

ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV
 Field: Ritchie
 Facility: Weekley Trust Pad

Slot: Slot #01
 Well: Ray Unit 1H
 Wellbore: Ray Unit 1H PWB



API: 47-085-10346-0000
 BHI Job #: 109606941
 Rig: Frontier 22
 Duration: 01/16/2019-01/21/2019

Plot reference wellpath is Ray Unit 1H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 22 (RKB)	North Reference: Grid north
Measured depths are referenced to Frontier 22 (RKB)	Scale: True distance
Frontier 22 (RKB) to Mean Sea Level: 1259.5 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #01): -1235 feet	Created by: delaset on 2019-01-28
Coordinates are in feet referred to Slot	Database: WA_MPL_EasternUS_Defn



Gyrodatta MS Gyro <17-1/2">(100'-450') : 0.15° Inc, 109.50ft MD, 109.50ft TVD, 0.05ft VS
 WFT EM <12-1/4">(450')(587'-2578') : 1.07° Inc, 596.50ft MD, 596.49ft TVD, -0.59ft VS

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Weekley Trust Pad	1661856.457	14297226.975	39°22'17.590"N	80°55'26.890"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #01	0.00	0.00	1661856.457	14297226.975
Frontier 22 (RKB) to Ground level (At Slot: Slot #01)			24.5ft	
Mean Sea Level to Ground level (At Slot: Slot #01)			-1235ft	
Frontier 22 (RKB) to Mean Sea Level			1259.5ft	

WFT EM <8-3/4">(2578')(2688'-6444') : 19.77° Inc, 2697.50ft MD, 2596.25ft TVD, -174.84ft VS

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #01	Ray Unit 1H	Ray Unit 1H AWB	Ray Unit 1H AWP Proj: 14725'
Slot #01	Ray Unit 1H	Ray Unit 1H PWB	Ray Unit 1H PWP Rev-A.0

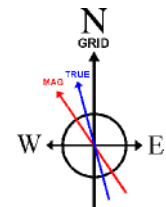
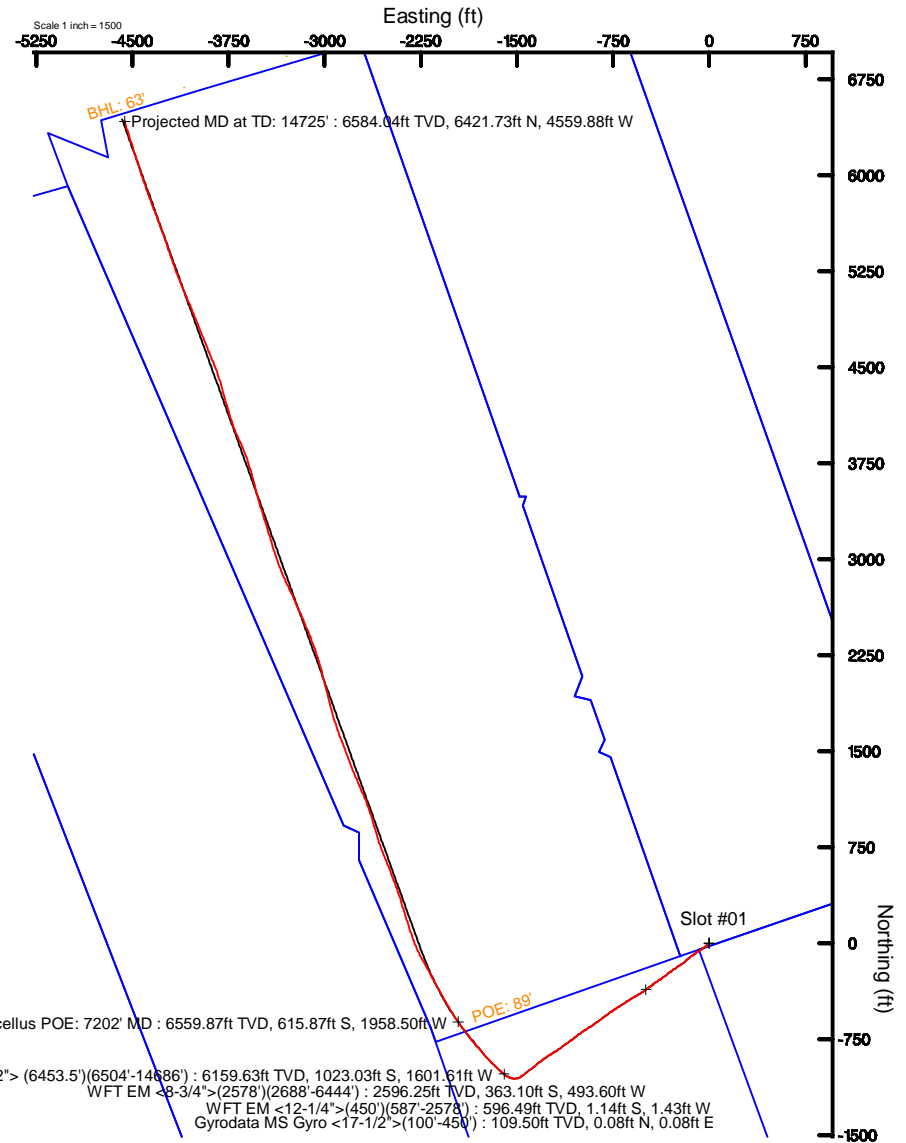
Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	6453.50	26.800	303.930	6115.09	-1037.22	-1582.54	9.20	-441.11
Proj. To Bottom	6525.50	30.140	309.870	6178.38	-1016.56	-1609.90	6.08	-412.42
POE	7158.87	75.750	323.050	6551.00	-648.80	-1934.56	7.36	43.44
Landing Pt.	7384.91	90.000	330.000	6579.00	-462.19	-2057.71	7.00	260.70
On Azimuth	7848.03	90.000	340.243	6579.00	-42.61	-2252.28	2.21	721.35
BHL	14733.42	90.000	340.243	6579.00	6437.46	-4579.79	0.00	7606.74

BH AT Curve <8-1/2"> (6453.5')(6504'-14686') : 29.42° Inc, 6504.00ft MD, 6159.63ft TVD, -421.31ft VS

Marcessus POE: 7202' MD : 78.64° Inc, 7202.00ft MD, 6559.87ft TVD, 82.53ft VS

Projected MD at TD: 14725' : 89.97° Inc, 14725.00ft MD, 6584.04ft TVD, 7585.20ft VS

Azimuth 340.24° with reference 0.00 N, 0.00 E



User specified (HDGM) Dip: 66.48° Field: 51811 nT
 Magnetic North is 7.68 degrees West of True North (at 1/9/2019)
 Grid North is 0.05 degrees East of True North
 To correct azimuth from True to Grid subtract 0.05 degrees
 To correct azimuth from Magnetic to Grid subtract 7.73 degrees



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 1 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999601	Report Generated	1/28/2019 at 3:58:19 PM
Convergence at slot	0.05° East	Database/Source file	WA_MPL_EasternUS_Defn/Ray_Unit_1H_AWP_Proj_14725_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1661856.46	14297226.98	39°22'17.590"N	80°55'26.890"W
Facility Reference Pt			1661856.46	14297226.98	39°22'17.590"N	80°55'26.890"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 22 (RKB) to Facility Vertical Datum	24.50ft
Horizontal Reference Pt	Slot	Frontier 22 (RKB) to Mean Sea Level	1259.50ft
Vertical Reference Pt	Frontier 22 (RKB)	Frontier 22 (RKB) to Ground Level at Slot (Slot #01)	24.50ft
MD Reference Pt	Frontier 22 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	340.24°



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 2 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWP
Facility	Weekley Trust Pad		

WELLPATH DATA (190 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	43.800	0.00	0.00	0.00	0.00	1661856.46	14297226.97	39°22'17.590"N	80°55'26.890"W	0.00	0.000	0.00	0.00	0.00	
24.50	0.000	43.800	24.50	0.00	0.00	0.00	1661856.46	14297226.97	39°22'17.590"N	80°55'26.890"W	0.00	0.000	0.00	0.00	0.00	
109.50	0.150	43.800	109.50	0.05	0.08	0.08	1661856.53	14297227.05	39°22'17.591"N	80°55'26.889"W	0.11	43.800	0.18	0.18	51.53	Gyrodata MS Gyro <17-1/2">(100'-450')
134.50	0.270	304.260	134.50	0.11	0.14	0.05	1661856.51	14297227.11	39°22'17.591"N	80°55'26.889"W	0.15	20.398	1.32	0.48	-398.16	
159.50	0.400	283.600	159.50	0.21	0.19	-0.08	1661856.37	14297227.17	39°22'17.592"N	80°55'26.891"W	0.21	336.607	0.70	0.52	-82.64	
184.50	0.360	285.650	184.50	0.30	0.23	-0.24	1661856.21	14297227.21	39°22'17.592"N	80°55'26.893"W	0.34	313.735	0.17	-0.16	8.20	
209.50	0.410	288.880	209.50	0.40	0.28	-0.40	1661856.05	14297227.26	39°22'17.593"N	80°55'26.895"W	0.49	305.024	0.22	0.20	12.92	
234.50	0.450	300.380	234.50	0.53	0.36	-0.57	1661855.88	14297227.34	39°22'17.594"N	80°55'26.897"W	0.68	302.245	0.38	0.16	46.00	
259.50	0.500	298.820	259.50	0.69	0.46	-0.75	1661855.70	14297227.44	39°22'17.595"N	80°55'26.900"W	0.88	301.616	0.21	0.20	-6.24	
284.50	0.290	293.320	284.50	0.82	0.54	-0.91	1661855.55	14297227.52	39°22'17.595"N	80°55'26.902"W	1.06	300.832	0.85	-0.84	-22.00	
309.50	0.180	278.280	309.50	0.88	0.57	-1.00	1661855.45	14297227.55	39°22'17.596"N	80°55'26.903"W	1.15	299.674	0.50	-0.44	-60.16	
334.50	0.210	272.080	334.50	0.91	0.58	-1.09	1661855.37	14297227.55	39°22'17.596"N	80°55'26.904"W	1.23	298.022	0.15	0.12	-24.80	
359.50	0.130	247.020	359.50	0.93	0.57	-1.16	1661855.30	14297227.54	39°22'17.596"N	80°55'26.905"W	1.29	296.155	0.43	-0.32	-100.24	
384.50	0.150	229.930	384.50	0.92	0.54	-1.21	1661855.25	14297227.51	39°22'17.595"N	80°55'26.905"W	1.33	293.933	0.18	0.08	-68.36	
409.50	0.190	233.330	409.50	0.89	0.49	-1.27	1661855.19	14297227.47	39°22'17.595"N	80°55'26.906"W	1.36	291.174	0.16	0.16	13.60	
434.50	0.230	204.180	434.50	0.84	0.42	-1.32	1661855.13	14297227.40	39°22'17.594"N	80°55'26.907"W	1.39	287.656	0.45	0.16	-116.60	
459.50	0.170	173.590	459.50	0.77	0.34	-1.34	1661855.12	14297227.31	39°22'17.593"N	80°55'26.907"W	1.38	284.182	0.48	-0.24	-122.36	
596.50	1.070	185.090	596.49	-0.59	-1.14	-1.43	1661855.03	14297225.84	39°22'17.579"N	80°55'26.908"W	1.83	231.506	0.66	0.66	8.39	WFT EM <12-1/4">(450')(587'-2578')
691.50	3.500	218.650	691.41	-2.91	-4.29	-3.32	1661853.14	14297222.69	39°22'17.548"N	80°55'26.932"W	5.42	217.765	2.82	2.56	35.33	
783.50	6.460	229.940	783.05	-6.18	-9.81	-9.04	1661847.42	14297217.17	39°22'17.493"N	80°55'27.005"W	13.34	222.647	3.37	3.22	12.27	
878.50	9.190	232.850	877.16	-10.30	-17.83	-19.18	1661837.29	14297209.15	39°22'17.414"N	80°55'27.134"W	26.19	227.076	2.90	2.87	3.06	
973.50	11.750	233.200	970.57	-15.40	-28.21	-32.97	1661823.50	14297198.77	39°22'17.311"N	80°55'27.310"W	43.39	229.448	2.70	2.69	0.37	
1068.50	14.240	234.880	1063.13	-21.33	-40.73	-50.28	1661806.20	14297186.26	39°22'17.188"N	80°55'27.531"W	64.70	230.988	2.65	2.62	1.77	
1163.50	16.380	237.040	1154.75	-27.49	-54.74	-71.07	1661785.41	14297172.26	39°22'17.050"N	80°55'27.796"W	89.71	232.397	2.33	2.25	2.27	
1257.50	18.670	236.960	1244.38	-33.97	-70.16	-94.81	1661761.68	14297156.85	39°22'16.897"N	80°55'28.098"W	117.95	233.500	2.44	2.44	-0.09	
1352.50	19.260	233.590	1334.23	-41.95	-87.75	-120.17	1661736.34	14297139.26	39°22'16.724"N	80°55'28.421"W	148.80	233.863	1.31	0.62	-3.55	
1447.50	19.230	231.000	1423.92	-51.60	-106.89	-144.94	1661711.58	14297120.12	39°22'16.535"N	80°55'28.737"W	180.09	233.590	0.90	-0.03	-2.73	
1542.50	18.640	231.000	1513.78	-61.76	-126.29	-168.89	1661687.63	14297100.73	39°22'16.343"N	80°55'29.042"W	210.89	233.212	0.62	-0.62	0.00	
1637.50	17.650	230.590	1604.06	-71.60	-144.99	-191.82	1661664.71	14297082.04	39°22'16.159"N	80°55'29.334"W	240.45	232.915	1.05	-1.04	-0.43	
1732.50	19.680	233.440	1694.06	-81.07	-163.67	-215.80	1661640.74	14297063.37	39°22'15.974"N	80°55'29.640"W	270.84	232.823	2.34	2.14	3.00	



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 3 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (190 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
1827.50	22.430	237.550	1782.71	-89.68	-182.92	-243.95	1661612.61	14297044.12	39°22'15.784"N	80°55'29.998"W	304.91	233.136	3.28	2.89	4.33	
1922.50	21.420	235.630	1870.84	-98.04	-202.44	-273.56	1661583.00	14297024.61	39°22'15.591"N	80°55'30.376"W	340.32	233.498	1.30	-1.06	-2.02	
2017.50	20.420	232.460	1959.58	-107.47	-222.34	-301.02	1661555.55	14297004.73	39°22'15.395"N	80°55'30.725"W	374.23	233.551	1.59	-1.05	-3.34	
2111.50	20.410	231.390	2047.67	-117.78	-242.55	-326.83	1661529.75	14296984.52	39°22'15.195"N	80°55'31.054"W	407.01	233.420	0.40	-0.01	-1.14	
2206.50	21.290	233.050	2136.45	-128.23	-263.26	-353.56	1661503.04	14296963.82	39°22'14.991"N	80°55'31.395"W	440.81	233.329	1.12	0.93	1.75	
2301.50	21.890	236.770	2224.79	-137.45	-283.33	-382.16	1661474.45	14296943.76	39°22'14.793"N	80°55'31.759"W	475.73	233.447	1.57	0.63	3.92	
2396.50	21.480	235.920	2313.07	-145.88	-302.78	-411.38	1661445.24	14296924.31	39°22'14.601"N	80°55'32.131"W	510.79	233.646	0.54	-0.43	-0.89	
2491.50	19.800	233.020	2401.97	-154.94	-322.21	-438.64	1661417.99	14296904.89	39°22'14.409"N	80°55'32.479"W	544.27	233.700	2.07	-1.77	-3.05	
2587.50	19.060	233.220	2492.50	-164.34	-341.38	-464.19	1661392.46	14296885.73	39°22'14.220"N	80°55'32.804"W	576.20	233.668	0.77	-0.77	0.21	
2697.50	19.770	233.880	2596.25	-174.84	-363.10	-493.60	1661363.06	14296864.02	39°22'14.005"N	80°55'33.179"W	612.76	233.661	0.68	0.65	0.60	WFT EM <8-3/4">(2578')(2688'-6444')
2792.50	20.640	236.700	2685.40	-183.29	-381.76	-520.57	1661336.09	14296845.37	39°22'13.821"N	80°55'33.523"W	645.55	233.746	1.37	0.92	2.97	
2887.50	21.440	239.750	2774.07	-190.37	-399.70	-549.57	1661307.11	14296827.43	39°22'13.644"N	80°55'33.892"W	679.55	233.971	1.43	0.84	3.21	
2981.50	21.940	239.470	2861.41	-196.78	-417.28	-579.53	1661277.16	14296809.86	39°22'13.471"N	80°55'34.274"W	714.13	234.245	0.54	0.53	-0.30	
3076.50	22.230	238.920	2949.44	-203.62	-435.57	-610.21	1661246.49	14296791.58	39°22'13.290"N	80°55'34.665"W	749.72	234.481	0.37	0.31	-0.58	
3171.50	22.200	237.380	3037.39	-211.14	-454.52	-640.72	1661215.99	14296772.64	39°22'13.103"N	80°55'35.053"W	785.56	234.648	0.61	-0.03	-1.62	
3266.50	22.350	235.860	3125.30	-219.62	-474.33	-670.79	1661185.94	14296752.83	39°22'12.907"N	80°55'35.436"W	821.55	234.735	0.63	0.16	-1.60	
3361.50	21.470	237.390	3213.44	-227.98	-493.84	-700.38	1661156.36	14296733.33	39°22'12.715"N	80°55'35.813"W	856.98	234.812	1.10	-0.93	1.61	
3455.50	21.320	236.750	3300.96	-235.79	-512.48	-729.16	1661127.59	14296714.70	39°22'12.531"N	80°55'36.180"W	891.24	234.899	0.30	-0.16	-0.68	
3555.50	21.140	235.360	3394.18	-244.66	-532.70	-759.20	1661097.56	14296694.49	39°22'12.331"N	80°55'36.563"W	927.45	234.944	0.53	-0.18	-1.39	
3650.50	20.730	234.150	3482.91	-253.72	-552.28	-786.92	1661069.85	14296674.91	39°22'12.138"N	80°55'36.916"W	961.39	234.938	0.63	-0.43	-1.27	
3745.50	19.880	234.340	3572.00	-262.80	-571.55	-813.68	1661043.11	14296655.66	39°22'11.948"N	80°55'37.257"W	994.35	234.915	0.90	-0.89	0.20	
3840.50	19.770	233.420	3661.37	-271.88	-590.54	-839.70	1661017.09	14296636.67	39°22'11.760"N	80°55'37.588"W	1026.57	234.882	0.35	-0.12	-0.97	
3934.50	19.740	231.850	3749.84	-281.49	-609.82	-864.95	1660991.85	14296617.40	39°22'11.570"N	80°55'37.910"W	1058.31	234.815	0.57	-0.03	-1.67	
4029.50	18.650	235.570	3839.56	-290.40	-628.32	-890.10	1660966.71	14296598.91	39°22'11.387"N	80°55'38.230"W	1089.52	234.782	1.72	-1.15	3.92	
4124.50	19.610	238.430	3929.32	-297.51	-645.25	-916.21	1660940.61	14296581.98	39°22'11.220"N	80°55'38.563"W	1120.62	234.844	1.41	1.01	3.01	
4219.50	19.900	237.270	4018.73	-304.40	-662.34	-943.40	1660913.44	14296564.90	39°22'11.051"N	80°55'38.909"W	1152.69	234.928	0.51	0.31	-1.22	
4314.50	19.860	235.980	4108.07	-312.00	-680.11	-970.37	1660886.48	14296547.14	39°22'10.876"N	80°55'39.253"W	1184.98	234.974	0.46	-0.04	-1.36	
4409.50	19.840	234.560	4197.42	-320.33	-698.49	-996.88	1660859.98	14296528.77	39°22'10.695"N	80°55'39.591"W	1217.23	234.982	0.51	-0.02	-1.49	
4503.50	19.980	233.380	4285.80	-329.30	-717.32	-1022.77	1660834.10	14296509.95	39°22'10.509"N	80°55'39.921"W	1249.24	234.956	0.45	0.15	-1.26	
4598.50	20.190	231.330	4375.03	-339.32	-737.24	-1048.59	1660808.28	14296490.03	39°22'10.312"N	80°55'40.250"W	1281.82	234.890	0.77	0.22	-2.16	



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 4 of 10



REFERENCE WELLPATH IDENTIFICATION

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Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (190 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
4693.50	20.060	232.600	4464.23	-349.57	-757.38	-1074.34	1660782.55	14296469.90	39°22'10.113"N	80°55'40.578"W	1314.47	234.817	0.48	-0.14	1.34	
4788.50	20.070	236.030	4553.46	-358.51	-776.39	-1100.80	1660756.10	14296450.90	39°22'09.925"N	80°55'40.915"W	1347.05	234.805	1.24	0.01	3.61	
4883.50	20.350	235.400	4642.62	-366.74	-794.87	-1127.91	1660729.00	14296432.42	39°22'09.743"N	80°55'41.260"W	1379.86	234.827	0.37	0.29	-0.66	
4977.50	20.820	232.570	4730.62	-376.00	-814.31	-1154.63	1660702.29	14296412.99	39°22'09.551"N	80°55'41.601"W	1412.90	234.806	1.17	0.50	-3.01	
5072.50	20.690	234.540	4819.45	-385.67	-834.31	-1181.71	1660675.22	14296393.00	39°22'09.354"N	80°55'41.946"W	1446.55	234.777	0.75	-0.14	2.07	
5167.50	19.710	239.210	4908.61	-393.27	-852.24	-1209.14	1660647.80	14296375.07	39°22'09.177"N	80°55'42.295"W	1479.31	234.823	1.99	-1.03	4.92	
5262.50	19.640	238.390	4998.07	-399.62	-868.81	-1236.50	1660620.45	14296358.51	39°22'09.013"N	80°55'42.644"W	1511.22	234.907	0.30	-0.07	-0.86	
5357.50	19.970	235.940	5087.45	-406.90	-886.27	-1263.54	1660593.42	14296341.06	39°22'08.841"N	80°55'42.988"W	1543.37	234.954	0.94	0.35	-2.58	
5452.50	20.620	233.970	5176.55	-415.60	-905.19	-1290.51	1660566.47	14296322.15	39°22'08.654"N	80°55'43.332"W	1576.32	234.953	0.99	0.68	-2.07	
5547.50	20.960	231.910	5265.37	-425.63	-925.51	-1317.41	1660539.58	14296301.83	39°22'08.453"N	80°55'43.674"W	1610.01	234.911	0.85	0.36	-2.17	
5642.50	20.120	229.980	5354.33	-436.63	-946.50	-1343.30	1660513.70	14296280.85	39°22'08.246"N	80°55'44.004"W	1643.26	234.831	1.14	-0.88	-2.03	
5737.50	20.130	231.660	5443.53	-447.50	-967.15	-1368.63	1660488.37	14296260.21	39°22'08.042"N	80°55'44.327"W	1675.87	234.753	0.61	0.01	1.77	
5832.50	19.590	234.110	5532.88	-457.13	-986.63	-1394.36	1660462.66	14296240.74	39°22'07.850"N	80°55'44.655"W	1708.12	234.717	1.04	-0.57	2.58	
5927.50	19.820	231.660	5622.32	-466.69	-1005.96	-1419.89	1660437.14	14296221.42	39°22'07.659"N	80°55'44.980"W	1740.13	234.683	0.90	0.24	-2.58	
6022.50	20.030	233.010	5711.63	-476.64	-1025.74	-1445.52	1660411.52	14296201.65	39°22'07.464"N	80°55'45.307"W	1772.47	234.641	0.53	0.22	1.42	
6116.50	20.290	235.430	5799.87	-485.57	-1044.67	-1471.80	1660385.25	14296182.72	39°22'07.277"N	80°55'45.641"W	1804.86	234.633	0.93	0.28	2.57	
6148.50	19.600	242.370	5829.96	-487.72	-1050.31	-1481.12	1660375.93	14296177.09	39°22'07.221"N	80°55'45.760"W	1815.73	234.658	7.70	-2.16	21.69	
6179.50	18.850	250.020	5859.23	-488.46	-1054.43	-1490.44	1660366.62	14296172.97	39°22'07.180"N	80°55'45.879"W	1825.72	234.722	8.47	-2.42	24.68	
6211.50	18.660	257.960	5889.54	-487.79	-1057.27	-1500.31	1660356.75	14296170.13	39°22'07.152"N	80°55'46.004"W	1835.41	234.828	7.99	-0.59	24.81	
6243.50	19.020	264.420	5919.83	-485.82	-1058.84	-1510.50	1660346.56	14296168.56	39°22'07.137"N	80°55'46.134"W	1844.66	234.970	6.61	1.12	20.19	
6274.50	19.400	270.430	5949.11	-482.81	-1059.29	-1520.68	1660336.39	14296168.11	39°22'07.133"N	80°55'46.264"W	1853.26	235.139	6.49	1.23	19.39	
6306.50	19.460	277.900	5979.29	-478.50	-1058.52	-1531.28	1660325.80	14296168.88	39°22'07.140"N	80°55'46.399"W	1861.52	235.345	7.76	0.19	23.34	
6338.50	19.920	285.180	6009.42	-472.90	-1056.36	-1541.82	1660315.26	14296171.04	39°22'07.162"N	80°55'46.533"W	1868.98	235.583	7.79	1.44	22.75	
6369.50	21.240	290.710	6038.45	-466.23	-1052.99	-1552.17	1660304.91	14296174.40	39°22'07.195"N	80°55'46.665"W	1875.64	235.847	7.58	4.26	17.84	
6401.50	23.530	295.300	6068.03	-457.95	-1048.21	-1563.37	1660293.72	14296179.18	39°22'07.242"N	80°55'46.807"W	1882.25	236.159	9.00	7.16	14.34	
6432.50	25.540	300.610	6096.24	-448.42	-1042.16	-1574.72	1660282.37	14296185.23	39°22'07.302"N	80°55'46.952"W	1888.34	236.503	9.62	6.48	17.13	
6453.50	26.800	303.930	6115.09	-441.11	-1037.22	-1582.54	1660274.55	14296190.18	39°22'07.351"N	80°55'47.051"W	1892.16	236.759	9.20	6.00	15.81	
6504.00	29.420	309.140	6159.63	-421.31	-1023.03	-1601.61	1660255.49	14296204.36	39°22'07.492"N	80°55'47.294"W	1900.46	237.432	7.11	5.19	10.32	BH AT Curve <8-1/2"> (6453.5')(6504'-14686')
6566.00	32.630	311.780	6212.76	-393.57	-1002.27	-1625.90	1660231.21	14296225.11	39°22'07.697"N	80°55'47.603"W	1910.00	238.349	5.62	5.18	4.26	
6613.00	35.990	313.460	6251.58	-370.09	-984.32	-1645.38	1660211.74	14296243.05	39°22'07.874"N	80°55'47.851"W	1917.33	239.111	7.43	7.15	3.57	



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'
Page 5 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (190 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
6660.00	39.380	314.350	6288.77	-344.34	-964.40	-1666.07	1660191.06	14296262.96	39°22'08.072"N	80°55'48.114"W	1925.06	239.936	7.30	7.21	1.89	
6707.00	41.750	314.800	6324.47	-316.80	-942.95	-1687.84	1660169.30	14296284.41	39°22'08.284"N	80°55'48.391"W	1933.37	240.809	5.08	5.04	0.96	
6756.00	45.490	315.650	6359.93	-286.17	-918.95	-1711.63	1660145.51	14296308.40	39°22'08.521"N	80°55'48.694"W	1942.72	241.769	7.73	7.63	1.73	
6803.00	48.860	315.770	6391.88	-254.81	-894.28	-1735.70	1660121.45	14296333.06	39°22'08.765"N	80°55'49.000"W	1952.53	242.741	7.17	7.17	0.26	
6838.00†	51.722	318.456	6414.24	-230.05	-874.54	-1754.01	1660103.15	14296352.78	39°22'08.960"N	80°55'49.233"W	1959.94	243.499	10.08	8.18	7.68	Middlesex: 6838' MD
6851.00	52.800	319.400	6422.20	-220.47	-866.79	-1760.76	1660096.40	14296360.53	39°22'09.037"N	80°55'49.319"W	1962.55	243.790	10.08	8.29	7.26	
6898.00	56.970	318.260	6449.23	-184.69	-837.87	-1786.07	1660071.10	14296389.45	39°22'09.323"N	80°55'49.641"W	1972.84	244.868	9.09	8.87	-2.43	
6945.00	61.060	319.230	6473.42	-147.21	-807.58	-1812.63	1660044.55	14296419.72	39°22'09.623"N	80°55'49.979"W	1984.39	245.986	8.88	8.70	2.06	
6992.00	65.130	320.430	6494.68	-107.93	-775.55	-1839.66	1660017.54	14296451.73	39°22'09.939"N	80°55'50.323"W	1996.45	247.141	8.95	8.66	2.55	
7035.00†	68.075	321.723	6511.76	-70.66	-744.85	-1864.44	1659992.76	14296482.42	39°22'10.243"N	80°55'50.638"W	2007.72	248.223	7.38	6.85	3.01	Burkett: 7035' MD
7039.00	68.350	321.840	6513.24	-67.14	-741.93	-1866.74	1659990.47	14296485.34	39°22'10.272"N	80°55'50.667"W	2008.78	248.325	7.38	6.86	2.94	
7086.00	71.010	323.460	6529.56	-25.13	-706.90	-1893.47	1659963.74	14296520.36	39°22'10.618"N	80°55'51.007"W	2021.12	249.528	6.52	5.66	3.45	
7117.00†	72.921	324.025	6539.16	3.14	-683.13	-1910.90	1659946.32	14296544.12	39°22'10.853"N	80°55'51.229"W	2029.34	250.329	6.40	6.17	1.82	Tully: 7117' MD
7134.00	73.970	324.330	6544.00	18.80	-669.92	-1920.44	1659936.79	14296557.33	39°22'10.984"N	80°55'51.350"W	2033.93	250.769	6.40	6.17	1.79	
7181.00	77.590	325.040	6555.55	62.68	-632.74	-1946.77	1659910.47	14296594.48	39°22'11.352"N	80°55'51.685"W	2047.02	251.995	7.84	7.70	1.51	
7202.00†	78.644	325.345	6559.87	82.53	-615.87	-1958.50	1659898.74	14296611.35	39°22'11.519"N	80°55'51.834"W	2053.05	252.544	5.22	5.02	1.45	Marcellus POE: 7202' MD
7228.00	79.950	325.720	6564.70	107.24	-594.81	-1972.96	1659884.29	14296632.40	39°22'11.727"N	80°55'52.018"W	2060.67	253.223	5.22	5.02	1.44	
7275.00	82.040	327.510	6572.05	152.35	-556.05	-1998.50	1659858.76	14296671.15	39°22'12.110"N	80°55'52.343"W	2074.41	254.452	5.82	4.45	3.81	
7322.00	83.930	328.830	6577.79	197.96	-516.42	-2023.10	1659834.17	14296710.76	39°22'12.502"N	80°55'52.656"W	2087.97	255.680	4.89	4.02	2.81	
7369.00	86.030	329.360	6581.91	243.89	-476.25	-2047.14	1659810.13	14296750.92	39°22'12.899"N	80°55'52.962"W	2101.81	256.904	4.61	4.47	1.13	
7417.00	87.570	330.010	6584.59	291.01	-434.88	-2071.33	1659785.95	14296792.27	39°22'13.308"N	80°55'53.269"W	2116.49	258.143	3.48	3.21	1.35	
7464.00	89.170	330.860	6585.92	337.30	-394.02	-2094.51	1659762.78	14296833.12	39°22'13.712"N	80°55'53.564"W	2131.25	259.346	3.85	3.40	1.81	
7512.00	89.780	331.660	6586.36	384.71	-351.93	-2117.59	1659739.71	14296875.18	39°22'14.128"N	80°55'53.857"W	2146.64	260.564	2.10	1.27	1.67	
7607.00	89.660	331.470	6586.83	478.62	-268.39	-2162.83	1659694.50	14296958.69	39°22'14.954"N	80°55'54.433"W	2179.42	262.926	0.24	-0.13	-0.20	
7701.00	90.090	331.840	6587.03	571.57	-185.66	-2207.46	1659649.89	14297041.38	39°22'15.772"N	80°55'55.000"W	2215.25	265.192	0.60	0.46	0.39	
7795.00	88.180	331.750	6588.45	664.53	-102.84	-2251.88	1659605.49	14297124.18	39°22'16.591"N	80°55'55.565"W	2254.22	267.385	2.03	-2.03	-0.10	
7891.00	88.460	337.710	6591.27	760.00	-16.10	-2292.82	1659564.56	14297210.88	39°22'17.449"N	80°55'56.085"W	2292.88	269.598	6.21	0.29	6.21	
7985.00	90.030	341.850	6592.51	853.97	72.08	-2325.30	1659532.09	14297299.02	39°22'18.321"N	80°55'56.498"W	2326.41	271.775	4.71	1.67	4.40	
8080.00	90.090	342.870	6592.41	948.90	162.61	-2354.09	1659503.32	14297389.52	39°22'19.216"N	80°55'56.864"W	2359.70	273.951	1.08	0.06	1.07	
8174.00	90.310	342.670	6592.08	1042.81	252.39	-2381.93	1659475.48	14297479.26	39°22'20.103"N	80°55'57.218"W	2395.26	276.048	0.32	0.23	-0.21	



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'
Page 6 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (190 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
8268.00	90.250	342.500	6591.62	1136.73	342.08	-2410.06	1659447.36	14297568.92	39°22'20.990"N	80°55'57.575"W	2434.22	278.078	0.19	-0.06	-0.18	
8363.00	90.430	340.590	6591.06	1231.70	432.19	-2440.13	1659417.30	14297658.99	39°22'21.881"N	80°55'57.957"W	2478.11	280.044	2.02	0.19	-2.01	
8457.00	90.310	338.930	6590.45	1325.69	520.38	-2472.65	1659384.80	14297747.14	39°22'22.753"N	80°55'58.370"W	2526.82	281.885	1.77	-0.13	-1.77	
8551.00	90.950	339.380	6589.42	1419.67	608.22	-2506.10	1659351.37	14297834.95	39°22'23.621"N	80°55'58.795"W	2578.85	283.642	0.83	0.68	0.48	
8646.00	90.250	336.800	6588.42	1514.59	696.34	-2541.54	1659315.94	14297923.04	39°22'24.492"N	80°55'59.246"W	2635.21	285.322	2.81	-0.74	-2.72	
8741.00	90.980	341.760	6587.40	1609.54	785.17	-2575.14	1659282.35	14298011.83	39°22'25.370"N	80°55'59.673"W	2692.18	286.957	5.28	0.77	5.22	
8836.00	91.540	344.730	6585.31	1704.37	876.10	-2602.52	1659254.98	14298102.72	39°22'26.269"N	80°56'00.021"W	2746.02	288.605	3.18	0.59	3.13	
8931.00	91.910	342.400	6582.45	1799.17	967.17	-2629.38	1659228.13	14298193.76	39°22'27.170"N	80°56'00.362"W	2801.62	290.195	2.48	0.39	-2.45	
9026.00	91.910	340.800	6579.28	1894.08	1057.26	-2659.35	1659198.17	14298283.81	39°22'28.060"N	80°56'00.743"W	2861.81	291.681	1.68	0.00	-1.68	
9121.00	90.710	337.300	6577.11	1989.02	1145.94	-2693.30	1659164.23	14298372.46	39°22'28.937"N	80°56'01.174"W	2926.96	293.049	3.89	-1.26	-3.68	
9216.00	89.910	336.760	6576.60	2083.87	1233.41	-2730.38	1659127.18	14298459.89	39°22'29.802"N	80°56'01.645"W	2996.04	294.310	1.02	-0.84	-0.57	
9311.00	89.510	337.010	6577.08	2178.70	1320.78	-2767.67	1659089.90	14298547.22	39°22'30.666"N	80°56'02.119"W	3066.67	295.511	0.50	-0.42	0.26	
9406.00	89.420	339.520	6577.97	2273.64	1409.01	-2802.85	1659054.74	14298635.42	39°22'31.538"N	80°56'02.567"W	3137.08	296.689	2.64	-0.09	2.64	
9501.00	90.400	339.730	6578.12	2368.63	1498.07	-2835.92	1659021.67	14298724.44	39°22'32.418"N	80°56'02.987"W	3207.28	297.845	1.05	1.03	0.22	
9595.00	90.030	338.550	6577.76	2462.61	1585.91	-2869.39	1658988.22	14298812.24	39°22'33.287"N	80°56'03.412"W	3278.49	298.929	1.32	-0.39	-1.26	
9689.00	89.450	341.030	6578.19	2556.60	1674.11	-2901.86	1658955.76	14298900.41	39°22'34.159"N	80°56'03.825"W	3350.14	299.981	2.71	-0.62	2.64	
9784.00	89.290	343.560	6579.23	2651.52	1764.60	-2930.75	1658926.88	14298990.86	39°22'35.053"N	80°56'04.192"W	3420.98	301.052	2.67	-0.17	2.66	
9879.00	90.120	346.230	6579.72	2746.20	1856.30	-2955.50	1658902.14	14299082.53	39°22'35.960"N	80°56'04.506"W	3490.11	302.132	2.94	0.87	2.81	
9973.00	91.110	345.950	6578.71	2839.70	1947.54	-2978.10	1658879.55	14299173.73	39°22'36.862"N	80°56'04.793"W	3558.37	303.183	1.09	1.05	-0.30	
10068.00	89.450	346.290	6578.25	2934.20	2039.76	-3000.89	1658856.77	14299265.92	39°22'37.773"N	80°56'05.083"W	3628.49	304.205	1.78	-1.75	0.36	
10163.00	89.420	345.090	6579.19	3028.76	2131.81	-3024.37	1658833.30	14299357.93	39°22'38.683"N	80°56'05.381"W	3700.19	305.179	1.26	-0.03	-1.26	
10257.00	88.920	342.080	6580.55	3122.58	2221.96	-3050.92	1658806.76	14299448.04	39°22'39.574"N	80°56'05.718"W	3774.29	306.065	3.25	-0.53	-3.20	
10351.00	89.820	340.500	6581.58	3216.56	2310.98	-3081.07	1658776.62	14299537.03	39°22'40.455"N	80°56'06.101"W	3851.45	306.872	1.93	0.96	-1.68	
10447.00	89.050	338.240	6582.53	3312.53	2400.81	-3114.89	1658742.81	14299626.83	39°22'41.343"N	80°56'06.531"W	3932.74	307.623	2.49	-0.80	-2.35	
10542.00	88.920	336.750	6584.21	3407.41	2488.56	-3151.25	1658706.47	14299714.54	39°22'42.210"N	80°56'06.993"W	4015.39	308.298	1.57	-0.14	-1.57	
10637.00	89.260	336.230	6585.72	3502.19	2575.67	-3189.14	1658668.60	14299801.61	39°22'43.071"N	80°56'07.475"W	4099.35	308.926	0.65	0.36	-0.55	
10730.00	89.880	336.350	6586.42	3594.97	2660.81	-3226.54	1658631.22	14299886.72	39°22'43.913"N	80°56'07.950"W	4182.16	309.511	0.68	0.67	0.13	
10824.00	90.400	334.850	6586.19	3688.66	2746.42	-3265.37	1658592.40	14299972.29	39°22'44.759"N	80°56'08.444"W	4266.78	310.066	1.69	0.55	-1.60	
10919.00	89.880	334.910	6585.96	3783.24	2832.43	-3305.70	1658552.09	14300058.27	39°22'45.610"N	80°56'08.957"W	4353.19	310.591	0.55	-0.55	0.06	
11014.00	89.230	338.020	6586.70	3878.02	2919.51	-3343.62	1658514.18	14300145.32	39°22'46.471"N	80°56'09.439"W	4438.85	311.126	3.34	-0.68	3.27	



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 7 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (190 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
11108.00	89.910	341.780	6587.40	3972.00	3007.77	-3375.92	1658481.89	14300233.54	39°22'47.343"N	80°56'09.850"W	4521.45	311.699	4.06	0.72	4.00	
11202.00	90.180	342.790	6587.33	4065.94	3097.31	-3404.52	1658453.30	14300323.04	39°22'48.229"N	80°56'10.213"W	4602.62	312.295	1.11	0.29	1.07	
11298.00	90.120	343.470	6587.08	4161.81	3189.18	-3432.38	1658425.45	14300414.87	39°22'49.137"N	80°56'10.567"W	4685.31	312.897	0.71	-0.06	0.71	
11391.00	90.220	342.770	6586.80	4254.69	3278.17	-3459.39	1658398.46	14300503.83	39°22'50.016"N	80°56'10.910"W	4765.90	313.459	0.76	0.11	-0.75	
11486.00	90.220	342.380	6586.44	4349.62	3368.81	-3487.83	1658370.02	14300594.43	39°22'50.912"N	80°56'11.272"W	4849.11	314.006	0.41	0.00	-0.41	
11581.00	90.150	343.520	6586.13	4444.51	3459.63	-3515.69	1658342.18	14300685.22	39°22'51.810"N	80°56'11.626"W	4932.46	314.540	1.20	-0.07	1.20	
11677.00	90.150	345.310	6585.88	4540.25	3552.10	-3541.48	1658316.40	14300777.65	39°22'52.724"N	80°56'11.953"W	5015.92	315.086	1.86	0.00	1.86	
11771.00	90.250	346.000	6585.55	4633.83	3643.17	-3564.77	1658293.12	14300868.68	39°22'53.625"N	80°56'12.249"W	5097.08	315.623	0.74	0.11	0.73	
11866.00	91.110	343.000	6584.42	4728.55	3734.69	-3590.15	1658267.75	14300960.17	39°22'54.529"N	80°56'12.571"W	5180.46	316.130	3.28	0.91	-3.16	
11960.00	90.430	339.040	6583.16	4822.51	3823.56	-3620.71	1658237.20	14301049.00	39°22'55.408"N	80°56'12.960"W	5265.85	316.561	4.27	-0.72	-4.21	
12055.00	90.220	334.930	6582.62	4917.33	3910.98	-3657.85	1658200.08	14301136.38	39°22'56.272"N	80°56'13.432"W	5354.96	316.915	4.33	-0.22	-4.33	
12148.00	88.920	337.600	6583.32	5010.10	3996.10	-3695.28	1658162.66	14301221.47	39°22'57.114"N	80°56'13.908"W	5442.78	317.240	3.19	-1.40	2.87	
12243.00	89.850	343.010	6584.34	5105.06	4085.50	-3727.28	1658130.68	14301310.84	39°22'57.998"N	80°56'14.315"W	5530.27	317.625	5.78	0.98	5.69	
12337.00	89.850	342.880	6584.58	5198.95	4175.37	-3754.85	1658103.12	14301400.67	39°22'58.886"N	80°56'14.665"W	5615.39	318.035	0.14	0.00	-0.14	
12431.00	90.030	344.220	6584.68	5292.79	4265.52	-3781.47	1658076.51	14301490.78	39°22'59.777"N	80°56'15.003"W	5700.36	318.442	1.44	0.19	1.43	
12526.00	90.120	344.210	6584.56	5387.56	4356.93	-3807.31	1658050.68	14301582.16	39°23'00.681"N	80°56'15.331"W	5786.06	318.851	0.10	0.09	-0.01	
12620.00	91.450	342.160	6583.27	5481.42	4446.90	-3834.50	1658023.50	14301672.09	39°23'01.570"N	80°56'15.677"W	5871.82	319.229	2.60	1.41	-2.18	
12714.00	90.120	337.640	6581.98	5575.39	4535.14	-3866.79	1657991.22	14301760.30	39°23'02.443"N	80°56'16.087"W	5959.83	319.548	5.01	-1.41	-4.81	
12809.00	89.880	336.690	6581.98	5670.25	4622.69	-3903.66	1657954.37	14301847.81	39°23'03.308"N	80°56'16.556"W	6050.44	319.820	1.03	-0.25	-1.00	
12902.00	89.910	338.150	6582.15	5763.13	4708.56	-3939.36	1657918.67	14301933.65	39°23'04.157"N	80°56'17.010"W	6139.15	320.083	1.57	0.03	1.57	
12998.00	90.000	337.790	6582.23	5859.06	4797.55	-3975.37	1657882.68	14302022.60	39°23'05.037"N	80°56'17.468"W	6230.58	320.354	0.39	0.09	-0.37	
13093.00	89.880	338.300	6582.33	5953.99	4885.66	-4010.89	1657847.18	14302110.68	39°23'05.908"N	80°56'17.920"W	6321.15	320.616	0.55	-0.13	0.54	
13186.00	89.910	337.930	6582.50	6046.92	4971.96	-4045.56	1657812.53	14302196.94	39°23'06.761"N	80°56'18.360"W	6409.91	320.866	0.40	0.03	-0.40	
13281.00	89.910	336.950	6582.65	6141.81	5059.69	-4082.00	1657776.09	14302284.63	39°23'07.628"N	80°56'18.824"W	6501.02	321.104	1.03	0.00	-1.03	
13375.00	89.940	337.960	6582.77	6235.70	5146.51	-4118.04	1657740.07	14302371.41	39°23'08.487"N	80°56'19.282"W	6591.27	321.335	1.07	0.03	1.07	
13470.00	90.000	339.090	6582.82	6330.65	5234.91	-4152.82	1657705.30	14302459.78	39°23'09.361"N	80°56'19.724"W	6682.08	321.575	1.19	0.06	1.19	
13564.00	89.970	340.580	6582.84	6424.65	5323.15	-4185.22	1657672.91	14302547.98	39°23'10.233"N	80°56'20.136"W	6771.41	321.824	1.59	-0.03	1.59	
13659.00	89.940	341.580	6582.92	6519.64	5413.01	-4216.03	1657642.12	14302637.81	39°23'11.121"N	80°56'20.528"W	6861.16	322.086	1.05	-0.03	1.05	
13753.00	89.910	340.900	6583.04	6613.62	5502.02	-4246.26	1657611.90	14302726.78	39°23'12.001"N	80°56'20.912"W	6950.03	322.340	0.72	-0.03	-0.72	
13848.00	89.880	339.680	6583.21	6708.62	5591.45	-4278.30	1657579.88	14302816.18	39°23'12.885"N	80°56'21.319"W	7040.46	322.579	1.28	-0.03	-1.28	



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 8 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (190 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
13943.00	89.970	339.270	6583.34	6803.61	5680.42	-4311.60	1657546.58	14302905.11	39°23'13.765"N	80°56'21.743"W	7131.42	322.800	0.44	0.09	-0.43	
14037.00	89.970	339.130	6583.39	6897.59	5768.29	-4344.99	1657513.22	14302992.95	39°23'14.634"N	80°56'22.167"W	7221.64	323.011	0.15	0.00	-0.15	
14132.00	89.910	340.130	6583.49	6992.59	5857.35	-4378.05	1657480.16	14303081.97	39°23'15.514"N	80°56'22.587"W	7312.72	323.224	1.05	-0.06	1.05	
14227.00	89.940	341.290	6583.61	7087.58	5947.01	-4409.43	1657448.79	14303171.60	39°23'16.401"N	80°56'22.986"W	7403.38	323.445	1.22	0.03	1.22	
14321.00	89.880	342.200	6583.76	7181.55	6036.28	-4438.88	1657419.36	14303260.83	39°23'17.283"N	80°56'23.361"W	7492.69	323.670	0.97	-0.06	0.97	
14416.00	89.970	342.410	6583.88	7276.49	6126.79	-4467.76	1657390.50	14303351.30	39°23'18.178"N	80°56'23.728"W	7582.77	323.900	0.24	0.09	0.22	
14510.00	90.000	342.190	6583.91	7370.43	6216.34	-4496.33	1657361.93	14303440.82	39°23'19.063"N	80°56'24.091"W	7672.02	324.121	0.24	0.03	-0.23	
14605.00	89.940	342.570	6583.96	7465.36	6306.88	-4525.09	1657333.18	14303531.32	39°23'19.958"N	80°56'24.456"W	7762.29	324.341	0.40	-0.06	0.40	
14686.00	89.970	343.440	6584.02	7546.27	6384.34	-4548.77	1657309.52	14303608.75	39°23'20.724"N	80°56'24.757"W	7839.08	324.531	1.07	0.04	1.07	
14725.00	89.970	343.440	6584.04	7585.20	6421.73	-4559.88	1657298.41	14303646.12	39°23'21.093"N	80°56'24.898"W	7875.98	324.623	0.00	0.00	0.00	Projected MD at TD: 14725'

HOLE & CASING SECTIONS - Ref Wellbore: Ray Unit 1H AWB Ref Wellpath: Ray Unit 1H AWP Proj: 14725'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	24.50	104.50	80.00	24.50	104.50	0.00	0.00	0.07	0.07
17.5in Open Hole	104.50	477.50	373.00	104.50	477.49	0.07	0.07	0.27	-1.34
13.375in Casing Surface	24.50	477.50	453.00	24.50	477.49	0.00	0.00	0.27	-1.34
12.25in Open Hole	467.50	2614.10	2146.60	467.50	2517.63	0.31	-1.34	-346.59	-471.18
9.625in Casing Intermediate	24.50	2614.10	2589.60	24.50	2517.63	0.00	0.00	-346.59	-471.18
8.75in Open Hole	2614.10	6525.50	3911.40	2517.63	6178.26	-346.59	-471.18	-1016.18	-1609.89
8.5in Open Hole	6525.50	14725.00	8199.50	6178.26	6584.04	-1016.18	-1609.89	6421.73	-4559.88
5.5in Casing Production	24.50	14725.00	14700.50	24.50	6584.04	0.00	0.00	6421.73	-4559.88



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 9 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Ray Unit 1H - POE - Rev-2	6551.00	-648.80	-1934.56	1659922.67	14296578.43	39°22'11.193"N	80°55'51.530"W	point
Ray Unit 1H - BHL - Rev-2	6579.00	6437.46	-4579.79	1657278.51	14303661.85	39°23'21.249"N	80°56'25.152"W	point
Ray Unit 1H - LP - Rev-2	6579.00	-462.19	-2057.71	1659799.58	14296764.97	39°22'13.038"N	80°55'53.096"W	point

WELLPATH COMPOSITION - Ref Wellbore: Ray Unit 1H AWB Ref Wellpath: Ray Unit 1H AWP Proj: 14725'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.50	459.50	Gyrodata standard - Drop gyro or Multi-shot	01_Gyrodata MS Gyro <17-1/2">(100'-450')	Ray Unit 1H AWB
459.50	2587.50	ISCWSA MWD, Rev. 4 (Standard)	02_WFT EM <12-1/4">(450')(587'-2578')	Ray Unit 1H AWB
2587.50	6453.50	ISCWSA MWD, Rev. 4 (Standard)	03_WFT EM <8-3/4">(2578')(2688'-6444')	Ray Unit 1H AWB
6453.50	14686.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8-1/2"> (6453.5')(6504'-14686')	Ray Unit 1H AWB
14686.00	14725.00	Blind Drilling (std)	Projection to bit	Ray Unit 1H AWB



Actual Wellpath Report

Ray Unit 1H AWP Proj: 14725'

Page 10 of 10



REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #01
Area	Ritchie County, WV	Well	Ray Unit 1H
Field	Ritchie	Wellbore	Ray Unit 1H AWB
Facility	Weekley Trust Pad		

COMMENTS

Wellpath general comments

API: 47-085-10346-0000

BHI Job #: 109606941

Rig: Frontier 22

Duration: 01/16/2019-01/21/2019

Gyrodata MS Gyro <17-1/2">(100'-450')

WFT EM <12-1/4">(450')(587'-2578')

WFT EM <8-3/4">(2578')(2688'-6444')

BH AT Curve <8-1/2"> (6453.5')(6504'-14686')

Middlesex: 6838' MD

Burkett: 7035' MD

Tully: 7117' MD

Marcellus POE: 7202' MD

Projected MD at TD: 14725'