



# ANTERO RESOURCES CORPORATION



Location: Ritchie  
Field: Ritchie  
Facility: Casheew Pad

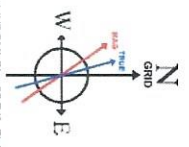
Slot: Slot K  
Well: Key Unit 1H  
Wellbore: Key Unit 1H PWB

Eastings (ft)

Grid System: NAD83 / UTM Zone 17 North, US Feet	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
1700 vertical depth are referenced to H&P 519 (RND)	14224517.0	14224517.0	39° 10' 18.9800"N	80° 5' 12.8500"W
Reference weights measured depths are referenced to H&P 519 (RND)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
H&P 519 (RND) to Mean Sea Level: 1048 feet	14224517.0	14224517.0	39° 10' 20.2300"N	80° 5' 12.3100"W
Mean Sea Level to Ground level (A Slot; Slot K): -101.8 ft				
Depth are in feet				
Created by: cadburian on 2023-11-21 Database: WA_MPL_6487ENRMS_Oah				

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Casheew Pad	14224517.0	14224517.0	39° 10' 18.9800"N	80° 5' 12.8500"W
Slot	Location (ft)	Grid East (US ft)	Grid North (US ft)	Longitude
Slot K	328.88	14224517.0	14224517.0	80° 5' 12.3100"W
Comment: Key Unit 1H				
H&P 519 (RND) to Ground level (A Slot; Slot K)			30ft	
Mean Sea Level to Ground level (A Slot; Slot K)			-101.8ft	
H&P 519 (RND) to Mean Sea Level			104.8ft	

User specified (H&P) Dip: 65.74° Field: 51290.0T  
Magnetic North is 7.43 degrees West of True North (at 10/6/2023)  
Grid North is 0.09 degrees East of True North  
To correct azimuth from True to Grid subtract 0.09 degrees  
To correct azimuth from Magnetic to Grid subtract 7.52 degrees

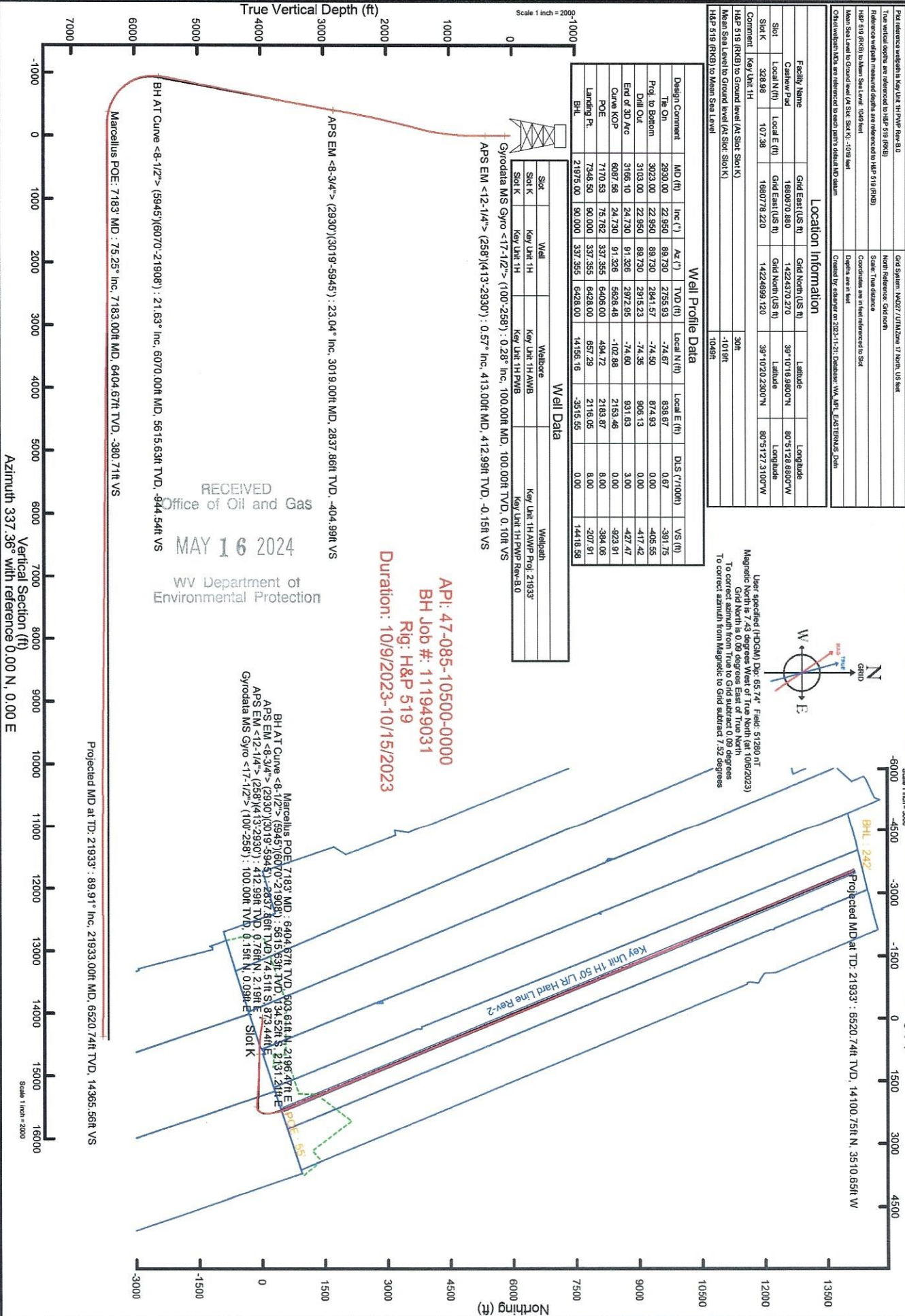


Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Ac (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
The On	2930.00	22.950	89.730	2755.93	-74.67	838.67	0.67	-391.75
Prod. to Bottom	3023.00	22.950	89.730	2841.57	-74.50	874.93	0.00	-405.55
Drill Out	3103.00	22.950	89.730	2915.23	-74.35	906.13	0.00	-417.42
End of 3D Arc	3166.10	24.730	91.326	2972.95	-74.60	931.63	3.00	-427.47
Curve KOP	6087.56	24.730	91.326	5826.48	-102.88	2153.46	0.00	-923.91
POE	7170.53	75.782	337.395	6406.00	-494.72	2183.87	8.00	-394.08
Landing Pt.	7348.50	90.000	337.395	6428.00	657.29	2116.05	8.00	-207.91
BHL	21975.00	90.000	337.395	6428.00	14156.16	-3516.55	0.00	14418.58

Well Data			
Slot	Well	Wellbore	Wellpath
Slot K	Key Unit 1H	Key Unit 1H PWB	Key Unit 1H AMP Prod. 21933
Slot K	Key Unit 1H	Key Unit 1H PWB	Key Unit 1H PWB Rev-B.0

API: 47-085-10500-0000  
BH Job #: 111949031  
Rig: H&P 519  
Duration: 10/9/2023-10/15/2023

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**Actual Wellpath Report**  
 Key Unit 1H AWP Proj: 21933'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect@ 6.0
North Reference	Grid	User	Edsaryar
Scale	0.999602	Report Generated	11/21/2023 at 12:03:48 PM
Convergence at slot	0.09° East	Database	WA_MPL_EASTERNUUS_Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	328.98	107.38	1680778.22	14224699.12	39°10'20.2300"N	80°51'27.3100"W
Facility Reference Pt			1680670.88	14224370.27	39°10'16.9800"N	80°51'28.6800"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.3013"W

WELLPATH DATUM			
Calculation method	Minimum curvature	H&P 519 (RKB) to Facility Vertical Datum	1049.00ft
Horizontal Reference Pt	Slot	H&P 519 (RKB) to Mean Sea Level	1049.00ft
Vertical Reference Pt	H&P 519 (RKB)	H&P 519 (RKB) to Ground Level at Slot (Slot K)	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	337.36°

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# Actual Wellpath Report

Key Unit 1H AWP Proj: 21933'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

WELLPATH DATA (238 stations)																				
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North		East		Grid East		Grid North		Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
					(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)										
0.00	0.000	31.730	0.00	0.00	0.00	0.00	0.00	0.00	1680778.22	14224699.12	39°10'20.2300"N	80°51'27.3100"W	0.00	0.000	0.00	0.00	0.00	0.00		
30.00	0.000	31.730	30.00	0.00	0.00	0.00	0.00	0.00	1680778.22	14224699.12	39°10'20.2300"N	80°51'27.3100"W	0.00	0.000	0.00	0.00	0.00	0.00		
100.00	0.280	31.730	100.00	0.10	0.15	0.09	0.09	1680778.31	14224699.27	39°10'20.2314"N	80°51'27.3088"W	0.17	31.730	0.40	0.40	0.00	Gyrodata MS Gyro <17-1/2"> (100-258)			
200.00	0.330	78.590	200.00	0.19	0.41	0.50	1680778.72	14224699.53	39°10'20.2341"N	80°51'27.3036"W	0.65	50.671	0.25	0.05	46.86					
258.00	0.490	98.480	258.00	0.03	0.41	0.91	1680779.13	14224699.53	39°10'20.2340"N	80°51'27.2984"W	1.00	65.911	0.37	0.28	34.29					
413.00	0.570	54.570	412.99	-0.15	0.76	2.19	1680780.41	14224699.88	39°10'20.2374"N	80°51'27.2821"W	2.32	70.985	0.26	0.05	-28.33	APS EM <12-1/4"> (258)(413-2930)				
503.00	0.600	53.830	502.99	0.06	1.29	2.94	1680781.16	14224700.41	39°10'20.2427"N	80°51'27.2726"W	3.21	66.241	0.03	0.03	-0.82					
593.00	1.910	78.620	592.96	-0.12	1.87	4.79	1680783.01	14224700.99	39°10'20.2484"N	80°51'27.2491"W	5.14	68.697	1.54	1.46	27.54					
682.00	4.400	90.600	681.82	-1.76	2.12	9.66	1680787.87	14224701.24	39°10'20.2509"N	80°51'27.1873"W	9.89	77.594	2.88	2.80	13.46					
772.00	7.050	93.960	771.37	-5.59	1.71	18.62	1680796.83	14224700.83	39°10'20.2466"N	80°51'27.0735"W	18.70	84.763	2.97	2.94	3.73					
862.00	9.600	95.200	860.41	-11.57	0.65	31.61	1680809.82	14224699.76	39°10'20.2359"N	80°51'26.9086"W	31.61	88.831	2.84	2.83	1.38					
951.00	14.480	92.940	1035.42	-28.45	-2.11	68.85	1680847.04	14224698.35	39°10'20.2216"N	80°51'26.4358"W	48.26	90.919	2.74	2.74	-1.86					
1041.00	17.270	92.370	1126.78	-39.54	3.30	94.81	1680872.99	14224695.82	39°10'20.1959"N	80°51'26.1063"W	94.86	91.992	2.59	2.94	-0.60					
1136.00	19.520	95.320	1215.98	-52.80	-5.33	124.99	1680902.56	14224693.79	39°10'20.1374"N	80°51'25.3066"W	124.50	92.454	2.59	2.39	3.14					
1324.00	22.400	97.490	1303.75	-69.16	-9.12	157.79	1680935.95	14224690.00	39°10'20.0766"N	80°51'24.8304"W	158.05	93.309	3.17	3.06	2.31					
1419.00	24.790	100.810	1390.80	-89.23	-15.22	195.31	1680973.45	14224683.91	39°10'20.0036"N	80°51'24.3288"W	195.90	94.456	2.88	2.52	3.49					
1513.00	25.830	100.180	1475.78	-111.19	-22.53	234.82	1681012.95	14224676.59	39°10'20.0036"N	80°51'23.8130"W	235.90	95.482	1.14	1.11	-0.67					
1607.00	26.220	99.480	1560.25	-133.33	-29.57	275.46	1681053.57	14224669.56	39°10'19.9334"N	80°51'23.2829"W	277.04	96.128	0.53	0.41	-0.74					
1702.00	26.620	98.410	1645.33	-155.47	-36.14	317.21	1681095.31	14224662.99	39°10'19.8678"N	80°51'23.2829"W	319.27	96.500	0.65	0.42	-1.13					
1796.00	25.650	97.320	1729.72	-176.49	-41.82	358.23	1681136.30	14224657.32	39°10'19.8111"N	80°51'22.7623"W	360.66	96.658	1.15	-1.03	-1.16					
1891.00	25.830	96.670	1815.29	-196.89	-46.84	399.18	1681177.24	14224652.30	39°10'19.7608"N	80°51'22.2425"W	401.91	96.693	0.35	0.19	-0.68					
1985.00	26.210	95.930	1899.76	-216.84	-51.36	440.16	1681218.21	14224647.78	39°10'19.7155"N	80°51'21.7221"W	443.15	96.656	0.53	0.40	-0.79					
2080.00	27.040	95.120	1984.69	-236.93	-55.46	482.54	1681260.57	14224643.68	39°10'19.6743"N	80°51'21.1842"W	485.71	96.556	0.95	0.87	-0.85					
2174.00	27.320	94.530	2068.31	-256.73	-59.07	525.32	1681303.33	14224640.08	39°10'19.6380"N	80°51'20.6410"W	528.63	96.415	0.41	0.30	-0.63					
2269.00	25.990	94.330	2153.21	-276.13	-62.36	567.81	1681345.81	14224636.78	39°10'19.6048"N	80°51'20.1015"W	571.23	96.268	1.40	-1.40	-0.21					
2363.00	24.830	93.960	2238.11	-294.31	-65.28	608.04	1681386.02	14224633.87	39°10'19.5753"N	80°51'19.5908"W	611.54	96.128	1.25	-1.23	-0.39					
2458.00	24.890	93.760	2324.31	-312.13	-67.97	647.89	1681425.85	14224631.18	39°10'19.5481"N	80°51'19.0849"W	651.45	95.989	0.11	0.06	-0.21					
2552.00	25.070	93.160	2409.52	-329.59	-70.36	687.51	1681465.46	14224628.79	39°10'19.5238"N	80°51'18.5818"W	691.10	95.844	0.33	0.19	-0.64					
2646.00	23.600	92.560	2495.16	-346.27	-72.30	728.20	1681504.13	14224626.85	39°10'19.5040"N	80°51'18.0907"W	729.79	95.686	1.59	-1.56	-0.64					

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# Actual Wellpath Report

Key Unit 1H AWP Proj: 21933  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

WELLPATH DATA (238 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)	
2741.00	23.450	91.350	2582.27	-362.05	-73.60	764.09	1681542.01	14224625.55	39°10'19.4906"N	80°51'17.6096"W	767.63	95.502	0.53	-0.16	-1.27	
2835.00	23.290	91.100	2668.56	-377.14	-74.39	801.37	1681579.27	14224624.76	39°10'19.4822"N	80°51'17.1362"W	804.82	95.304	0.20	-0.17	-0.27	
2930.00	22.950	89.730	2755.93	-391.75	-74.67	838.67	1681616.55	14224624.48	39°10'19.4789"N	80°51'16.6626"W	841.99	95.088	0.67	-0.36	-1.44	
3019.00	23.040	89.740	2837.86	-404.99	-74.51	873.44	1681651.31	14224624.64	39°10'19.4799"N	80°51'16.2212"W	876.61	94.876	0.10	0.10	0.01	APS EM <-8-34"> (2930)(3019-5945)
3113.00	24.540	88.920	2923.87	-419.16	-74.05	911.35	1681689.21	14224625.10	39°10'19.4889"N	80°51'15.7398"W	914.36	94.646	1.63	1.60	-0.87	
3208.00	26.460	89.430	3009.61	-434.37	-73.47	952.24	1681730.08	14224625.68	39°10'19.4893"N	80°51'15.2205"W	955.07	94.412	2.03	2.02	-0.54	
3302.00	26.390	92.020	3093.79	-450.95	-74.00	994.06	1681771.89	14224625.15	39°10'19.4830"N	80°51'14.6896"W	996.81	94.257	1.23	-0.07	2.76	
3397.00	26.100	91.570	3179.00	-468.33	-73.32	1036.05	1681813.86	14224624.83	39°10'19.4693"N	80°51'14.1564"W	1038.79	94.158	0.37	-0.31	-0.47	
3491.00	25.350	87.760	3263.68	-483.83	-75.10	1076.83	1681854.62	14224624.05	39°10'19.4708"N	80°51'13.6386"W	1079.45	93.989	1.93	-0.80	-4.05	
3585.00	25.190	90.100	3348.69	-498.57	-74.35	1116.95	1681894.72	14224624.80	39°10'19.4776"N	80°51'13.1293"W	1119.42	93.808	1.08	-0.17	2.49	
3680.00	24.490	93.820	3434.91	-515.16	-75.69	1156.81	1681934.57	14224623.46	39°10'19.4637"N	80°51'12.6231"W	1159.29	93.744	1.80	-0.74	3.92	
3774.00	24.420	91.080	3520.48	-531.66	-77.36	1195.68	1681973.42	14224621.79	39°10'19.4466"N	80°51'12.1296"W	1198.18	93.702	1.21	-0.07	-2.91	
3868.00	24.160	90.810	3606.16	-547.13	-77.99	1234.34	1682012.07	14224621.16	39°10'19.4397"N	80°51'11.6387"W	1236.80	93.616	0.30	-0.28	-0.29	
3962.00	24.830	93.560	3691.70	-563.50	-79.49	1273.28	1682050.99	14224619.66	39°10'19.4243"N	80°51'11.1444"W	1275.76	93.572	1.40	0.71	2.91	
4056.00	25.540	92.350	3776.76	-580.77	-81.54	1313.22	1682090.92	14224617.61	39°10'19.4033"N	80°51'10.6372"W	1315.75	93.553	0.93	0.76	-1.28	
4150.00	26.380	94.300	3861.28	-598.79	-83.94	1354.30	1682131.97	14224615.21	39°10'19.3790"N	80°51'10.1158"W	1356.89	93.547	1.27	0.89	2.07	
4246.00	24.940	89.040	3947.82	-615.94	-85.20	1395.81	1682173.47	14224613.96	39°10'19.3659"N	80°51'9.5887"W	1398.41	93.493	2.81	-1.50	-5.48	
4340.00	24.260	92.630	4033.29	-631.50	-85.75	1434.92	1682212.56	14224613.40	39°10'19.3598"N	80°51'9.0921"W	1437.48	93.420	1.75	-0.72	3.82	
4435.00	24.810	96.900	4119.72	-649.66	-89.04	1474.20	1682251.83	14224610.11	39°10'19.3266"N	80°51'8.5934"W	1476.89	93.457	1.95	0.58	4.49	
4529.00	23.370	93.500	4205.54	-667.80	-92.55	1512.40	1682290.01	14224606.61	39°10'19.2913"N	80°51'8.1085"W	1515.22	93.502	2.13	-1.53	-3.62	
4623.00	22.920	91.790	4291.97	-683.38	-94.26	1549.30	1682326.50	14224604.90	39°10'19.2738"N	80°51'7.6400"W	1552.16	93.482	0.86	-0.48	-1.82	
4718.00	24.750	93.120	4378.87	-699.68	-95.92	1587.65	1682365.23	14224603.24	39°10'19.2568"N	80°51'7.1531"W	1590.54	93.457	2.01	1.93	1.40	
4812.00	24.030	92.920	4464.48	-716.49	-97.97	1626.41	1682403.98	14224601.19	39°10'19.2360"N	80°51'6.6609"W	1629.36	93.447	0.77	-0.77	-0.21	
4906.00	24.760	95.770	4550.09	-734.11	-100.92	1665.11	1682442.67	14224598.24	39°10'19.2061"N	80°51'6.1696"W	1668.17	93.468	1.47	0.78	3.03	
5000.00	24.500	94.170	4635.54	-752.27	-104.32	1704.14	1682481.68	14224594.84	39°10'19.1719"N	80°51'5.6742"W	1707.33	93.503	0.76	-0.28	-1.70	
5095.00	25.350	95.540	4721.69	-770.76	-107.71	1744.03	1682521.55	14224591.45	39°10'19.1377"N	80°51'5.1678"W	1747.35	93.534	1.08	0.89	1.44	
5189.00	22.870	90.560	4807.49	-787.46	-109.88	1782.33	1682559.94	14224588.33	39°10'19.1161"N	80°51'4.6814"W	1785.71	93.526	3.41	-2.64	-5.30	
5284.00	22.810	89.590	4895.04	-801.70	-109.84	1819.19	1682596.70	14224585.28	39°10'19.1151"N	80°51'4.2133"W	1822.52	93.457	0.40	-0.06	-1.02	
5378.00	25.380	97.450	4980.87	-818.70	-112.37	1857.42	1682634.99	14224586.80	39°10'19.0899"N	80°51'3.7281"W	1860.81	93.462	4.37	2.73	8.36	
5473.00	25.560	98.080	5066.63	-839.38	-117.89	1897.89	1682675.36	14224581.28	39°10'19.0347"N	80°51'3.2143"W	1901.55	93.554	0.34	0.19	0.66	

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# Actual Wellpath Report

Key Unit 1H AWP Proj: 21933'  
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REFERENCE WELLPATH IDENTIFICATION		Well	Key Unit 1H
Operator	ANTERO RESOURCES CORPORATION	API	47-085-10500-0000
Field	Ritchie	Wellbore	Key Unit 1H AWB
Facility	Cashew Pad		
Slot	Slot K		

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Station		Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
							Grid East (US ft)	Grid North (US ft)								
5567.00	23.070	93.270	5152.30	-857.79	-121.79	1936.37	1682713.81	14224577.38	39°10'18.9955"N	80°5'12.7258"W	1940.20	93.599	3.38	-2.65	-5.12	
5662.00	22.320	92.500	5239.94	-873.59	-123.64	1972.97	1682750.41	14224575.53	39°10'18.9766"N	80°5'12.2614"W	1976.84	93.586	0.85	-0.79	-0.81	
5756.00	24.430	98.080	5326.23	-891.10	-127.15	2010.06	1682878.48	14224572.02	39°10'18.9413"N	80°5'11.7903"W	2014.08	93.620	3.25	2.24	5.94	
5850.00	24.750	95.180	5411.71	-910.22	-131.66	2048.90	1682826.31	14224567.51	39°10'18.8961"N	80°5'11.2971"W	2053.13	93.677	1.33	0.34	-3.09	
5945.00	21.080	93.570	5499.20	-927.05	-134.52	2085.77	1682863.16	14224564.66	39°10'18.8672"N	80°5'10.8291"W	2090.11	93.690	3.92	-3.86	-1.69	
6070.00	21.630	86.510	5615.63	-944.54	-134.52	2131.21	1682908.58	14224564.66	39°10'18.8665"N	80°5'10.2621"W	2135.45	93.612	2.10	0.44	-5.69	BH AT Curve <-1/2> (594.5)(6070-21908')
6164.00	25.640	88.110	5701.85	-950.50	-125.86	2167.44	1682944.79	14224573.31	39°10'18.9514"N	80°5'05.7919"W	2171.09	93.323	8.88	4.27	-19.57	
6259.00	23.690	48.220	5788.33	-944.50	-105.45	2200.81	1682978.15	14224593.72	39°10'19.1357"N	80°5'05.93679"W	2203.33	92.743	8.93	-2.05	-20.94	
6353.00	25.810	38.150	5873.73	-928.31	-76.76	2227.54	1683004.87	14224660.29	39°10'19.8102"N	80°5'05.87418"W	2228.87	91.974	5.01	2.26	-10.71	
6448.00	29.860	24.080	5957.81	-901.97	-38.85	2250.00	1683027.32	14224660.29	39°10'19.8102"N	80°5'05.87418"W	2250.34	90.989	8.10	4.26	-14.81	
6542.00	33.660	11.640	6037.81	-864.34	8.10	2264.83	1683042.14	14224707.22	39°10'20.2740"N	80°5'05.85626"W	2264.84	89.795	8.04	4.04	-13.23	
6546.00	33.840	11.409	6041.13	-862.51	10.28	2265.27	1683042.58	14224709.39	39°10'20.2955"N	80°5'05.85266"W	2265.29	89.740	5.52	4.49	-5.78	Sycamore: 6546' MD
6637.00	38.030	6.680	6144.81	-817.04	62.99	2273.55	1683050.86	14224762.09	39°10'20.8163"N	80°5'05.84407"W	2274.42	88.413	5.52	4.60	-5.20	
6731.00	44.220	0.670	6185.61	-761.62	124.61	2277.31	1683054.61	14224823.68	39°10'21.178"N	80°5'05.83917"W	2280.71	86.868	7.81	6.59	-6.39	
6786.00	48.947	3.568	6222.72	-725.10	163.80	2276.41	1683051.33	14224893.71	39°10'22.8127"N	80°5'05.84023"W	2282.29	85.884	10.14	8.75	-7.07	Middlesex: 6785' MD
6825.00	52.520	3.543	6248.04	-695.70	194.67	2274.02	1683053.72	14224893.71	39°10'22.8889"N	80°5'05.84319"W	2282.34	85.107	10.14	8.93	-6.21	
6920.00	59.520	3.504	6301.12	-619.67	272.67	2263.53	1683040.89	14224971.68	39°10'23.4513"N	80°5'05.85635"W	2279.90	83.131	7.31	5.96	-4.82	Burkett: 6986' MD
6986.00	63.451	3.472	6332.62	-562.86	329.54	2252.32	1683023.82	14225028.53	39°10'23.6940"N	80°5'05.87781"W	2276.30	81.676	7.31	7.37	-4.11	
7014.00	65.140	3.460	6344.77	-537.96	354.09	2246.50	1683023.82	14225053.07	39°10'23.6940"N	80°5'05.87781"W	2265.08	79.038	6.60	3.93	-5.77	Tully: 7101' MD
7101.00	68.558	3.409	6378.98	-458.47	430.73	2223.75	1683001.08	14225129.68	39°10'24.4519"N	80°5'05.90664"W	2264.02	78.851	6.60	4.02	-5.62	
7109.00	68.880	3.405	6381.89	-451.02	437.77	2221.29	1682998.62	14225136.72	39°10'24.5215"N	80°5'05.91014"W	2264.02	77.086	9.12	8.60	-3.18	Marcellus POE: 7183' MD
7183.00	75.245	3.381	6404.67	-380.71	503.61	2196.47	1682973.81	14225202.53	39°10'25.1726"N	80°5'05.91026"W	2250.44	76.598	9.12	8.62	-3.05	
7203.00	76.970	3.375	6409.47	-361.29	521.60	2189.16	1682966.50	14225220.51	39°10'26.2073"N	80°5'05.91967"W	2237.48	74.227	8.79	8.79	-0.23	
7298.00	85.320	3.373	6424.08	-267.51	608.22	2153.22	1682930.58	14225307.10	39°10'27.9194"N	80°5'10.4263"W	2227.17	71.831	5.12	4.95	-1.34	
7392.00	89.970	3.361	6427.94	-173.62	694.48	2116.13	1682893.32	14225393.32	39°10'27.9194"N	80°5'10.9136"W	2219.66	69.391	0.69	0.68	-0.05	
7487.00	90.620	3.360	6427.45	-78.65	781.31	2077.36	1682854.99	14225480.12	39°10'28.7406"N	80°5'11.3848"W	2215.88	67.041	0.91	-0.78	-0.46	
7578.00	89.910	3.356	6427.03	12.32	864.34	2040.30	1682817.76	14225563.11	39°10'28.7406"N	80°5'11.8614"W	2218.63	64.511	4.17	2.16	3.57	
7676.00	92.030	3.391	6425.37	110.29	954.77	2002.68	1682780.10	14225665.51	39°10'29.6350"N	80°5'12.7402"W	2239.46	59.682	1.31	-1.07	-0.75	
7865.00	90.000	3.377	6422.03	299.21	1130.48	1993.18	1682710.62	14225829.15	39°10'31.3728"N	80°5'13.1977"W	2253.95	57.313	0.75	0.13	-0.73	
7959.00	90.120	3.377	6421.93	393.21	1217.24	1897.00	1682674.46	14225915.87	39°10'32.2309"N	80°5'13.1977"W	2253.95	57.313	0.75	0.13	-0.73	

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# Actual Wellpath Report

Key Unit 1H AWP Proj: 21933'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

## WELLPATH DATA (238 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
8054.00	89.720	337.280	6422.06	488.21	1304.78	1860.11	1682637.59	14226003.38	39°10'33.0968"N	80°51'3.6643"W	2272.11	54.952	0.50	-0.42	0.27	
8148.00	89.910	337.210	6422.36	582.21	1391.47	1823.75	1682601.24	14226090.03	39°10'33.9542"N	80°51'4.1242"W	2293.96	52.658	0.22	0.20	-0.07	
8243.00	90.000	337.160	6422.44	677.21	1479.03	1786.92	1682664.42	14226177.56	39°10'34.8203"N	80°51'4.5901"W	2319.61	50.385	0.11	0.09	-0.05	
8338.00	89.850	337.540	6422.56	772.21	1566.71	1750.33	1682627.55	14226265.20	39°10'35.6874"N	80°51'5.0529"W	2349.09	48.169	0.43	-0.16	0.40	
8433.00	89.910	337.610	6422.76	867.20	1654.52	1714.09	1682491.63	14226352.98	39°10'36.5560"N	80°51'5.5112"W	2382.34	46.013	0.10	0.06	0.07	
8527.00	89.780	337.480	6423.02	961.20	1741.39	1678.19	1682455.74	14226439.82	39°10'37.4152"N	80°51'5.9653"W	2418.42	43.941	0.20	-0.14	-0.14	
8622.00	88.830	337.070	6424.17	1056.20	1829.01	1641.49	1682419.06	14226527.40	39°10'38.2818"N	80°51'6.4295"W	2457.60	41.907	1.09	-1.00	-0.43	
8716.00	89.940	337.760	6425.18	1150.19	1915.80	1605.39	1682382.97	14226614.15	39°10'39.1401"N	80°51'6.8861"W	2499.51	39.962	1.39	1.18	0.73	
8811.00	89.910	337.990	6425.30	1245.18	2003.80	1569.61	1682347.21	14226702.12	39°10'40.0106"N	80°51'7.3386"W	2545.37	38.072	0.24	-0.03	0.24	
8905.00	89.660	337.310	6425.65	1339.18	2090.74	1533.87	1682311.48	14226789.02	39°10'40.8704"N	80°51'7.7907"W	2593.06	36.266	0.77	-0.27	-0.72	
9000.00	88.620	336.850	6427.08	1434.17	2178.23	1496.88	1682274.50	14226876.47	39°10'41.7357"N	80°51'8.2566"W	2642.97	34.497	1.20	-1.09	-0.48	
9094.00	90.400	337.550	6426.50	1528.16	2264.87	1460.45	1682238.09	14226963.09	39°10'42.5927"N	80°51'8.7193"W	2694.92	32.815	2.03	1.89	0.74	
9188.00	91.290	338.270	6426.50	1622.14	2351.96	1425.11	1682202.76	14227050.14	39°10'43.4541"N	80°51'9.1664"W	2750.03	31.213	1.22	0.95	0.77	
9283.00	89.600	337.060	6425.76	1717.13	2439.83	1389.01	1682166.67	14227137.97	39°10'44.3231"N	80°51'9.6230"W	2807.51	29.653	2.19	-1.78	-1.27	
9377.00	89.690	337.570	6426.34	1811.13	2526.55	1352.76	1682130.44	14227224.66	39°10'45.1809"N	80°51'10.0815"W	2865.91	28.165	0.55	0.26	0.54	
9472.00	89.880	337.330	6426.65	1906.13	2614.32	1316.39	1682094.08	14227312.39	39°10'46.0489"N	80°51'10.5416"W	2927.03	26.727	0.31	0.26	-0.17	
9566.00	89.940	337.410	6426.65	1906.13	2614.32	1316.39	1682057.93	14227399.12	39°10'46.9070"N	80°51'10.9991"W	2989.11	25.359	0.11	-0.06	-0.09	
9661.00	89.750	337.790	6427.10	2095.13	2788.88	1243.98	1682021.68	14227486.89	39°10'47.7755"N	80°51'11.4577"W	3053.74	24.039	0.50	-0.14	0.48	
9755.00	89.260	337.130	6427.92	2284.12	2875.70	1171.79	1681985.66	14227573.67	39°10'48.6341"N	80°51'11.9155"W	3119.09	22.785	0.87	-0.52	-0.70	
9850.00	89.600	338.160	6428.66	2284.12	2963.55	1171.79	1681949.55	14227661.49	39°10'49.5031"N	80°51'12.3705"W	3186.81	21.574	1.14	0.36	1.08	
9945.00	89.510	337.880	6429.60	2379.11	3051.65	1136.24	1681914.00	14227749.55	39°10'50.3743"N	80°51'12.8202"W	3256.32	20.422	0.31	-0.09	-0.29	
10039.00	89.570	337.610	6430.35	2473.10	3138.64	1100.64	1681878.42	14227836.51	39°10'51.2347"N	80°51'13.2705"W	3326.03	19.324	0.29	0.06	-0.29	
10134.00	88.950	337.260	6431.58	2568.09	3226.36	1064.19	1681841.98	14227924.19	39°10'52.1023"N	80°51'13.7316"W	3397.34	18.255	0.75	-0.65	-0.37	
10228.00	89.200	337.590	6433.10	2668.08	3313.15	1028.11	1681805.92	14228010.94	39°10'52.9607"N	80°51'14.1880"W	3469.00	17.240	0.44	0.27	0.35	
10323.00	89.570	338.090	6434.12	2757.07	3401.12	992.28	1681770.10	14228098.88	39°10'53.8308"N	80°51'14.6412"W	3542.92	16.265	0.65	-0.23	0.53	
10417.00	89.350	337.450	6435.00	2851.07	3488.13	956.72	1681734.52	14228185.86	39°10'54.6914"N	80°51'15.0911"W	3616.96	15.338	0.72	-0.23	-0.68	
10512.00	89.260	337.560	6436.16	2946.06	3575.90	920.37	1681698.22	14228273.59	39°10'55.5594"N	80°51'15.5508"W	3692.44	14.434	0.15	-0.09	0.12	
10607.00	88.920	337.560	6437.66	3041.05	3663.69	884.11	1681661.98	14228361.35	39°10'56.4277"N	80°51'16.0095"W	3768.86	13.567	0.36	-0.36	0.00	
10701.00	88.120	336.150	6440.09	3135.01	3750.10	847.18	1681625.06	14228447.72	39°10'57.2823"N	80°51'16.4767"W	3844.60	12.730	1.72	-0.85	-1.50	
10796.00	88.520	335.600	6442.88	3229.93	3836.76	808.37	1681586.26	14228534.35	39°10'58.1395"N	80°51'16.9679"W	3920.99	11.898	0.72	0.42	-0.58	

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# Actual Wellpath Report

Key Unit 1H AWP Proj: 21933  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

WELLPATH DATA (238 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)				
10891.00	88.400	337.910	6445.43	3324.89	3924.01	770.89	1681548.80	14228621.56	39°10'59.0025"N	80°51'17.4420"W	3999.02	11.114	2.43	-0.13	2.43				
10885.00	88.860	337.640	6447.68	3418.86	4011.00	735.34	1681513.27	14228708.52	39°10'59.8629"N	80°51'17.8916"W	4077.85	10.389	0.57	0.48	-0.29				
11080.00	88.830	337.760	6449.59	3513.84	4098.88	699.30	1681477.24	14228796.36	39°11'0.7320"N	80°51'18.3475"W	4158.11	9.682	0.13	-0.03	0.13				
11174.00	88.710	337.870	6451.61	3607.81	4185.90	668.82	1681441.77	14228883.35	39°11'1.4633"N	80°51'18.7664"W	4238.21	9.011	0.17	-0.13	0.12				
11269.00	88.770	338.030	6453.70	3702.79	4273.93	628.16	1681406.13	14228971.34	39°11'2.4633"N	80°51'19.2475"W	4319.85	8.361	0.18	0.06	0.17				
11364.00	88.370	336.470	6456.07	3797.75	4361.51	591.44	1681369.42	14229058.89	39°11'3.3295"N	80°51'19.7121"W	4401.43	7.722	1.69	-0.42	-1.64				
11458.00	88.980	338.020	6458.24	3891.72	4448.17	555.09	1681333.09	14229145.51	39°11'4.1866"N	80°51'20.1719"W	4482.67	7.113	1.77	0.65	1.65				
11553.00	89.200	337.910	6459.75	3986.71	4536.22	519.45	1681297.46	14229233.52	39°11'5.0574"N	80°51'20.6227"W	4565.86	6.533	0.26	0.23	-0.12				
11647.00	89.690	336.830	6460.66	4080.70	4622.97	483.29	1681261.31	14229320.24	39°11'15.9155"N	80°51'21.0803"W	4648.17	5.968	1.26	0.52	-1.15				
11742.00	90.920	339.160	6460.16	4175.68	4711.04	447.69	1681225.73	14229408.28	39°11'16.7665"N	80°51'21.5305"W	4732.27	5.429	2.77	1.29	2.45				
11837.00	88.710	337.160	6460.47	4270.66	4799.22	412.36	1681190.41	14229496.42	39°11'17.6586"N	80°51'21.9775"W	4816.90	4.911	3.14	-2.33	-2.11				
11931.00	89.970	338.570	6461.55	4364.65	4886.28	376.94	1681155.01	14229583.44	39°11'18.5196"N	80°51'22.4255"W	4900.80	4.411	2.01	1.34	1.50				
12026.00	89.200	337.670	6462.24	4459.64	4974.43	341.54	1681119.62	14229671.56	39°11'19.3915"N	80°51'22.8733"W	4986.14	3.928	1.25	-0.81	-0.95				
12120.00	89.320	337.660	6463.45	4553.63	5061.37	305.82	1681083.92	14229758.47	39°11'10.2513"N	80°51'23.3252"W	5070.60	3.458	0.13	0.13	-0.01				
12215.00	89.320	338.020	6464.58	4648.62	5149.35	269.99	1681048.10	14229846.41	39°11'11.1215"N	80°51'23.7784"W	5156.42	3.001	0.38	0.00	0.38				
12309.00	89.480	337.910	6465.56	4742.61	5236.48	234.73	1681012.85	14229933.50	39°11'11.9832"N	80°51'24.2245"W	5241.74	2.567	0.21	0.17	-0.12				
12404.00	89.320	337.550	6466.56	4837.60	5324.39	198.73	1680976.87	14230021.38	39°11'12.8526"N	80°51'24.6800"W	5328.09	2.138	0.41	-0.17	-0.38				
12499.00	89.260	336.850	6467.73	4932.59	5411.96	161.92	1680940.07	14230108.91	39°11'13.7187"N	80°51'25.1457"W	5414.38	1.714	0.74	-0.06	-0.74				
12593.00	89.570	337.680	6468.69	5026.59	5498.65	125.59	1680903.76	14230195.57	39°11'14.5761"N	80°51'25.6053"W	5500.08	1.308	0.94	0.33	0.88				
12688.00	89.020	337.710	6469.86	5121.58	5586.53	89.54	1680867.72	14230283.42	39°11'15.4453"N	80°51'26.0614"W	5587.25	0.918	0.58	-0.58	0.03				
12782.00	89.080	337.860	6471.42	5215.56	5673.54	54.00	1680832.20	14230370.39	39°11'16.3059"N	80°51'26.5110"W	5673.80	0.545	0.17	0.06	0.16				
12877.00	88.200	338.050	6472.85	5310.55	5761.59	18.35	1680796.56	14230458.40	39°11'17.1767"N	80°51'26.9620"W	5761.62	0.182	0.24	0.13	0.20				
12971.00	88.800	337.270	6474.49	5404.53	5848.52	-17.37	1680760.85	14230545.30	39°11'18.0364"N	80°51'27.4140"W	5848.54	0.182	0.24	-0.43	-0.83				
13066.00	89.110	337.700	6476.22	5499.51	5936.26	-53.75	1680724.49	14230633.01	39°11'18.9043"N	80°51'27.8742"W	5936.50	0.359	0.481	0.56	0.45				
13160.00	88.860	337.770	6477.89	5593.50	6023.24	-89.36	1680688.90	14230719.95	39°11'19.7645"N	80°51'28.3247"W	6023.90	0.359	0.150	0.28	-0.27	0.07			
13255.00	90.180	338.680	6479.68	5688.48	6111.45	-124.60	1680653.67	14230808.13	39°11'20.6369"N	80°51'28.7705"W	6112.72	0.358	0.832	1.69	1.39	0.96			
13349.00	88.950	336.460	6479.39	5782.47	6198.33	-160.46	1680617.83	14230894.97	39°11'21.4862"N	80°51'29.2242"W	6200.41	0.358	0.517	2.70	-1.31	-2.36			
13444.00	89.570	336.710	6480.62	5877.45	6285.50	-198.21	1680580.09	14230982.11	39°11'22.3583"N	80°51'29.7019"W	6288.63	0.358	1.194	0.65	0.26				
13539.00	89.750	337.040	6481.19	5972.45	6372.87	-235.52	1680542.80	14231069.44	39°11'23.2224"N	80°51'30.1740"W	6372.22	0.357	0.884	0.19	0.35				
13633.00	89.690	337.160	6481.64	6066.44	6459.46	-272.09	1680506.24	14231155.99	39°11'24.0788"N	80°51'30.6369"W	6465.19	0.357	0.588	0.14	-0.06	0.13			

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# Actual Wellpath Report

Key Unit 1H AWP Proj: 21933  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

WELLPATH DATA (238 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 (°/100ft)	Turn Rate (°/100ft)	Comments			
13728.00	89.720	337.000	6482.13	6161.44	6546.96	-309.09	16890469.25	14231243.46	39°11'24.9442"N	80°5'13.1050"W	6554.25	357.297	0.17	0.03	-0.17				
13822.00	89.540	336.790	6482.74	6255.44	6633.42	-345.98	1689032.38	14231329.88	39°11'25.7994"N	80°5'13.5718"W	6642.43	357.014	0.29	-0.19	-0.22				
13917.00	89.450	336.850	6483.58	6350.43	6720.74	-383.37	16890395.00	14231417.17	39°11'26.6631"N	80°5'13.2045"W	6731.67	356.735	0.11	-0.09	0.06				
14011.00	89.480	337.140	6484.46	6444.42	6807.26	-420.10	16890358.28	14231503.66	39°11'27.5188"N	80°5'13.25098"W	6820.21	356.469	0.31	0.03	0.31				
14106.00	89.420	336.680	6485.37	6539.41	6894.65	-457.36	16890321.04	14231591.01	39°11'28.3831"N	80°5'13.29812"W	6909.80	356.205	0.49	-0.06	-0.48				
14201.00	88.620	335.730	6486.99	6634.38	6981.56	-495.68	16890282.74	14231677.88	39°11'29.2427"N	80°5'13.34663"W	6999.13	355.939	1.31	-0.84	-1.00				
14295.00	89.780	337.160	6488.31	6728.35	7067.71	-533.24	16890245.19	14231764.01	39°11'30.0948"N	80°5'13.39416"W	7087.80	355.685	1.96	1.23	1.52				
14389.00	89.380	336.740	6488.99	6822.35	7154.21	-570.04	16890208.40	14231850.46	39°11'30.9502"N	80°5'13.44073"W	7176.88	355.444	0.62	-0.43	-0.45				
14484.00	89.880	336.760	6489.61	6917.34	7241.49	-607.54	16890170.92	14231937.71	39°11'31.8135"N	80°5'13.48819"W	7266.93	355.204	0.53	0.53	0.02				
14578.00	90.620	336.860	6489.20	7011.33	7327.89	-644.56	16890133.92	14232024.08	39°11'32.6681"N	80°5'13.53503"W	7356.19	354.973	0.79	-0.79	0.11				
14672.00	89.200	336.900	6489.35	7105.33	7414.34	-681.47	16890097.03	14232110.49	39°11'33.5231"N	80°5'13.58174"W	7445.59	354.749	1.51	-1.51	0.04				
14767.00	88.770	337.050	6491.03	7200.31	7501.76	-718.62	16890059.89	14232197.88	39°11'34.3877"N	80°5'13.62875"W	7536.10	354.528	0.48	-0.45	0.16				
14861.00	89.380	337.320	6492.55	7294.30	7588.39	-755.06	16890023.46	14232284.48	39°11'35.2445"N	80°5'13.67487"W	7625.87	354.318	0.71	-0.65	0.29				
14956.00	89.350	336.800	6493.60	7389.29	7675.87	-792.09	1679986.45	14232371.92	39°11'36.1097"N	80°5'13.72173"W	7716.63	354.108	0.55	-0.03	-0.55				
15050.00	89.140	336.670	6494.84	7483.28	7762.22	-829.21	1679949.34	14232458.24	39°11'36.9638"N	80°5'13.76871"W	7806.39	353.902	0.26	-0.22	-0.14				
15144.00	89.230	336.890	6496.17	7577.26	7848.60	-866.27	1679912.30	14232544.58	39°11'37.8181"N	80°5'13.81561"W	7896.26	353.702	0.25	0.10	0.23				
15239.00	89.260	336.920	6497.43	7672.25	7935.98	-903.53	1679875.05	14232631.92	39°11'38.6823"N	80°5'13.86277"W	7987.25	353.505	0.04	0.03	0.03				
15334.00	89.540	337.360	6498.42	7767.25	8023.51	-940.44	1679838.16	14232719.42	39°11'39.5480"N	80°5'13.90947"W	8078.44	353.315	0.55	0.29	0.46				
15428.00	89.320	337.180	6499.36	7861.24	8110.21	-976.75	1679801.86	14232806.08	39°11'40.4054"N	80°5'13.95643"W	8168.81	353.133	0.30	-0.23	-0.19				
15523.00	89.020	337.140	6500.73	7956.23	8197.75	-1013.63	1679765.00	14232893.59	39°11'41.2712"N	80°5'14.00209"W	8260.18	352.951	0.32	-0.32	-0.04				
15617.00	89.230	336.760	6502.17	8050.22	8284.23	-1050.43	1679728.22	14232980.04	39°11'42.1266"N	80°5'14.04866"W	8350.56	352.774	0.46	-0.40	0.27				
15711.00	89.570	337.010	6503.15	8144.21	8370.68	-1087.33	1679691.33	14233066.45	39°11'42.9816"N	80°5'14.09536"W	8441.01	352.599	0.45	0.36	0.27				
15805.00	89.170	336.510	6504.19	8238.20	8457.05	-1124.41	1679654.26	14233152.79	39°11'43.8358"N	80°5'14.14230"W	8531.47	352.427	0.68	-0.43	-0.53				
15900.00	89.540	336.710	6505.26	8333.18	8544.24	-1162.13	1679616.56	14233239.94	39°11'44.6981"N	80°5'14.19003"W	8622.91	352.255	0.44	0.39	0.21				
15995.00	89.420	336.780	6506.12	8428.17	8631.52	-1199.63	1679579.07	14233327.18	39°11'45.5613"N	80°5'14.23750"W	8714.48	352.088	0.15	-0.13	0.07				
16089.00	89.380	336.830	6507.10	8522.16	8717.91	-1236.65	1679542.06	14233413.55	39°11'46.4158"N	80°5'14.28436"W	8805.19	351.926	0.07	-0.04	0.05				
16183.00	89.420	336.550	6508.09	8616.15	8804.24	-1273.88	1679504.88	14233499.11	39°11'47.2696"N	80°5'14.33143"W	8895.91	351.767	0.30	0.04	-0.30				
16277.00	89.420	336.780	6509.04	8710.14	8890.54	-1311.08	1679467.67	14233586.11	39°11'48.1232"N	80°5'14.37856"W	8986.69	351.611	0.24	0.00	0.24				
16372.00	89.420	336.680	6510.00	8805.13	8977.81	-1348.61	1679430.15	14233673.34	39°11'48.9863"N	80°5'14.42606"W	9078.54	351.457	0.11	0.00	-0.11				
16466.00	89.420	337.010	6510.95	8899.12	9064.23	-1385.57	1679393.21	14233759.73	39°11'49.8411"N	80°5'14.47284"W	9169.52	351.309	0.35	0.00	0.35				

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REFERENCE WELLPATH IDENTIFICATION		Well	Key Unit 1H
Operator	ANTERO RESOURCES CORPORATION	API	47-085-10500-0000
Field	Ritchie	Wellbore	Key Unit 1H AWP
Facility	Cashew Pad		
Slot	Slot K		

WELLPATH DATA (238 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 (°)	D/S (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
16560.00	89.380	337.050	6511.933	8993.11	9150.78	-1422.25	1679356.54	14233846.23	39°11'50.6970"N	80°51'45.1926"W	9260.64	351.166	0.06	-0.04	0.04	
16654.00	89.600	337.070	6512.77	9087.11	9237.34	-1458.89	1679319.92	14233932.76	39°11'51.5531"N	80°51'45.6663"W	9351.83	351.025	0.24	0.23	0.02	
16749.00	89.480	336.460	6513.53	9182.10	9324.63	-1496.36	1679282.46	14234020.02	39°11'52.4164"N	80°51'46.1307"W	9443.93	350.883	0.65	-0.13	-0.64	
16843.00	89.450	336.460	6514.41	9276.08	9410.80	-1533.90	1679244.93	14234106.16	39°11'53.2687"N	80°51'46.6059"W	9534.99	350.743	0.03	-0.03	0.00	
16938.00	89.420	336.580	6515.35	9371.07	9497.93	-1571.75	1679207.10	14234193.25	39°11'54.1905"N	80°51'47.0849"W	9627.10	350.604	0.13	-0.03	0.13	
17032.00	89.420	336.880	6516.30	9465.06	9584.28	-1608.89	1679169.98	14234279.57	39°11'54.9845"N	80°51'47.5550"W	9718.38	350.471	0.32	0.00	0.32	
17126.00	89.890	336.750	6516.87	9559.05	9670.69	-1645.89	1679132.98	14234365.94	39°11'55.8391"N	80°51'48.0234"W	9809.75	350.341	0.51	0.49	-0.14	
17221.00	89.420	336.720	6517.45	9654.04	9757.96	-1683.42	1679095.48	14234453.18	39°11'56.7022"N	80°51'48.4983"W	9902.11	350.212	0.49	-0.48	-0.03	
17315.00	89.720	336.800	6518.16	9748.04	9844.33	-1720.51	1679058.40	14234539.51	39°11'57.5565"N	80°51'48.9678"W	9993.55	350.086	0.33	0.32	0.09	
17409.00	89.720	337.700	6518.62	9842.03	9931.02	-1756.86	1679022.07	14234626.16	39°11'58.4138"N	80°51'49.4279"W	10085.22	349.968	0.96	0.00	0.96	
17504.00	90.250	336.430	6518.64	9937.03	10018.51	-1793.88	1678985.06	14234713.62	39°11'59.2790"N	80°51'49.8964"W	10177.84	349.848	1.45	0.56	-1.34	
17598.00	89.110	335.030	6519.17	10030.99	10104.19	-1832.51	1678946.44	14234799.27	39°12'0.1265"N	80°51'50.3855"W	10269.02	349.720	1.92	-1.21	-1.49	
17692.00	89.780	334.900	6520.08	10124.90	10189.36	-1872.29	1678906.68	14234884.40	39°12'0.9688"N	80°51'50.8892"W	10359.94	349.588	0.73	0.71	-0.14	
17787.00	90.060	334.940	6520.21	10219.81	10275.40	-1912.56	1678866.43	14234970.41	39°12'1.8199"N	80°51'51.3890"W	10451.88	349.456	0.30	0.29	0.04	
17881.00	89.850	336.470	6520.29	10313.77	10361.07	-1951.23	1678827.77	14235056.05	39°12'2.6673"N	80°51'51.8887"W	10543.20	349.335	1.64	-0.22	1.63	
17975.00	90.060	336.750	6520.36	10407.76	10447.35	-1988.55	1678790.47	14235142.29	39°12'3.5206"N	80°51'52.3610"W	10634.91	349.223	0.37	0.22	0.30	
18069.00	90.680	338.200	6519.75	10501.76	10534.17	-2024.56	1678754.47	14235229.08	39°12'4.3792"N	80°51'52.8168"W	10726.96	349.121	1.68	0.66	1.54	
18163.00	89.880	336.260	6519.29	10595.75	10620.84	-2060.93	1678718.11	14235315.71	39°12'5.2364"N	80°51'53.2772"W	10818.95	349.018	2.23	-0.85	-2.06	
18258.00	90.000	336.310	6519.39	10690.74	10707.82	-2099.14	1678679.92	14235402.65	39°12'6.0966"N	80°51'53.7609"W	10911.63	348.908	0.14	0.13	0.05	
18352.00	89.570	336.660	6519.75	10784.72	10794.01	-2136.65	1678642.43	14235488.81	39°12'6.9491"N	80°51'54.2357"W	11003.45	348.803	0.59	-0.46	0.37	
18446.00	90.000	336.410	6520.10	10878.71	10880.24	-2174.08	1678605.01	14235575.00	39°12'7.8019"N	80°51'54.7095"W	11095.32	348.700	0.53	0.46	-0.27	
18541.00	89.910	336.480	6520.17	10973.70	10967.32	-2212.04	1678567.06	14235662.05	39°12'8.6632"N	80°51'55.1901"W	11188.17	348.597	0.12	-0.09	0.07	
18636.00	89.850	336.260	6520.37	11068.69	11054.36	-2250.12	1678529.00	14235749.05	39°12'9.5240"N	80°51'55.6722"W	11281.04	348.495	0.24	-0.06	-0.23	
18730.00	89.940	336.670	6520.54	11162.67	11140.54	-2287.65	1678491.48	14235835.20	39°12'10.3763"N	80°51'56.1474"W	11372.99	348.396	0.45	0.10	0.44	
18824.00	89.880	336.060	6520.69	11256.66	11226.65	-2325.34	1678453.81	14235921.28	39°12'11.2280"N	80°51'56.6245"W	11464.94	348.298	0.65	-0.06	-0.65	
18918.00	90.090	336.570	6520.72	11350.64	11312.73	-2363.10	1678416.07	14236007.33	39°12'12.0794"N	80°51'57.1025"W	11556.91	348.201	0.59	0.22	0.54	
19012.00	90.060	336.750	6520.59	11444.64	11446.94	-2400.34	1678378.94	14236093.60	39°12'12.9330"N	80°51'57.5740"W	11649.02	348.109	0.19	-0.03	0.19	
19107.00	89.880	336.880	6520.64	11539.63	11486.97	-2437.74	1678341.45	14236180.89	39°12'13.7967"N	80°51'58.0477"W	11742.00	348.018	0.23	-0.19	0.14	
19201.00	89.940	337.560	6520.79	11633.63	11573.03	-2474.14	1678305.07	14236267.52	39°12'14.6538"N	80°51'58.5082"W	11834.55	347.933	0.73	0.06	0.72	
19296.00	89.910	337.480	6520.92	11728.63	11660.82	-2510.46	1678268.76	14236353.67	39°12'15.5220"N	80°51'58.9679"W	11927.99	347.850	0.09	-0.03	-0.08	

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REFERENCE WELLPATH IDENTIFICATION				Well	Key Unit 1H
Operator	ANTERO RESOURCES CORPORATION			API	47-085-10500-0000
Field	Ritchie			Wellbore	Key Unit 1H AWB
Facility	Cashew Pad				
Slot	Slot K				

WELLPATH DATA (238 stations) t = Interpolated, i = 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
19390.00	90.090	337.680	6520.92	11822.63	11747.71	-2546.31	1678232.92	14236442.13	39°12'16.3813"N	80°51'59.4217"W	12020.50	347.770	0.29	0.19	0.21	
19484.00	90.180	337.620	6520.69	11916.63	11834.65	-2582.06	1678197.19	14236529.03	39°12'17.2411"N	80°51'59.8742"W	12113.05	347.692	0.12	0.10	-0.06	
19578.00	90.030	337.830	6520.52	12010.63	11921.63	-2617.69	1678161.58	14236615.98	39°12'18.1014"N	80°52'0.3252"W	12205.64	347.616	0.27	-0.16	0.22	
19673.00	89.970	337.730	6520.52	12105.62	12009.58	-2653.62	1678125.67	14236703.89	39°12'19.8712"N	80°52'0.7799"W	12299.25	347.540	0.12	-0.06	-0.11	
19767.00	90.150	337.830	6520.42	12199.62	12096.60	-2689.16	1678090.13	14236790.88	39°12'19.8318"N	80°52'1.2299"W	12391.90	347.467	0.22	0.19	0.11	
19862.00	90.150	337.860	6520.17	12294.62	12184.58	-2724.99	1678054.32	14236878.83	39°12'20.7019"N	80°52'1.6833"W	12485.58	347.394	0.03	0.00	0.03	
19956.00	90.180	337.740	6519.90	12388.61	12271.62	-2760.50	1678018.82	14236965.83	39°12'21.5627"N	80°52'2.1329"W	12578.27	347.322	0.13	0.03	-0.13	
20051.00	90.150	337.800	6519.63	12483.61	12359.55	-2796.45	1677982.89	14237053.73	39°12'22.4323"N	80°52'2.5878"W	12671.96	347.251	0.07	-0.03	0.06	
20146.00	90.030	337.670	6519.48	12578.61	12447.47	-2832.44	1677946.91	14237141.61	39°12'23.3018"N	80°52'3.0434"W	12765.67	347.181	0.19	-0.13	-0.14	
20240.00	90.180	337.870	6519.31	12672.61	12534.48	-2868.00	1677911.36	14237228.59	39°12'24.1624"N	80°52'3.4936"W	12858.41	347.112	0.27	0.16	0.21	
20335.00	90.180	337.750	6519.01	12767.60	12622.45	-2903.88	1677875.60	14237316.52	39°12'25.0323"N	80°52'4.3973"W	12952.17	347.044	0.13	0.00	-0.13	
20429.00	90.280	337.850	6518.63	12861.60	12709.48	-2939.40	1677840.43	14237403.51	39°12'26.7535"N	80°52'4.8478"W	13044.96	346.978	0.15	0.11	0.11	
20523.00	90.060	337.660	6518.35	12955.60	12796.48	-2974.98	1677804.43	14237490.48	39°12'27.6137"N	80°52'5.2987"W	13137.75	346.912	0.31	-0.23	-0.20	
20617.00	90.310	337.800	6518.05	13049.59	12883.47	-3010.61	1677768.82	14237577.43	39°12'28.4735"N	80°52'5.7513"W	13230.55	346.847	0.30	0.27	0.15	
20711.00	90.180	337.490	6517.65	13143.59	12970.40	-3046.36	1677733.08	14237664.33	39°12'29.3307"N	80°52'6.2047"W	13323.35	346.783	0.36	-0.14	-0.33	
20805.00	90.280	337.590	6517.27	13237.59	13057.31	-3082.18	1677697.27	14237751.21	39°12'29.3307"N	80°52'6.6522"W	13416.15	346.718	0.26	0.11	-0.13	
20899.00	90.150	337.580	6516.92	13331.59	13144.25	-3117.92	1677661.54	14237838.11	39°12'30.1928"N	80°52'7.1151"W	13508.99	346.656	0.19	-0.14	-0.13	
20993.00	89.350	337.150	6517.33	13425.59	13231.01	-3154.09	1677625.59	14237924.84	39°12'31.0508"N	80°52'7.5731"W	13601.76	346.592	0.97	-0.85	-0.47	
21087.00	89.880	337.580	6517.96	13519.58	13317.77	-3190.27	1677589.23	14238011.56	39°12'31.9089"N	80°52'8.0314"W	13694.55	346.529	0.73	0.56	0.46	
21182.00	89.660	337.620	6518.34	13614.58	13405.60	-3226.47	1677553.04	14238098.95	39°12'32.7775"N	80°52'8.4881"W	13788.41	346.467	0.24	-0.23	0.04	
21277.00	89.940	337.950	6518.67	13709.58	13493.55	-3262.39	1677517.14	14238181.27	39°12'33.6473"N	80°52'8.9347"W	13882.32	346.408	0.46	0.29	0.35	
21371.00	89.880	337.750	6518.82	13803.57	13580.61	-3297.83	1677481.71	14238274.29	39°12'34.5083"N	80°52'9.3815"W	13975.28	346.351	0.22	-0.06	-0.21	
21465.00	89.820	337.770	6519.83	13897.57	13667.61	-3333.41	1677446.15	14238361.27	39°12'35.3687"N	80°52'9.8381"W	14068.24	346.294	0.07	-0.06	0.02	
21554.00	89.720	337.770	6519.83	14066.57	13842.57	-3404.91	1677374.67	14238453.15	39°12'37.0989"N	80°52'10.2903"W	14255.18	346.181	0.05	-0.05	0.00	
21748.00	89.850	337.650	6520.18	14180.56	13929.54	-3440.55	1677339.04	14238543.09	39°12'37.9591"N	80°52'10.7415"W	14348.16	346.126	0.18	0.14	-0.12	
21842.00	89.750	337.640	6520.51	14274.56	14016.48	-3476.30	1677303.31	14238633.99	39°12'38.8189"N	80°52'11.1940"W	14441.14	346.071	0.11	-0.11	-0.02	
21908.00	89.910	337.930	6520.74	14340.56	14077.58	-3501.25	1677278.37	14238721.07	39°12'39.6822"N	80°52'11.6099"W	14506.45	346.033	0.50	0.24	0.44	
21933.00#	89.910	337.930	6520.74	14365.56	14100.75	-3510.65	1677268.98	14238794.23	39°12'39.6523"N	80°52'11.6289"W	14531.20	346.019	0.00	0.00	0.00	Protected MD at TD: 21933'

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**Actual Wellpath Report**  
 Key Unit 1H AWP Proj: 21933'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

HOLE & CASING SECTIONS - Ref Wellbore: Key Unit 1H AWB Ref Wellpath: Key Unit 1H AWP Proj: 21933'									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start EW [ft]	End N/S [ft]	End EW [ft]
20in Conductor	30.00	130.00	100.00	30.00	130.00	0.00	0.00	0.26	0.18
17.5in Open Hole	130.00	371.00	241.00	130.00	370.99	0.26	0.18	0.55	1.85
13.375in Casing Surface	30.00	360.00	330.00	30.00	359.99	0.00	0.00	0.51	1.76
12.25in Open Hole	371.00	3023.00	2652.00	370.99	2841.54	0.55	1.85	-74.50	875.01
9.625in Casing Intermediate	30.00	2993.00	2963.00	30.00	2813.93	0.00	0.00	-74.55	863.27
8.75in Open Hole	3023.00	6023.00	3000.00	2841.54	5571.91	-74.50	875.01	-135.17	2114.00
8.5in Open Hole	6023.00	21933.00	15910.00	5571.91	6520.74	-135.17	2114.00	14100.75	-3510.65
5.5in Casing Production	30.00	21913.00	21883.00	30.00	6520.71	0.00	0.00	14082.22	-3503.13

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**Actual Wellpath Report**  
 Key Unit 1H AWP Proj: 21933'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

TARGETS									
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
Key Unit 1H POE Rev-3	6406.00	494.72	2183.87	1682961.22	14225193.64	39°10'25.0849"N	80°50'59.5702"W	point	
Key Unit 1H BHL Rev-3	6428.00	14284.24	-3568.98	1677210.67	14238977.64	39°12'41.4867"N	80°52'12.3666"W	point	
Key Unit 1H BHL Rev-4	6428.00	14156.16	-3515.55	1677264.08	14238849.61	39°12'40.2000"N	80°52'11.6901"W	point	
Key Unit 1H LP Rev-3	6428.00	657.29	2116.05	1682893.42	14225356.14	39°10'26.6929"N	80°51'0.4280"W	point	
Key Unit 1H 50' L/R Hard Line Rev-2	7000.00	7325.44	-665.84	1680712.65	14232021.63	39°11'32.6441"N	80°51'35.6206"W	rectangle	2D Rectangle 14802.6 x 100.

WELLPATH COMPOSITION - Ref Wellbore: Key Unit 1H AWB Ref Wellpath: Key Unit 1H AWP Proj: 21933'									
Start MID [ft]	End MID [ft]	Positional Uncertainty Model		Log Name/Comment		Wellbore	Survey Date		
30.00	258.00	Gyrodatta 2015 - GC+WIR+DPIPE		01	Gyrodatta MS Gyro <17-1/2"> (100'-258')	Key Unit 1H AWB	9/15/2023		
258.00	2930.00	BH NavITrak (2019) (Axial Corr+HRGM)		02	APS EM <12-1/4"> (258') (413'-2930')	Key Unit 1H AWB	9/15/2023		
2930.00	5945.00	BH NavITrak (2019) (Axial Corr+HRGM)		03	APS EM <8-3/4"> (2930') (3019'-5945')	Key Unit 1H AWB	10/6/2023		
5945.00	21933.00	BH AutoTrak Curve/Express (2019) (HRGM, Short spacing)		04	BH AT Curve <8-1/2"> (5945') (6070'-21908')	Key Unit 1H AWB	10/6/2023		

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**Actual Wellpath Report**  
 Key Unit 1H AWP Prof: 21933'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Well	Key Unit 1H
Field	Ritchie	API	47-085-10500-0000
Facility	Cashew/ Pad	Wellbore	Key Unit 1H AWB
Slot	Slot K		

**COMMENTS**

Wellpath general comments  
 API: 47-085-10500-0000  
 BH Job #: 111949031  
 Rig: H&P 519  
 Duration: 10/9/2023-10/15/2023  
 Gyrodata MS Gyro <17-1/2"> (100'-258')  
 APS EM <12-1/4"> (258')(413'-2930')  
 APS EM <8-3/4"> (2930')(3019'-5945')  
 BH AT Curve <8-1/2"> (5945')(6070'-21908')  
 Sycamore: 6546' MD  
 Middlesex: 6785' MD  
 Burkett: 6986' MD  
 Tully: 7101' MD  
 Marcellus POE: 7183' MD  
 Projected MD at TD: 21933'

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