		

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWP
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

## WELLPATH DATA (272 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
18814.00	89.820	339.530	6418.62	12244.59	11344.26	-4668.09	1651273.73	14251191.05	39°14'42.468"N	80°57'41.946"W	12267.17	337.633	1.14	0.20	-1.12	
18909.00	89.750	340.010	6418.97	12339.56	11433.40	-4700.94	1651240.89	14251280.15	39°14'43.350"N	80°57'42.363"W	12362.10	337.650	0.51	-0.07	0.51	
19004.00	89.660	339.190	6419.46	12434.52	11522.44	-4734.05	1651207.79	14251369.15	39°14'44.230"N	80°57'42.784"W	12457.04	337.664	0.87	-0.09	-0.86	
19100.00	89.720	338.640	6419.98	12530.45	11612.01	-4768.59	1651173.27	14251458.69	39°14'45.115"N	80°57'43.222"W	12553.02	337.674	0.58	0.06	-0.57	
19194.00	89.690	338.730	6420.46	12624.37	11699.58	-4802.76	1651139.12	14251546.22	39°14'45.981"N	80°57'43.656"W	12647.00	337.682	0.10	-0.03	0.10	
19291.00	90.030	339.020	6420.70	12721.29	11790.06	-4837.72	1651104.17	14251636.67	39°14'46.875"N	80°57'44.100"W	12743.98	337.691	0.46	0.35	0.30	
19386.00	89.820	339.620	6420.83	12816.25	11878.94	-4871.27	1651070.63	14251725.51	39°14'47.754"N	80°57'44.526"W	12838.94	337.703	0.67	-0.22	0.63	
19482.00	89.880	340.230	6421.08	12912.22	11969.11	-4904.22	1651037.70	14251815.64	39°14'48.645"N	80°57'44.944"W	12934.87	337.719	0.64	0.06	0.64	
19577.00	89.880	343.940	6421.28	13007.19	12059.48	-4933.43	1651008.49	14251905.98	39°14'49.539"N	80°57'45.315"W	13029.58	337.751	3.91	0.00	3.91	
19674.00	90.030	345.080	6421.35	13104.02	12152.96	-4959.34	1650982.60	14251999.42	39°14'50.463"N	80°57'45.644"W	13125.91	337.801	1.19	0.15	1.18	
19770.00	90.120	343.960	6421.23	13199.85	12245.47	-4984.96	1650956.98	14252091.90	39°14'51.377"N	80°57'45.969"W	13221.25	337.849	1.17	0.09	-1.17	
19865.00	90.060	342.420	6421.08	13294.78	12336.41	-5012.43	1650929.52	14252182.80	39°14'52.276"N	80°57'46.318"W	13315.84	337.887	1.62	-0.06	-1.62	
19962.00	89.820	341.060	6421.18	13391.78	12428.53	-5042.83	1650899.14	14252274.87	39°14'53.187"N	80°57'46.704"W	13412.62	337.915	1.42	-0.25	-1.40	
20059.00	89.780	341.630	6421.52	13488.77	12520.43	-5073.85	1650868.13	14252366.74	39°14'54.095"N	80°57'47.098"W	13509.45	337.940	0.59	-0.04	0.59	
20155.00	89.750	340.720	6421.91	13584.77	12611.29	-5104.83	1650837.16	14252457.57	39°14'54.993"N	80°57'47.491"W	13605.29	337.963	0.95	-0.03	-0.95	
20251.00	89.970	341.110	6422.15	13680.77	12702.01	-5136.22	1650805.79	14252548.25	39°14'55.890"N	80°57'47.889"W	13701.16	337.983	0.47	0.23	0.41	
20347.00	89.540	341.630	6422.56	13776.77	12792.98	-5166.89	1650775.13	14252639.19	39°14'56.789"N	80°57'48.279"W	13797.00	338.007	0.70	-0.45	0.54	
20442.00	89.570	342.130	6423.29	13871.76	12883.27	-5196.43	1650745.60	14252729.43	39°14'57.682"N	80°57'48.654"W	13891.78	338.033	0.53	0.03	0.53	
20539.00	89.140	342.090	6424.39	13968.74	12975.57	-5226.23	1650715.82	14252821.70	39°14'58.594"N	80°57'49.032"W	13988.53	338.062	0.45	-0.44	-0.04	
20636.00	89.630	342.780	6425.43	14065.70	13068.04	-5255.50	1650686.56	14252914.14	39°14'59.508"N	80°57'49.404"W	14085.24	338.092	0.87	0.51	0.71	
20733.00	89.570	342.490	6426.11	14162.67	13160.62	-5284.45	1650657.62	14253006.68	39°15'00.423"N	80°57'49.771"W	14181.94	338.123	0.31	-0.06	-0.30	
20828.00	89.510	341.470	6426.87	14257.65	13250.96	-5313.84	1650628.24	14253096.97	39°15'01.316"N	80°57'50.144"W	14276.72	338.148	1.08	-0.06	-1.07	
20923.00	89.480	341.310	6427.71	14352.65	13340.99	-5344.15	1650597.94	14253186.97	39°15'02.206"N	80°57'50.529"W	14371.56	338.170	0.17	-0.03	-0.17	
21019.00	89.320	341.210	6428.71	14448.64	13431.89	-5374.99	1650567.11	14253277.84	39°15'03.105"N	80°57'50.921"W	14467.42	338.190	0.20	-0.17	-0.10	
21114.00	89.290	341.500	6429.86	14543.63	13521.90	-5405.36	1650536.75	14253367.81	39°15'03.995"N	80°57'51.306"W	14562.27	338.211	0.31	-0.03	0.31	
21209.00	89.290	340.430	6431.04	14638.62	13611.70	-5436.34	1650505.78	14253457.57	39°15'04.882"N	80°57'51.700"W	14657.15	338.229	1.13	0.00	-1.13	
21304.00	89.230	339.330	6432.27	14733.59	13700.89	-5469.02	1650473.12	14253546.73	39°15'05.764"N	80°57'52.115"W	14752.10	338.239	1.16	-0.06	-1.16	
21398.00	89.320	341.330	6433.46	14827.57	13789.39	-5500.65	1650441.50	14253635.19	39°15'06.639"N	80°57'52.516"W	14846.03	338.253	2.13	0.10	2.13	
21493.00	89.290	342.140	6434.61	14922.56	13879.60	-5530.43	1650411.74	14253725.36	39°15'07.531"N	80°57'52.894"W	14940.85	338.275	0.85	-0.03	0.85	
21589.00	89.290	341.910	6435.80	15018.54	13970.91	-5560.05	1650382.13	14253816.64	39°15'08.433"N	80°57'53.271"W	15036.63	338.299	0.24	0.00	-0.24	

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'  
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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #06
Area	Ritchie County, WV		Well	Riggs Unit 1H ST01
Field	Ritchie		Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad		Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

WELLPATH DATA (272 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
21644.00	89.420	342.400	6436.42	15073.53	14023.26	-5576.90	1650365.28	14253868.96	39°15'08.951"N	80°57'53.485"W	15091.51	338.313	0.92	0.24	0.89	
21669.00	89.420	342.400	6436.67	15098.52	14047.09	-5584.46	1650357.73	14253892.78	39°15'09.186"N	80°57'53.580"W	15116.44	338.320	0.00	0.00	0.00	Projected MD at TD (ST01): 21669'

HOLE & CASING SECTIONS - Ref Wellbore: Riggs Unit 1H ST01 AWB Ref Wellpath: Riggs Unit 1H ST01 AWP Proj: 21669'									
String/Diameter	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start N/S (ft)	Start E/W (ft)	End N/S (ft)	End E/W (ft)
20in Conductor	25.00	105.00	80.00	25.00	105.00	0.00	0.00	-0.07	-0.28
17.5in Open Hole	105.00	588.00	483.00	105.00	588.00	-0.07	-0.28	0.02	-0.85
13.375in Casing Surface	25.00	588.00	563.00	25.00	588.00	0.00	0.00	0.02	-0.85
12.25in Open Hole	588.00	2579.00	1991.00	588.00	2578.86	0.02	-0.85	6.35	-3.72
9.625in Casing Intermediate	25.00	2579.00	2554.00	25.00	2578.86	0.00	0.00	6.35	-3.72
8.75in Open Hole	2579.00	5821.00	3242.00	2578.86	5720.20	6.35	-3.72	-529.38	-505.32
8.5in Open Hole	5821.00	5821.00	0.00	5720.20	5720.20	-529.38	-505.32	-529.38	-505.32
8.5in Open Hole	5821.00	21669.00	15848.00	5720.20	6436.67	-529.38	-505.32	14047.09	-5584.46
5.5in Casing Production	25.00	21669.00	21644.00	25.00	6436.67	0.00	0.00	14047.09	-5584.46

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# Actual Wellpath Report

Riggs Unit 1H ST01 AWP Proj: 21669'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Riggs Unit 1H - POE - Rev-1	6382.00	-73.80	-777.21	1655163.05	14239777.57	39°12'49.595"N	80°56'52.575"W	point
Riggs Unit 1H - BHL - Rev-1	6406.00	14044.30	-5609.20	1650333.00	14253890.00	39°15'09.159"N	80°57'53.895"W	point
Riggs Unit 1H - LP - Rev-1	6406.00	94.86	-834.94	1655105.34	14239946.17	39°12'51.262"N	80°56'53.307"W	point

WELLPATH COMPOSITION - Ref Wellbore: Riggs Unit 1H ST01 AWB Ref Wellpath: Riggs Unit 1H ST01 AWP Proj: 21669'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	587.00	Gyrodata standard - Drop gyro or Multi-shot	01 Gyrodata MS Gyro <17-1/2">(100'-577')	Riggs Unit 1H AWB
587.00	2497.00	OWSG MWD rev2 + HRGM	02 WFT EM <12-1/4">(577')(661'-2487')	Riggs Unit 1H AWB
2497.00	5821.00	OWSG MWD rev2 + HRGM	03 WFT EM <8-3/4">(2487')(2619'-6031')	Riggs Unit 1H AWB
5821.00	21644.00	BHI AutoTrak Curve (Short)	05 BH AT Curve <8-1/2">(5821')(5873'-21644')	Riggs Unit 1H ST01 AWB
21644.00	21669.00	Blind Drilling (std)	Projection to bit	Riggs Unit 1H ST01 AWB

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Riggs Unit 1H ST01 AWP Proj: 21669'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Ritchie County, WV	Well	Riggs Unit 1H ST01
Field	Ritchie	Wellbore	Riggs Unit 1H ST01 AWB
Facility	Lynn Camp Pad	Sidetrack from	Riggs Unit 1H AWP Proj: 6324' at 5821.00 MD

## COMMENTS

### Wellpath general comments

API: 47-085-10384-0000  
BHI Job #: 109836883A  
Rig: Patterson 342  
Duration: 06/14/2019-06/17/2019  
Gyrodata MS Gyro <17-1/2">(100'-577')  
WFT EM <12-1/4">(577')(661'-2487')  
WFT EM <8-3/4">(2487')(2619'-6031')  
BH ATCurve <8-1/2"> (6041')(6109'-6299')  
BH ATCurve <8-1/2"> (5821')(5873'-21644')  
Middlesex: 6402' MD  
Burkett: 6581' MD  
Tully: 6671' MD  
Marcellus POE: 6745' MD  
Projected MD at TD [OPH]: 6324'  
Projected MD at TD [ST01]: 21669'

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