



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWB
Slot	Slot D		

REPORT SETUP INFORMATION

Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Edsaryar
Scale	0.999608	Report Generated	10/4/2024 at 12:16:22 AM
Convergence at slot	0.19° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-41.33	45.56	1726261.97	14372225.48	39°34'37.7800"N	80°41'43.2400"W
Facility Reference Pt			1726216.43	14372266.79	39°34'38.1900"N	80°41'43.8200"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	1191.00ft
Horizontal Reference Pt	Slot	H&P 519 (RKB) to Mean Sea Level	1191.00ft
Vertical Reference Pt	H&P 519 (RKB)	H&P 519 (RKB) to Ground Level at Slot (Slot D)	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	161.02°

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Environmental Protection



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WELLPATH DATA (248 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	356.970	0.00	0.00	0.00	1726261.97	14372225.48	39°34'37.7800"N	80°41'43.2400"W	0.00	0.000	0.00	0.00	0.00	
30.00	0.000	356.970	30.00	0.00	0.00	0.00	1726261.97	14372225.48	39°34'37.7800"N	80°41'43.2400"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.880	356.970	100.00	-0.52	0.54	-0.03	1726261.94	14372226.02	39°34'37.7853"N	80°41'43.2404"W	0.54	356.970	1.26	1.26	0.00	Gyrodata MS Gyro <17-1/2"> (100'-260')
200.00	0.830	26.050	199.99	-1.77	1.95	0.25	1726262.22	14372227.43	39°34'37.7993"N	80°41'43.2367"W	1.97	7.263	0.43	-0.05	29.08	
260.00	0.940	56.890	259.98	-2.19	2.61	0.85	1726262.82	14372228.09	39°34'37.8058"N	80°41'43.2290"W	2.75	18.058	0.80	0.18	51.40	
382.00	1.280	98.310	381.96	-1.81	2.96	3.04	1726265.01	14372228.44	39°34'37.8092"N	80°41'43.2011"W	4.24	45.720	0.69	0.28	33.95	APS EM <12-3/8"> (260')(382'-3478')
472.00	1.410	104.140	471.93	-0.75	2.55	5.11	1726267.08	14372228.03	39°34'37.8050"N	80°41'43.1747"W	5.71	63.489	0.21	0.14	6.48	
562.00	1.790	37.400	561.91	-0.92	3.39	7.03	1726269.00	14372228.87	39°34'37.8133"N	80°41'43.1500"W	7.81	64.246	1.99	0.42	-74.16	
651.00	3.460	12.540	650.81	-3.98	7.12	8.46	1726270.43	14372232.60	39°34'37.8501"N	80°41'43.1316"W	11.06	49.924	2.23	1.88	-27.93	
739.00	5.310	8.380	738.55	-9.86	13.74	9.63	1726271.60	14372239.22	39°34'37.9155"N	80°41'43.1164"W	16.78	35.030	2.13	2.10	-4.73	
829.00	7.170	6.290	828.01	-18.64	23.44	10.85	1726272.82	14372248.92	39°34'38.0113"N	80°41'43.1004"W	25.84	24.844	2.08	2.07	-2.32	
920.00	9.200	11.960	918.08	-30.02	36.21	12.98	1726274.95	14372261.67	39°34'38.1374"N	80°41'43.0726"W	38.47	19.729	2.40	2.23	6.23	
1010.00	9.790	14.660	1006.85	-42.56	50.65	16.41	1726278.38	14372276.11	39°34'38.2800"N	80°41'43.0282"W	53.24	17.954	0.82	0.66	3.00	
1105.00	9.170	13.240	1100.55	-55.69	65.83	20.19	1726282.15	14372291.29	39°34'38.4299"N	80°41'42.9793"W	68.86	17.050	0.70	-0.65	-1.49	
1199.00	8.790	12.550	1193.40	-68.14	80.13	23.47	1726285.43	14372305.58	39°34'38.5712"N	80°41'42.9369"W	83.50	16.322	0.42	-0.40	-0.73	
1293.00	9.490	20.820	1286.21	-80.22	94.39	27.78	1726289.74	14372319.83	39°34'38.7119"N	80°41'42.8811"W	98.39	16.401	1.58	0.74	8.80	
1388.00	9.240	22.590	1379.94	-91.94	108.75	33.49	1726295.45	14372334.19	39°34'38.8537"N	80°41'42.8076"W	113.79	17.119	0.40	-0.26	1.86	
1482.00	8.900	21.240	1472.77	-103.14	122.50	39.03	1726300.98	14372347.93	39°34'38.9893"N	80°41'42.7363"W	128.56	17.672	0.43	-0.36	-1.44	
1576.00	8.400	19.830	1565.70	-114.04	135.73	43.99	1726305.94	14372361.16	39°34'39.1200"N	80°41'42.6723"W	142.68	17.958	0.58	-0.53	-1.50	
1671.00	8.290	18.760	1659.69	-124.87	148.74	48.55	1726310.50	14372374.17	39°34'39.2484"N	80°41'42.6136"W	156.47	18.076	0.20	-0.12	-1.13	
1765.00	9.570	18.110	1752.55	-136.46	162.59	53.16	1726315.11	14372388.00	39°34'39.3851"N	80°41'42.5541"W	171.06	18.105	1.37	1.36	-0.69	
1860.00	10.440	18.130	1846.11	-149.62	178.27	58.29	1726320.24	14372403.68	39°34'39.5400"N	80°41'42.4879"W	187.56	18.106	0.92	0.92	0.02	
1954.00	10.130	14.540	1938.60	-163.31	194.37	63.02	1726324.96	14372419.77	39°34'39.6989"N	80°41'42.4268"W	204.33	17.963	0.76	-0.33	-3.82	
2048.00	10.590	20.070	2031.07	-176.91	210.49	68.05	1726330.00	14372435.88	39°34'39.8580"N	80°41'42.3618"W	221.21	17.917	1.17	0.49	5.88	
2142.00	10.470	21.590	2123.48	-190.10	226.54	74.16	1726336.10	14372451.93	39°34'40.0164"N	80°41'42.2831"W	238.37	18.127	0.32	-0.13	1.62	
2237.00	10.320	19.400	2216.92	-203.33	242.59	80.16	1726342.10	14372467.98	39°34'40.1749"N	80°41'42.2057"W	255.49	18.286	0.44	-0.16	-2.31	
2331.00	10.170	17.360	2309.43	-216.62	258.46	85.44	1726347.37	14372483.83	39°34'40.3315"N	80°41'42.1377"W	272.21	18.292	0.42	-0.16	-2.17	
2426.00	9.880	15.940	2402.98	-230.05	274.30	90.18	1726352.11	14372499.67	39°34'40.4879"N	80°41'42.0765"W	288.74	18.199	0.40	-0.31	-1.49	
2520.00	9.610	13.080	2495.62	-243.32	289.69	94.17	1726356.10	14372515.06	39°34'40.6399"N	80°41'42.0249"W	304.62	18.007	0.59	-0.29	-3.04	
2615.00	9.450	10.810	2589.31	-256.81	305.08	97.43	1726359.36	14372530.44	39°34'40.7919"N	80°41'41.9826"W	320.26	17.711	0.43	-0.17	-2.39	



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Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWB
Slot	Slot D		

WELLPATH DATA (248 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
2709.00	9.770	15.740	2681.99	-270.06	320.34	101.04	1726362.97	14372545.69	39°34'40.9425"N	80°41'41.9358"W	335.89	17.506	0.94	0.34	5.24	
2803.00	9.750	17.330	2774.63	-283.03	335.61	105.57	1726367.50	14372560.96	39°34'41.0933"N	80°41'41.8772"W	351.82	17.462	0.29	-0.02	1.69	
2897.00	9.350	15.590	2867.33	-295.73	350.56	109.99	1726371.92	14372575.91	39°34'41.2410"N	80°41'41.8201"W	367.41	17.420	0.52	-0.43	-1.85	
2992.00	9.120	10.670	2961.10	-308.63	365.40	113.46	1726375.39	14372590.73	39°34'41.3875"N	80°41'41.7752"W	382.61	17.251	0.87	-0.24	-5.18	
3086.00	9.780	14.830	3053.82	-321.74	380.43	116.89	1726378.81	14372605.76	39°34'41.5360"N	80°41'41.7308"W	397.99	17.079	1.01	0.70	4.43	
3180.00	10.030	17.900	3146.42	-334.92	395.94	121.44	1726383.37	14372621.27	39°34'41.6891"N	80°41'41.6719"W	414.15	17.052	0.62	0.27	3.27	
3275.00	9.600	15.040	3240.03	-348.10	411.46	126.04	1726387.96	14372636.78	39°34'41.8423"N	80°41'41.6125"W	430.34	17.031	0.68	-0.45	-3.01	
3369.00	9.230	13.770	3332.77	-360.94	426.36	129.87	1726391.79	14372651.67	39°34'41.9894"N	80°41'41.5630"W	445.70	16.941	0.45	-0.39	-1.35	
3463.00	8.820	11.670	3425.60	-373.48	440.74	133.12	1726395.04	14372666.04	39°34'42.1314"N	80°41'41.5208"W	460.40	16.807	0.56	-0.44	-2.23	
3478.00	8.770	11.620	3440.43	-375.45	442.98	133.59	1726395.50	14372668.29	39°34'42.1536"N	80°41'41.5148"W	462.69	16.781	0.34	-0.33	-0.33	
3558.00	8.440	8.700	3519.53	-385.90	454.76	135.70	1726397.62	14372680.06	39°34'42.2699"N	80°41'41.4873"W	474.57	16.615	0.68	-0.41	-3.65	APS EM <8-3/4"> (3478')(3558'-6260')
3654.00	9.340	19.550	3614.38	-398.23	469.07	139.38	1726401.29	14372694.36	39°34'42.4112"N	80°41'41.4397"W	489.33	16.549	1.98	0.94	11.30	
3748.00	9.760	20.870	3707.08	-410.32	483.70	144.77	1726406.68	14372708.99	39°34'42.5556"N	80°41'41.3703"W	504.90	16.662	0.50	0.45	1.40	
3842.00	9.100	17.360	3799.81	-422.42	498.24	149.82	1726411.73	14372723.52	39°34'42.6991"N	80°41'41.3051"W	520.28	16.736	0.93	-0.70	-3.73	
3937.00	8.470	14.020	3893.69	-434.34	512.20	153.76	1726415.67	14372737.48	39°34'42.8370"N	80°41'41.2542"W	534.78	16.710	0.85	-0.66	-3.52	
4031.00	10.440	15.120	3986.41	-447.20	527.14	157.66	1726419.57	14372752.41	39°34'42.9845"N	80°41'41.2037"W	550.21	16.651	2.10	2.10	1.17	
4125.00	12.510	17.550	4078.53	-462.44	545.07	162.95	1726424.86	14372770.33	39°34'43.1615"N	80°41'41.1354"W	568.90	16.644	2.26	2.20	2.59	
4219.00	11.910	14.850	4170.40	-478.67	564.15	168.51	1726430.41	14372789.41	39°34'43.3499"N	80°41'41.0636"W	588.78	16.630	0.88	-0.64	-2.87	
4314.00	10.990	10.770	4263.51	-494.68	582.52	172.71	1726434.61	14372807.77	39°34'43.5314"N	80°41'41.0091"W	607.59	16.514	1.29	-0.97	-4.29	
4408.00	10.390	18.320	4355.88	-509.20	599.37	177.05	1726438.95	14372824.62	39°34'43.6978"N	80°41'40.9530"W	624.97	16.457	1.62	-0.64	8.03	
4502.00	10.460	24.100	4448.33	-522.18	615.21	183.20	1726445.10	14372840.45	39°34'43.8541"N	80°41'40.8737"W	641.91	16.583	1.11	0.07	6.15	
4597.00	9.040	21.040	4541.96	-534.19	630.05	189.40	1726451.30	14372855.28	39°34'44.0005"N	80°41'40.7939"W	657.90	16.731	1.59	-1.49	-3.22	
4691.00	7.710	14.200	4634.96	-545.13	643.05	193.60	1726455.49	14372868.28	39°34'44.1289"N	80°41'40.7397"W	671.56	16.755	1.77	-1.41	-7.28	
4785.00	8.190	17.600	4728.06	-555.78	655.55	197.17	1726459.06	14372880.77	39°34'44.2523"N	80°41'40.6936"W	684.56	16.740	0.71	0.51	3.62	
4879.00	9.390	22.700	4820.95	-566.88	669.00	202.15	1726464.04	14372894.22	39°34'44.3851"N	80°41'40.6293"W	698.88	16.813	1.52	1.28	5.43	
4973.00	9.250	19.730	4913.71	-578.51	683.19	207.66	1726469.55	14372908.40	39°34'44.5251"N	80°41'40.5584"W	714.05	16.907	0.53	-0.15	-3.16	
5068.00	8.120	15.250	5007.62	-590.01	696.85	212.01	1726473.89	14372922.06	39°34'44.6600"N	80°41'40.5023"W	728.39	16.922	1.39	-1.19	-4.72	
5162.00	9.050	7.870	5100.57	-602.10	710.58	214.76	1726476.65	14372935.78	39°34'44.7956"N	80°41'40.4665"W	742.33	16.817	1.53	0.99	-7.85	
5257.00	10.170	6.310	5194.23	-616.35	726.32	216.71	1726478.59	14372951.51	39°34'44.9511"N	80°41'40.4410"W	757.96	16.613	1.21	1.18	-1.64	
5351.00	9.250	2.140	5286.89	-630.90	742.12	217.90	1726479.79	14372967.30	39°34'45.1072"N	80°41'40.4250"W	773.45	16.364	1.23	-0.98	-4.44	



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5445.00	9.100	8.280	5379.69	-644.55	757.02	219.26	1726481.14	14372982.20	39°34'45.2544"N	80°41'40.4071"W	788.13	16.153	1.05	-0.16	6.53	
5540.00	9.760	15.110	5473.41	-657.90	772.23	222.44	1726484.32	14372997.41	39°34'45.4046"N	80°41'40.3658"W	803.63	16.069	1.37	0.69	7.19	
5634.00	8.950	13.420	5566.16	-670.67	787.04	226.21	1726488.09	14373012.21	39°34'45.5508"N	80°41'40.3170"W	818.90	16.036	0.91	-0.86	-1.80	
5728.00	10.010	16.620	5658.87	-683.49	801.98	230.24	1726492.12	14373027.14	39°34'45.6983"N	80°41'40.2648"W	834.37	16.019	1.26	1.13	3.40	
5823.00	10.600	18.220	5752.34	-697.16	818.19	235.34	1726497.22	14373043.35	39°34'45.8584"N	80°41'40.1991"W	851.36	16.047	0.69	0.62	1.68	
5917.00	9.390	13.720	5844.91	-710.50	833.85	239.86	1726501.74	14373059.00	39°34'46.0130"N	80°41'40.1406"W	867.66	16.048	1.53	-1.29	-4.79	
6011.00	9.350	25.580	5937.67	-722.40	848.19	244.97	1726506.85	14373073.34	39°34'46.1546"N	80°41'40.0747"W	882.86	16.110	2.05	-0.04	12.60	
6105.00	9.390	31.800	6030.41	-732.69	861.60	252.31	1726514.18	14373086.74	39°34'46.2868"N	80°41'39.9804"W	897.78	16.322	1.08	0.04	6.64	
6199.00	7.890	29.100	6123.35	-741.85	873.75	259.49	1726521.36	14373098.89	39°34'46.4067"N	80°41'39.8882"W	911.47	16.541	1.65	-1.60	-2.87	
6260.00	6.930	26.800	6183.84	-747.22	880.69	263.18	1726525.05	14373105.83	39°34'46.4752"N	80°41'39.8407"W	919.18	16.638	1.65	-1.57	-3.77	
6314.00	6.580	24.960	6237.46	-751.72	886.41	265.96	1726527.82	14373111.54	39°34'46.5316"N	80°41'39.8050"W	925.45	16.701	0.76	-0.65	-3.41	BH Lucida <8-1/2"> (6260')(6314'-22540')
6350.00	5.610	22.300	6273.26	-754.52	889.91	267.50	1726529.36	14373115.04	39°34'46.5661"N	80°41'39.7852"W	929.24	16.730	2.81	-2.69	-7.39	
6444.00	3.050	47.660	6366.99	-758.97	895.84	271.09	1726532.95	14373120.97	39°34'46.6247"N	80°41'39.7391"W	935.96	16.836	3.34	-2.72	26.98	
6539.00	5.720	155.270	6461.81	-755.26	893.24	274.94	1726536.81	14373118.37	39°34'46.5988"N	80°41'39.6900"W	934.60	17.109	7.63	2.81	113.27	
6633.00	12.090	158.630	6554.63	-740.74	879.81	280.50	1726542.36	14373104.94	39°34'46.4658"N	80°41'39.6197"W	923.44	17.683	6.80	6.78	3.57	
6727.00	21.140	159.510	6644.61	-713.91	854.71	290.04	1726551.89	14373079.85	39°34'46.2175"N	80°41'39.4989"W	902.58	18.744	9.63	9.63	0.94	
6776.00†	25.161	160.613	6689.66	-694.65	836.60	296.59	1726558.44	14373061.75	39°34'46.0383"N	80°41'39.4160"W	887.62	19.520	8.25	8.21	2.25	Sycamore: 6776' MD
6821.00	28.860	161.370	6729.74	-674.22	817.28	303.24	1726565.09	14373042.43	39°34'45.8471"N	80°41'39.3319"W	871.72	20.357	8.25	8.22	1.68	
6915.00	37.830	159.740	6808.19	-622.61	768.64	320.50	1726582.35	14372993.81	39°34'45.3658"N	80°41'39.1136"W	832.78	22.635	9.59	9.54	-1.73	
6933.00†	39.408	159.040	6822.25	-611.38	758.12	324.46	1726586.30	14372983.30	39°34'45.2617"N	80°41'39.0635"W	824.63	23.170	9.10	8.77	-3.89	Middlesex: 6933' MD
7009.00	46.110	156.530	6878.03	-559.90	710.42	344.02	1726605.85	14372935.62	39°34'44.7896"N	80°41'38.8158"W	789.33	25.838	9.10	8.82	-3.30	
7075.00†	51.967	156.314	6921.27	-510.25	664.76	363.95	1726625.77	14372889.98	39°34'44.3377"N	80°41'38.5632"W	757.87	28.700	8.88	8.87	-0.33	Burkett: 7075' MD
7104.00	54.540	156.230	6938.62	-487.09	643.49	373.30	1726635.12	14372868.71	39°34'44.1272"N	80°41'38.4447"W	743.93	30.119	8.88	8.87	-0.29	
7130.00†	56.634	156.391	6953.31	-465.72	623.85	381.92	1726643.73	14372849.08	39°34'43.9328"N	80°41'38.3355"W	731.47	31.475	8.07	8.05	0.62	Tully: 7130' MD
7198.00	62.110	156.780	6987.95	-407.40	570.17	405.15	1726666.96	14372795.42	39°34'43.4015"N	80°41'38.0411"W	699.46	35.397	8.07	8.05	0.57	
7292.00	70.820	157.530	7025.44	-321.50	490.82	438.56	1726700.36	14372716.11	39°34'42.6161"N	80°41'37.6179"W	658.21	41.782	9.29	9.27	0.80	
7364.00†	75.424	159.912	7046.35	-252.68	426.63	463.54	1726725.33	14372651.95	39°34'41.9809"N	80°41'37.3017"W	629.99	47.374	7.13	6.39	3.31	Marcellus POE: 7364' MD
7387.00	76.900	160.650	7051.85	-230.35	405.61	471.08	1726732.86	14372630.93	39°34'41.7729"N	80°41'37.2064"W	621.64	49.270	7.13	6.42	3.21	
7481.00	83.800	160.710	7067.59	-137.73	318.21	501.72	1726763.49	14372543.57	39°34'40.9081"N	80°41'36.8188"W	594.12	57.615	7.34	7.34	0.06	
7575.00	89.110	161.290	7073.40	-43.95	229.54	532.25	1726794.01	14372454.93	39°34'40.0307"N	80°41'36.4328"W	579.63	66.672	5.68	5.65	0.62	



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWP
Slot	Slot D		

WELLPATH DATA (248 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
7669.00	90.030	161.950	7074.11	50.04	140.33	561.89	1726823.64	14372365.76	39°34'39.1481"N	80°41'36.0582"W	579.15	75.977	1.20	0.98	0.70	
7764.00	89.780	161.220	7074.27	145.04	50.20	591.90	1726853.63	14372275.66	39°34'38.2562"N	80°41'35.6788"W	594.02	85.152	0.81	-0.26	-0.77	
7858.00	89.850	161.110	7074.57	239.04	-38.77	622.24	1726883.97	14372186.73	39°34'37.3760"N	80°41'35.2951"W	623.45	93.565	0.14	0.07	-0.12	
7952.00	89.940	161.860	7074.74	333.03	-127.90	652.09	1726913.81	14372097.63	39°34'36.4940"N	80°41'34.9178"W	664.52	101.097	0.80	0.10	0.80	
8047.00	89.970	161.300	7074.82	428.03	-218.03	682.11	1726943.81	14372007.53	39°34'35.6022"N	80°41'34.5384"W	716.11	107.726	0.59	0.03	-0.59	
8141.00	90.000	160.950	7074.84	522.03	-306.98	712.52	1726974.21	14371918.62	39°34'34.7221"N	80°41'34.1539"W	775.84	113.308	0.37	0.03	-0.37	
8235.00	89.910	161.280	7074.92	616.03	-395.92	742.95	1727004.62	14371829.72	39°34'33.8421"N	80°41'33.7693"W	841.85	118.053	0.36	-0.10	0.35	
8329.00	89.880	161.190	7075.09	710.03	-484.92	773.18	1727034.85	14371740.75	39°34'32.9614"N	80°41'33.3870"W	912.67	122.095	0.10	-0.03	-0.10	
8423.00	89.910	161.520	7075.26	804.02	-573.99	803.24	1727064.89	14371651.72	39°34'32.0802"N	80°41'33.0071"W	987.24	125.549	0.35	0.03	0.35	
8518.00	89.970	161.340	7075.36	899.02	-664.04	833.49	1727095.13	14371561.70	39°34'31.1891"N	80°41'32.6247"W	1065.67	128.544	0.20	0.06	-0.19	
8612.00	90.030	161.220	7075.36	993.02	-753.07	863.66	1727125.29	14371472.71	39°34'30.3082"N	80°41'32.2433"W	1145.87	131.087	0.14	0.06	-0.13	
8706.00	89.820	160.970	7075.48	1087.02	-842.00	894.12	1727155.73	14371383.81	39°34'29.4283"N	80°41'31.8582"W	1228.17	133.280	0.35	-0.22	-0.27	
8800.00	90.060	161.730	7075.58	1181.02	-931.06	924.17	1727185.78	14371294.79	39°34'28.5471"N	80°41'31.4783"W	1311.86	135.213	0.85	0.26	0.81	
8894.00	90.460	163.410	7075.16	1274.98	-1020.74	952.33	1727213.93	14371205.14	39°34'27.6598"N	80°41'31.1226"W	1396.01	136.986	1.84	0.43	1.79	
8988.00	89.690	161.200	7075.03	1368.95	-1110.29	980.90	1727242.48	14371115.63	39°34'26.7738"N	80°41'30.7617"W	1481.52	138.541	2.49	-0.82	-2.35	
9082.00	90.890	161.810	7074.56	1462.94	-1199.43	1010.72	1727272.29	14371026.52	39°34'25.8918"N	80°41'30.3848"W	1568.50	139.880	1.43	1.28	0.65	
9176.00	91.600	161.470	7072.51	1556.91	-1288.62	1040.32	1727301.88	14370937.37	39°34'25.0093"N	80°41'30.0107"W	1656.14	141.086	0.84	0.76	-0.36	
9270.00	89.630	162.260	7071.51	1650.89	-1377.94	1069.57	1727331.12	14370848.08	39°34'24.1255"N	80°41'29.6411"W	1744.34	142.181	2.26	-2.10	0.84	
9364.00	90.120	163.300	7071.71	1744.85	-1467.73	1097.40	1727358.94	14370758.33	39°34'23.2372"N	80°41'29.2896"W	1832.62	143.215	1.22	0.52	1.11	
9458.00	89.600	162.560	7071.94	1838.79	-1557.58	1124.99	1727386.52	14370668.51	39°34'22.3482"N	80°41'28.9412"W	1921.37	144.161	0.96	-0.55	-0.79	
9553.00	89.600	163.690	7072.60	1933.72	-1648.49	1152.57	1727414.09	14370577.64	39°34'21.4488"N	80°41'28.5930"W	2011.45	145.040	1.19	0.00	1.19	
9647.00	88.550	160.100	7074.12	2027.68	-1737.81	1181.77	1727443.28	14370488.36	39°34'20.5651"N	80°41'28.2241"W	2101.56	145.783	3.98	-1.12	-3.82	
9741.00	89.510	161.000	7075.71	2121.67	-1826.43	1213.07	1727474.56	14370399.77	39°34'19.6882"N	80°41'27.8283"W	2192.57	146.409	1.40	1.02	0.96	
9835.00	90.250	161.850	7075.91	2215.66	-1915.53	1243.01	1727504.49	14370310.70	39°34'18.8066"N	80°41'27.4498"W	2283.49	147.020	1.20	0.79	0.90	
9929.00	90.400	161.570	7075.38	2309.65	-2004.78	1272.51	1727533.98	14370221.49	39°34'17.9235"N	80°41'27.0771"W	2374.54	147.595	0.34	0.16	-0.30	
10023.00	89.940	161.840	7075.10	2403.65	-2094.03	1302.02	1727563.47	14370132.28	39°34'17.0404"N	80°41'26.7042"W	2465.81	148.128	0.57	-0.49	0.29	
10117.00	90.030	160.720	7075.12	2497.64	-2183.05	1332.18	1727593.63	14370043.29	39°34'16.1595"N	80°41'26.3229"W	2557.43	148.607	1.20	0.10	-1.19	
10212.00	90.150	161.500	7074.97	2592.64	-2272.94	1362.94	1727624.37	14369953.44	39°34'15.2702"N	80°41'25.9341"W	2650.25	149.051	0.83	0.13	0.82	
10306.00	89.380	162.140	7075.36	2686.63	-2362.24	1392.27	1727653.69	14369864.17	39°34'14.3866"N	80°41'25.5635"W	2742.01	149.486	1.07	-0.82	0.68	
10400.00	89.880	160.060	7075.97	2780.62	-2451.17	1422.71	1727684.12	14369775.28	39°34'13.5067"N	80°41'25.1786"W	2834.14	149.868	2.28	0.53	-2.21	



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWP
Slot	Slot D		

WELLPATH DATA (248 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
10495.00	89.720	160.060	7076.30	2875.61	-2540.47	1455.11	1727716.51	14369686.01	39°34'12.6229"N	80°41'24.7688"W	2927.69	150.197	0.17	-0.17	0.00	
10589.00	90.000	163.070	7076.53	2969.59	-2629.64	1484.83	1727746.22	14369596.88	39°34'11.7407"N	80°41'24.3932"W	3019.89	150.549	3.22	0.30	3.20	
10683.00	90.710	164.870	7075.94	3063.46	-2719.98	1510.79	1727772.16	14369506.57	39°34'10.8470"N	80°41'24.0657"W	3111.39	150.950	2.06	0.76	1.91	
10777.00	90.280	165.040	7075.13	3157.24	-2810.75	1535.19	1727796.55	14369415.84	39°34'9.9490"N	80°41'23.7582"W	3202.67	151.357	0.49	-0.46	0.18	
10871.00	89.720	161.050	7075.13	3251.16	-2900.65	1562.60	1727823.95	14369325.98	39°34'9.0596"N	80°41'23.4122"W	3294.76	151.688	4.29	-0.60	-4.24	
10966.00	89.720	159.070	7075.60	3346.14	-2989.95	1594.99	1727856.33	14369236.71	39°34'8.1759"N	80°41'23.0024"W	3388.77	151.922	2.08	0.00	-2.08	
11060.00	89.750	159.510	7076.03	3440.10	-3077.87	1628.23	1727889.56	14369148.82	39°34'7.3058"N	80°41'22.5818"W	3482.02	152.121	0.47	0.03	0.47	
11154.00	88.980	158.820	7077.07	3534.04	-3165.72	1661.66	1727922.98	14369061.01	39°34'6.4365"N	80°41'22.1588"W	3575.32	152.305	1.10	-0.82	-0.73	
11248.00	89.880	159.370	7078.01	3627.98	-3253.52	1695.20	1727956.51	14368973.24	39°34'5.5675"N	80°41'21.7344"W	3668.67	152.479	1.12	0.96	0.59	
11342.00	88.950	157.550	7078.97	3721.88	-3340.95	1729.71	1727991.00	14368885.85	39°34'4.7023"N	80°41'21.2976"W	3762.16	152.623	2.17	-0.99	-1.94	
11436.00	88.980	157.520	7080.67	3815.69	-3427.80	1765.63	1728026.90	14368799.03	39°34'3.8427"N	80°41'20.8429"W	3855.81	152.747	0.05	0.03	-0.03	
11531.00	90.150	158.060	7081.39	3910.53	-3515.75	1801.53	1728062.79	14368711.11	39°34'2.9723"N	80°41'20.3882"W	3950.44	152.869	1.36	1.23	0.57	
11625.00	91.290	160.420	7080.21	4004.47	-3603.63	1834.85	1728096.09	14368623.27	39°34'2.1026"N	80°41'19.9667"W	4043.86	153.016	2.79	1.21	2.51	
11719.00	90.220	156.920	7078.97	4098.37	-3691.17	1869.03	1728130.26	14368535.76	39°34'1.2363"N	80°41'19.5341"W	4137.39	153.145	3.89	-1.14	-3.72	
11813.00	90.650	158.430	7078.25	4192.20	-3778.12	1904.73	1728165.96	14368448.85	39°34'0.3757"N	80°41'19.0821"W	4231.10	153.245	1.67	0.46	1.61	
11908.00	89.680	157.120	7078.00	4287.05	-3866.06	1940.67	1728201.87	14368360.94	39°33'59.5054"N	80°41'18.6271"W	4325.80	153.344	1.73	-1.04	-1.38	
12002.00	89.540	156.670	7078.65	4380.80	-3952.52	1977.55	1728238.74	14368274.52	39°33'58.6496"N	80°41'18.1600"W	4419.63	153.420	0.50	-0.13	-0.48	
12096.00	90.120	156.260	7078.93	4474.50	-4038.69	2015.09	1728276.26	14368188.37	39°33'57.7966"N	80°41'17.6845"W	4513.49	153.483	0.76	0.62	-0.44	
12190.00	90.250	158.340	7078.63	4568.30	-4125.41	2051.36	1728312.52	14368101.70	39°33'56.9384"N	80°41'17.2252"W	4607.28	153.561	2.22	0.14	2.21	
12285.00	90.250	160.960	7078.21	4663.26	-4214.47	2084.39	1728345.54	14368012.67	39°33'56.0570"N	80°41'16.8073"W	4701.75	153.684	2.76	0.00	2.76	
12379.00	90.150	161.530	7077.89	4757.26	-4303.48	2114.62	1728375.75	14367923.70	39°33'55.1763"N	80°41'16.4254"W	4794.95	153.832	0.62	-0.11	0.61	
12473.00	90.710	161.160	7077.18	4851.26	-4392.54	2144.68	1728405.81	14367834.67	39°33'54.2951"N	80°41'16.0454"W	4888.15	153.976	0.71	0.60	-0.39	
12567.00	90.460	161.940	7076.22	4945.25	-4481.70	2174.43	1728435.54	14367745.54	39°33'53.4128"N	80°41'15.6695"W	4981.34	154.118	0.87	-0.27	0.83	
12662.00	89.970	161.390	7075.86	5040.24	-4571.88	2204.31	1728465.42	14367655.40	39°33'52.5206"N	80°41'15.2920"W	5075.53	154.259	0.78	-0.52	-0.58	
12756.00	90.000	161.530	7075.89	5134.24	-4661.00	2234.20	1728495.29	14367566.32	39°33'51.6388"N	80°41'14.9143"W	5168.81	154.390	0.15	0.03	0.15	
12850.00	90.030	161.720	7075.86	5228.23	-4750.20	2263.84	1728524.91	14367477.15	39°33'50.7561"N	80°41'14.5399"W	5262.07	154.519	0.20	0.03	0.20	
12945.00	89.850	161.430	7075.96	5323.23	-4840.33	2293.86	1728554.93	14367387.05	39°33'49.8643"N	80°41'14.1605"W	5356.36	154.643	0.36	-0.19	-0.31	
13039.00	89.690	161.720	7076.34	5417.22	-4929.51	2323.57	1728584.63	14367297.91	39°33'48.9819"N	80°41'13.7851"W	5449.69	154.763	0.35	-0.17	0.31	
13227.00	90.340	162.150	7076.29	5605.20	-5108.25	2381.87	1728642.90	14367119.24	39°33'47.2134"N	80°41'13.0487"W	5636.26	155.001	0.41	0.35	0.23	
13322.00	89.820	160.790	7076.16	5700.19	-5198.32	2412.06	1728673.08	14367029.21	39°33'46.3222"N	80°41'12.6672"W	5730.67	155.108	1.53	-0.55	-1.43	



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWB
Slot	Slot D		

WELLPATH DATA (248 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
13416.00	89.660	161.840	7076.59	5794.19	-5287.36	2442.17	1728703.18	14366940.20	39°33'45.4411"N	80°41'12.2867"W	5824.12	155.208	1.13	-0.17	1.12	
13510.00	89.290	161.810	7077.45	5888.17	-5376.67	2471.49	1728732.49	14366850.93	39°33'44.5575"N	80°41'11.9163"W	5917.50	155.313	0.39	-0.39	-0.03	
13605.00	89.750	161.450	7078.24	5983.16	-5466.82	2501.43	1728762.42	14366760.81	39°33'43.6654"N	80°41'11.5381"W	6011.93	155.413	0.61	0.48	-0.38	
13699.00	89.690	161.490	7078.70	6077.16	-5555.95	2531.30	1728792.28	14366671.72	39°33'42.7836"N	80°41'11.1606"W	6105.41	155.506	0.08	-0.08	0.04	
13793.00	90.120	161.850	7078.86	6171.15	-5645.18	2560.86	1728821.83	14366582.52	39°33'41.9007"N	80°41'10.7871"W	6198.88	155.599	0.60	0.46	0.38	
13888.00	90.310	161.530	7078.50	6266.15	-5735.37	2590.71	1728851.66	14366492.37	39°33'41.0083"N	80°41'10.4101"W	6293.35	155.691	0.39	0.20	-0.34	
13982.00	90.370	161.790	7077.94	6360.14	-5824.59	2620.29	1728881.23	14366403.18	39°33'40.1255"N	80°41'10.0364"W	6386.84	155.779	0.28	0.06	0.28	
14076.00	90.030	161.750	7077.62	6454.13	-5913.87	2649.69	1728910.62	14366313.93	39°33'39.2421"N	80°41'9.6650"W	6480.34	155.865	0.36	-0.36	-0.04	
14170.00	90.580	162.320	7077.11	6548.11	-6003.29	2678.68	1728939.60	14366224.55	39°33'38.3573"N	80°41'9.2988"W	6573.80	155.953	0.84	0.59	0.61	
14265.00	89.880	161.530	7076.73	6643.10	-6093.60	2708.16	1728969.06	14366134.28	39°33'37.4638"N	80°41'8.9265"W	6668.29	156.038	1.11	-0.74	-0.83	
14359.00	89.850	161.070	7076.95	6737.10	-6182.64	2738.30	1728999.19	14366045.28	39°33'36.5828"N	80°41'8.5457"W	6761.90	156.111	0.49	-0.03	-0.49	
14454.00	90.340	162.570	7076.80	6832.09	-6272.89	2767.94	1729028.82	14365955.06	39°33'35.6897"N	80°41'8.1713"W	6856.43	156.190	1.66	0.52	1.58	
14548.00	90.030	161.670	7076.49	6926.07	-6362.35	2796.80	1729057.66	14365865.63	39°33'34.8046"N	80°41'7.8068"W	6949.93	156.270	1.01	-0.33	-0.96	
14643.00	89.880	161.680	7076.57	7021.06	-6452.53	2826.66	1729087.52	14365775.49	39°33'33.9123"N	80°41'7.4295"W	7044.52	156.343	0.16	-0.16	0.01	
14737.00	90.120	161.800	7076.57	7115.05	-6541.80	2856.12	1729116.98	14365686.26	39°33'33.0290"N	80°41'7.0574"W	7138.10	156.414	0.29	0.26	0.13	
14832.00	89.910	161.550	7076.54	7210.05	-6631.98	2885.99	1729146.82	14365596.11	39°33'32.1367"N	80°41'6.6801"W	7232.71	156.483	0.34	-0.22	-0.26	
14926.00	89.820	161.170	7076.76	7304.04	-6721.05	2916.03	1729176.85	14365507.08	39°33'31.2554"N	80°41'6.3005"W	7326.37	156.546	0.42	-0.10	-0.40	
15021.00	89.850	161.460	7077.04	7399.04	-6811.04	2946.46	1729207.27	14365417.12	39°33'30.3649"N	80°41'5.9160"W	7421.05	156.607	0.31	0.03	0.31	
15115.00	89.720	160.860	7077.39	7493.04	-6900.00	2976.82	1729237.62	14365328.19	39°33'29.4846"N	80°41'5.5324"W	7514.75	156.664	0.65	-0.14	-0.64	
15209.00	89.690	160.490	7077.88	7587.04	-6988.71	3007.93	1729268.71	14365239.52	39°33'28.6069"N	80°41'5.1392"W	7608.52	156.713	0.39	-0.03	-0.39	
15303.00	89.940	160.330	7078.18	7681.03	-7077.27	3039.44	1729300.22	14365151.00	39°33'27.7306"N	80°41'4.7408"W	7702.33	156.758	0.32	0.27	-0.17	
15398.00	90.030	160.560	7078.20	7776.03	-7166.79	3071.24	1729332.00	14365061.52	39°33'26.8447"N	80°41'4.3388"W	7797.14	156.803	0.26	0.09	0.24	
15492.00	90.460	160.160	7077.80	7870.02	-7255.32	3102.83	1729363.58	14364973.02	39°33'25.9687"N	80°41'3.9394"W	7890.96	156.845	0.62	0.46	-0.43	
15586.00	89.570	160.580	7077.78	7964.01	-7343.85	3134.41	1729395.15	14364884.52	39°33'25.0925"N	80°41'3.5402"W	7984.78	156.887	1.05	-0.95	0.45	
15681.00	89.380	160.390	7078.65	8059.00	-7433.39	3166.15	1729426.87	14364795.02	39°33'24.2085"N	80°41'3.1391"W	8079.59	156.929	0.28	-0.20	-0.20	
15775.00	89.630	160.580	7079.46	8153.00	-7521.99	3197.55	1729458.26	14364706.45	39°33'23.3298"N	80°41'2.7422"W	8173.41	156.970	0.33	0.27	0.20	
15869.00	89.660	160.260	7080.04	8246.99	-7610.55	3229.05	1729489.75	14364617.93	39°33'22.4534"N	80°41'2.3440"W	8267.24	157.009	0.34	0.03	-0.34	
15964.00	89.720	160.530	7080.56	8341.98	-7700.04	3260.92	1729521.61	14364528.47	39°33'21.5679"N	80°41'1.9410"W	8362.07	157.048	0.29	0.06	0.28	
16058.00	89.570	160.340	7081.14	8435.98	-7788.61	3292.40	1729553.07	14364439.93	39°33'20.6914"N	80°41'1.5431"W	8455.91	157.085	0.26	-0.16	-0.20	
16153.00	89.850	160.460	7081.62	8530.97	-7878.11	3324.27	1729584.93	14364350.47	39°33'19.8058"N	80°41'1.1403"W	8550.75	157.122	0.32	0.29	0.13	



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWB
Slot	Slot D		

WELLPATH DATA (248 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
16247.00	89.260	159.860	7082.35	8624.95	-7966.52	3356.17	1729616.82	14364262.09	39°33'18.9309"N	80°41'0.7370"W	8644.61	157.155	0.90	-0.63	-0.64	
16342.00	89.660	160.590	7083.24	8719.94	-8055.92	3388.31	1729648.94	14364172.73	39°33'18.0463"N	80°41'0.3307"W	8739.47	157.188	0.88	0.42	0.77	
16435.00	89.910	160.020	7083.59	8812.93	-8143.47	3419.65	1729680.27	14364085.21	39°33'17.1798"N	80°40'59.9345"W	8832.34	157.221	0.67	0.27	-0.61	
16530.00	89.720	160.120	7083.90	8907.92	-8232.78	3452.03	1729712.64	14363995.94	39°33'16.2960"N	80°40'59.5251"W	8927.22	157.252	0.23	-0.20	0.11	
16624.00	89.780	160.160	7084.31	9001.91	-8321.19	3483.97	1729744.57	14363907.56	39°33'15.4211"N	80°40'59.1214"W	9021.10	157.282	0.08	0.06	0.04	
16718.00	89.690	159.780	7084.75	9095.89	-8409.51	3516.16	1729776.75	14363819.28	39°33'14.5472"N	80°40'58.7143"W	9115.00	157.309	0.42	-0.10	-0.40	
16813.00	89.350	160.350	7085.54	9190.87	-8498.81	3548.55	1729809.13	14363730.01	39°33'13.6635"N	80°40'58.3048"W	9209.89	157.338	0.70	-0.36	0.60	
16908.00	89.820	160.250	7086.23	9285.86	-8588.25	3580.57	1729841.14	14363640.61	39°33'12.7784"N	80°40'57.9001"W	9304.76	157.368	0.51	0.49	-0.11	
17002.00	90.090	160.190	7086.30	9379.85	-8676.70	3612.39	1729872.93	14363552.19	39°33'11.9031"N	80°40'57.4979"W	9398.64	157.396	0.29	0.29	-0.06	
17097.00	89.600	159.960	7086.56	9474.84	-8766.01	3644.76	1729905.30	14363462.92	39°33'11.0193"N	80°40'57.0886"W	9493.54	157.423	0.57	-0.52	-0.24	
17191.00	89.540	160.470	7087.27	9568.83	-8854.46	3676.58	1729937.10	14363374.50	39°33'10.1440"N	80°40'56.6864"W	9587.42	157.451	0.55	-0.06	0.54	
17285.00	89.080	159.920	7088.40	9662.81	-8942.89	3708.42	1729968.93	14363286.10	39°33'9.2689"N	80°40'56.2839"W	9681.31	157.477	0.76	-0.49	-0.59	
17380.00	89.260	159.950	7089.77	9757.78	-9032.12	3741.01	1730001.51	14363196.92	39°33'8.3859"N	80°40'55.8718"W	9776.21	157.501	0.19	0.19	0.03	
17474.00	89.110	160.170	7091.11	9851.76	-9120.47	3773.07	1730033.55	14363108.59	39°33'7.5116"N	80°40'55.4666"W	9870.11	157.526	0.28	-0.16	0.23	
17568.00	89.050	161.530	7092.62	9945.74	-9209.26	3803.90	1730064.37	14363019.84	39°33'6.6330"N	80°40'55.0770"W	9963.94	157.557	1.45	-0.06	1.45	
17663.00	89.450	162.390	7093.86	10040.72	-9299.58	3833.32	1730093.78	14362929.56	39°33'5.7393"N	80°40'54.7056"W	10058.65	157.598	1.00	0.42	0.91	
17757.00	89.230	162.420	7094.95	10134.69	-9389.18	3861.73	1730122.18	14362840.00	39°33'4.8529"N	80°40'54.3469"W	10152.32	157.643	0.24	-0.23	0.03	
17852.00	89.290	162.100	7096.17	10229.66	-9479.65	3890.67	1730151.11	14362749.56	39°33'3.9577"N	80°40'53.9815"W	10247.01	157.686	0.34	0.06	-0.34	
17947.00	89.290	162.260	7097.35	10324.63	-9570.09	3919.74	1730180.17	14362659.16	39°33'3.0629"N	80°40'53.6144"W	10341.71	157.727	0.17	0.00	0.17	
18041.00	90.120	162.310	7097.83	10418.61	-9659.63	3948.34	1730208.76	14362569.65	39°33'2.1769"N	80°40'53.2534"W	10435.41	157.768	0.88	0.88	0.05	
18135.00	89.380	162.620	7098.24	10512.58	-9749.26	3976.67	1730237.07	14362480.06	39°33'1.2901"N	80°40'52.8959"W	10529.10	157.810	0.85	-0.79	0.33	
18230.00	89.350	162.760	7099.30	10607.53	-9839.95	4004.93	1730265.32	14362389.40	39°33'0.3928"N	80°40'52.5391"W	10623.75	157.853	0.15	-0.03	0.15	
18324.00	89.110	162.630	7100.56	10701.48	-9929.69	4032.89	1730293.27	14362299.70	39°32'59.5049"N	80°40'52.1863"W	10717.41	157.896	0.29	-0.26	-0.14	
18418.00	89.020	162.180	7102.09	10795.44	-10019.28	4061.30	1730321.67	14362210.15	39°32'58.6185"N	80°40'51.8277"W	10811.11	157.935	0.49	-0.10	-0.48	
18513.00	89.600	161.330	7103.24	10890.42	-10109.49	4091.04	1730351.40	14362119.96	39°32'57.7258"N	80°40'51.4521"W	10905.89	157.968	1.08	0.61	-0.89	
18702.00	89.170	162.500	7105.27	11079.39	-10289.14	4149.71	1730410.04	14361940.39	39°32'55.9482"N	80°40'50.7113"W	11094.44	158.035	0.66	-0.23	0.62	
18796.00	89.230	161.360	7106.58	11173.36	-10378.50	4178.86	1730439.19	14361851.07	39°32'55.0641"N	80°40'50.3432"W	11188.21	158.068	1.21	0.06	-1.21	
18890.00	89.450	160.780	7107.66	11267.36	-10467.41	4209.35	1730469.67	14361762.19	39°32'54.1843"N	80°40'49.9580"W	11282.08	158.093	0.66	0.23	-0.62	
18984.00	90.120	164.430	7108.02	11361.30	-10557.09	4237.45	1730497.75	14361672.54	39°32'53.2970"N	80°40'49.6034"W	11375.77	158.130	3.95	0.71	3.88	
19078.00	89.450	161.350	7108.37	11455.24	-10646.92	4265.10	1730525.39	14361582.75	39°32'52.4082"N	80°40'49.2544"W	11469.44	158.169	3.35	-0.71	-3.28	



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWP
Slot	Slot D		

WELLPATH DATA (248 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
19173.00	89.110	160.230	7109.56	11550.23	-10736.62	4296.36	1730556.64	14361493.09	39°32'51.5206"N	80°40'48.8595"W	11564.33	158.191	1.23	-0.36	-1.18	
19267.00	89.910	160.430	7110.37	11644.22	-10825.13	4328.00	1730588.26	14361404.61	39°32'50.6447"N	80°40'48.4597"W	11658.26	158.208	0.88	0.85	0.21	
19361.00	89.880	159.940	7110.54	11738.21	-10913.57	4359.86	1730620.11	14361316.21	39°32'49.7696"N	80°40'48.0569"W	11752.20	158.224	0.52	-0.03	-0.52	
19456.00	90.060	161.250	7110.59	11833.21	-11003.17	4391.42	1730651.66	14361226.64	39°32'48.8829"N	80°40'47.6581"W	11847.12	158.243	1.39	0.19	1.38	
19550.00	90.800	162.280	7109.88	11927.19	-11092.44	4420.83	1730681.06	14361137.40	39°32'47.9995"N	80°40'47.2867"W	11940.94	158.271	1.35	0.79	1.10	
19644.00	90.710	162.100	7108.64	12021.17	-11181.93	4449.58	1730709.80	14361047.95	39°32'47.1141"N	80°40'46.9238"W	12034.71	158.301	0.21	-0.10	-0.19	
19739.00	90.220	161.620	7107.87	12116.15	-11272.20	4479.16	1730739.37	14360957.71	39°32'46.2209"N	80°40'46.5503"W	12129.53	158.329	0.72	-0.52	-0.51	
19833.00	88.310	160.880	7109.08	12210.14	-11361.20	4509.37	1730769.57	14360868.75	39°32'45.3402"N	80°40'46.1687"W	12223.39	158.351	2.18	-2.03	-0.79	
19928.00	89.380	162.350	7110.99	12305.11	-11451.33	4539.33	1730799.51	14360778.65	39°32'44.4484"N	80°40'45.7904"W	12318.22	158.377	1.91	1.13	1.55	
20022.00	89.260	162.570	7112.11	12399.07	-11540.96	4567.65	1730827.82	14360689.07	39°32'43.5616"N	80°40'45.4329"W	12411.97	158.407	0.27	-0.13	0.23	
20116.00	89.570	162.590	7113.07	12493.03	-11630.64	4595.79	1730855.95	14360599.42	39°32'42.6743"N	80°40'45.0778"W	12505.72	158.439	0.33	0.33	0.02	
20211.00	89.630	162.010	7113.73	12588.01	-11721.14	4624.67	1730884.82	14360508.95	39°32'41.7788"N	80°40'44.7132"W	12600.51	158.468	0.61	0.06	-0.61	
20305.00	89.780	161.740	7114.22	12682.00	-11810.47	4653.92	1730914.06	14360419.65	39°32'40.8949"N	80°40'44.3440"W	12694.34	158.493	0.33	0.16	-0.29	
20399.00	89.630	162.460	7114.70	12775.98	-11899.92	4682.81	1730942.93	14360330.24	39°32'40.0096"N	80°40'43.9793"W	12788.15	158.520	0.78	-0.16	0.77	
20494.00	89.540	162.250	7115.39	12870.95	-11990.45	4711.60	1730971.72	14360239.75	39°32'39.1141"N	80°40'43.6159"W	12882.94	158.548	0.24	-0.09	-0.22	
20588.00	89.200	162.770	7116.42	12964.91	-12080.10	4739.85	1730999.96	14360150.14	39°32'38.2271"N	80°40'43.2594"W	12976.71	158.577	0.66	-0.36	0.55	
20683.00	89.780	161.600	7117.27	13059.88	-12170.54	4768.92	1731029.01	14360059.73	39°32'37.3322"N	80°40'42.8925"W	13071.52	158.603	1.37	0.61	-1.23	
20777.00	89.690	162.570	7117.70	13153.87	-12259.98	4797.83	1731057.91	14359970.33	39°32'36.4472"N	80°40'42.5275"W	13165.34	158.628	1.04	-0.10	1.03	
20871.00	89.570	160.380	7118.31	13247.86	-12349.10	4827.69	1731087.76	14359881.24	39°32'35.5654"N	80°40'42.1504"W	13259.22	158.648	2.33	-0.13	-2.33	
20965.00	89.600	160.230	7118.99	13341.85	-12437.60	4859.37	1731119.43	14359792.78	39°32'34.6896"N	80°40'41.7501"W	13353.18	158.659	0.16	0.03	-0.16	
21060.00	89.510	160.120	7119.73	13436.83	-12526.97	4891.59	1731151.63	14359703.44	39°32'33.8052"N	80°40'41.3429"W	13448.14	158.670	0.15	-0.09	-0.12	
21154.00	89.600	160.190	7120.46	13530.82	-12615.38	4923.50	1731183.53	14359615.06	39°32'32.9303"N	80°40'40.9396"W	13542.11	158.680	0.12	0.10	0.07	
21249.00	89.660	160.210	7121.07	13625.81	-12704.76	4955.68	1731215.70	14359525.72	39°32'32.0458"N	80°40'40.5330"W	13637.07	158.691	0.07	0.06	0.02	
21343.00	89.600	160.320	7121.68	13719.80	-12793.24	4987.42	1731247.43	14359437.28	39°32'31.1702"N	80°40'40.1318"W	13731.04	158.702	0.13	-0.06	0.12	
21437.00	89.600	160.240	7122.33	13813.79	-12881.72	5019.14	1731279.13	14359348.83	39°32'30.2946"N	80°40'39.7310"W	13825.00	158.713	0.09	0.00	-0.09	
21532.00	89.720	160.250	7122.90	13908.78	-12971.13	5051.24	1731311.23	14359259.45	39°32'29.4098"N	80°40'39.3253"W	13919.96	158.723	0.13	0.13	0.01	
21626.00	89.660	160.460	7123.41	14002.77	-13059.66	5082.85	1731342.82	14359170.96	39°32'28.5337"N	80°40'38.9260"W	14013.92	158.734	0.23	-0.06	0.22	
21721.00	89.570	160.350	7124.05	14097.76	-13149.16	5114.71	1731374.66	14359081.50	39°32'27.6481"N	80°40'38.5234"W	14108.88	158.745	0.15	-0.09	-0.12	
21816.00	89.850	160.340	7124.53	14192.75	-13238.62	5146.66	1731406.60	14358992.07	39°32'26.7628"N	80°40'38.1196"W	14203.84	158.756	0.29	0.29	-0.01	
21910.00	89.820	160.270	7124.80	14286.75	-13327.12	5178.34	1731438.27	14358903.61	39°32'25.8870"N	80°40'37.7193"W	14297.81	158.766	0.08	-0.03	-0.07	



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'
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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWB
Slot	Slot D		

WELLPATH DATA (248 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
22004.00	89.850	160.340	7125.07	14380.74	-13415.62	5210.02	1731469.94	14358815.14	39°32'25.0112"N	80°40'37.3190"W	14391.77	158.776	0.08	0.03	0.07	
22099.00	90.120	160.430	7125.09	14475.73	-13505.11	5241.91	1731501.82	14358725.69	39°32'24.1256"N	80°40'36.9161"W	14486.74	158.787	0.30	0.28	0.09	
22193.00	90.310	159.580	7124.74	14569.72	-13593.44	5274.05	1731533.94	14358637.39	39°32'23.2515"N	80°40'36.5099"W	14580.71	158.794	0.93	0.20	-0.90	
22287.00	90.280	160.220	7124.26	14663.70	-13681.71	5306.35	1731566.24	14358549.15	39°32'22.3779"N	80°40'36.1016"W	14674.69	158.802	0.68	-0.03	0.68	
22382.00	90.030	160.340	7124.00	14758.69	-13771.14	5338.41	1731598.28	14358459.76	39°32'21.4930"N	80°40'35.6965"W	14769.66	158.811	0.29	-0.26	0.13	
22476.00	90.550	160.120	7123.52	14852.68	-13859.60	5370.20	1731630.06	14358371.34	39°32'20.6176"N	80°40'35.2948"W	14863.63	158.820	0.60	0.55	-0.23	
22540.00	90.550	160.280	7122.91	14916.67	-13919.81	5391.88	1731651.73	14358311.15	39°32'20.0217"N	80°40'35.0209"W	14927.61	158.826	0.25	0.00	0.25	
22565.00‡	90.550	160.280	7122.67	14941.66	-13943.35	5400.32	1731660.16	14358287.62	39°32'19.7888"N	80°40'34.9143"W	14952.60	158.828	0.00	0.00	0.00	Projected MD at TD: 22565'

HOLE & CASING SECTIONS - Ref Wellbore: Harlan Unit 1H AWB Ref Wellpath: Harlan Unit 1H AWP Proj: 22565'

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	30.00	130.00	100.00	30.00	129.99	0.00	0.00	0.99	-0.02
17.5in Open Hole	130.00	384.00	254.00	129.99	383.96	0.99	-0.02	2.96	3.08
13.375in Casing Surface	30.00	364.00	334.00	30.00	363.96	0.00	0.00	3.01	2.65
12.375in Open Hole	384.00	3552.00	3168.00	383.96	3513.59	2.96	3.08	453.89	135.57
9.625in Casing Intermediate	30.00	3521.00	3491.00	30.00	3482.93	0.00	0.00	449.35	134.81
8.75in Open Hole	3552.00	6337.00	2785.00	3513.59	6260.32	453.89	135.57	888.70	266.99
8.5in Open Hole	6337.00	22565.00	16228.00	6260.32	7122.67	888.70	266.99	-13943.35	5400.32
5.5in Casing Production	30.00	22545.00	22515.00	30.00	7122.86	0.00	0.00	-13924.52	5393.57



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWB
Slot	Slot D		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Harlan Unit 1H POE Rev-3	7048.00	437.08	456.72	1726718.51	14372662.39	39°34'42.0844"N	80°41'37.3883"W	point
Harlan Unit 1H BHL Rev-3	7076.00	-13954.75	5408.06	1731667.90	14358276.22	39°32'19.6758"N	80°40'34.8160"W	point
Harlan Unit 1H LP Rev-3	7076.00	249.57	521.23	1726783.00	14372474.95	39°34'40.2290"N	80°41'36.5726"W	point
Harlan Unit 1H 50' L/R Hard Line	7500.00	-6758.83	2932.39	1729193.20	14365469.31	39°33'30.8814"N	80°41'6.0933"W	rectangle
2D Rectangle 15219.8 x 100.								

WELLPATH COMPOSITION - Ref Wellbore: Harlan Unit 1H AWB Ref Wellpath: Harlan Unit 1H AWP Proj: 22565'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
30.00	260.00	Gyrodata 2015 - GC+WIR+DPIPE	01 Gyrodata MS Gyro <17-1/2"> (100'-260')	Harlan Unit 1H AWB	7/17/2024
260.00	3478.00	BH NaviTrak (2019) (Axial Corr+HRGM)	02 APS EM <12-3/8"> (260')(382'-3478')	Harlan Unit 1H AWB	7/17/2024
3478.00	6260.00	BH NaviTrak (2019) (Axial Corr+HRGM)	03 APS EM <8-3/4"> (3478')(3558'-6260')	Harlan Unit 1H AWB	8/27/2024
6260.00	22565.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	04 BH Lucida <8-1/2"> (6260')(6314'-22540')	Harlan Unit 1H AWB	8/27/2024



Actual Wellpath Report

Harlan Unit 1H AWP Proj: 22565'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Well	Harlan Unit 1H
Field	Wetzel	API	47-103-03654-0000
Facility	Galmish Pad	Wellbore	Harlan Unit 1H AWB
Slot	Slot D		

COMMENTS

Wellpath general comments

API: 47-103-03654-0000

BH Job #: 112320172

Rig: H&P 519

Duration: 8/30/2024-9/4/2024

Gyrodata MS Gyro <17-1/2"> (100'-260')

APS EM <12-3/8"> (260')(382'-3478')

APS EM <8-3/4"> (3478')(3558'-6260')

BH Lucida <8-1/2"> (6260')(6314'-22540')

Sycamore: 6776' MD

Middlesex: 6933' MD

Burkett: 7075' MD

Tully: 7130' MD

Marcellus POE: 7364' MD

Projected MD at TD: 22565'