

ANTERO RESOURCES CORPORATION

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

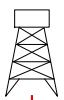
Slot: Slot #02
 Well: Ray Unit 2H
 Wellbore: Ray Unit 2H PWB

Plot reference wellpath is Ray Unit 2HPWP 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 #02): -1235 feet	Created by: delaset on 2019-01-29
Coordinates are in feet referenced to Slot	Database: WA_MPL_EasternUS_Defn



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)	Longitude
Slot #02	1.02	9.42	1661865.877	14297227.994	80°55'26.770"W
Frontier 22 (RKB) to Ground level (At Slot: Slot #02)				24.5ft	
Mean Sea Level to Ground level (At Slot: Slot #02)				-1235ft	
Frontier 22 (RKB) to Mean Sea Level				1259.5ft	

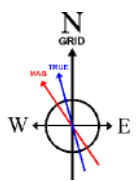
Well Data			
Slot	Well	Wellbore	Wellpath
Slot #02	Ray Unit 2H	Ray Unit 2H AWB	Ray Unit 2H AWP Proj: 14478'
Slot #02	Ray Unit 2H	Ray Unit 2H PWB	Ray Unit 2H PWP Rev-A.0



- Gyrodatta MS Gyro <17-1/2">(100'-454') : 0.40° Inc, 109.50ft MD, 109.50ft TVD, 0.02ft VS
- Gyrodatta MS Gyro <12-1/4">(454')(537'-818') : 0.32° Inc, 546.50ft MD, 546.49ft TVD, 0.50ft VS
- WFT EM <12-1/4">(818')(936'-2520') : 6.58° Inc, 945.50ft MD, 944.66ft TVD, -7.82ft VS

Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	6867.50	65.990	339.380	6523.34	-468.50	-1182.12	-41.26
Proj. To Bottom	6939.50	71.060	339.380	6549.69	-405.81	-1205.70	25.71
POE	6984.38	74.437	337.999	6563.00	-365.89	-1221.28	68.55
Landing Pt.	7191.62	90.000	331.750	6591.00	-180.75	-1308.34	272.22
On Azimuth	7544.61	90.000	340.239	6591.00	141.42	-1451.81	623.93
BHL	14479.24	90.000	340.239	6591.00	6667.68	-3796.40	7558.56

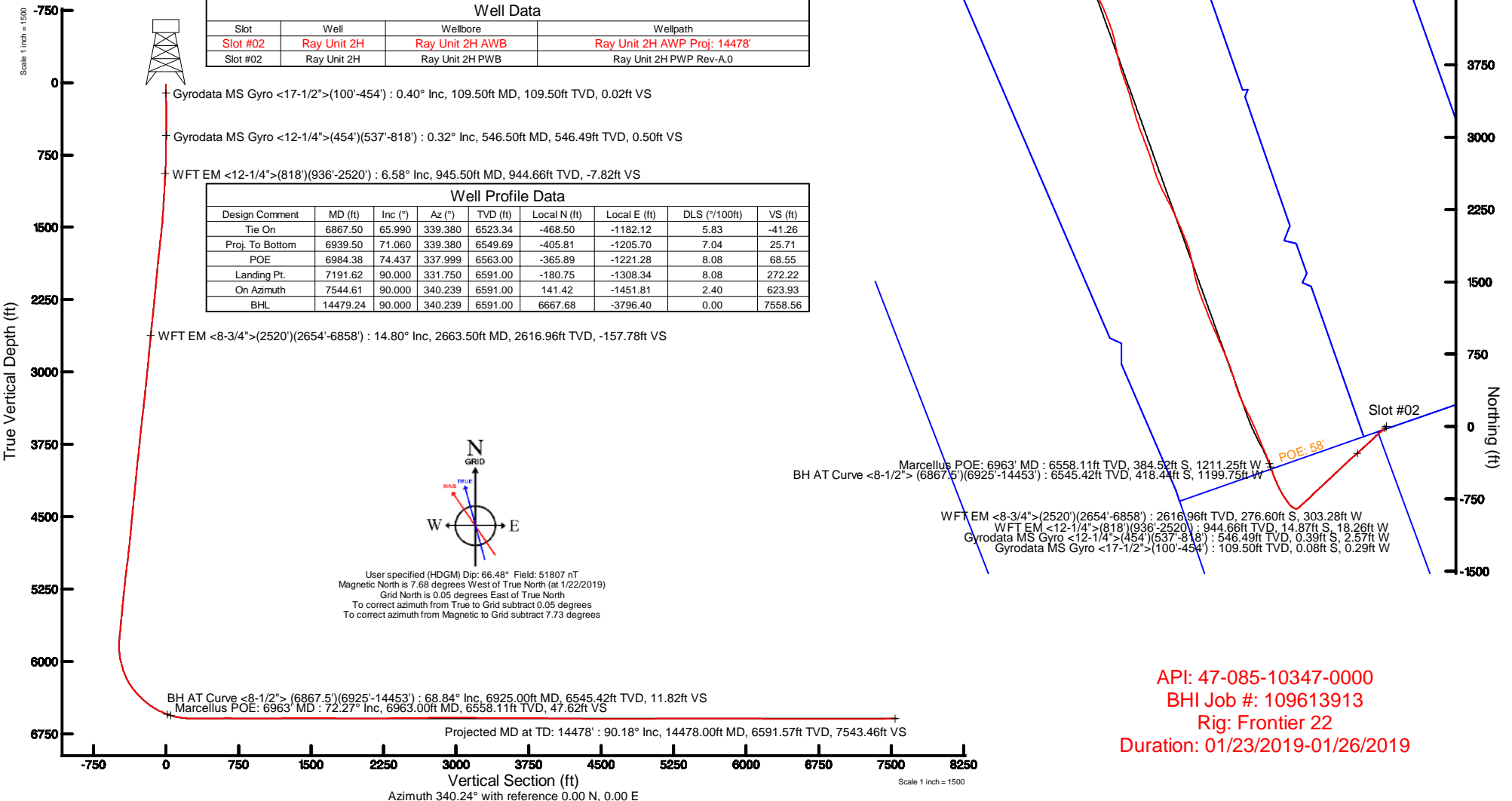
- WFT EM <8-3/4">(2520')(2654'-6858') : 14.80° Inc, 2663.50ft MD, 2616.96ft TVD, -157.78ft VS



User specified (HDGM) Dip: 66.48° Field: 51807 nT
 Magnetic North is 7.68 degrees West of True North (at 1/22/2019)
 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

- BH AT Curve <8-1/2">(6867.5')(6925'-14453') : 68.84° Inc, 6925.00ft MD, 6545.42ft TVD, 11.82ft VS
- Marcellus POE: 6963' MD : 72.27° Inc, 6963.00ft MD, 6558.11ft TVD, 47.62ft VS

Projected MD at TD: 14478' : 90.18° Inc, 14478.00ft MD, 6591.57ft TVD, 7543.46ft VS



API: 47-085-10347-0000
 BHI Job #: 109613913
 Rig: Frontier 22
 Duration: 01/23/2019-01/26/2019



Actual Wellpath Report

Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H 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	1/29/2019 at 12:01:19 PM
Convergence at slot	0.05° East	Database/Source file	WA_MPL_EasternUS_Defn/Ray_Unit_2H_AWP_Proj_14478_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	1.02	9.42	1661865.88	14297227.99	39°22'17.600"N	80°55'26.770"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 #02)	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 2H AWP Proj: 14478'

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Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (195 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	254.980	0.00	0.00	0.00	0.00	1661865.88	14297227.99	39°22'17.600"N	80°55'26.770"W	0.00	0.000	0.00	0.00	0.00	
24.50	0.000	254.980	24.50	0.00	0.00	0.00	1661865.88	14297227.99	39°22'17.600"N	80°55'26.770"W	0.00	0.000	0.00	0.00	0.00	
109.50	0.400	254.980	109.50	0.02	-0.08	-0.29	1661865.59	14297227.92	39°22'17.599"N	80°55'26.774"W	0.30	254.980	0.47	0.47	-123.55	Gyrodata MS Gyro <17-1/2">(100'-454')
134.50	0.450	264.050	134.50	0.06	-0.11	-0.47	1661865.41	14297227.88	39°22'17.599"N	80°55'26.776"W	0.48	256.823	0.33	0.20	36.28	
159.50	0.460	270.580	159.50	0.11	-0.12	-0.67	1661865.21	14297227.88	39°22'17.599"N	80°55'26.778"W	0.68	259.890	0.21	0.04	26.12	
184.50	0.480	277.360	184.50	0.20	-0.10	-0.87	1661865.01	14297227.89	39°22'17.599"N	80°55'26.781"W	0.88	263.162	0.24	0.08	27.12	
209.50	0.620	289.840	209.50	0.33	-0.05	-1.10	1661864.78	14297227.95	39°22'17.600"N	80°55'26.784"W	1.10	267.656	0.73	0.56	49.92	
234.50	0.620	308.490	234.49	0.53	0.08	-1.33	1661864.54	14297228.08	39°22'17.601"N	80°55'26.787"W	1.34	273.643	0.80	0.00	74.60	
259.50	0.250	258.340	259.49	0.65	0.16	-1.49	1661864.38	14297228.15	39°22'17.602"N	80°55'26.789"W	1.50	276.042	1.99	-1.48	-200.60	
284.50	0.280	266.850	284.49	0.68	0.14	-1.61	1661864.27	14297228.14	39°22'17.601"N	80°55'26.790"W	1.61	275.108	0.20	0.12	34.04	
309.50	0.270	269.200	309.49	0.72	0.14	-1.73	1661864.15	14297228.13	39°22'17.601"N	80°55'26.792"W	1.73	274.617	0.06	-0.04	9.40	
334.50	0.210	249.780	334.49	0.73	0.12	-1.83	1661864.05	14297228.12	39°22'17.601"N	80°55'26.793"W	1.83	273.843	0.40	-0.24	-77.68	
359.50	0.220	268.310	359.49	0.75	0.11	-1.92	1661863.96	14297228.10	39°22'17.601"N	80°55'26.794"W	1.92	273.149	0.28	0.04	74.12	
384.50	0.260	242.780	384.49	0.76	0.08	-2.02	1661863.86	14297228.07	39°22'17.601"N	80°55'26.796"W	2.02	272.221	0.45	0.16	-102.12	
409.50	0.310	233.500	409.49	0.73	0.01	-2.12	1661863.75	14297228.01	39°22'17.600"N	80°55'26.797"W	2.12	270.328	0.27	0.20	-37.12	
434.50	0.320	259.080	434.49	0.72	-0.04	-2.25	1661863.63	14297227.95	39°22'17.600"N	80°55'26.799"W	2.25	268.947	0.56	0.04	102.32	
459.50	0.260	263.320	459.49	0.74	-0.06	-2.37	1661863.51	14297227.93	39°22'17.599"N	80°55'26.800"W	2.37	268.524	0.25	-0.24	16.96	
463.50	0.280	243.300	463.49	0.75	-0.07	-2.39	1661863.49	14297227.93	39°22'17.599"N	80°55'26.800"W	2.39	268.405	2.40	0.50	-500.50	
546.50	0.320	178.610	546.49	0.50	-0.39	-2.57	1661863.31	14297227.60	39°22'17.596"N	80°55'26.803"W	2.60	261.370	0.39	0.05	-77.94	Gyrodata MS Gyro <12-1/4">(454')(537'-818')
640.50	0.760	212.060	640.49	-0.13	-1.18	-2.89	1661862.99	14297226.81	39°22'17.588"N	80°55'26.807"W	3.12	247.788	0.56	0.47	35.59	
732.50	2.840	229.820	732.44	-1.31	-3.17	-4.96	1661860.92	14297224.83	39°22'17.569"N	80°55'26.833"W	5.88	237.411	2.31	2.26	19.30	
827.50	4.640	230.510	827.23	-3.42	-7.13	-9.72	1661856.16	14297220.87	39°22'17.530"N	80°55'26.894"W	12.05	233.736	1.90	1.89	0.73	
945.50	6.580	225.950	944.66	-7.82	-14.87	-18.26	1661847.62	14297213.13	39°22'17.453"N	80°55'27.003"W	23.55	230.852	1.69	1.64	-3.86	WFT EM <12-1/4">(818')(936'-2520')
1040.50	7.850	222.630	1038.91	-13.06	-23.43	-26.57	1661839.32	14297204.58	39°22'17.369"N	80°55'27.109"W	35.42	228.599	1.41	1.34	-3.49	
1135.50	8.790	225.960	1132.91	-19.05	-33.24	-36.18	1661829.71	14297194.76	39°22'17.272"N	80°55'27.231"W	49.14	227.422	1.11	0.99	3.51	
1230.50	10.220	234.070	1226.60	-24.39	-43.24	-48.22	1661817.67	14297184.77	39°22'17.173"N	80°55'27.385"W	64.77	228.121	2.06	1.51	8.54	
1324.50	11.650	233.640	1318.89	-29.42	-53.76	-62.62	1661803.28	14297174.26	39°22'17.069"N	80°55'27.568"W	82.53	229.355	1.52	1.52	-0.46	
1419.50	13.250	230.680	1411.66	-35.81	-66.34	-78.77	1661787.14	14297161.68	39°22'16.945"N	80°55'27.774"W	102.99	229.894	1.81	1.68	-3.12	
1514.50	14.560	227.420	1503.87	-44.08	-81.32	-95.98	1661769.93	14297146.70	39°22'16.797"N	80°55'27.993"W	125.80	229.727	1.61	1.38	-3.43	
1609.50	14.180	223.890	1595.90	-53.88	-97.79	-112.85	1661753.08	14297130.24	39°22'16.634"N	80°55'28.208"W	149.32	229.089	1.01	-0.40	-3.72	



Actual Wellpath Report

Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWP
Facility	Weekley Trust Pad		

WELLPATH DATA (195 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
1704.50	14.180	224.900	1688.01	-64.02	-114.42	-129.13	1661736.80	14297113.62	39°22'16.470"N	80°55'28.415"W	172.52	228.456	0.26	0.00	1.06	
1799.50	15.010	225.860	1779.94	-74.08	-131.23	-146.17	1661719.77	14297096.82	39°22'16.304"N	80°55'28.633"W	196.43	228.083	0.91	0.87	1.01	
1894.50	14.320	227.170	1871.85	-83.76	-147.78	-163.61	1661702.33	14297080.27	39°22'16.141"N	80°55'28.855"W	220.47	227.911	0.81	-0.73	1.38	
1988.50	13.510	226.620	1963.09	-92.72	-163.23	-180.12	1661685.83	14297064.83	39°22'15.988"N	80°55'29.065"W	243.07	227.817	0.87	-0.86	-0.59	
2083.50	13.540	227.220	2055.45	-101.51	-178.40	-196.35	1661669.61	14297049.67	39°22'15.838"N	80°55'29.272"W	265.29	227.742	0.15	0.03	0.63	
2177.50	13.810	227.370	2146.79	-110.18	-193.47	-212.68	1661653.29	14297034.60	39°22'15.690"N	80°55'29.480"W	287.51	227.707	0.29	0.29	0.16	
2272.50	14.780	228.080	2238.85	-119.16	-209.25	-230.04	1661635.93	14297018.83	39°22'15.534"N	80°55'29.701"W	310.97	227.709	1.04	1.02	0.75	
2367.50	15.430	228.550	2330.56	-128.40	-225.71	-248.53	1661617.45	14297002.38	39°22'15.371"N	80°55'29.937"W	335.72	227.755	0.70	0.68	0.49	
2462.50	14.610	226.020	2422.32	-137.98	-242.39	-266.62	1661599.36	14296985.70	39°22'15.206"N	80°55'30.168"W	360.34	227.725	1.10	-0.86	-2.66	
2529.50	14.170	225.550	2487.22	-144.88	-254.01	-278.55	1661587.43	14296974.09	39°22'15.092"N	80°55'30.320"W	376.98	227.639	0.68	-0.66	-0.70	
2663.50	14.800	229.530	2616.96	-157.78	-276.60	-303.28	1661562.71	14296951.50	39°22'14.869"N	80°55'30.635"W	410.47	227.635	0.88	0.47	2.97	WFT EM <8-3/4">(2520')(2654'-6858')
2757.50	14.400	227.620	2707.92	-166.52	-292.27	-321.05	1661544.95	14296935.84	39°22'14.714"N	80°55'30.861"W	434.16	227.687	0.67	-0.43	-2.03	
2852.50	14.870	230.510	2799.84	-175.18	-307.99	-339.19	1661526.83	14296920.13	39°22'14.559"N	80°55'31.092"W	458.15	227.760	0.91	0.49	3.04	
2947.50	15.190	230.300	2891.59	-183.54	-323.69	-358.17	1661507.85	14296904.44	39°22'14.404"N	80°55'31.334"W	482.76	227.895	0.34	0.34	-0.22	
3042.50	14.810	227.510	2983.36	-192.47	-339.84	-376.70	1661489.33	14296888.29	39°22'14.244"N	80°55'31.570"W	507.34	227.945	0.86	-0.40	-2.94	
3137.50	14.730	225.820	3075.22	-202.16	-356.46	-394.31	1661471.72	14296871.68	39°22'14.080"N	80°55'31.795"W	531.55	227.886	0.46	-0.08	-1.78	
3231.50	15.650	228.200	3165.93	-211.86	-373.24	-412.34	1661453.71	14296854.91	39°22'13.914"N	80°55'32.024"W	556.17	227.849	1.18	0.98	2.53	
3326.50	15.650	227.950	3257.41	-221.53	-390.36	-431.40	1661434.65	14296837.79	39°22'13.745"N	80°55'32.267"W	581.80	227.859	0.07	0.00	-0.26	
3421.50	15.510	227.050	3348.92	-231.39	-407.60	-450.21	1661415.84	14296820.56	39°22'13.575"N	80°55'32.507"W	607.31	227.844	0.29	-0.15	-0.95	
3521.50	15.420	225.320	3445.30	-242.26	-426.06	-469.45	1661396.61	14296802.11	39°22'13.393"N	80°55'32.752"W	633.96	227.774	0.47	-0.09	-1.73	
3616.50	15.230	224.300	3536.92	-253.04	-443.87	-487.15	1661378.92	14296784.30	39°22'13.217"N	80°55'32.978"W	659.04	227.662	0.35	-0.20	-1.07	
3711.50	14.590	227.680	3628.73	-263.08	-460.85	-504.71	1661361.37	14296767.32	39°22'13.049"N	80°55'33.201"W	683.46	227.601	1.14	-0.67	3.56	
3806.50	14.620	227.910	3720.66	-272.23	-476.95	-522.46	1661343.63	14296751.24	39°22'12.890"N	80°55'33.428"W	707.42	227.607	0.07	0.03	0.24	
3901.50	14.540	226.270	3812.60	-281.63	-493.23	-539.97	1661326.12	14296734.97	39°22'12.730"N	80°55'33.651"W	731.33	227.590	0.44	-0.08	-1.73	
3996.50	14.610	224.500	3904.54	-291.68	-510.02	-556.99	1661309.11	14296718.18	39°22'12.564"N	80°55'33.868"W	755.21	227.521	0.47	0.07	-1.86	
4091.50	14.490	226.390	3996.49	-301.69	-526.76	-573.99	1661292.12	14296701.45	39°22'12.398"N	80°55'34.084"W	779.06	227.457	0.52	-0.13	1.99	
4186.50	14.060	228.600	4088.56	-310.75	-542.59	-591.25	1661274.86	14296685.62	39°22'12.242"N	80°55'34.304"W	802.48	227.458	0.73	-0.45	2.33	
4281.50	13.890	228.070	4180.75	-319.31	-557.84	-608.39	1661257.73	14296670.38	39°22'12.092"N	80°55'34.523"W	825.42	227.482	0.22	-0.18	-0.56	
4376.50	13.940	226.260	4272.96	-328.26	-573.37	-625.14	1661240.99	14296654.85	39°22'11.938"N	80°55'34.736"W	848.27	227.473	0.46	0.05	-1.91	
4470.50	14.070	225.170	4364.17	-337.70	-589.25	-641.42	1661224.71	14296638.98	39°22'11.781"N	80°55'34.944"W	871.00	227.427	0.31	0.14	-1.16	



Actual Wellpath Report

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Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (195 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
4565.50	13.420	225.450	4456.45	-347.22	-605.13	-657.47	1661208.67	14296623.11	39°22'11.625"N	80°55'35.148"W	893.56	227.374	0.69	-0.68	0.29	
4660.50	13.590	228.410	4548.82	-355.99	-620.27	-673.67	1661192.47	14296607.97	39°22'11.475"N	80°55'35.355"W	915.74	227.363	0.75	0.18	3.12	
4755.50	14.190	228.380	4641.04	-364.48	-635.41	-690.73	1661175.43	14296592.83	39°22'11.325"N	80°55'35.572"W	938.54	227.388	0.63	0.63	-0.03	
4850.50	15.020	228.210	4732.97	-373.43	-651.35	-708.61	1661157.55	14296576.90	39°22'11.168"N	80°55'35.800"W	962.49	227.411	0.87	0.87	-0.18	
4944.50	15.940	228.280	4823.56	-382.83	-668.06	-727.33	1661138.84	14296560.20	39°22'11.003"N	80°55'36.038"W	987.58	227.432	0.98	0.98	0.07	
5039.50	16.650	225.830	4914.75	-393.33	-686.22	-746.83	1661119.35	14296542.05	39°22'10.824"N	80°55'36.287"W	1014.22	227.422	1.04	0.75	-2.58	
5134.50	15.460	222.170	5006.04	-404.91	-705.09	-765.09	1661101.09	14296523.18	39°22'10.637"N	80°55'36.519"W	1040.44	227.337	1.64	-1.25	-3.85	
5229.50	14.150	223.260	5097.89	-416.14	-722.93	-781.55	1661084.64	14296505.35	39°22'10.461"N	80°55'36.729"W	1064.64	227.231	1.41	-1.38	1.15	
5324.50	14.670	228.900	5189.90	-425.79	-739.30	-798.57	1661067.63	14296488.99	39°22'10.300"N	80°55'36.946"W	1088.25	227.207	1.57	0.55	5.94	
5419.50	15.310	228.500	5281.67	-434.81	-755.52	-817.03	1661049.17	14296472.78	39°22'10.139"N	80°55'37.181"W	1112.81	227.240	0.68	0.67	-0.42	
5514.50	15.010	226.860	5373.36	-444.34	-772.24	-835.40	1661030.81	14296456.06	39°22'09.974"N	80°55'37.415"W	1137.65	227.250	0.55	-0.32	-1.73	
5609.50	13.990	228.230	5465.34	-453.52	-788.30	-852.94	1661013.28	14296440.01	39°22'09.816"N	80°55'37.639"W	1161.43	227.255	1.13	-1.07	1.44	
5704.50	14.280	226.910	5557.46	-462.47	-803.96	-870.06	1660996.16	14296424.36	39°22'09.661"N	80°55'37.857"W	1184.63	227.261	0.46	0.31	-1.39	
5798.50	14.090	227.870	5648.59	-471.41	-819.55	-887.01	1660979.22	14296408.77	39°22'09.507"N	80°55'38.073"W	1207.67	227.264	0.32	-0.20	1.02	
5893.50	14.300	229.030	5740.69	-480.06	-835.00	-904.45	1660961.79	14296393.33	39°22'09.355"N	80°55'38.295"W	1230.96	227.286	0.37	0.22	1.22	
5956.50	14.270	232.470	5801.75	-485.24	-844.83	-916.48	1660949.76	14296383.50	39°22'09.257"N	80°55'38.449"W	1246.47	227.329	1.35	-0.05	5.46	
5988.50	13.090	243.990	5832.84	-486.84	-848.83	-922.87	1660943.38	14296379.51	39°22'09.218"N	80°55'38.530"W	1253.87	227.393	9.26	-3.69	36.00	
6019.50	12.590	257.790	5863.08	-486.78	-851.08	-929.33	1660936.92	14296377.26	39°22'09.196"N	80°55'38.612"W	1260.15	227.516	10.00	-1.61	44.52	
6051.50	12.680	272.390	5894.31	-485.00	-851.67	-936.25	1660930.01	14296376.66	39°22'09.190"N	80°55'38.700"W	1265.66	227.708	9.96	0.28	45.62	
6083.50	13.750	283.190	5925.47	-481.60	-850.66	-943.46	1660922.80	14296377.68	39°22'09.200"N	80°55'38.792"W	1270.33	227.961	8.39	3.34	33.75	
6114.50	15.030	292.000	5955.50	-476.92	-848.31	-950.77	1660915.49	14296380.02	39°22'09.223"N	80°55'38.885"W	1274.21	228.260	8.17	4.13	28.42	
6146.50	16.120	298.370	5986.32	-470.85	-844.64	-958.53	1660907.73	14296383.69	39°22'09.260"N	80°55'38.984"W	1277.58	228.614	6.33	3.41	19.91	
6177.50	17.550	303.070	6015.99	-463.92	-840.05	-966.23	1660900.03	14296388.28	39°22'09.305"N	80°55'39.082"W	1280.35	228.996	6.37	4.61	15.16	
6209.50	18.660	305.880	6046.41	-455.85	-834.42	-974.43	1660891.84	14296393.91	39°22'09.361"N	80°55'39.186"W	1282.87	229.426	4.41	3.47	8.78	
6241.50	20.130	309.690	6076.60	-446.88	-827.90	-982.81	1660883.46	14296400.43	39°22'09.425"N	80°55'39.293"W	1285.04	229.890	6.06	4.59	11.91	
6272.50	21.880	314.020	6105.54	-437.10	-820.48	-991.07	1660875.20	14296407.85	39°22'09.499"N	80°55'39.398"W	1286.62	230.380	7.54	5.65	13.97	
6304.50	23.390	318.310	6135.07	-425.86	-811.59	-999.58	1660866.69	14296416.73	39°22'09.587"N	80°55'39.506"W	1287.57	230.926	6.99	4.72	13.41	
6336.50	25.570	322.140	6164.20	-413.40	-801.39	-1008.05	1660858.23	14296426.92	39°22'09.688"N	80°55'39.614"W	1287.78	231.516	8.42	6.81	11.97	
6367.50	28.220	322.810	6191.84	-400.05	-790.27	-1016.59	1660849.70	14296438.04	39°22'09.798"N	80°55'39.723"W	1287.62	232.139	8.60	8.55	2.16	
6399.50	31.670	323.910	6219.56	-384.76	-777.45	-1026.11	1660840.18	14296450.86	39°22'09.924"N	80°55'39.844"W	1287.37	232.850	10.92	10.78	3.44	



Actual Wellpath Report

Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (195 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
6431.50	34.990	324.800	6246.30	-367.85	-763.16	-1036.35	1660829.94	14296465.14	39°22'10.066"N	80°55'39.974"W	1287.03	233.632	10.49	10.38	2.78	
6462.50	37.800	325.700	6271.25	-350.08	-748.04	-1046.83	1660819.47	14296480.25	39°22'10.215"N	80°55'40.107"W	1286.63	234.451	9.23	9.06	2.90	
6494.50	40.350	326.940	6296.09	-330.51	-731.26	-1058.01	1660808.29	14296497.03	39°22'10.381"N	80°55'40.249"W	1286.13	235.349	8.33	7.97	3.88	
6525.50	42.270	327.870	6319.37	-310.56	-714.02	-1069.03	1660797.28	14296514.26	39°22'10.552"N	80°55'40.390"W	1285.55	236.261	6.50	6.19	3.00	
6557.50	43.680	329.140	6342.79	-289.20	-695.42	-1080.42	1660785.89	14296532.86	39°22'10.736"N	80°55'40.534"W	1284.88	237.233	5.17	4.41	3.97	
6588.50	44.680	330.590	6365.02	-267.95	-676.73	-1091.27	1660775.05	14296551.53	39°22'10.920"N	80°55'40.672"W	1284.07	238.196	4.59	3.23	4.68	
6620.50	46.100	332.080	6387.49	-245.44	-656.74	-1102.19	1660764.13	14296571.51	39°22'11.118"N	80°55'40.811"W	1283.02	239.211	5.54	4.44	4.66	
6643.00†	47.753	333.268	6402.86	-229.15	-642.14	-1109.73	1660756.59	14296586.11	39°22'11.262"N	80°55'40.907"W	1282.13	239.944	8.30	7.34	5.28	Middlesex: 6643' MD
6651.50	48.380	333.700	6408.54	-222.87	-636.48	-1112.55	1660753.77	14296591.77	39°22'11.318"N	80°55'40.943"W	1281.75	240.226	8.30	7.38	5.09	
6683.50	51.090	335.330	6429.22	-198.58	-614.44	-1123.05	1660743.27	14296613.80	39°22'11.536"N	80°55'41.076"W	1280.15	241.316	9.32	8.47	5.09	
6715.50	54.070	336.760	6448.66	-173.24	-591.22	-1133.36	1660732.97	14296637.01	39°22'11.766"N	80°55'41.208"W	1278.30	242.451	9.97	9.31	4.47	
6746.50	56.710	337.860	6466.27	-147.76	-567.68	-1143.20	1660723.13	14296660.54	39°22'11.999"N	80°55'41.333"W	1276.39	243.592	9.00	8.52	3.55	
6778.50	59.740	338.250	6483.12	-120.58	-542.45	-1153.37	1660712.97	14296685.76	39°22'12.248"N	80°55'41.462"W	1274.56	244.812	9.53	9.47	1.22	
6810.50	62.350	338.640	6498.61	-92.59	-516.41	-1163.65	1660702.69	14296711.79	39°22'12.505"N	80°55'41.592"W	1273.09	246.069	8.23	8.16	1.22	
6834.00†	64.018	338.808	6509.21	-71.63	-496.87	-1171.26	1660695.09	14296731.33	39°22'12.699"N	80°55'41.689"W	1272.29	247.013	7.13	7.10	0.71	Burkett: 6834' MD
6841.50	64.550	338.860	6512.46	-64.87	-490.56	-1173.70	1660692.65	14296737.63	39°22'12.761"N	80°55'41.720"W	1272.10	247.317	7.13	7.10	0.70	
6867.50	65.990	339.380	6523.34	-41.26	-468.50	-1182.12	1660684.23	14296759.68	39°22'12.979"N	80°55'41.827"W	1271.57	248.380	5.83	5.54	2.00	
6898.00†	67.497	340.671	6535.38	-13.24	-442.17	-1191.69	1660674.67	14296786.01	39°22'13.239"N	80°55'41.949"W	1271.07	249.643	6.29	4.94	4.23	Tully: 6898' MD
6925.00	68.840	341.790	6545.42	11.82	-418.44	-1199.75	1660666.61	14296809.73	39°22'13.474"N	80°55'42.051"W	1270.62	250.773	6.29	4.97	4.15	BH AT Curve <8-1/2"> (6867.5')(6925'-14453')
6945.00	70.530	341.370	6552.37	30.57	-400.64	-1205.68	1660660.68	14296827.51	39°22'13.650"N	80°55'42.126"W	1270.50	251.619	8.68	8.45	-2.10	
6963.00†	72.273	340.487	6558.11	47.62	-384.52	-1211.25	1660655.11	14296843.63	39°22'13.809"N	80°55'42.197"W	1270.82	252.388	10.74	9.69	-4.90	Marcellus POE: 6963' MD
6992.00	75.090	339.100	6566.26	75.45	-358.40	-1220.87	1660645.50	14296869.73	39°22'14.068"N	80°55'42.319"W	1272.39	253.640	10.74	9.71	-4.78	
7039.00	79.760	337.450	6576.49	121.28	-315.81	-1237.85	1660628.53	14296912.32	39°22'14.489"N	80°55'42.535"W	1277.50	255.688	10.51	9.94	-3.51	
7086.00	84.240	337.570	6583.03	167.76	-272.81	-1255.64	1660610.74	14296955.29	39°22'14.914"N	80°55'42.761"W	1284.94	257.742	9.54	9.53	0.26	
7134.00	85.750	337.000	6587.21	215.51	-228.71	-1274.11	1660592.28	14296999.38	39°22'15.350"N	80°55'42.996"W	1294.47	259.824	3.36	3.15	-1.19	
7185.00	88.240	337.130	6589.89	266.36	-181.81	-1293.95	1660572.44	14297046.26	39°22'15.814"N	80°55'43.248"W	1306.66	262.002	4.89	4.88	0.25	
7228.00	90.060	338.070	6590.52	309.31	-142.06	-1310.34	1660556.07	14297085.99	39°22'16.207"N	80°55'43.456"W	1318.01	263.813	4.76	4.23	2.19	
7322.00	90.770	337.770	6589.84	403.23	-54.95	-1345.67	1660520.75	14297173.06	39°22'17.068"N	80°55'43.905"W	1346.79	267.661	0.82	0.76	-0.32	
7417.00	90.990	335.440	6588.38	498.02	32.22	-1383.38	1660483.05	14297260.20	39°22'17.930"N	80°55'44.385"W	1383.76	271.334	2.46	0.23	-2.45	
7513.00	90.280	333.450	6587.32	593.52	118.82	-1424.79	1660441.66	14297346.76	39°22'18.786"N	80°55'44.911"W	1429.74	274.767	2.20	-0.74	-2.07	



Actual Wellpath Report

Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (195 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
7607.00	89.750	333.650	6587.30	686.88	202.98	-1466.66	1660399.80	14297430.89	39°22'19.618"N	80°55'45.443"W	1480.64	277.879	0.60	-0.56	0.21	
7701.00	89.630	335.810	6587.80	780.43	287.98	-1506.78	1660359.70	14297515.85	39°22'20.458"N	80°55'45.954"W	1534.06	280.820	2.30	-0.13	2.30	
7795.00	89.690	339.930	6588.36	874.33	375.03	-1542.19	1660324.31	14297602.87	39°22'21.319"N	80°55'46.403"W	1587.13	283.668	4.38	0.06	4.38	
7891.00	89.880	344.120	6588.81	970.26	466.32	-1571.81	1660294.70	14297694.13	39°22'22.222"N	80°55'46.780"W	1639.52	286.525	4.37	0.09	4.36	
7985.00	90.250	342.780	6588.78	1064.11	556.43	-1598.58	1660267.94	14297784.20	39°22'23.112"N	80°55'47.120"W	1692.65	289.192	1.51	0.50	-1.43	
8080.00	90.920	339.610	6587.81	1159.08	646.34	-1629.20	1660237.33	14297874.07	39°22'24.001"N	80°55'47.509"W	1752.72	291.639	3.41	0.71	-3.34	
8174.00	90.090	336.570	6586.98	1253.00	733.54	-1664.27	1660202.28	14297961.24	39°22'24.863"N	80°55'47.954"W	1818.75	293.786	3.35	-0.88	-3.23	
8268.00	90.310	336.360	6586.66	1346.80	819.72	-1701.80	1660164.76	14298047.38	39°22'25.715"N	80°55'48.432"W	1888.93	295.719	0.32	0.23	-0.22	
8363.00	90.060	336.930	6586.35	1441.61	906.93	-1739.46	1660127.11	14298134.56	39°22'26.578"N	80°55'48.910"W	1961.70	297.537	0.66	-0.26	0.60	
8457.00	89.540	335.930	6586.68	1535.40	993.09	-1777.05	1660089.54	14298220.68	39°22'27.429"N	80°55'49.388"W	2035.71	299.198	1.20	-0.55	-1.06	
8552.00	89.910	336.940	6587.13	1630.19	1080.16	-1815.03	1660051.58	14298307.72	39°22'28.290"N	80°55'49.871"W	2112.13	300.758	1.13	0.39	1.06	
8646.00	89.940	339.750	6587.26	1724.13	1167.52	-1849.71	1660016.91	14298395.04	39°22'29.154"N	80°55'50.312"W	2187.36	302.260	2.99	0.03	2.99	
8741.00	89.910	338.130	6587.38	1819.10	1256.17	-1883.85	1659982.78	14298483.66	39°22'30.030"N	80°55'50.745"W	2264.26	303.696	1.71	-0.03	-1.71	
8836.00	89.630	339.710	6587.76	1914.07	1344.81	-1918.02	1659948.63	14298572.26	39°22'30.907"N	80°55'51.180"W	2342.50	305.036	1.69	-0.29	1.66	
8932.00	88.460	341.930	6589.36	2010.04	1435.46	-1949.55	1659917.11	14298662.88	39°22'31.803"N	80°55'51.580"W	2421.01	306.364	2.61	-1.22	2.31	
9026.00	90.000	346.910	6590.63	2103.75	1525.97	-1974.79	1659891.88	14298753.35	39°22'32.698"N	80°55'51.901"W	2495.67	307.694	5.54	1.64	5.30	
9121.00	91.020	350.030	6589.78	2197.76	1619.03	-1993.77	1659872.91	14298846.38	39°22'33.618"N	80°55'52.142"W	2568.35	309.078	3.46	1.07	3.28	
9216.00	91.540	347.480	6587.66	2291.68	1712.18	-2012.29	1659854.39	14298939.49	39°22'34.538"N	80°55'52.377"W	2642.13	310.393	2.74	0.55	-2.68	
9311.00	91.050	344.130	6585.51	2386.19	1804.24	-2035.58	1659831.12	14299031.51	39°22'35.448"N	80°55'52.672"W	2720.09	311.552	3.56	-0.52	-3.53	
9406.00	90.370	340.560	6584.33	2481.11	1894.74	-2064.38	1659802.32	14299121.98	39°22'36.343"N	80°55'53.038"W	2802.09	312.547	3.83	-0.72	-3.76	
9501.00	90.550	337.770	6583.57	2576.08	1983.52	-2098.17	1659768.55	14299210.72	39°22'37.221"N	80°55'53.468"W	2887.33	313.391	2.94	0.19	-2.94	
9595.00	90.460	336.480	6582.74	2669.93	2070.12	-2134.71	1659732.03	14299297.29	39°22'38.077"N	80°55'53.932"W	2973.61	314.120	1.38	-0.10	-1.37	
9689.00	90.770	335.720	6581.73	2763.68	2156.06	-2172.79	1659693.96	14299383.19	39°22'38.927"N	80°55'54.416"W	3060.98	314.779	0.87	0.33	-0.81	
9784.00	89.880	334.270	6581.19	2858.28	2242.15	-2212.94	1659653.82	14299469.24	39°22'39.778"N	80°55'54.927"W	3150.29	315.376	1.79	-0.94	-1.53	
9879.00	90.460	333.100	6580.91	2952.65	2327.30	-2255.05	1659611.73	14299554.36	39°22'40.620"N	80°55'55.462"W	3240.62	315.903	1.37	0.61	-1.23	
9973.00	89.630	331.980	6580.84	3045.80	2410.71	-2298.40	1659568.40	14299637.73	39°22'41.444"N	80°55'56.013"W	3330.79	316.366	1.48	-0.88	-1.19	
10068.00	89.480	336.010	6581.58	3140.22	2496.07	-2340.04	1659526.77	14299723.06	39°22'42.288"N	80°55'56.543"W	3421.43	316.848	4.24	-0.16	4.24	
10163.00	89.200	339.290	6582.67	3235.10	2583.92	-2376.16	1659490.67	14299810.87	39°22'43.157"N	80°55'57.002"W	3510.38	317.398	3.46	-0.29	3.45	
10257.00	89.480	343.230	6583.75	3329.06	2672.91	-2406.35	1659460.49	14299899.83	39°22'44.037"N	80°55'57.385"W	3596.52	318.004	4.20	0.30	4.19	
10351.00	89.660	342.410	6584.46	3422.96	2762.71	-2434.12	1659432.74	14299989.60	39°22'44.925"N	80°55'57.738"W	3682.05	318.618	0.89	0.19	-0.87	



Actual Wellpath Report

Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #02
Area	Ritchie County, WV		Well	Ray Unit 2H
Field	Ritchie		Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad			

WELLPATH DATA (195 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	
10447.00	90.180	339.910	6584.59	3518.94	2853.56	-2465.11	1659401.75	14300080.41	39°22'45.823"N	80°55'58.132"W	3770.89	319.177	2.66	0.54	-2.60		
10542.00	89.720	339.280	6584.68	3613.94	2942.60	-2498.24	1659368.64	14300169.41	39°22'46.703"N	80°55'58.553"W	3860.06	319.669	0.82	-0.48	-0.66		
10637.00	89.600	338.530	6585.24	3708.91	3031.23	-2532.43	1659334.47	14300258.01	39°22'47.579"N	80°55'58.988"W	3949.88	320.123	0.80	-0.13	-0.79		
10730.00	89.600	341.760	6585.89	3801.89	3118.69	-2564.01	1659302.90	14300345.43	39°22'48.444"N	80°55'59.389"W	4037.37	320.575	3.47	0.00	3.47		
10825.00	89.380	342.750	6586.73	3896.83	3209.16	-2592.96	1659273.96	14300435.87	39°22'49.338"N	80°55'59.757"W	4125.79	321.062	1.07	-0.23	1.04		
10919.00	89.510	344.490	6587.64	3990.66	3299.34	-2619.47	1659247.46	14300526.01	39°22'50.230"N	80°56'00.094"W	4212.75	321.553	1.86	0.14	1.85		
11014.00	89.050	344.600	6588.84	4085.38	3390.90	-2644.78	1659222.16	14300617.53	39°22'51.135"N	80°56'00.415"W	4300.36	322.047	0.50	-0.48	0.12		
11108.00	89.260	341.920	6590.23	4179.23	3480.90	-2671.85	1659195.10	14300707.49	39°22'52.024"N	80°56'00.759"W	4388.10	322.491	2.86	0.22	-2.85		
11202.00	88.830	340.370	6591.79	4273.20	3569.84	-2702.22	1659164.74	14300796.40	39°22'52.904"N	80°56'01.145"W	4477.25	322.876	1.71	-0.46	-1.65		
11298.00	88.830	341.480	6593.75	4369.18	3660.55	-2733.59	1659133.38	14300887.07	39°22'53.801"N	80°56'01.544"W	4568.60	323.249	1.16	0.00	1.16		
11391.00	89.480	344.660	6595.12	4462.04	3749.49	-2760.66	1659106.32	14300975.98	39°22'54.680"N	80°56'01.888"W	4656.18	323.637	3.49	0.70	3.42		
11486.00	89.910	347.860	6595.63	4556.50	3841.76	-2783.23	1659083.77	14301068.21	39°22'55.592"N	80°56'02.174"W	4743.99	324.078	3.40	0.45	3.37		
11581.00	89.910	349.700	6595.78	4650.45	3934.94	-2801.71	1659065.29	14301161.36	39°22'56.513"N	80°56'02.409"W	4830.46	324.549	1.94	0.00	1.94		
11677.00	90.060	346.170	6595.80	4745.57	4028.81	-2821.77	1659045.24	14301255.18	39°22'57.441"N	80°56'02.663"W	4918.71	324.993	3.68	0.16	-3.68		
11771.00	91.450	342.740	6594.57	4839.29	4119.34	-2846.96	1659020.06	14301345.68	39°22'58.336"N	80°56'02.983"W	5007.41	325.351	3.94	1.48	-3.65		
11866.00	90.680	338.190	6592.80	4934.24	4208.84	-2878.71	1658988.32	14301435.14	39°22'59.221"N	80°56'03.387"W	5099.14	325.629	4.86	-0.81	-4.79		
11960.00	89.940	337.260	6592.29	5028.15	4295.82	-2914.34	1658952.71	14301522.09	39°23'00.081"N	80°56'03.840"W	5191.09	325.847	1.26	-0.79	-0.99		
12055.00	90.250	336.800	6592.13	5123.00	4383.29	-2951.41	1658915.65	14301609.52	39°23'00.945"N	80°56'04.311"W	5284.32	326.046	0.58	0.33	-0.48		
12149.00	90.150	335.580	6591.80	5216.76	4469.28	-2989.36	1658877.72	14301695.48	39°23'01.796"N	80°56'04.793"W	5376.87	326.223	1.30	-0.11	-1.30		
12243.00	89.910	335.190	6591.76	5310.43	4554.74	-3028.51	1658838.58	14301780.91	39°23'02.640"N	80°56'05.291"W	5469.69	326.379	0.49	-0.26	-0.41		
12337.00	89.850	337.310	6591.95	5404.19	4640.77	-3066.37	1658800.74	14301866.91	39°23'03.491"N	80°56'05.773"W	5562.32	326.545	2.26	-0.06	2.26		
12431.00	90.060	339.470	6592.03	5498.14	4728.16	-3100.99	1658766.14	14301954.26	39°23'04.355"N	80°56'06.213"W	5654.35	326.741	2.31	0.22	2.30		
12526.00	90.860	339.310	6591.26	5593.12	4817.08	-3134.42	1658732.71	14302043.14	39°23'05.234"N	80°56'06.638"W	5747.07	326.948	0.86	0.84	-0.17		
12620.00	89.320	339.320	6591.12	5687.11	4905.02	-3167.63	1658699.52	14302131.04	39°23'06.103"N	80°56'07.060"W	5838.92	327.146	1.64	-1.64	0.01		
12714.00	90.090	341.220	6591.60	5781.10	4993.49	-3199.36	1658667.80	14302219.48	39°23'06.978"N	80°56'07.463"W	5930.50	327.352	2.18	0.82	2.02		
12809.00	90.060	338.980	6591.48	5876.10	5082.81	-3231.69	1658635.48	14302308.77	39°23'07.861"N	80°56'07.874"W	6023.19	327.551	2.36	-0.03	-2.36		
12902.00	90.120	335.940	6591.33	5968.98	5168.70	-3267.34	1658599.85	14302394.62	39°23'08.710"N	80°56'08.327"W	6114.81	327.701	3.27	0.06	-3.27		
12998.00	89.630	335.320	6591.54	6064.66	5256.14	-3306.95	1658560.25	14302482.03	39°23'09.575"N	80°56'08.831"W	6209.91	327.824	0.82	-0.51	-0.65		
13093.00	89.540	339.460	6592.23	6159.52	5343.82	-3343.46	1658523.75	14302569.67	39°23'10.442"N	80°56'09.295"W	6303.58	327.967	4.36	-0.09	4.36		
13186.00	90.060	340.090	6592.55	6252.52	5431.09	-3375.61	1658491.62	14302656.90	39°23'11.304"N	80°56'09.704"W	6394.64	328.138	0.88	0.56	0.68		



Actual Wellpath Report

Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

WELLPATH DATA (195 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
13281.00	89.820	341.850	6592.65	6347.51	5520.89	-3406.59	1658460.66	14302746.67	39°23'12.192"N	80°56'10.098"W	6487.30	328.324	1.87	-0.25	1.85	
13375.00	89.910	341.750	6592.87	6441.47	5610.19	-3435.95	1658431.31	14302835.93	39°23'13.075"N	80°56'10.471"W	6578.75	328.515	0.14	0.10	-0.11	
13470.00	89.880	342.310	6593.05	6536.43	5700.55	-3465.26	1658402.01	14302926.26	39°23'13.968"N	80°56'10.843"W	6671.16	328.705	0.59	-0.03	0.59	
13564.00	89.970	341.700	6593.17	6630.38	5789.95	-3494.30	1658372.98	14303015.62	39°23'14.852"N	80°56'11.212"W	6762.67	328.889	0.66	0.10	-0.65	
13659.00	89.940	341.640	6593.24	6725.35	5880.13	-3524.17	1658343.12	14303105.77	39°23'15.744"N	80°56'11.592"W	6855.35	329.064	0.07	-0.03	-0.06	
13753.00	90.000	342.170	6593.29	6819.31	5969.48	-3553.37	1658313.93	14303195.08	39°23'16.627"N	80°56'11.963"W	6947.03	329.237	0.57	0.06	0.56	
13848.00	90.000	344.290	6593.29	6914.18	6060.44	-3580.78	1658286.54	14303286.00	39°23'17.526"N	80°56'12.311"W	7039.24	329.424	2.23	0.00	2.23	
13943.00	90.090	344.600	6593.22	7008.92	6151.96	-3606.25	1658261.07	14303377.48	39°23'18.431"N	80°56'12.635"W	7131.04	329.621	0.34	0.09	0.33	
14037.00	89.940	342.990	6593.19	7102.74	6242.22	-3632.49	1658234.85	14303467.71	39°23'19.323"N	80°56'12.968"W	7222.21	329.804	1.72	-0.16	-1.71	
14132.00	90.120	342.600	6593.14	7197.64	6332.97	-3660.59	1658206.76	14303558.42	39°23'20.220"N	80°56'13.325"W	7314.81	329.971	0.45	0.19	-0.41	
14227.00	90.120	341.640	6592.95	7292.59	6423.38	-3689.75	1658177.60	14303648.80	39°23'21.114"N	80°56'13.696"W	7407.71	330.126	1.01	0.00	-1.01	
14321.00	90.310	340.120	6592.59	7386.58	6512.19	-3720.54	1658146.83	14303737.57	39°23'21.992"N	80°56'14.087"W	7500.07	330.260	1.63	0.20	-1.62	
14416.00	90.550	337.350	6591.88	7481.53	6600.71	-3754.99	1658112.39	14303826.06	39°23'22.867"N	80°56'14.525"W	7594.04	330.365	2.93	0.25	-2.92	
14453.00	90.180	337.590	6591.64	7518.49	6634.89	-3769.17	1658098.22	14303860.22	39°23'23.205"N	80°56'14.706"W	7630.75	330.400	1.19	-1.00	0.65	
14478.00	90.180	337.590	6591.57	7543.46	6658.00	-3778.70	1658088.69	14303883.32	39°23'23.433"N	80°56'14.827"W	7655.56	330.423	0.00	0.00	0.00	Projected MD at TD: 14478'



Actual Wellpath Report

Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Ray Unit 2H AWB Ref Wellpath: Ray Unit 2H AWP Proj: 14478'

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	-0.25
17.5in Open Hole	104.50	467.50	363.00	104.50	467.49	-0.07	-0.25	-0.08	-2.41
13.375in Casing Surface	24.50	467.50	443.00	24.50	467.49	0.00	0.00	-0.08	-2.41
12.25in Open Hole	467.50	2594.60	2127.10	467.49	2550.29	-0.08	-2.41	-265.08	-290.24
9.625in Casing Intermediate	24.50	2594.60	2570.10	24.50	2550.29	0.00	0.00	-265.08	-290.24
8.75in Open Hole	2594.60	6939.50	4344.90	2550.29	6550.51	-265.08	-290.24	-405.55	-1204.03
8.5in Open Hole	6939.50	14478.00	7538.50	6550.51	6591.57	-405.55	-1204.03	6658.00	-3778.70
5.5in Casing Production	24.50	14478.00	14453.50	24.50	6591.57	0.00	0.00	6658.00	-3778.70

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Ray Unit 2H POE - Rev-3	6563.00	-365.89	-1221.28	1660645.08	14296862.25	39°22'13.994"N	80°55'42.325"W	point
Ray Unit 2H BHL - Rev-2	6591.00	6667.68	-3796.40	1658071.00	14303893.00	39°23'23.529"N	80°56'15.052"W	point
Ray Unit 2H LP - Rev-3	6591.00	-180.75	-1308.34	1660558.06	14297047.32	39°22'15.824"N	80°55'43.431"W	point



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Ray Unit 2H AWP Proj: 14478'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

WELLPATH COMPOSITION - Ref Wellbore: Ray Unit 2H AWB Ref Wellpath: Ray Unit 2H AWP Proj: 14478'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.50	463.50	Gyrodata standard - Drop gyro or Multi-shot	01_Gyrodata MS Gyro <17-1/2">(100'-454')	Ray Unit 2H AWB
463.50	827.50	Gyrodata standard - Drop gyro or Multi-shot	02_Gyrodata MS Gyro <12-1/4">(454')(537'-818')	Ray Unit 2H AWB
827.50	2529.50	ISCWSA MWD, Rev. 4 (Standard)	03_WFT EM <12-1/4">(818')(936'-2520')	Ray Unit 2H AWB
2529.50	6867.50	ISCWSA MWD, Rev. 4 (Standard)	04_WFT EM <8-3/4">(2520')(2654'-6858')	Ray Unit 2H AWB
6867.50	14453.00	BHI AutoTrak Curve (Short)	05_BH AT Curve <8-1/2"> (6867.5')(6925'-14453')	Ray Unit 2H AWB
14453.00	14478.00	Blind Drilling (std)	Projection to bit	Ray Unit 2H AWB



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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #02
Area	Ritchie County, WV	Well	Ray Unit 2H
Field	Ritchie	Wellbore	Ray Unit 2H AWB
Facility	Weekley Trust Pad		

COMMENTS
<p>Wellpath general comments API: 47-085-10347-0000 BHI Job #: 109613913 Rig: Frontier 22 Duration: 01/23/2019-01/26/2019 Gyrodata MS Gyro <17-1/2">(100'-454') Gyrodata MS Gyro <12-1/4">(454')(537'-818') WFT EM <12-1/4">(818')(936'-2520') WFT EM <8-3/4">(2520')(2654'-6858') BH AT Curve <8-1/2"> (6867.5')(6925'-14453') Middlesex: 6643' MD Burkett: 6834' MD Tully: 6898' MD Marcellus POE: 6963' MD Projected MD at TD: 14478'</p>