

# ANTERO RESOURCES CORPORATION

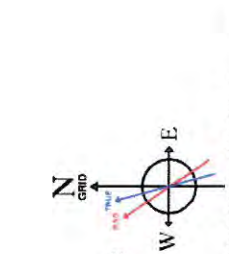
Location: Ritchie County, WV  
 Field: Ritchie  
 Facility: Pool Pad  
 Slot: Slot #04  
 Well: Vernon Unit 1H  
 Wellbore: Vernon Unit 1H PWB

True vertical depths are referenced to Patterson 342 (RKB)	Grid System: NAD27 / UTM Zone 17 North, US feet
Measured depths are referenced to Patterson 342 (RKB)	North Reference: Grid north
Patterson 342 (RKB) to Mean Sea Level: 1209 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot, Slot #04): -1184 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: delias on 2018-08-16
	Database: WA_MPL_EasternUS_Dein

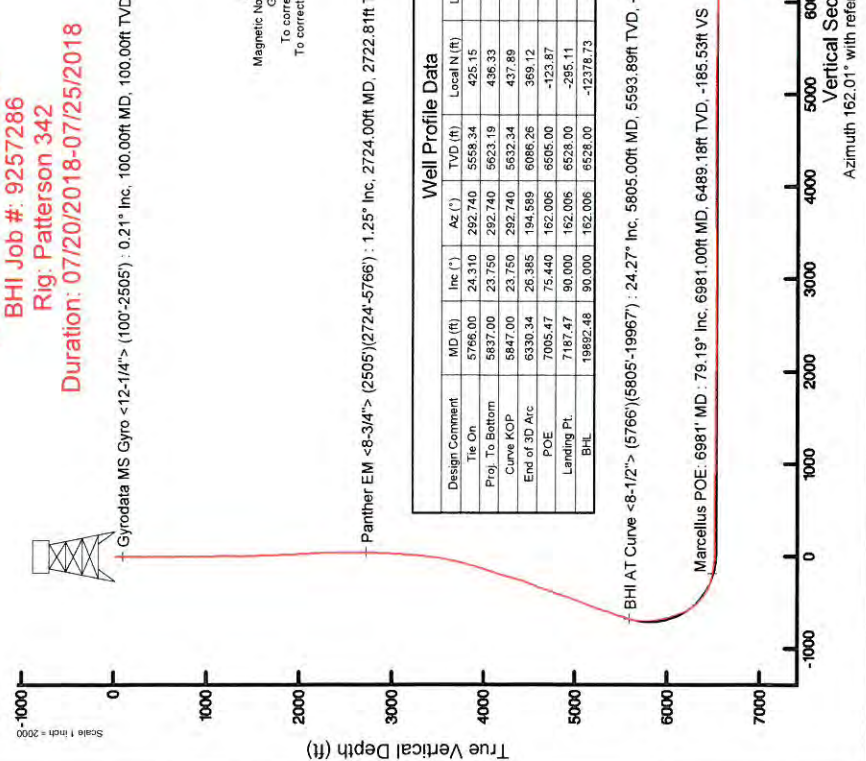
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Pool Pad	1665425.320	14270439.840	80°54'41.762"W
Slot	Local N (ft)	Grid North (US ft)	Longitude
Slot #04	9.39	1665421.532	80°54'41.810"W
Patterson 342 (RKB) to Ground level (At Slot, Slot #04)		25ft	
Mean Sea Level to Ground level (At Slot, Slot #04)		-1184ft	
Patterson 342 (RKB) to Mean Sea Level		1209ft	

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #04	Vernon Unit 1H	Vernon Unit 1H PWB	Vernon Unit 1H AWP Proj. 19931
Slot #04	Vernon Unit 1H	Vernon Unit 1H PWB	Vernon Unit 1H PWP Rev-A.0

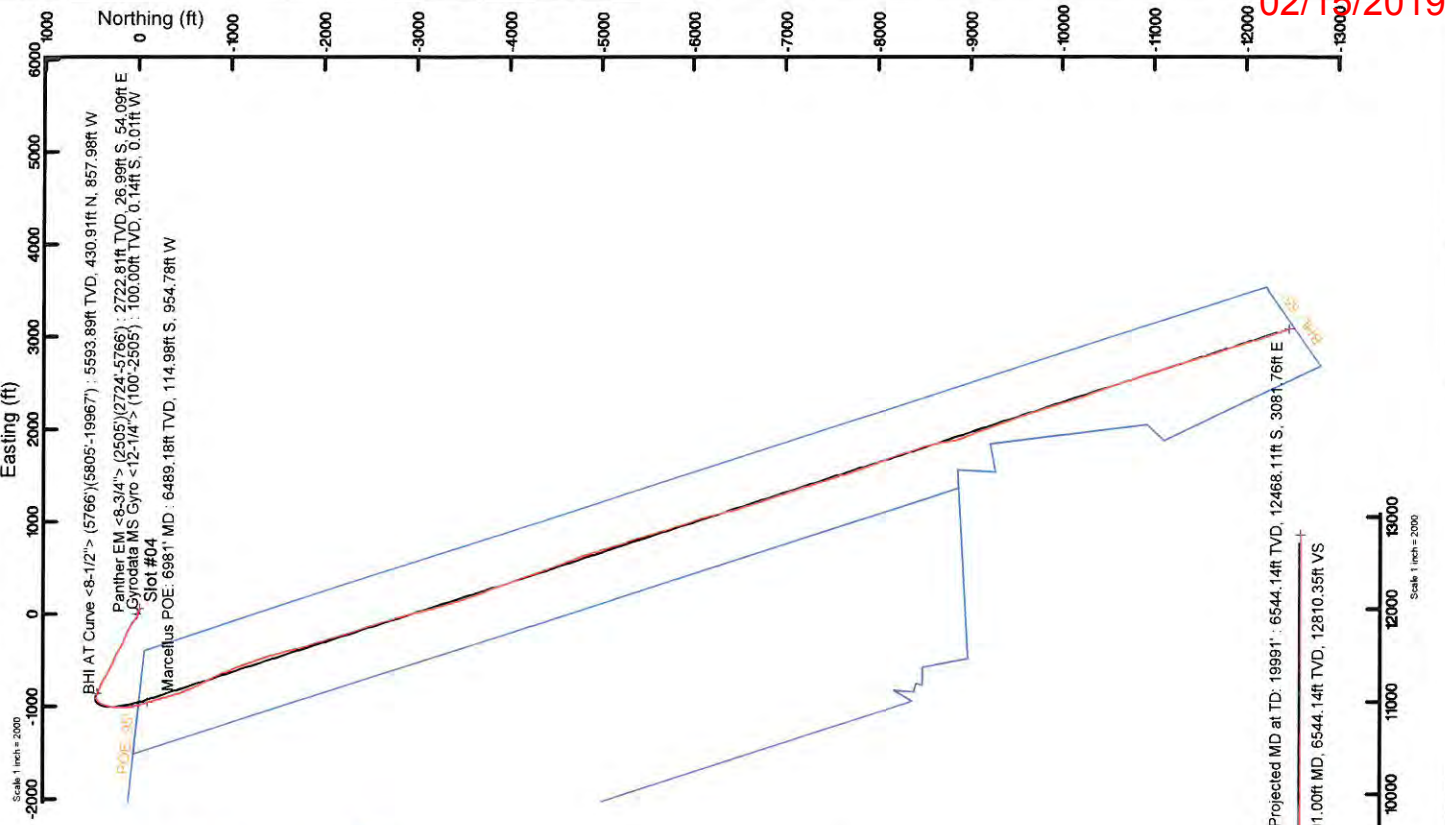
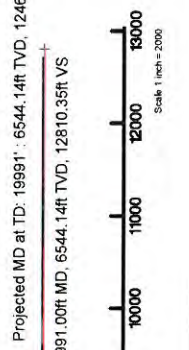
API: 47-085-10352-0000  
 BHI Job #: 9257286  
 Rig: Patterson 342  
 Duration: 07/20/2018-07/25/2018



User specified Dip: 66.42° Field: 51835 NT  
 Magnetic North is 7.74 degrees West of True North (at 18/Jul/2018)  
 Grid North is 0.06 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.06 degrees  
 To correct azimuth from Magnetic to Grid subtract 7.68 degrees



Well Profile Data						
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	Local N (ft)
Tie On	5766.00	24.310	292.740	5558.34	425.15	-843.01
Proj. To Bottom	5837.00	23.750	292.740	5623.19	436.33	-869.67
Curve KOP	5847.00	23.750	292.740	5623.34	437.89	-873.39
End of 3D Arc	6330.34	26.385	194.589	6086.26	369.12	-694.53
POE	7005.47	75.440	162.006	6505.00	-123.87	-926.26
Landing Pl.	7187.47	90.000	162.006	6528.00	-295.11	-870.64
BHL	13882.48	90.000	162.006	6528.00	-12378.73	3054.06
						12716.79



Scale: 1 inch = 2000'

Scale: 1 inch = 2000'



# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Ritchie County, WV
Field	Ritchie
Facility	Pool Pad
Slot	Slot #04
Well	Vernon Unit 1H
Wellbore	Vernon Unit 1H AWB

REPORT SETUP INFORMATION	
Projection System	NAD27 / UTM Zone 17 North, US feet
North Reference	Grid
Scale	0.999601
Convergence at slot	0.06° East
Software System	WellArchitect® 5.1
User	Delaset
Report Generated	16/Aug/2018 at 14:03
Database/Source file	WA_MPL_EasternUS_DefnVernon_Unit_1H_AWP_Proj_19991_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	9.39	-3.79	1665421.53	14270449.22	39°17'52.790"N	80°54'41.810"W
Facility Reference Pt			1665425.32	14270439.84	39°17'52.697"N	80°54'41.762"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM	
Calculation method	Minimum curvature
Horizontal Reference Pt	Slot
Vertical Reference Pt	Patterson 342 (RKB)
MD Reference Pt	Patterson 342 (RKB)
Field Vertical Reference	Mean Sea Level
	Patterson 342 (RKB) to Facility Vertical Datum
	Patterson 342 (RKB) to Mean Sea Level
	Patterson 342 (RKB) to Ground Level at Slot (Slot #04)
	Section Origin
	Section Azimuth
	25.00ft
	1209.00ft
	25.00ft
	N 0.00, E 0.00 ft
	162.01°





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Ritchie County, WV	Well	Vernon Unit 1H
Field	Ritchie	Wellbore	Vernon Unit 1H AWB
Facility	Pool Pad		

## WELLPATH DATA (233 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	0.00	182.700	0.00	0.00	0.00	0.00	1665421.53	14270449.22	39°17'52.790"N	80°54'41.810"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.00	182.700	25.00	0.00	0.00	0.00	1665421.53	14270449.22	39°17'52.790"N	80°54'41.810"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.210	182.700	100.00	0.13	-0.14	-0.01	1665421.53	14270449.08	39°17'52.789"N	80°54'41.810"W	0.14	182.700	0.28	0.28	-236.40	Cyrodatta MS Gyro <12-1/4"> (100'-2505')
200.00	0.190	199.990	200.00	0.43	-0.48	-0.07	1665421.46	14270448.75	39°17'52.785"N	80°54'41.811"W	0.48	188.574	0.06	-0.02	17.29	
300.00	0.060	191.160	300.00	0.61	-0.68	-0.14	1665421.39	14270448.54	39°17'52.783"N	80°54'41.812"W	0.70	191.466	0.13	-0.13	-8.83	
400.00	0.290	103.860	400.00	0.79	-0.80	0.10	1665421.63	14270448.43	39°17'52.782"N	80°54'41.809"W	0.80	173.049	0.29	0.23	-87.30	
500.00	0.340	86.960	500.00	1.00	-0.84	0.64	1665422.17	14270448.38	39°17'52.782"N	80°54'41.802"W	1.06	142.749	0.10	0.05	-16.90	
600.00	0.320	82.390	600.00	1.12	-0.79	1.21	1665422.74	14270448.43	39°17'52.782"N	80°54'41.795"W	1.45	123.012	0.03	-0.02	4.58	
700.00	0.740	92.390	699.99	1.40	-0.78	2.13	1665423.67	14270448.45	39°17'52.782"N	80°54'41.783"W	2.27	110.015	0.43	0.42	10.01	
800.00	0.900	92.100	799.98	1.89	-0.83	3.56	1665425.09	14270448.39	39°17'52.782"N	80°54'41.765"W	3.66	103.156	0.16	0.16	-0.29	
900.00	1.150	91.080	899.96	2.49	-0.88	5.35	1665426.88	14270448.34	39°17'52.781"N	80°54'41.742"W	5.42	99.345	0.25	0.25	-1.02	
1000.00	1.460	95.270	999.94	3.32	-1.02	7.62	1665429.15	14270448.21	39°17'52.780"N	80°54'41.713"W	7.69	97.596	0.32	0.31	4.19	
1100.00	1.240	107.580	1099.91	4.45	-1.46	9.92	1665431.45	14270447.76	39°17'52.775"N	80°54'41.684"W	10.03	98.372	0.36	-0.22	12.31	
1200.00	1.060	109.220	1199.89	5.64	-2.09	11.83	1665433.36	14270447.13	39°17'52.769"N	80°54'41.660"W	12.01	100.028	0.18	-0.18	1.64	
1300.00	1.380	106.220	1299.87	6.88	-2.73	13.86	1665435.39	14270446.49	39°17'52.763"N	80°54'41.634"W	14.13	101.155	0.33	0.32	-3.00	
1400.00	1.320	109.910	1399.84	8.26	-3.46	16.10	1665437.62	14270445.76	39°17'52.756"N	80°54'41.605"W	16.47	102.135	0.11	-0.06	3.69	
1500.00	1.550	119.020	1499.81	9.96	-4.51	18.36	1665439.89	14270444.71	39°17'52.745"N	80°54'41.576"W	18.91	103.797	0.32	0.23	9.11	
1600.00	1.820	124.620	1599.77	12.21	-6.07	20.85	1665442.38	14270443.16	39°17'52.730"N	80°54'41.545"W	21.72	106.224	0.32	0.27	5.60	
1700.00	2.050	128.200	1699.71	14.96	-8.08	23.57	1665445.09	14270441.15	39°17'52.710"N	80°54'41.510"W	24.91	108.917	0.26	0.23	3.58	
1800.00	2.230	128.790	1799.64	18.07	-10.40	26.49	1665448.01	14270438.83	39°17'52.687"N	80°54'41.473"W	28.46	111.439	0.18	0.18	0.59	
1900.00	2.510	131.360	1899.55	21.58	-13.07	29.65	1665451.17	14270436.16	39°17'52.661"N	80°54'41.433"W	32.40	113.785	0.30	0.28	2.57	
2000.00	2.840	133.550	1999.44	25.65	-16.22	33.09	1665454.61	14270433.01	39°17'52.629"N	80°54'41.389"W	36.85	116.116	0.35	0.33	2.19	
2100.00	3.910	130.790	2099.27	30.74	-20.15	37.46	1665458.98	14270429.08	39°17'52.590"N	80°54'41.334"W	42.54	118.280	1.08	1.07	-2.76	
2200.00	3.860	131.240	2199.04	36.55	-24.60	42.58	1665464.09	14270424.63	39°17'52.546"N	80°54'41.269"W	49.17	120.020	0.06	-0.05	0.45	
2300.00	1.570	123.040	2298.92	40.51	-27.57	46.26	1665467.77	14270421.67	39°17'52.517"N	80°54'41.222"W	53.85	120.794	2.32	-2.29	-8.20	
2400.00	1.250	107.940	2398.89	42.21	-28.65	48.44	1665469.95	14270420.58	39°17'52.506"N	80°54'41.194"W	56.28	120.602	0.49	-0.32	-15.10	
2500.00	1.510	96.000	2498.86	43.39	-29.12	50.79	1665472.30	14270420.11	39°17'52.502"N	80°54'41.164"W	58.55	119.831	0.39	0.26	-11.94	
2505.00	1.620	94.520	2503.86	43.44	-29.14	50.93	1665472.44	14270420.10	39°17'52.502"N	80°54'41.163"W	58.67	119.775	2.34	2.20	-29.60	
2724.00	1.250	1.930	2722.81	42.38	-26.99	54.09	1665475.60	14270422.24	39°17'52.523"N	80°54'41.122"W	60.45	116.520	0.95	-0.17	-42.28	Panther EM <8-3/4"> (2505')(2724'-5766')
2818.00	4.680	289.520	2816.69	39.08	-24.69	50.51	1665472.02	14270424.55	39°17'52.545"N	80°54'41.168"W	56.22	116.045	4.75	3.65	-77.03	





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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02/15/2019

REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #04
Operator	ANTERO RESOURCES CORPORATION	Well	Vernon Unit 1H
Area	Ritchie County, WV	Wellbore	Vernon Unit 1H AWB
Field	Ritchie		
Facility	Pool Pad		

WELLPATH DATA (233 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
2912.00	5.310	277.800	2910.34	34.85	-22.81	42.59	1665464.10	14270426.42	39°17'52.564"N	80°54'41.269"W	48.31	118.178	1.27	0.67	-12.47	
3011.00	5.350	281.300	3008.91	30.60	-21.29	33.52	1665455.04	14270427.94	39°17'52.579"N	80°54'41.384"W	39.71	122.417	0.33	0.04	3.54	
3106.00	6.110	287.310	3103.44	25.51	-18.92	24.35	1665445.87	14270430.31	39°17'52.603"N	80°54'41.500"W	30.84	127.838	1.02	0.80	6.33	
3200.00	7.540	291.360	3196.77	18.71	-15.18	13.83	1665435.36	14270434.05	39°17'52.640"N	80°54'41.634"W	20.54	137.661	1.60	1.52	4.31	
3294.00	8.750	290.100	3289.82	10.39	-10.48	1.37	1665422.91	14270438.75	39°17'52.686"N	80°54'41.793"W	10.57	172.529	1.30	1.29	-1.34	
3389.00	10.450	291.390	3383.49	0.46	-4.85	-13.43	1665408.10	14270444.37	39°17'52.742"N	80°54'41.981"W	14.28	250.146	1.80	1.79	1.36	
3484.00	11.900	297.820	3476.69	-12.03	2.86	-30.12	1665391.42	14270452.08	39°17'52.819"N	80°54'42.193"W	30.26	275.429	2.01	1.53	6.77	
3579.00	13.460	303.460	3569.37	-27.70	13.53	-48.01	1665373.54	14270462.75	39°17'52.924"N	80°54'42.421"W	49.88	285.740	2.09	1.84	5.94	
3673.00	15.520	304.600	3660.37	-46.24	26.71	-67.49	1665354.07	14270475.92	39°17'53.055"N	80°54'42.668"W	72.58	291.588	2.21	2.19	1.21	
3767.00	16.510	306.210	3750.73	-67.07	41.74	-88.62	1665332.95	14270490.94	39°17'53.203"N	80°54'42.937"W	97.96	295.219	1.15	1.05	1.71	
3862.00	18.120	306.020	3841.42	-89.97	58.40	-111.46	1665310.12	14270507.60	39°17'53.368"N	80°54'43.227"W	125.83	297.652	1.70	1.69	-0.20	
3956.00	20.310	303.670	3930.18	-114.60	76.04	-136.86	1665284.72	14270525.23	39°17'53.543"N	80°54'43.550"W	156.57	299.057	2.47	2.33	-2.50	
4049.56	23.070	296.770	4017.12	-140.25	93.31	-166.75	1665254.84	14270542.49	39°17'53.714"N	80°54'43.930"W	191.09	299.229	4.01	2.95	-7.37	
4145.00	26.030	293.950	4103.92	-167.42	110.24	-202.60	1665219.02	14270559.41	39°17'53.881"N	80°54'44.366"W	230.65	298.551	3.33	3.10	-2.95	
4240.00	26.350	293.950	4189.17	-195.44	127.26	-240.92	1665180.71	14270576.43	39°17'54.050"N	80°54'44.873"W	272.46	297.844	0.34	0.34	0.00	
4334.00	24.610	287.750	4274.04	-220.82	141.70	-278.63	1665143.01	14270590.86	39°17'54.193"N	80°54'45.352"W	312.59	296.955	3.39	-1.85	-6.60	
4429.00	23.230	294.480	4360.89	-245.03	155.49	-314.53	1665107.13	14270604.65	39°17'54.330"N	80°54'45.809"W	350.87	296.306	3.22	-1.43	7.08	
4523.00	24.880	302.820	4446.75	-272.89	173.90	-348.03	1665073.64	14270623.05	39°17'54.512"N	80°54'46.235"W	389.06	296.550	4.02	1.76	8.87	
4618.00	27.530	302.270	4531.98	-305.26	196.46	-383.40	1665038.29	14270645.60	39°17'54.735"N	80°54'46.684"W	430.80	297.131	2.80	2.79	-0.58	
4712.00	27.500	297.530	4615.36	-337.46	218.09	-421.01	1665000.69	14270667.22	39°17'54.950"N	80°54'47.163"W	474.15	297.384	2.33	-0.03	-5.04	
4806.00	27.750	295.240	4698.65	-367.93	237.45	-460.05	1664961.66	14270686.58	39°17'55.141"N	80°54'47.659"W	517.72	297.300	1.16	0.27	-2.44	
4900.00	26.530	290.880	4782.30	-386.10	254.27	-499.47	1664922.26	14270703.39	39°17'55.308"N	80°54'48.160"W	560.48	296.979	2.48	-1.30	-4.64	
4994.00	25.710	293.140	4866.70	-422.68	269.76	-537.83	1664883.91	14270718.88	39°17'55.461"N	80°54'48.648"W	601.70	296.637	1.37	-0.87	2.40	
5089.00	27.970	298.410	4951.48	-452.38	288.46	-576.39	1664845.38	14270737.57	39°17'55.647"N	80°54'49.138"W	644.54	296.587	3.45	2.38	5.55	
5183.00	28.250	297.000	5034.39	-484.07	309.05	-615.60	1664806.18	14270758.15	39°17'55.850"N	80°54'49.637"W	688.82	296.658	0.77	0.30	-1.50	
5277.00	26.050	299.770	5118.03	-515.08	329.40	-653.34	1664768.45	14270778.49	39°17'56.052"N	80°54'50.117"W	731.88	296.756	2.70	-2.34	2.95	
5372.00	25.400	300.100	5203.61	-545.69	349.98	-689.08	1664732.73	14270799.06	39°17'56.256"N	80°54'50.571"W	772.86	296.926	0.70	-0.68	0.35	
5467.00	26.490	298.450	5289.04	-576.21	370.29	-725.33	1664696.49	14270819.36	39°17'56.457"N	80°54'51.032"W	814.39	297.045	1.38	1.15	-1.74	
5561.00	26.520	293.310	5373.17	-605.25	388.58	-763.04	1664658.79	14270837.65	39°17'56.638"N	80°54'51.511"W	856.29	296.988	2.44	0.03	-5.47	
5655.00	25.360	295.440	5457.70	-632.95	405.54	-800.50	1664621.36	14270854.60	39°17'56.806"N	80°54'51.987"W	897.36	296.867	1.58	-1.23	2.27	





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Ritchie County, WV	Well	Vernon Unit 1H
Field	Ritchie	Wellbore	Vernon Unit 1H AWB
Facility	Pool Pad		

## WELLPATH DATA (233 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
5750.00	24.690	294.470	5543.78	-660.33	422.50	-836.93	1664584.94	14270871.55	39°17'56.974"N	80°54'52.451"W	937.52	296.785	0.83	-0.71	-1.02	
5766.00	24.310	292.740	5558.34	-664.73	425.15	-843.01	1664578.86	14270874.20	39°17'57.000"N	80°54'52.528"W	944.15	296.763	5.07	-2.38	-10.81	
5805.00	24.270	289.300	5593.89	-674.83	430.91	-857.98	1664563.90	14270879.95	39°17'57.057"N	80°54'52.718"W	960.11	296.667	3.63	-0.10	-8.82	BHI AT Curve <8-1/2"> (5766')(5805'-19967')
5848.00	23.670	285.290	5633.19	-684.92	436.10	-874.64	1664547.24	14270885.15	39°17'57.109"N	80°54'52.930"W	977.34	296.501	4.04	-1.40	-9.33	
5895.00	21.060	276.270	5676.66	-693.57	439.51	-892.15	1664529.74	14270888.56	39°17'57.142"N	80°54'53.153"W	994.54	296.227	9.16	-5.55	-19.19	
5942.00	18.310	264.240	5720.93	-698.60	439.70	-907.90	1664514.00	14270888.74	39°17'57.144"N	80°54'53.353"W	1008.77	295.841	10.39	-5.85	-25.60	
5989.00	16.550	252.190	5765.78	-700.19	436.91	-921.62	1664500.28	14270885.95	39°17'57.117"N	80°54'53.528"W	1019.94	295.364	8.52	-3.74	-25.64	
6036.00	15.900	238.890	5810.93	-698.75	431.53	-933.51	1664488.40	14270890.58	39°17'57.064"N	80°54'53.679"W	1028.43	294.810	8.01	-1.38	-28.30	
6084.00	16.980	224.560	5856.98	-694.02	423.14	-944.06	1664477.85	14270895.19	39°17'56.981"N	80°54'53.813"W	1034.55	294.142	8.72	2.25	-29.85	
6131.00	18.530	215.840	5901.75	-686.45	412.19	-953.25	1664468.66	14270861.25	39°17'56.873"N	80°54'53.930"W	1038.55	293.384	6.54	3.30	-18.55	
6178.00	19.180	215.820	5946.23	-677.48	399.87	-962.14	1664459.77	14270848.94	39°17'56.751"N	80°54'54.044"W	1041.93	292.568	1.38	1.38	-0.04	
6225.00	20.230	212.080	5990.48	-667.71	386.73	-970.98	1664450.94	14270835.79	39°17'56.621"N	80°54'54.156"W	1045.16	291.717	3.49	2.23	-7.96	
6272.00	21.560	202.810	6034.40	-655.95	371.88	-978.65	1664443.28	14270820.95	39°17'56.475"N	80°54'54.254"W	1046.92	290.806	7.57	2.83	-19.72	
6319.00	22.920	196.480	6077.91	-641.87	355.14	-984.59	1664437.34	14270804.22	39°17'56.309"N	80°54'54.330"W	1046.68	289.834	5.86	2.89	-13.47	
6367.00	24.730	195.720	6121.81	-625.81	336.51	-989.96	1664431.97	14270795.60	39°17'56.125"N	80°54'54.398"W	1045.59	288.774	3.82	3.77	-1.58	
6414.00	27.800	193.930	6163.96	-608.32	316.40	-995.27	1664426.67	14270785.50	39°17'55.927"N	80°54'54.466"W	1044.35	287.636	6.75	6.53	-3.81	
6461.00	31.240	189.300	6204.85	-588.18	293.73	-999.88	1664422.06	14270742.83	39°17'55.703"N	80°54'54.525"W	1042.13	286.371	8.78	7.32	-9.85	
6508.00	34.730	187.480	6244.27	-565.25	268.42	-1003.59	1664418.35	14270717.53	39°17'55.452"N	80°54'54.572"W	1038.86	284.974	7.72	7.43	-3.87	
6554.00	39.380	185.500	6280.98	-540.03	240.88	-1006.70	1664415.24	14270690.01	39°17'55.180"N	80°54'54.612"W	1035.11	283.457	10.44	10.11	-4.30	
6601.00	43.610	183.540	6316.17	-511.26	209.85	-1009.13	1664412.81	14270683.99	39°17'54.874"N	80°54'54.644"W	1030.72	281.747	9.41	9.00	-4.17	
6607.00†	44.316	183.061	6320.49	-507.38	205.69	-1009.37	1664412.71	14270682.50	39°17'54.833"N	80°54'54.647"W	1025.35	281.518	13.01	11.77	-7.99	Middlesex: 6607 MD
6648.00	49.190	180.080	6348.58	-479.24	175.85	-1010.15	1664411.78	14270625.00	39°17'54.538"N	80°54'54.657"W	1020.11	279.875	13.01	11.89	-7.27	
6695.00	53.900	177.120	6377.80	-443.98	139.08	-1009.22	1664412.71	14270588.24	39°17'54.174"N	80°54'54.646"W	1018.76	277.846	11.17	10.02	-6.30	
6742.00	57.870	174.620	6404.16	-406.21	100.28	-1006.40	1664415.53	14270549.46	39°17'53.791"N	80°54'54.610"W	1011.39	275.690	9.52	8.45	-5.32	
6789.00	62.420	171.150	6427.56	-366.19	59.85	-1001.33	1664420.61	14270509.05	39°17'53.391"N	80°54'54.546"W	1003.12	273.421	11.60	9.68	-7.38	
6792.00†	62.716	170.912	6428.94	-363.56	57.22	-1000.91	1664421.02	14270506.42	39°17'53.365"N	80°54'54.541"W	1002.55	273.272	12.11	9.87	-7.92	Burkett: 6792 MD
6837.00	67.200	167.490	6447.99	-323.13	17.20	-993.26	1664428.67	14270466.41	39°17'52.969"N	80°54'54.444"W	993.40	270.992	12.11	9.96	-7.61	
6883.00†	71.447	164.200	6464.23	-280.20	-24.51	-982.72	1664439.21	14270424.72	39°17'52.557"N	80°54'54.310"W	983.02	268.571	11.40	9.23	-7.15	Tully: 6883 MD
6884.00	71.540	164.130	6464.55	-279.25	-25.42	-982.46	1664439.47	14270423.81	39°17'52.548"N	80°54'54.307"W	982.79	268.518	11.40	9.30	-6.96	
6932.00	75.100	162.400	6478.32	-233.29	-69.45	-969.22	1664452.70	14270379.80	39°17'52.113"N	80°54'54.139"W	971.70	265.902	8.18	7.42	-3.60	





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Ritchie County, WV	Well	Vernon Unit 1H
Field	Ritchie	Wellbore	Vernon Unit 1H AWB
Facility	Pool Pad		

## WELLPATH DATA (233 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
6979.00	79.110	162.420	6488.81	-187.49	-113.11	-955.37	1664466.54	14270336.16	39°17'51.681"N	80°54'53.964"W	962.05	263.248	8.53	8.53	0.04	
6981.00†	79.191	162.490	6489.18	-185.53	-114.98	-954.78	1664467.13	14270334.29	39°17'51.663"N	80°54'53.956"W	961.68	263.133	5.32	4.06	3.50	Marcellus POE: 6981' MD
7025.00	80.980	164.020	6496.76	-142.20	-156.48	-942.30	1664479.61	14270292.80	39°17'51.252"N	80°54'53.798"W	955.20	260.571	5.32	4.07	3.48	
7072.00	82.100	165.080	6503.67	-95.75	-201.29	-929.91	1664491.99	14270248.01	39°17'50.809"N	80°54'53.647"W	951.45	257.786	3.26	2.38	2.26	
7120.00	85.200	165.400	6508.98	-48.13	-247.42	-917.76	1664504.14	14270201.90	39°17'50.353"N	80°54'53.487"W	950.53	254.912	6.49	6.46	0.67	
7167.00	90.340	166.130	6510.81	-1.28	-292.92	-906.22	1664515.68	14270156.42	39°17'49.903"N	80°54'53.341"W	952.38	252.087	11.05	10.94	1.55	
7214.00	90.060	164.710	6510.65	45.63	-338.41	-894.39	1664527.50	14270110.95	39°17'48.565"N	80°54'52.844"W	956.27	249.275	3.08	-0.60	-3.02	
7308.00	90.120	161.430	6510.50	139.60	-428.32	-867.02	1664554.86	14270021.97	39°17'47.682"N	80°54'52.433"W	967.05	243.710	3.49	0.06	-3.49	
7403.00	90.580	158.710	6509.92	234.54	-517.62	-834.64	1664587.23	14269931.81	39°17'47.682"N	80°54'52.433"W	982.12	238.194	2.90	0.48	-2.86	
7497.00	89.450	155.330	6509.89	328.20	-604.28	-798.25	1664623.61	14269845.18	39°17'46.825"N	80°54'51.971"W	1001.17	232.874	3.39	-1.20	-3.17	
7592.00	90.030	153.150	6510.33	422.36	-689.97	-757.28	1664664.57	14269759.53	39°17'45.978"N	80°54'51.451"W	1024.46	227.662	2.78	0.61	-2.72	
7687.00	89.380	152.920	6510.81	516.20	-774.64	-714.19	1664707.63	14269674.89	39°17'45.140"N	80°54'50.904"W	1053.63	222.675	0.73	-0.68	-0.24	
7782.00	89.200	153.800	6511.99	610.11	-859.55	-671.59	1664750.21	14269590.02	39°17'44.301"N	80°54'50.363"W	1090.81	218.002	0.95	-0.19	0.93	
7876.00	89.540	158.230	6513.03	703.56	-945.41	-633.39	1664788.39	14269504.19	39°17'43.452"N	80°54'49.878"W	1137.97	213.821	4.73	0.36	4.71	
7971.00	89.660	159.870	6513.69	798.43	-1034.12	-599.43	1664822.34	14269415.51	39°17'42.575"N	80°54'49.447"W	1195.29	210.099	1.73	0.13	1.73	
8065.00	89.480	159.350	6514.39	892.35	-1122.23	-566.68	1664855.08	14269327.44	39°17'41.704"N	80°54'49.032"W	1257.19	206.792	0.59	-0.19	-0.55	
8160.00	89.750	158.770	6515.03	987.22	-1210.95	-532.73	1664889.02	14269238.75	39°17'40.826"N	80°54'48.601"W	1322.95	203.746	0.67	0.28	-0.61	
8254.00	89.880	160.320	6515.34	1081.13	-1299.02	-499.88	1664921.85	14269150.72	39°17'39.956"N	80°54'48.184"W	1391.88	201.047	1.65	0.14	1.65	
8349.00	89.780	163.360	6515.62	1176.11	-1389.28	-470.27	1664951.45	14269060.50	39°17'39.063"N	80°54'47.809"W	1466.72	198.701	3.20	-0.11	3.20	
8444.00	90.280	164.190	6515.57	1271.07	-1480.50	-443.73	1664977.98	14268989.32	39°17'38.161"N	80°54'47.472"W	1545.56	196.684	1.02	0.53	0.87	
8538.00	89.350	164.300	6515.87	1365.00	-1570.96	-418.21	1665003.49	14268878.89	39°17'37.267"N	80°54'47.149"W	1625.68	194.907	1.00	-0.99	0.12	
8633.00	89.540	165.980	6516.79	1459.85	-1662.78	-393.85	1665027.84	14268787.11	39°17'36.359"N	80°54'46.840"W	1708.78	193.326	1.78	0.20	1.77	
8728.00	89.570	165.390	6517.53	1554.65	-1754.83	-370.36	1665051.32	14268695.10	39°17'35.449"N	80°54'46.542"W	1793.48	191.917	0.62	0.03	-0.62	
8823.00	89.570	163.220	6518.24	1649.56	-1846.28	-344.66	1665077.01	14268603.69	39°17'34.545"N	80°54'46.217"W	1878.17	190.574	2.28	0.00	-2.28	
8917.00	89.480	162.540	6519.02	1743.55	-1936.11	-316.99	1665104.67	14268513.89	39°17'33.657"N	80°54'45.866"W	1961.88	189.298	0.73	-0.10	-0.72	
9011.00	89.540	162.570	6519.83	1837.54	-2025.77	-288.77	1665132.88	14268424.27	39°17'32.771"N	80°54'45.508"W	2046.25	188.113	0.07	0.06	-0.02	
9107.00	89.540	164.430	6520.60	1933.50	-2117.79	-261.47	1665160.17	14268332.28	39°17'31.861"N	80°54'45.162"W	2133.87	187.038	1.99	0.00	1.99	
9201.00	89.630	163.620	6521.28	2027.44	-2208.16	-235.60	1665186.03	14268241.95	39°17'30.967"N	80°54'44.834"W	2220.69	186.090	0.87	0.10	-0.86	
9295.00	89.780	162.370	6521.76	2121.42	-2298.14	-208.41	1665213.21	14268152.00	39°17'30.078"N	80°54'44.489"W	2307.57	185.182	0.94	0.16	-0.93	
9390.00	89.820	161.370	6522.09	2216.42	-2388.52	-179.15	1665242.46	14268061.66	39°17'29.184"N	80°54'44.118"W	2395.23	184.289	1.45	0.04	-1.45	





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot #04
ANTERO RESOURCES CORPORATION	Vernon Unit 1H
Area	Ritchie County, WV
Field	Ritchie
Well	Wellbore
Facility	Pool Pad

## WELLPATH DATA (233 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
9484.00	89.820	160.900	6522.39	2310.40	-2477.47	-148.75	1665272.84	14267972.75	39°17'28.305"N	80°54'43.733"W	2481.93	183.436	0.50	0.00	-0.50	
9579.00	89.820	162.430	6522.69	2405.40	-2567.64	-118.87	1665302.71	14267882.61	39°17'27.413"N	80°54'43.354"W	2570.39	182.651	1.61	0.00	0.00	1.61
9674.00	89.750	164.040	6523.04	2500.37	-2658.60	-91.47	1665330.10	14267791.69	39°17'26.514"N	80°54'43.006"W	2660.17	181.970	1.70	-0.07	1.69	
9768.00	89.880	162.640	6523.35	2594.35	-2748.65	-64.52	1665357.04	14267701.67	39°17'25.624"N	80°54'42.865"W	2749.41	181.345	1.50	0.14	-1.49	
9863.00	89.820	162.970	6523.60	2689.34	-2839.41	-36.44	1665385.11	14267610.96	39°17'24.726"N	80°54'42.309"W	2839.64	180.735	0.35	-0.06	0.35	
9957.00	89.820	164.100	6523.89	2783.30	-2929.55	-9.79	1665411.74	14267520.85	39°17'23.835"N	80°54'41.971"W	2929.57	180.192	1.20	0.00	1.20	
10052.00	89.820	167.070	6524.19	2878.10	-3021.55	13.85	1665435.38	14267428.89	39°17'22.926"N	80°54'41.671"W	3021.58	179.737	3.13	0.00	3.13	
10146.00	90.090	166.610	6524.26	2971.77	-3113.08	35.25	1665456.77	14267337.39	39°17'22.021"N	80°54'41.400"W	3113.28	179.351	0.57	0.29	-0.49	
10240.00	90.030	164.500	6524.17	3065.58	-3204.10	58.70	1665480.21	14267246.41	39°17'21.121"N	80°54'41.103"W	3204.64	178.950	2.25	-0.06	-2.24	
10334.00	90.120	162.520	6524.04	3159.55	-3294.23	85.38	1665506.88	14267156.31	39°17'20.230"N	80°54'40.765"W	3295.34	178.515	2.11	0.10	-2.11	
10429.00	90.150	162.550	6523.82	3254.54	-3384.85	113.89	1665535.38	14267065.73	39°17'19.334"N	80°54'40.402"W	3386.77	178.073	0.04	0.03	0.03	
10523.00	90.430	165.090	6523.34	3348.49	-3475.12	140.08	1665561.56	14266975.50	39°17'18.442"N	80°54'40.072"W	3477.94	177.692	2.72	0.30	2.70	
10618.00	90.620	159.800	6522.47	3443.45	-3565.66	168.73	1665590.19	14266884.99	39°17'17.546"N	80°54'39.708"W	3569.65	177.291	5.57	0.20	-5.57	
10712.00	90.680	158.270	6521.41	3537.31	-3653.43	202.36	1665623.81	14266797.26	39°17'16.679"N	80°54'39.282"W	3659.03	176.830	1.63	0.06	-1.63	
10806.00	90.740	158.730	6520.24	3631.13	-3740.88	236.81	1665658.24	14266709.84	39°17'15.814"N	80°54'38.845"W	3748.37	176.378	0.49	0.06	0.49	
10901.00	89.970	159.340	6519.65	3726.00	-3829.59	270.79	1665692.22	14266621.17	39°17'14.937"N	80°54'38.414"W	3839.15	175.955	1.03	-0.81	0.64	
10995.00	90.030	159.530	6519.65	3819.90	-3917.60	303.81	1665725.22	14266533.20	39°17'14.067"N	80°54'37.995"W	3929.36	175.566	0.21	0.06	0.20	
11090.00	89.850	161.490	6519.75	3914.86	-4007.15	335.51	1665756.91	14266443.68	39°17'13.181"N	80°54'37.593"W	4021.17	175.214	2.07	-0.19	2.06	
11185.00	90.000	161.930	6519.88	4009.86	-4097.35	365.32	1665786.71	14266353.52	39°17'12.289"N	80°54'37.215"W	4113.60	174.905	0.49	0.16	0.46	
11279.00	89.940	160.920	6519.93	4103.86	-4186.45	395.26	1665816.64	14266264.45	39°17'11.408"N	80°54'36.835"W	4205.07	174.606	1.08	-0.06	-1.07	
11373.00	89.880	160.310	6520.07	4197.83	-4275.12	426.46	1665847.83	14266175.81	39°17'10.532"N	80°54'36.439"W	4296.34	174.303	0.65	-0.06	-0.65	
11467.00	89.940	160.390	6520.22	4291.79	-4363.65	458.07	1665879.42	14266087.32	39°17'09.656"N	80°54'36.039"W	4387.63	174.007	0.11	0.06	0.09	
11561.00	90.030	159.840	6520.25	4385.74	-4452.04	490.05	1665911.38	14265998.96	39°17'08.782"N	80°54'35.633"W	4478.93	173.719	0.59	0.10	-0.59	
11656.00	90.060	158.610	6520.17	4480.62	-4540.87	523.74	1665945.06	14265910.18	39°17'07.904"N	80°54'35.206"W	4570.97	173.421	1.30	0.03	-1.29	
11749.00	90.120	159.250	6520.02	4573.49	-4627.65	557.18	1665978.49	14265823.43	39°17'07.046"N	80°54'34.781"W	4661.07	173.135	0.69	0.06	0.69	
11844.00	89.970	158.940	6519.95	4668.37	-4716.39	591.07	1666012.37	14265734.72	39°17'06.169"N	80°54'34.352"W	4753.29	172.857	0.36	-0.16	-0.33	
11938.00	90.060	160.310	6519.93	4762.28	-4804.51	623.80	1666045.08	14265646.64	39°17'05.297"N	80°54'33.936"W	4844.84	172.602	1.46	0.10	1.46	
12033.00	90.060	162.550	6519.83	4857.27	-4894.56	654.05	1666075.32	14265556.63	39°17'04.407"N	80°54'33.553"W	4938.07	172.389	2.36	0.00	2.36	
12127.00	89.970	164.170	6519.80	4951.24	-4984.62	680.97	1666102.23	14265466.60	39°17'03.517"N	80°54'33.212"W	5030.92	172.221	1.73	-0.10	1.72	
12221.00	90.060	163.970	6519.78	5045.18	-5075.01	706.77	1666128.02	14265376.25	39°17'02.623"N	80°54'32.885"W	5123.99	172.072	0.23	0.10	-0.21	





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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02/15/2019

REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Ritchie County, WV
Field	Ritchie
Facility	Pool Pad
Slot	Slot #04
Well	Vernon Unit 1H
Wellbore	Vernon Unit 1H AWB

WELLPATH DATA (233 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
12316.00	89.850	162.410	6519.85	5140.16	-5165.95	734.24	1666155.48	14266285.35	39°17'01.724"N	80°54'32.537"W	5217.87	171.911	1.66	-0.22	-1.64	
12410.00	90.120	162.520	6519.88	5234.15	-5255.58	762.56	1666183.79	14266198.75	39°17'00.838"N	80°54'32.177"W	5310.61	171.744	0.31	0.29	0.12	
12504.00	89.380	161.060	6520.29	5328.15	-5344.87	791.94	1666213.15	14266108.50	39°16'59.955"N	80°54'31.805"W	5403.22	171.572	1.74	-0.79	-1.55	
12599.00	89.140	163.120	6521.51	5423.14	-5435.25	821.15	1666242.35	14266016.15	39°16'59.061"N	80°54'31.435"W	5496.93	171.409	2.18	-0.25	2.17	
12693.00	87.940	164.460	6523.91	5517.06	-5525.48	847.38	1666268.57	14266425.96	39°16'58.169"N	80°54'31.102"W	5590.08	171.281	1.91	-1.28	1.43	
12787.00	89.050	163.210	6526.38	5610.97	-5615.73	873.54	1666294.72	14264835.75	39°16'57.277"N	80°54'30.771"W	5683.26	171.158	1.78	1.18	-1.33	
12881.00	89.910	163.940	6527.23	5704.93	-5705.89	900.12	1666321.29	14264745.62	39°16'56.386"N	80°54'30.434"W	5776.45	171.035	1.20	0.91	0.78	
12975.00	89.880	162.030	6527.40	5798.91	-5795.77	927.62	1666348.78	14264655.78	39°16'55.497"N	80°54'30.085"W	5869.53	170.907	2.03	-0.03	-2.03	
13070.00	89.690	161.890	6527.76	5893.91	-5886.10	957.04	1666378.19	14264565.48	39°16'54.604"N	80°54'29.712"W	5963.40	170.765	0.25	-0.20	-0.15	
13164.00	89.570	160.700	6528.37	5987.90	-5975.13	987.19	1666408.32	14264476.49	39°16'53.724"N	80°54'29.330"W	6056.13	170.619	1.27	-0.13	-1.27	
13258.00	89.630	162.540	6529.02	6081.89	-6064.33	1016.82	1666437.95	14264387.33	39°16'52.842"N	80°54'28.954"W	6148.99	170.482	1.96	0.06	1.96	
13353.00	89.170	164.430	6530.02	6176.85	-6155.40	1043.83	1666464.94	14264298.29	39°16'51.941"N	80°54'28.612"W	6243.28	170.375	2.05	-0.48	1.99	
13447.00	89.850	166.230	6530.82	6270.69	-6246.33	1067.63	1666488.73	14264205.40	39°16'51.043"N	80°54'28.311"W	6336.91	170.301	2.05	0.72	1.91	
13541.00	89.880	165.910	6531.04	6364.45	-6337.56	1090.26	1666511.35	14264114.20	39°16'50.141"N	80°54'28.024"W	6430.66	170.239	0.34	0.03	-0.34	
13636.00	89.820	165.010	6531.29	6459.28	-6429.52	1114.11	1666535.19	14264022.28	39°16'49.231"N	80°54'27.722"W	6525.33	170.169	0.95	-0.06	-0.95	
13731.00	89.940	163.160	6531.49	6554.21	-6520.87	1140.16	1666561.23	14263930.96	39°16'48.328"N	80°54'27.392"W	6619.80	170.082	1.95	0.13	-1.95	
13826.00	89.850	161.310	6531.66	6649.21	-6611.34	1169.14	1666590.21	14263840.53	39°16'47.434"N	80°54'27.024"W	6713.92	169.972	1.95	-0.09	-1.95	
13920.00	89.720	160.960	6532.02	6743.19	-6700.29	1199.54	1666620.59	14263751.62	39°16'46.554"N	80°54'26.639"W	6806.82	169.850	0.40	-0.14	-0.37	
14015.00	89.660	162.770	6532.53	6838.19	-6790.57	1229.10	1666650.14	14263661.38	39°16'45.662"N	80°54'26.264"W	6900.90	169.740	1.91	-0.06	1.91	
14109.00	89.430	161.510	6534.10	6932.17	-6880.02	1257.93	1666678.96	14263571.96	39°16'44.777"N	80°54'25.899"W	6994.07	169.639	1.87	-1.31	-1.34	
14203.00	89.480	161.360	6535.81	7026.15	-6969.11	1287.85	1666708.87	14263482.91	39°16'43.896"N	80°54'25.520"W	7087.11	169.530	1.13	1.12	-0.16	
14392.00	89.540	161.270	6536.62	7121.14	-7059.10	1318.28	1666739.29	14263392.95	39°16'43.007"N	80°54'25.134"W	7181.14	169.422	0.11	0.06	-0.09	
14487.00	89.510	162.490	6538.12	7310.13	-7239.02	1376.13	1666797.11	14263303.66	39°16'42.124"N	80°54'24.763"W	7274.33	169.325	1.28	0.03	1.28	
14581.00	89.630	162.710	6538.82	7404.12	-7328.72	1404.24	1666825.21	14263213.11	39°16'41.228"N	80°54'24.400"W	7368.66	169.237	0.07	-0.06	0.02	
14676.00	89.630	162.950	6539.44	7499.11	-7419.48	1432.28	1666853.24	14263032.72	39°16'39.444"N	80°54'23.689"W	7462.04	169.153	0.27	0.13	0.23	
14770.00	89.570	162.360	6540.09	7593.10	-7509.20	1460.31	1666881.25	14262943.03	39°16'38.557"N	80°54'23.334"W	7556.46	169.074	0.25	0.00	0.25	
14865.00	89.820	162.360	6540.60	7688.10	-7599.74	1489.09	1666910.03	14262852.54	39°16'37.662"N	80°54'22.969"W	7649.88	168.995	0.63	-0.06	-0.63	
14959.00	89.600	161.490	6541.07	7782.09	-7689.10	1518.26	1666939.18	14262763.21	39°16'36.778"N	80°54'22.599"W	7744.25	168.914	0.26	0.26	0.00	
15053.00	89.540	160.840	6541.78	7876.08	-7778.06	1548.60	1666969.52	14262674.28	39°16'35.898"N	80°54'22.214"W	7837.56	168.830	0.95	-0.23	-0.93	
											7930.72	168.740	0.69	-0.06	-0.69	





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Ritchie County, WV
Field	Ritchie
Facility	Pool Pad
Slot	Slot #04
Well	Vernon Unit 1H
Wellbore	Vernon Unit 1H AWB

WELLPATH DATA (233 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
15147.00	89.540	159.400	6542.53	7970.02	-7866.45	1580.57	1667001.47	14262585.93	39°16'35.024"N	80°54'21.809"W	8023.67	168.639	1.53	0.00	-1.53	
15242.00	89.510	160.060	6543.32	8064.95	-7955.57	1613.48	1667034.36	14262496.85	39°16'34.143"N	80°54'21.392"W	8117.53	168.535	0.70	-0.03	0.69	
15336.00	89.600	159.180	6544.05	8158.86	-8043.68	1646.21	1667067.08	14262408.77	39°16'33.272"N	80°54'20.977"W	8210.41	168.434	0.94	0.10	-0.94	
15430.00	89.690	159.700	6544.63	8252.76	-8131.69	1679.22	1667100.08	14262320.80	39°16'32.402"N	80°54'20.558"W	8303.26	168.332	0.56	0.10	0.55	
15525.00	89.540	161.340	6545.27	8347.73	-8221.25	1710.90	1667131.75	14262231.28	39°16'31.516"N	80°54'20.156"W	8397.38	168.244	1.73	-0.16	1.73	
15618.00	89.480	162.520	6546.07	8440.72	-8309.65	1739.75	1667160.58	14262142.90	39°16'30.642"N	80°54'19.791"W	8489.82	168.175	1.27	-0.06	1.27	
15713.00	89.450	162.420	6546.95	8535.71	-8400.24	1768.36	1667189.18	14262052.36	39°16'29.747"N	80°54'19.428"W	8584.35	168.112	0.11	-0.03	-0.11	
15808.00	89.750	161.840	6547.62	8630.71	-8490.65	1797.51	1667218.32	14261961.98	39°16'28.853"N	80°54'18.928"W	8678.84	168.047	0.69	0.32	-0.61	
15903.00	89.630	164.040	6548.13	8725.69	-8581.46	1825.38	1667246.18	14261871.20	39°16'27.955"N	80°54'18.706"W	8773.46	167.991	2.32	-0.13	2.32	
15997.00	90.860	171.360	6547.73	8819.16	-8673.24	1845.39	1667266.18	14261779.46	39°16'27.048"N	80°54'18.452"W	8867.39	167.988	7.90	1.31	7.79	
16092.00	90.310	171.500	6548.76	8912.88	-8767.18	1859.55	1667280.33	14261685.56	39°16'26.119"N	80°54'18.274"W	8962.21	168.023	0.60	-0.58	0.15	
16187.00	90.460	158.780	6548.25	9007.31	-8860.00	1879.45	1667300.23	14261592.78	39°16'25.201"N	80°54'18.022"W	9057.15	168.023	7.59	0.00	-7.59	
16282.00	90.460	158.780	6548.25	9007.31	-8860.00	1879.45	1667300.23	14261592.78	39°16'25.201"N	80°54'18.022"W	9151.51	167.956	5.80	0.16	-5.80	
16376.00	90.370	158.270	6549.93	9196.09	-9037.54	1943.94	1667364.69	14261415.30	39°16'23.446"N	80°54'17.204"W	9244.25	167.861	0.55	-0.10	-0.54	
16471.00	90.280	159.860	6544.39	9290.96	-9126.27	1977.89	1667398.62	14261326.61	39°16'22.569"N	80°54'16.774"W	9338.14	167.772	1.68	-0.09	1.67	
16566.00	90.680	160.820	6543.59	9385.92	-9215.73	2009.85	1667430.57	14261237.19	39°16'21.684"N	80°54'16.368"W	9432.34	167.697	1.09	0.42	1.01	
16660.00	90.710	160.480	6542.45	9479.88	-9304.41	2040.99	1667461.70	14261148.55	39°16'20.807"N	80°54'15.974"W	9525.63	167.628	0.36	0.03	-0.36	
16754.00	90.620	160.260	6541.36	9573.84	-9392.94	2072.57	1667493.27	14261060.05	39°16'19.932"N	80°54'15.573"W	9618.88	167.557	0.25	-0.10	-0.23	
16849.00	89.970	161.160	6540.87	9668.81	-9482.61	2103.95	1667524.64	14260970.42	39°16'19.045"N	80°54'15.175"W	9713.21	167.490	1.17	-0.68	0.95	
16944.00	89.970	160.810	6540.92	9763.80	-9572.42	2134.90	1667555.58	14260880.64	39°16'18.157"N	80°54'14.783"W	9807.60	167.427	0.37	0.00	-0.37	
17039.00	89.910	160.810	6541.02	9858.78	-9662.14	2166.13	1667586.79	14260790.96	39°16'17.270"N	80°54'14.387"W	9901.97	167.364	0.06	-0.06	0.00	
17133.00	89.970	162.120	6541.12	9952.77	-9751.26	2196.01	1667616.66	14260701.87	39°16'16.389"N	80°54'14.009"W	9995.48	167.309	1.40	0.06	1.39	
17228.00	89.970	162.770	6541.17	10047.77	-9841.84	2224.66	1667645.30	14260611.33	39°16'15.494"N	80°54'13.645"W	10090.14	167.263	0.68	0.00	0.68	
17322.00	89.880	163.060	6541.29	10141.75	-9931.69	2252.28	1667672.91	14260521.52	39°16'14.605"N	80°54'13.295"W	10183.87	167.223	0.32	-0.10	0.31	
17418.00	89.940	163.340	6541.44	10237.73	-10023.59	2280.02	1667700.64	14260429.65	39°16'13.697"N	80°54'12.944"W	10279.64	167.185	0.30	0.06	0.29	
17512.00	89.940	162.700	6541.54	10331.72	-10113.50	2307.48	1667728.08	14260339.78	39°16'12.808"N	80°54'12.596"W	10373.39	167.148	0.68	0.00	-0.68	
17607.00	89.910	162.030	6541.66	10426.71	-10204.03	2336.26	1667756.85	14260249.29	39°16'11.913"N	80°54'12.231"W	10468.05	167.104	0.71	-0.03	-0.71	
17701.00	90.000	160.560	6541.74	10520.71	-10293.05	2366.40	1667786.98	14260160.29	39°16'11.032"N	80°54'11.849"W	10561.58	167.053	1.57	0.10	-1.56	
17795.00	89.880	159.660	6541.84	10614.65	-10381.45	2398.38	1667818.95	14260071.93	39°16'10.158"N	80°54'11.444"W	10654.90	166.991	0.97	-0.13	-0.96	
17889.00	89.910	159.950	6542.01	10708.58	-10469.68	2430.83	1667851.39	14259983.75	39°16'09.286"N	80°54'11.032"W	10748.16	166.929	0.31	0.03	0.31	





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #04
Area	Ritchie County, WV	Well	Vernon Unit 1H
Field	Ritchie	Wellbore	Vernon Unit 1H AWB
Facility	Pool Pad		

WELLPATH DATA (233 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 (1/100ft)	Build Rate (1/100ft)	Turn Rate (1/100ft)	Comments
17984.00	89.910	160.980	6542.16	10803.55	-10559.21	2462.60	1667883.14	14259894.25	39°16'08.401"N	80°54'10.630"W	10842.56	166.872	1.08	0.00	1.08	
18078.00	89.970	161.370	6542.26	10897.54	-10648.18	2492.93	1667913.46	14259806.32	39°16'07.521"N	80°54'10.245"W	10936.10	166.823	0.42	0.06	0.41	
18173.00	90.000	162.400	6542.28	10992.53	-10738.47	2522.47	1667942.99	14259715.06	39°16'06.628"N	80°54'09.871"W	11030.75	166.781	1.08	0.03	1.08	
18267.00	89.910	162.180	6542.36	11086.53	-10828.01	2551.06	1667971.57	14259625.55	39°16'05.743"N	80°54'09.509"W	11124.47	166.743	0.25	-0.10	-0.23	
18361.00	89.880	161.700	6542.53	11180.53	-10917.38	2580.20	1668000.70	14259536.22	39°16'04.859"N	80°54'09.139"W	11218.14	166.703	0.51	-0.03	-0.51	
18455.00	89.970	161.210	6542.65	11274.53	-11006.50	2610.10	1668030.58	14259447.14	39°16'03.978"N	80°54'08.760"W	11311.75	166.659	0.53	0.10	-0.52	
18550.00	90.000	161.410	6542.68	11369.52	-11096.49	2640.54	1668061.01	14259357.18	39°16'03.088"N	80°54'08.375"W	11406.34	166.615	0.21	0.03	0.21	
18644.00	89.880	162.600	6542.77	11463.52	-11185.89	2669.58	1668090.04	14259267.82	39°16'02.205"N	80°54'08.007"W	11500.03	166.577	1.27	-0.13	1.27	
18739.00	90.030	162.410	6542.85	11558.52	-11276.50	2698.14	1668118.59	14259177.25	39°16'01.309"N	80°54'07.645"W	11594.80	166.544	0.25	0.16	-0.20	
18833.00	89.820	163.660	6542.97	11652.50	-11366.40	2725.57	1668172.86	14259087.38	39°16'00.420"N	80°54'07.297"W	11688.62	166.516	1.35	-0.22	1.33	
18928.00	89.880	163.480	6543.22	11747.46	-11457.52	2752.44	1668172.86	14258996.30	39°15'59.519"N	80°54'06.957"W	11783.50	166.492	0.20	0.06	-0.19	
19022.00	90.030	162.640	6543.29	11841.45	-11547.44	2779.83	1668200.24	14258906.41	39°15'58.630"N	80°54'06.610"W	11877.33	166.465	0.91	0.16	-0.89	
19116.00	89.970	162.040	6543.29	11935.44	-11637.01	2808.34	1668228.75	14258816.88	39°15'57.744"N	80°54'06.249"W	11971.08	166.432	0.64	-0.06	-0.64	
19211.00	89.880	161.250	6543.42	12030.44	-11727.18	2838.26	1668258.65	14258726.75	39°15'56.853"N	80°54'05.870"W	12065.76	166.395	0.84	-0.09	-0.83	
19305.00	90.000	161.390	6543.52	12124.43	-11816.23	2868.36	1668288.74	14258637.74	39°15'55.972"N	80°54'05.488"W	12159.39	166.355	0.20	0.13	0.15	
19399.00	90.030	162.090	6543.49	12218.43	-11905.49	2897.82	1668318.19	14258548.51	39°15'55.090"N	80°54'05.115"W	12253.09	166.320	0.75	0.03	0.74	
19494.00	90.000	163.140	6543.47	12313.43	-11996.15	2926.20	1668346.56	14258457.88	39°15'54.193"N	80°54'04.755"W	12347.89	166.292	1.11	-0.03	1.11	
19589.00	89.880	162.590	6543.57	12408.42	-12086.94	2954.19	1668374.54	14258367.14	39°15'53.296"N	80°54'04.401"W	12442.72	166.265	0.59	-0.13	-0.58	
19683.00	90.000	162.640	6543.67	12502.41	-12176.64	2982.28	1668402.61	14258277.47	39°15'52.409"N	80°54'04.045"W	12536.53	166.238	0.14	0.13	0.05	
19778.00	89.970	161.530	6543.69	12597.41	-12267.03	3011.50	1668431.82	14258187.11	39°15'51.515"N	80°54'03.674"W	12631.28	166.207	1.17	-0.03	-1.17	
19872.00	89.880	160.560	6543.81	12691.39	-12355.94	3042.03	1668462.34	14258098.24	39°15'50.636"N	80°54'03.287"W	12724.90	166.169	1.04	-0.10	-1.03	
19967.00	89.820	160.460	6544.06	12786.36	-12445.49	3073.73	1668494.03	14258008.72	39°15'49.751"N	80°54'02.886"W	12819.44	166.127	0.12	-0.06	-0.11	
19991.00	89.820	160.460	6544.14	12810.35	-12468.11	3081.76	1668502.05	14257986.12	80°54'02.784"W	80°54'02.784"W	12843.32	166.116	0.00	0.00	0.00	Projected MD at ID: 19991'





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #04
ANTERO RESOURCES CORPORATION	Well	Vernon Unit 1H
Area	Ritchie County, WV	Vernon Unit 1H AWB
Field	Ritchie	
Facility	Pool Pad	

## HOLE & CASING SECTIONS - Ref Wellbore: Vernon Unit 1H AWB Ref Wellpath: Vernon Unit 1H AWP Proj: 19991'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	25.00	105.00	80.00	25.00	105.00	0.00	0.00	-0.16	-0.01
17.5in Open Hole	105.00	391.60	286.60	105.00	391.60	-0.16	-0.01	-0.79	0.06
13.375in Casing Surface	25.00	391.60	366.60	25.00	391.60	0.00	0.00	-0.79	0.06
12.25in Open Hole	391.60	2601.70	2210.10	391.60	2600.53	-0.79	0.06	-28.84	53.07
9.625in Casing Intermediate	25.00	2601.70	2576.70	25.00	2600.53	0.00	0.00	-28.84	53.07
8.75in Open Hole	2601.70	5837.00	3235.30	2600.53	5623.12	-28.84	53.07	434.90	-870.38
8.5in Open Hole	5837.00	19991.00	14154.00	5623.12	6544.14	434.90	-870.38	-12468.11	3081.76
5.5in Casing Production	25.00	19991.00	19966.00	25.00	6544.14	0.00	0.00	-12468.11	3081.76

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Vernon Unit 1H POE - Rev-1	6505.00	-123.87	-926.26	1664495.64	14270325.40	39°17'51.575"N	80°54'53.594"W	point
Vernon Unit 1H BHL - Rev-1	6528.00	-12378.73	3054.06	1668474.37	14258075.46	39°15'50.411"N	80°54'03.135"W	point
Vernon Unit 1H LP - Rev-1	6528.00	-295.11	-870.64	1664551.24	14270154.23	39°17'49.882"N	80°54'52.888"W	point

## WELLPATH COMPOSITION - Ref Wellbore: Vernon Unit 1H AWB Ref Wellpath: Vernon Unit 1H AWP Proj: 19991'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	2505.00	Gyrodata standard - Drop gyro or Multi-shot	02 Gyrodata MS Gyro <12-1/4">(100'-2505)	Vernon Unit 1H AWB
2505.00	5766.00	ISCWSA MWD, Rev. 4 (Standard)	03 Panther EM <8-3/4">(2505)(2724'-5766')	Vernon Unit 1H AWB
5766.00	19967.00	BHI AutoTrak Curve (Short)	04 BH AT Curve <8-1/2">(5766)(5805'-19967')	Vernon Unit 1H AWB
19967.00	19991.00	Blind Drilling (std)	Projection to bit	Vernon Unit 1H AWB





# Actual Wellpath Report

Vernon Unit 1H AWP Proj: 19991'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	Slot	Slot #04	
ANTERO RESOURCES CORPORATION	Well	Vernon Unit 1H	
Ritchie County, WV	Wellbore	Vernon Unit 1H AWB	
Ritchie			
Pool Pad			

COMMENTS
<p>Wellpath general comments</p> <p>API: 47-085-10352-0000</p> <p>BHI Job #: 9257286</p> <p>Rig: Patterson 342</p> <p>Duration: 07/20/2018-07/25/2018</p> <p>Gyrodata MS Gyro &lt;12-1/4"&gt; (100'-2505')</p> <p>Panther EM &lt;8-3/4"&gt; (2505')(2724'-5766')</p> <p>BHI AT Curve &lt;8-1/2"&gt; (5766')(5805'-19967')</p> <p>Middlesex: 6607' MD</p> <p>Burkett: 6792' MD</p> <p>Tully: 6883' MD</p> <p>Marcellus POE: 6981' MD</p> <p>Projected MD at TD: 19991'</p>