

# ANTERO RESOURCES CORPORATION

Location: Doddridge Co., WV  
 Field: Doddridge  
 Facility: Alexander Pad

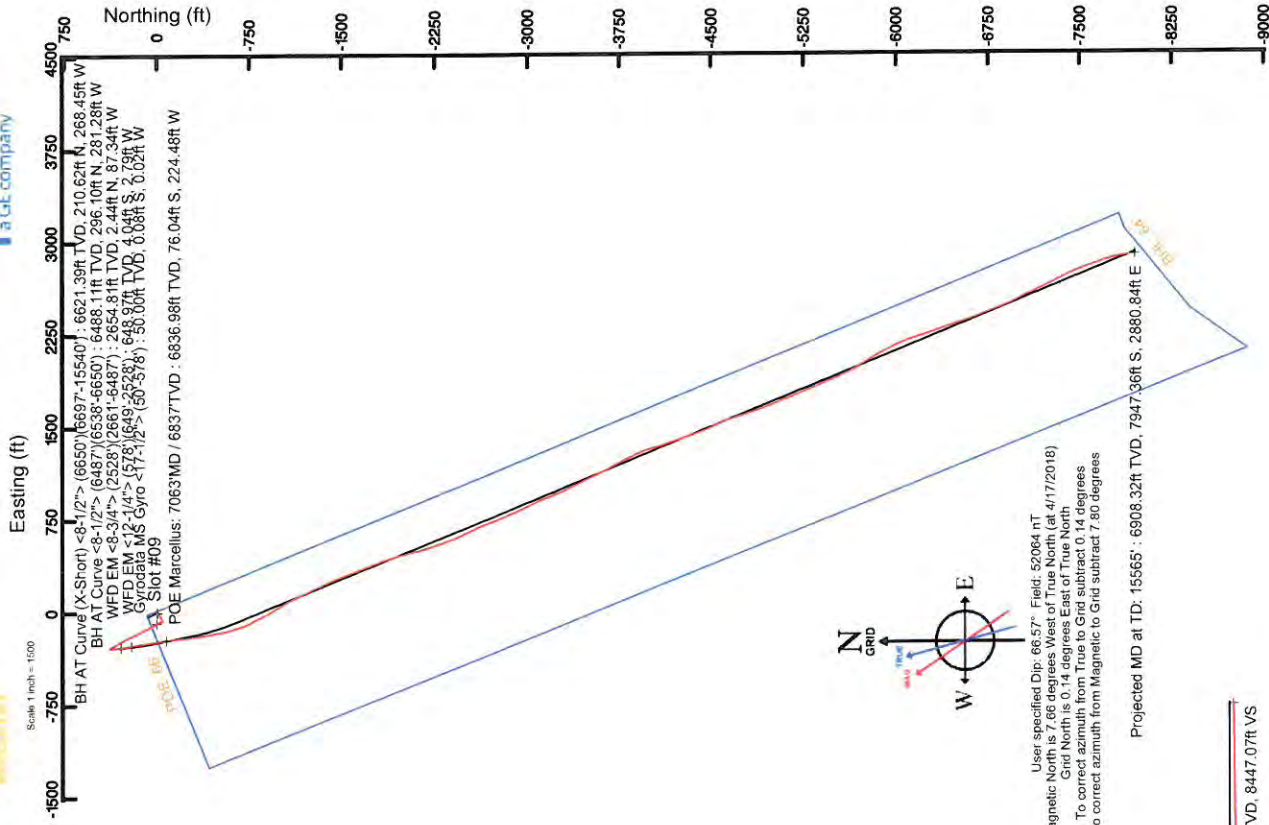
Slot: Slot #09  
 Well: Northrop Unit 2H  
 Wellbore: Northrop Unit 2H PWB

API: 47-017-06857-0000

BH Job #: 9120448

Rig: Patterson 342

Duration: 4/20/2018-4/22/2018



Plot reference wellpath is Northrop Unit 2H PWB Rev-A.0	Grid System: MAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Patterson 342 (RKB)	North Reference: Grid north
Measured depths are referenced to Patterson 342 (RKB)	Scale: True distance
Patterson 342 (RKB) to Mean Sea Level: 1206 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #09): -1181 feet	Created by: microb on 2018-05-16
Coordinates are in feet referenced to Slot	Database: VA_MPL_EASTERNUS_Defn

Gyrodatta MS Gyro <17-1/2"> (50'-578') : 0.38° Inc. 50.00ft MD, 50.00ft TVD, 0.07ft VS

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Alexander Pad	1703908.855	14284263.322	80°46'31.620"W
Slot	Local N (ft)	Grid East (US ft)	Latitude
Slot #09	-36.38	15.81	39°20'08.360"N
Comment	Northrop Unit 2H		80°46'31.420"W
Patterson 342 (RKB) to Ground level (At Slot: Slot #09)		25ft	
Mean Sea Level to Ground level (At Slot: Slot #09)		-1181ft	
Patterson 342 (RKB) to Mean Sea Level		1206ft	

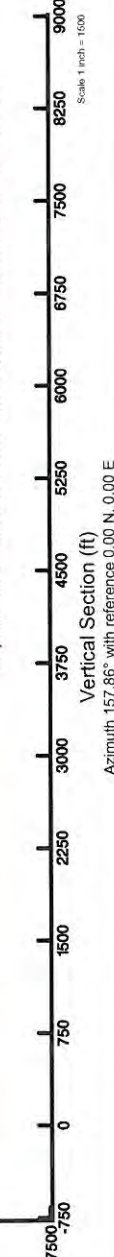
WFD EM <8-3/4"> (2528')(649'-2528') : 1.75° Inc. 649.00ft MD, 648.97ft TVD, 2.69ft VS

Well Profile Data					
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	VS (ft)
Tie On	6487.00	24.880	174.420	6442.83	319.38
Proj. To Bottom	6563.00	28.620	175.100	6510.68	285.32
End of 3D Arc	6749.13	41.579	172.846	6662.65	179.16
POE	7059.52	69.325	168.800	6837.00	-70.43
Landing Pt.	7289.24	90.000	168.800	6878.00	-290.92
On Azimuth	7653.76	90.000	157.864	6878.00	-639.59
BHL	15545.85	90.000	157.864	6878.00	-7949.99
					2884.35
					0.00
					8454.60

Well Data		
Slot	Well	Wellpath
Slot #09	Northrop Unit 2H	Northrop Unit 2H AWP
Slot #09	Northrop Unit 2H	Northrop Unit 2H PWB
		Northrop Unit 2H PWB Rev-A.0

BH AT Curve <8-1/2"> (6487')(6538'-6650') : 29.85° Inc. 6538.00ft MD, 6488.11ft TVD, -380.27ft VS  
 BH AT Curve (X-Short) <8-1/2"> (6650')(6697'-15540') : 38.16° Inc. 6697.00ft MD, 6621.39ft TVD, -296.26ft VS  
 POE Marcellus: 7063MD / 6837TVD : 69.38° Inc. 7063.00ft MD, 6836.98ft TVD, -14.16ft VS

Projected MD at TD: 15565' : 90.58° Inc. 15565.00ft MD, 6908.32ft TVD, 8447.07ft VS



Azimuth 157.86° with reference 0.00 N, 0.00 E

05/03/2019





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 1 of 11



REFERENCE WELLPATH IDENTIFICATION		
Operator	ANTERO RESOURCES CORPORATION	Slot #09
Area	Doddridge Co., WV	Northrop Unit 2H
Field	Doddridge	Northrop Unit 2H AWB
Facility	Alexander Pad	

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Mccrerib
Scale	0.999605	Report Generated	5/16/2018 at 2:21:09 PM
Convergence at slot	0.14° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Northrop_Unit_2H_AWP_Proj_15565_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-36.38	15.81	1703924.65	14284226.95	39°20'08.360"N	80°46'31.420"W
Facility Reference Pt			1703908.86	14284263.32	39°20'08.720"N	80°46'31.620"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 342 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 342 (RKB) to Mean Sea Level	1206.00ft
Vertical Reference Pt	Patterson 342 (RKB)	Patterson 342 (RKB) to Ground Level at Slot (Slot #09)	25.00ft
MD Reference Pt	Patterson 342 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	157.86°

05/03/2019





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'  
Page 2 of 11



REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #09
Operator	ANTERO RESOURCES CORPORATION	Well	Northrop Unit 2H
Area	Doddridge Co., WV	Wellbore	Northrop Unit 2H AWB
Field	Doddridge		
Facility	Alexander Pad		

WELLPATH DATA (205 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (JUS ft)	Grid North (JUS ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
0.00†	0.000	191.570	0.00	0.00	0.00	0.00	1703924.65	14284226.95	39°20'08.360"N	80°46'31.420"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	191.570	25.00	0.00	0.00	0.00	1703924.65	14284226.95	39°20'08.360"N	80°46'31.420"W	0.00	0.000	0.00	0.00	0.00	
50.00	0.380	191.570	50.00	0.07	-0.08	-0.02	1703924.64	14284226.87	39°20'08.359"N	80°46'31.420"W	0.08	191.570	1.52	1.52	-673.72	Gyrodata MS Gyro <17-1/2"> (50-578)
75.00	0.440	197.570	75.00	0.21	-0.25	-0.06	1703924.59	14284226.70	39°20'08.357"N	80°46'31.421"W	0.26	193.769	0.29	0.24	24.00	
100.00	0.400	189.750	100.00	0.36	-0.43	-0.11	1703924.55	14284226.52	39°20'08.356"N	80°46'31.421"W	0.44	193.801	0.28	-0.16	-31.28	
125.00	0.370	182.190	125.00	0.51	-0.60	-0.12	1703924.53	14284226.35	39°20'08.354"N	80°46'31.422"W	0.61	191.698	0.24	-0.12	-30.24	
150.00	0.490	187.690	150.00	0.67	-0.78	-0.14	1703924.51	14284226.17	39°20'08.352"N	80°46'31.422"W	0.80	190.203	0.51	0.48	22.00	
175.00	0.380	199.070	175.00	0.83	-0.97	-0.18	1703924.47	14284225.98	39°20'08.350"N	80°46'31.422"W	0.99	190.673	0.56	-0.44	45.52	
200.00	0.480	191.550	200.00	0.98	-1.15	-0.23	1703924.42	14284225.80	39°20'08.349"N	80°46'31.423"W	1.17	191.343	0.46	0.40	-30.08	
225.00	0.410	200.670	225.00	1.13	-1.34	-0.28	1703924.37	14284225.62	39°20'08.347"N	80°46'31.424"W	1.37	191.967	0.40	-0.28	38.48	
250.00	0.450	203.360	249.99	1.27	-1.51	-0.35	1703924.30	14284225.44	39°20'08.345"N	80°46'31.426"W	1.55	193.183	0.18	0.16	10.76	
275.00	0.610	219.000	274.99	1.40	-1.70	-0.48	1703924.18	14284225.25	39°20'08.343"N	80°46'31.426"W	1.77	195.623	0.86	0.64	62.56	
300.00	0.610	214.690	299.99	1.54	-1.92	-0.64	1703924.02	14284225.04	39°20'08.341"N	80°46'31.428"W	2.02	198.356	0.18	0.00	-17.24	
325.00	0.640	214.560	324.99	1.68	-2.14	-0.79	1703923.86	14284224.81	39°20'08.339"N	80°46'31.430"W	2.28	200.274	0.12	0.12	-0.52	
350.00	0.280	224.430	349.99	1.79	-2.30	-0.91	1703923.74	14284224.65	39°20'08.337"N	80°46'31.432"W	2.47	201.651	1.47	-1.44	39.48	
375.00	0.240	228.310	374.99	1.83	-2.38	-0.99	1703923.66	14284224.57	39°20'08.337"N	80°46'31.433"W	2.58	202.699	0.17	-0.16	15.52	
400.00	0.200	242.470	399.99	1.85	-2.43	-1.07	1703923.58	14284224.52	39°20'08.336"N	80°46'31.434"W	2.66	203.788	0.27	-0.16	56.64	
425.00	0.260	226.630	424.99	1.87	-2.49	-1.15	1703923.50	14284224.46	39°20'08.335"N	80°46'31.435"W	2.75	204.817	0.35	0.24	-63.36	
450.00	0.280	210.440	449.99	1.93	-2.58	-1.22	1703923.43	14284224.37	39°20'08.334"N	80°46'31.436"W	2.86	205.359	0.31	0.08	-64.78	
475.00	0.250	234.500	474.99	1.98	-2.67	-1.30	1703923.36	14284224.28	39°20'08.334"N	80°46'31.437"W	2.97	205.976	0.46	-0.12	96.24	
500.00	0.320	238.620	499.99	2.01	-2.74	-1.40	1703923.25	14284224.22	39°20'08.333"N	80°46'31.438"W	3.08	207.163	0.29	0.28	18.48	
525.00	0.420	240.240	524.99	2.03	-2.82	-1.54	1703923.11	14284224.13	39°20'08.332"N	80°46'31.440"W	3.21	208.705	0.40	0.40	6.48	
550.00	0.430	233.520	549.99	2.06	-2.92	-1.70	1703922.96	14284224.03	39°20'08.331"N	80°46'31.442"W	3.38	210.186	0.20	0.04	-26.88	
575.00	0.440	227.430	574.99	2.12	-3.04	-1.84	1703922.81	14284223.91	39°20'08.330"N	80°46'31.444"W	3.56	211.244	0.19	0.04	-24.36	
578.00	0.440	226.680	577.99	2.13	-3.06	-1.86	1703922.79	14284223.90	39°20'08.330"N	80°46'31.444"W	3.58	211.344	0.19	0.00	-25.00	
649.00	1.750	222.620	648.97	2.69	-4.04	-2.79	1703921.86	14284222.91	39°20'08.320"N	80°46'31.456"W	4.91	214.660	1.85	1.85	-5.72	WFD EM <12-1/4"> (578)(649-2528)
739.00	4.470	231.030	738.83	4.29	-7.26	-6.45	1703918.21	14284219.70	39°20'08.288"N	80°46'31.502"W	9.71	221.633	3.06	3.02	9.34	
830.00	6.340	231.900	829.42	6.70	-12.59	-13.16	1703911.50	14284214.37	39°20'08.236"N	80°46'31.588"W	18.21	226.277	2.06	2.05	0.96	
924.00	6.800	232.670	922.80	9.59	-19.17	-21.67	1703902.99	14284207.79	39°20'08.171"N	80°46'31.696"W	28.93	228.512	0.50	0.49	0.82	
1019.00	6.270	237.970	1017.19	11.95	-25.33	-30.54	1703894.12	14284201.63	39°20'08.110"N	80°46'31.810"W	39.68	230.332	0.84	-0.56	5.58	





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565  
Page 3 of 11



REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #09
Operator	ANTERO RESOURCES CORPORATION	Well	Northrop Unit 2H
Area	Doddridge Co., WV	Wellbore	Northrop Unit 2H AWB
Field	Doddridge		
Facility	Alexander Pad		

WELLPATH DATA (205 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
1113.00	5.400	243.910	1110.70	13.14	-30.00	-38.87	1703885.80	14284196.97	39°20'08.064"N	80°46'31.916"W	49.10	232.341	1.13	-0.93	6.32	
1207.00	5.690	243.320	1204.26	13.81	-34.03	-47.00	1703877.67	14284192.93	39°20'08.025"N	80°46'32.019"W	58.03	234.093	0.31	0.31	-0.63	
1301.00	5.460	244.160	1297.82	14.47	-38.07	-55.19	1703869.48	14284188.89	39°20'07.985"N	80°46'32.124"W	67.05	235.400	0.26	-0.24	0.89	
1395.00	4.270	247.390	1391.48	14.78	-41.37	-62.45	1703862.23	14284186.60	39°20'07.953"N	80°46'32.216"W	74.91	236.477	1.30	-1.27	3.44	
1490.00	1.930	256.110	1486.33	14.58	-43.11	-67.27	1703857.42	14284183.86	39°20'07.936"N	80°46'32.277"W	79.90	237.343	2.51	-2.48	9.18	
1584.00	0.810	262.260	1580.30	14.19	-43.58	-69.46	1703855.22	14284183.39	39°20'07.931"N	80°46'32.305"W	82.00	237.894	1.20	-1.19	6.53	
1679.00	0.420	270.690	1675.30	13.89	-43.67	-70.47	1703854.21	14284183.30	39°20'07.930"N	80°46'32.318"W	82.91	238.216	0.42	-0.41	8.88	
1773.00	0.330	130.310	1769.30	14.00	-43.84	-70.61	1703854.07	14284183.13	39°20'07.928"N	80°46'32.320"W	83.12	238.166	0.75	-0.10	-149.34	
1868.00	0.700	100.540	1864.29	14.55	-44.12	-69.83	1703854.85	14284182.85	39°20'07.926"N	80°46'32.310"W	82.61	237.714	0.47	0.39	-31.34	
1962.00	0.740	81.660	1958.29	15.01	-44.14	-68.67	1703856.01	14284182.83	39°20'07.925"N	80°46'32.295"W	81.63	237.267	0.25	0.04	-20.09	
2056.00	0.960	28.250	2052.28	14.65	-43.36	-67.70	1703856.99	14284183.61	39°20'07.933"N	80°46'32.283"W	80.39	237.360	0.84	0.23	-56.82	
2150.00	2.250	357.040	2146.24	12.40	-40.82	-67.42	1703857.26	14284186.15	39°20'07.958"N	80°46'32.279"W	78.81	238.805	1.61	1.37	-33.20	
2245.00	3.710	350.050	2241.11	7.64	-35.93	-68.04	1703856.84	14284191.03	39°20'08.007"N	80°46'32.287"W	76.95	242.163	1.58	1.54	-7.36	
2339.00	5.260	338.810	2334.82	0.36	-28.92	-70.13	1703854.55	14284198.04	39°20'08.076"N	80°46'32.313"W	75.86	247.590	1.89	1.65	-11.96	
2434.00	6.130	333.000	2429.35	-9.05	-20.34	-74.00	1703850.88	14284206.62	39°20'08.161"N	80°46'32.362"W	76.75	254.633	1.10	0.92	-6.12	
2528.00	6.800	330.270	2522.75	-19.57	-11.03	-79.04	1703845.64	14284215.92	39°20'08.253"N	80°46'32.426"W	79.81	262.053	0.78	0.71	-2.90	
2661.00	6.870	326.510	2654.81	-35.17	2.44	-87.34	1703837.35	14284229.39	39°20'08.386"N	80°46'32.531"W	87.37	271.598	0.34	0.05	-2.83	WFD EM <-8.3/4"> (2528)(2661-6487)
2755.00	7.160	333.600	2748.11	-46.53	12.37	-93.04	1703831.65	14284239.32	39°20'08.485"N	80°46'32.604"W	93.86	277.575	0.97	0.31	7.54	
2850.00	7.100	332.460	2842.37	-58.28	22.88	-98.39	1703826.30	14284249.82	39°20'08.589"N	80°46'32.671"W	101.02	288.028	0.16	-0.06	-1.20	
2944.00	7.990	333.090	2935.56	-70.57	33.86	-104.03	1703820.66	14284260.80	39°20'08.697"N	80°46'32.743"W	109.41	288.028	0.95	0.95	0.67	
3038.00	8.010	331.350	3028.64	-83.59	45.43	-110.13	1703814.57	14284272.37	39°20'08.812"N	80°46'32.820"W	119.13	292.417	0.26	0.02	-1.85	
3132.00	7.630	330.810	3121.77	-96.29	56.63	-116.31	1703808.39	14284283.56	39°20'09.037"N	80°46'32.899"W	129.37	295.959	0.41	-0.40	-0.57	
3231.00	7.540	334.420	3219.90	-109.29	68.22	-122.32	1703802.38	14284295.15	39°20'09.145"N	80°46'32.975"W	140.06	299.149	0.49	-0.09	3.65	
3326.00	7.020	335.140	3314.14	-121.31	79.11	-127.46	1703797.25	14284306.03	39°20'09.145"N	80°46'33.040"W	150.01	301.828	0.56	-0.55	0.76	
3420.00	7.540	334.570	3407.38	-133.21	89.89	-132.52	1703792.19	14284316.81	39°20'09.252"N	80°46'33.104"W	160.13	304.151	0.56	0.55	-0.61	
3514.00	7.550	335.600	3500.56	-145.54	101.09	-137.72	1703786.99	14284328.00	39°20'09.362"N	80°46'33.170"W	170.84	306.279	0.14	0.01	1.10	
3609.00	7.180	334.240	3594.78	-157.70	112.12	-142.88	1703781.83	14284339.03	39°20'09.472"N	80°46'33.235"W	181.62	308.122	0.43	-0.39	-1.43	
3704.00	7.850	334.370	3688.96	-170.10	123.31	-148.26	1703776.45	14284350.22	39°20'09.582"N	80°46'33.303"W	192.84	309.751	0.71	0.71	0.14	
3799.00	7.800	333.030	3783.08	-183.00	134.91	-153.99	1703770.72	14284361.81	39°20'09.697"N	80°46'33.376"W	204.73	311.221	0.20	-0.05	-1.41	
3894.00	7.670	331.520	3877.21	-195.72	146.23	-159.94	1703764.78	14284373.12	39°20'09.809"N	80°46'33.451"W	216.71	312.435	0.25	-0.14	-1.59	





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 4 of 11



## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WY	Well	Northrop Unit 2H
Field	Doddridge	Wellbore	Northrop Unit 2H AWB
Facility	Alexander Pad		

## WELLPATH DATA (205 stations)

ID	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(ft/100ft)	(ft/100ft)	(°/100ft)	
3988.00	7.630	330.370	3970.38	-208.14	157.17	-166.02	1703758.70	14284384.05	39°20'09.917"N	80°46'33.528"W	228.61	313.431	0.17	-0.04	-1.22	
4083.00	7.470	329.910	4064.55	-220.51	167.99	-172.23	1703752.49	14284394.88	39°20'10.025"N	80°46'33.607"W	240.59	314.286	0.18	-0.17	-0.48	
4177.00	7.720	336.230	4157.73	-232.88	179.06	-177.84	1703746.89	14284405.94	39°20'10.134"N	80°46'33.678"W	252.36	315.195	0.93	0.27	6.72	
4270.00	7.790	338.180	4249.88	-245.39	190.59	-182.69	1703742.04	14284417.47	39°20'10.248"N	80°46'33.739"W	264.01	316.213	0.28	0.03	2.10	
4365.00	7.710	337.660	4344.02	-258.17	202.43	-187.49	1703737.24	14284429.31	39°20'10.365"N	80°46'33.800"W	275.92	317.195	0.08	-0.04	-0.55	
4459.00	7.820	337.640	4437.16	-270.87	214.18	-192.32	1703732.41	14284441.05	39°20'10.482"N	80°46'33.861"W	287.86	318.078	0.12	0.12	-0.02	
4547.00	7.750	335.890	4530.29	-283.60	225.88	-197.34	1703727.39	14284452.74	39°20'10.597"N	80°46'33.924"W	299.94	318.858	0.26	-0.07	-1.86	
4643.00	7.720	332.610	4623.45	-296.19	237.39	-202.46	1703722.28	14284464.25	39°20'10.711"N	80°46'33.989"W	312.00	319.541	0.12	-0.11	0.34	
4742.00	7.720	332.610	4717.59	-308.86	248.84	-207.94	1703716.80	14284475.69	39°20'10.825"N	80°46'34.059"W	324.29	320.117	0.51	0.07	-3.79	
4836.00	7.830	331.370	4810.73	-321.51	260.07	-213.91	1703710.83	14284486.92	39°20'10.936"N	80°46'34.134"W	336.74	320.562	0.21	0.12	-1.32	
4930.00	7.850	332.190	4903.85	-334.26	271.37	-219.98	1703704.76	14284498.21	39°20'11.047"N	80°46'34.211"W	349.33	320.971	0.12	0.02	0.87	
5025.00	7.740	332.700	4997.97	-347.09	282.79	-225.94	1703698.81	14284509.63	39°20'11.161"N	80°46'34.287"W	361.96	321.376	0.14	-0.12	0.54	
5119.00	7.960	334.100	5091.09	-359.89	294.27	-231.68	1703693.06	14284521.10	39°20'11.274"N	80°46'34.359"W	374.53	321.786	0.31	0.23	1.49	
5213.00	7.940	329.620	5184.19	-372.81	305.72	-237.81	1703686.94	14284532.55	39°20'11.387"N	80°46'34.437"W	387.33	322.122	0.66	-0.02	-4.77	
5307.00	7.020	328.380	5277.39	-384.90	316.22	-244.11	1703680.65	14284543.04	39°20'11.491"N	80°46'34.517"W	399.48	322.333	0.99	-0.98	-1.32	
5402.00	7.020	328.850	5371.68	-396.36	326.13	-250.15	1703674.60	14284552.95	39°20'11.589"N	80°46'34.593"W	411.02	322.511	0.06	0.00	0.49	
5496.00	7.100	328.720	5464.96	-407.77	336.01	-256.14	1703668.62	14284562.83	39°20'11.687"N	80°46'34.669"W	422.50	322.682	0.09	0.09	-0.14	
5590.00	7.130	327.600	5558.24	-419.24	345.90	-262.28	1703662.48	14284572.71	39°20'11.785"N	80°46'34.747"W	434.09	322.828	0.15	0.03	-1.19	
5685.00	7.220	330.850	5652.50	-430.97	356.09	-268.35	1703656.41	14284582.90	39°20'11.886"N	80°46'34.824"W	445.88	322.998	0.44	0.09	3.42	
5779.00	6.320	336.570	5745.84	-442.00	366.00	-273.28	1703651.48	14284592.80	39°20'11.984"N	80°46'34.886"W	456.77	323.252	1.20	-0.96	6.08	
5874.00	5.740	332.190	5840.32	-451.96	375.00	-277.58	1703647.19	14284601.80	39°20'12.073"N	80°46'35.004"W	466.55	323.491	0.78	-0.61	-4.61	
5968.00	5.060	317.130	5933.90	-460.51	382.19	-282.59	1703642.17	14284608.99	39°20'12.144"N	80°46'35.045"W	475.32	323.521	1.67	-0.72	-16.02	
6015.00	5.520	308.470	5980.70	-464.42	385.12	-285.77	1703639.00	14284611.92	39°20'12.173"N	80°46'35.045"W	479.57	323.423	1.96	0.98	-18.43	
6062.00	4.010	299.030	6027.54	-467.67	387.32	-288.98	1703635.79	14284614.12	39°20'12.195"N	80°46'35.086"W	483.25	323.274	3.61	-3.21	-20.09	
6109.00	1.800	312.760	6074.48	-469.62	388.52	-290.96	1703633.81	14284615.42	39°20'12.208"N	80°46'35.111"W	485.47	323.178	4.90	-4.70	29.21	
6157.00	1.490	153.290	6122.47	-469.68	388.58	-291.23	1703633.54	14284615.37	39°20'12.208"N	80°46'35.114"W	485.60	323.149	6.75	-0.65	-332.23	
6204.00	4.700	160.730	6169.40	-467.15	386.21	-290.32	1703634.45	14284613.01	39°20'12.184"N	80°46'35.103"W	483.16	323.067	6.87	6.83	15.83	
6251.00	7.650	169.860	6216.12	-462.16	381.31	-289.13	1703635.63	14284608.11	39°20'12.136"N	80°46'35.088"W	478.54	322.828	6.60	6.28	19.43	
6298.00	10.640	176.460	6262.52	-454.99	373.90	-288.32	1703636.45	14284600.70	39°20'12.063"N	80°46'35.078"W	472.15	322.364	6.73	6.36	14.04	
6345.00	12.220	176.170	6308.58	-446.16	364.61	-287.72	1703637.05	14284591.41	39°20'11.971"N	80°46'35.070"W	464.46	321.723	3.36	3.36	-0.62	





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 5 of 11



REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #09
Operator	ANTERO RESOURCES CORPORATION	Well	Northrop Unit 2H
Area	Doddridge Co., WY	Wellbore	Northrop Unit 2H AWB
Field	Doddridge		
Facility	Alexander Pad		

WELLPATH DATA (205 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
6392.00	16.590	175.140	6354.09	-435.02	352.95	-286.81	1703637.95	14284579.76	39°20'11.855"N	80°46'35.059"W	454.80	320.902	9.31	9.30	-2.19	
6440.00	20.900	175.580	6399.54	-420.31	337.58	-288.57	1703639.19	14284564.40	39°20'11.704"N	80°46'35.044"W	442.17	319.771	8.98	8.98	0.92	
6487.00	24.880	174.420	6442.83	-402.85	319.38	-283.97	1703640.80	14284546.20	39°20'11.524"N	80°46'35.024"W	427.36	318.359	8.52	8.47	-2.47	
6538.00	29.850	172.580	6488.11	-380.27	296.10	-281.28	1703643.48	14284522.93	39°20'11.293"N	80°46'34.995"W	408.40	316.470	8.88	9.75	-3.61	BH AT Curve <8-1/2"> (6487)-(6538-6650)
6556.00	30.580	172.170	6503.66	-371.50	287.12	-280.08	1703644.69	14284513.96	39°20'11.205"N	80°46'34.975"W	401.10	315.711	4.21	4.06	-2.28	
6601.00	31.290	171.860	6542.26	-349.07	264.21	-276.87	1703647.90	14284491.06	39°20'10.978"N	80°46'34.935"W	382.70	313.660	1.62	1.58	-0.68	
6650.00	34.210	170.900	6583.47	-323.30	238.01	-272.88	1703651.88	14284464.86	39°20'10.719"N	80°46'34.885"W	362.10	311.095	6.05	5.96	-1.96	
6697.00	38.160	170.710	6621.39	-296.26	210.62	-268.45	1703656.31	14284437.49	39°20'10.448"N	80°46'34.830"W	341.21	308.117	8.41	8.40	-0.40	BH AT Curve (X-Short) <8-1/2"> (6650)-(6697-15540)
6745.00	41.400	170.580	6658.28	-266.31	180.32	-263.46	1703661.30	14284407.20	39°20'10.149"N	80°46'34.767"W	319.26	304.390	6.75	6.75	0.27	
6792.00	45.940	170.450	6692.27	-234.66	148.32	-258.11	1703666.65	14284375.21	39°20'09.832"N	80°46'34.700"W	287.69	299.884	9.66	9.66	-0.28	
6840.00	49.640	170.530	6724.51	-199.97	113.26	-252.24	1703672.52	14284340.17	39°20'09.486"N	80°46'34.627"W	276.50	294.182	7.71	7.71	0.17	
6887.00	54.100	170.400	6753.52	-163.90	76.81	-246.11	1703678.64	14284303.73	39°20'09.125"N	80°46'34.550"W	257.82	287.333	9.49	9.49	-0.28	
6897.00†	54.958	170.692	6759.32	-155.95	68.78	-244.77	1703679.98	14284295.70	39°20'09.046"N	80°46'34.533"W	254.25	285.695	8.91	8.58	2.92	Burket. 6897 MD / 6759 TVD
6934.00	58.140	171.720	6779.72	-125.92	38.27	-240.06	1703684.69	14284265.21	39°20'08.744"N	80°46'34.474"W	243.09	279.059	8.91	8.60	2.78	
6953.00†	59.751	171.869	6789.52	-110.13	22.16	-237.74	1703687.01	14284249.11	39°20'08.585"N	80°46'34.445"W	238.77	275.326	8.54	8.51	0.78	Tully. 6953 MD / 6790 TVD
6981.00	62.140	172.080	6803.11	-86.39	-2.07	-234.32	1703690.43	14284224.88	39°20'08.345"N	80°46'34.402"W	234.33	269.493	8.54	8.51	0.75	
7029.00	66.040	172.680	6824.08	-44.60	-44.86	-228.60	1703696.15	14284182.11	39°20'07.922"N	80°46'34.331"W	232.96	258.898	8.20	8.13	1.25	
7038.00†	66.925	172.596	6827.87	-36.62	-53.04	-227.54	1703697.20	14284173.93	39°20'07.841"N	80°46'34.318"W	233.64	256.878	9.90	9.83	-1.27	Hamilton: 7038 MD / 6828 TVD
7063.00†	69.382	172.257	6836.98	-14.16	-76.04	-224.48	1703700.27	14284150.94	39°20'07.614"N	80°46'34.279"W	237.01	251.286	9.90	9.83	-1.24	POE Marcellus: 7063 MD / 6837 TVD
7076.00	70.860	172.100	6841.42	-2.33	-88.15	-222.81	1703701.93	14284138.84	39°20'07.494"N	80°46'34.258"W	239.61	248.416	9.90	9.83	-1.21	
7123.00	75.350	172.650	6855.15	41.17	-132.68	-216.85	1703707.89	14284094.32	39°20'07.054"N	80°46'34.184"W	254.22	238.539	10.04	9.98	1.17	
7170.00	84.050	173.470	6871.49	130.51	-224.44	-205.31	1703719.42	14284002.60	39°20'06.147"N	80°46'34.110"W	276.17	229.807	10.45	10.45	-0.11	
7217.00	87.660	172.810	6874.89	175.72	270.97	-199.72	1703725.02	14283956.09	39°20'05.687"N	80°46'33.970"W	304.18	222.452	8.27	8.06	1.85	
7312.00	90.770	173.160	6875.55	222.05	-318.60	-193.86	1703730.88	14283908.48	39°20'05.216"N	80°46'33.897"W	372.94	211.319	6.52	6.48	0.73	
7359.00	90.520	171.830	6875.02	267.52	-365.19	-187.72	1703737.01	14283861.90	39°20'04.755"N	80°46'33.821"W	410.61	207.204	2.88	-0.53	-2.83	
7407.00	89.510	170.390	6875.00	314.24	-412.62	-180.30	1703744.43	14283814.50	39°20'04.286"N	80°46'33.728"W	450.29	203.604	3.66	-2.10	-3.00	
7502.00	89.600	169.550	6875.74	407.12	-506.16	-163.75	1703760.97	14283720.99	39°20'03.361"N	80°46'33.520"W	531.99	197.928	0.89	0.09	-0.88	
7596.00	89.630	164.260	6876.37	489.92	-597.68	-142.47	1703782.25	14283629.51	39°20'02.456"N	80°46'33.252"W	614.43	193.407	5.63	0.03	-5.63	
7690.00	89.350	161.130	6877.21	593.57	-687.41	-114.51	1703810.19	14283539.81	39°20'01.569"N	80°46'32.989"W	696.88	189.457	3.34	-0.30	-3.33	





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 6 of 11



## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., Wv	Well	Northrop Unit 2H
Field	Doddridge	Wellbore	Northrop Unit 2H AWB
Facility	Alexander Pad		

## WELLPATH DATA (205 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 (F/100ft)	Build Rate (F/100ft)	Turn Rate (F/100ft)	Comments
7785.00	88.250	151.340	6879.21	688.39	-774.23	-76.28	1703848.40	14283453.03	39°20'00.710"N	80°46'32.415"W	777.98	185.627	10.37	-1.16	-10.31	
7879.00	89.260	154.060	6881.25	781.98	-857.73	-33.18	1703891.48	14283369.56	39°19'59.863"N	80°46'31.869"W	858.37	182.216	3.09	1.07	2.89	
7974.00	88.740	149.530	6882.91	876.41	-941.42	11.70	1703936.35	14283285.91	39°19'59.055"N	80°46'31.301"W	941.49	179.288	4.80	-0.55	-4.77	
8069.00	88.610	149.590	6885.10	970.39	-1023.30	59.81	1703984.44	14283204.06	39°19'58.245"N	80°46'30.691"W	1025.05	176.655	0.15	-0.14	0.06	
8164.00	88.210	152.910	6887.74	1064.71	-1106.54	105.48	1704030.10	14283120.85	39°19'57.421"N	80°46'30.113"W	1111.56	174.555	3.52	-0.42	3.49	
8259.00	89.230	155.010	6889.86	1159.46	-1191.87	147.18	1704071.77	14283035.55	39°19'56.576"N	80°46'29.585"W	1200.93	172.961	2.46	1.07	2.21	
8354.00	89.230	155.230	6891.14	1254.34	-1278.05	187.14	1704111.72	14282949.41	39°19'55.724"N	80°46'28.586"W	1291.68	171.670	0.23	0.00	0.23	
8449.00	89.320	156.350	6892.34	1349.27	-1364.69	226.09	1704150.66	14282862.81	39°19'54.866"N	80°46'28.115"W	1383.29	170.593	1.18	0.09	1.18	
8544.00	89.200	157.550	6893.57	1444.25	-1452.09	263.29	1704187.84	14282775.44	39°19'54.002"N	80°46'27.206"W	1475.77	169.723	1.27	-0.13	1.26	
8638.00	89.170	157.230	6894.91	1538.24	-1538.86	299.42	1704223.96	14282688.70	39°19'53.143"N	80°46'26.780"W	1567.72	168.989	0.34	-0.03	-0.34	
8733.00	89.290	158.590	6896.18	1633.22	-1626.88	335.14	1704259.66	14282600.72	39°19'52.272"N	80°46'26.359"W	1661.04	168.360	1.44	0.13	1.43	
8828.00	89.290	159.860	6897.36	1728.19	-1715.69	368.84	1704293.34	14282511.94	39°19'51.394"N	80°46'25.310"W	1754.89	167.867	1.34	0.00	1.34	
8923.00	89.140	159.030	6898.66	1823.14	-1804.63	402.19	1704326.68	14282423.04	39°19'50.514"N	80°46'24.636"W	1848.91	167.436	0.89	-0.16	-0.87	
9018.00	89.260	161.960	6899.99	1918.02	-1894.16	433.90	1704358.38	14282333.54	39°19'49.628"N	80°46'23.795"W	1943.22	167.098	3.09	0.13	3.08	
9112.00	89.350	164.000	6901.13	2011.64	-1984.03	461.41	1704385.88	14282243.71	39°19'48.739"N	80°46'22.658"W	2036.98	166.908	2.17	0.10	2.17	
9207.00	90.310	166.930	6901.41	2105.79	-2075.98	485.25	1704409.71	14282151.79	39°19'47.830"N	80°46'21.611"W	2131.94	166.844	3.25	1.01	3.08	
9302.00	89.200	162.780	6901.82	2200.06	-2167.66	510.06	1704434.52	14282060.15	39°19'46.923"N	80°46'20.957"W	2226.86	166.578	4.52	-1.17	-4.37	
9396.00	89.170	161.780	6903.15	2293.77	-2257.19	538.67	1704463.11	14281970.66	39°19'46.038"N	80°46'20.445"W	2320.58	166.350	1.06	-0.03	-1.06	
9491.00	89.170	159.800	6904.53	2388.63	-2346.89	569.92	1704494.35	14281881.00	39°19'45.150"N	80°46'20.242"W	2415.10	166.350	2.08	0.00	-2.08	
9586.00	89.940	156.510	6905.27	2483.61	-2435.05	605.27	1704529.68	14281792.87	39°19'44.278"N	80°46'19.515"W	2509.15	166.041	3.56	0.81	-3.46	
9680.00	89.140	152.930	6906.02	2577.45	-2520.03	645.40	1704569.80	14281707.92	39°19'43.437"N	80°46'18.943"W	2601.36	165.635	3.90	-0.85	-3.81	
9775.00	89.630	156.620	6907.04	2672.29	-2605.95	685.88	1704610.26	14281622.04	39°19'42.567"N	80°46'18.274"W	2694.70	165.254	3.92	0.52	3.88	
9869.00	89.200	159.920	6908.00	2766.27	-2693.25	720.67	1704645.04	14281534.77	39°19'41.723"N	80°46'17.609"W	2788.01	165.019	3.54	-0.46	-3.51	
9963.00	89.380	158.090	6909.17	2860.24	-2781.00	754.35	1704678.70	14281447.05	39°19'40.855"N	80°46'16.909"W	2881.50	164.824	1.96	0.19	-1.95	
10058.00	89.600	155.780	6910.01	2955.22	-2868.40	791.56	1704715.90	14281359.69	39°19'39.990"N	80°46'16.438"W	2975.62	164.573	2.44	0.23	-2.43	
10152.00	90.220	156.560	6910.16	3049.18	-2954.38	829.54	1704753.87	14281273.74	39°19'39.139"N	80°46'15.957"W	3068.64	164.316	1.06	0.66	0.83	
10247.00	88.980	152.950	6910.82	3144.02	-3040.29	870.05	1704794.36	14281187.87	39°19'38.289"N	80°46'15.445"W	3162.34	164.030	4.02	-1.31	-3.80	
10342.00	89.570	157.690	6912.03	3238.89	-3126.58	909.70	1704833.99	14281101.61	39°19'37.436"N	80°46'14.943"W	3256.24	163.777	5.03	0.62	4.99	
10436.00	90.770	160.140	6911.75	3332.86	-3214.28	943.51	1704867.79	14281013.95	39°19'36.568"N	80°46'14.515"W	3349.90	163.641	2.90	1.28	2.61	
10530.00	90.490	155.560	6910.71	3426.83	-3301.32	978.94	1704903.21	14280926.95	39°19'35.707"N	80°46'13.967"W	3443.40	163.483	4.88	-0.30	-4.87	





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 7 of 11



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #09
ANTERO RESOURCES CORPORATION	Well	Northrop Unit 2H
Doddridge Co., WV	Wellbore	Northrop Unit 2H AWP
Doddridge		
Alexander Pad		

## WELLPATH DATA (205 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
10625.00	89.080	153.080	6911.07	3521.64	-3386.92	1020.11	1704944.36	14280841.37	39°19'34.860"N	80°46'18.546"W	3537.21	163.238	3.00	-1.48	-2.61	
10719.00	89.110	153.790	6912.56	3615.35	-3470.99	1062.14	1704986.37	14280757.34	39°19'34.028"N	80°46'18.014"W	3629.86	162.986	0.76	0.03	0.76	
10815.00	88.980	155.560	6914.16	3711.18	-3557.75	1103.20	1705027.41	14280670.62	39°19'33.169"N	80°46'17.494"W	3724.86	162.772	1.85	-0.14	1.84	
10910.00	89.110	154.470	6915.74	3806.05	-3643.84	1143.32	1705067.52	14280584.56	39°19'32.317"N	80°46'16.987"W	3819.00	162.560	1.16	0.14	-1.15	
11004.00	89.080	151.010	6917.22	3899.65	-3727.38	1186.36	1705110.54	14280501.05	39°19'31.491"N	80°46'16.441"W	3911.63	162.345	3.68	-0.03	-3.68	
11098.00	89.200	152.230	6918.64	3993.08	-3810.07	1231.03	1705155.20	14280418.39	39°19'30.672"N	80°46'15.876"W	4004.01	162.094	1.30	0.13	1.30	
11193.00	89.380	155.670	6919.81	4087.84	-3895.40	1272.74	1705196.89	14280333.10	39°19'29.828"N	80°46'15.348"W	4098.05	161.906	3.63	0.19	3.62	
11287.00	89.690	163.270	6920.58	4181.73	-3983.36	1305.68	1705229.82	14280245.17	39°19'28.958"N	80°46'14.931"W	4191.90	161.852	8.09	-0.33	8.09	
11381.00	89.140	164.430	6921.54	4275.21	-4073.65	1331.83	1705255.95	14280154.92	39°19'28.065"N	80°46'14.602"W	4285.93	161.895	1.37	-0.59	1.23	
11475.00	89.170	159.820	6922.92	4368.91	-4163.08	1360.67	1705284.78	14280065.53	39°19'27.180"N	80°46'14.237"W	4379.80	161.900	4.90	0.03	-4.90	
11569.00	89.140	161.230	6924.31	4462.80	-4251.69	1392.01	1705316.11	14279976.95	39°19'26.303"N	80°46'13.842"W	4473.76	161.872	1.50	-0.03	1.50	
11662.00	89.630	160.260	6925.31	4555.67	-4339.48	1422.67	1705346.76	14279889.20	39°19'25.435"N	80°46'13.454"W	4566.73	161.849	1.17	0.53	-1.04	
11756.00	90.150	159.070	6925.49	4649.62	-4427.62	1455.34	1705379.41	14279801.09	39°19'24.563"N	80°46'13.066"W	4660.67	161.805	1.38	0.55	-1.27	
11851.00	89.720	154.740	6925.60	4744.59	-4514.98	1492.59	1705416.65	14279713.76	39°19'23.699"N	80°46'12.678"W	4755.30	161.707	4.58	-0.45	4.56	
11945.00	89.820	157.680	6925.97	4838.54	-4600.97	1530.54	1705454.89	14279627.81	39°19'22.848"N	80°46'12.290"W	4848.86	161.600	3.08	0.11	3.07	
12038.00	89.780	161.140	6926.30	4931.49	-4688.00	1563.28	1705487.32	14279540.81	39°19'21.987"N	80°46'11.902"W	4941.78	161.558	3.77	-0.04	3.77	
12132.00	90.250	162.000	6926.27	5025.29	-4777.18	1593.00	1705517.02	14279454.67	39°19'21.105"N	80°46'11.514"W	5035.78	161.558	1.04	0.50	0.91	
12226.00	89.820	162.300	6926.22	5119.03	-4866.65	1621.81	1705545.82	14279367.23	39°19'20.220"N	80°46'11.126"W	5129.77	161.569	0.56	-0.46	0.32	
12320.00	89.570	158.700	6926.72	5212.91	-4955.25	1653.19	1705577.18	14279273.68	39°19'19.343"N	80°46'10.738"W	5223.74	161.550	3.84	-0.27	-3.83	
12414.00	89.750	156.990	6927.28	5306.91	-5042.30	1688.63	1705612.82	14279186.66	39°19'18.482"N	80°46'10.350"W	5317.54	161.485	1.83	0.19	-1.82	
12508.00	90.150	158.080	6927.36	5400.90	-5129.17	1724.55	1705648.52	14279099.82	39°19'17.622"N	80°46'09.962"W	5411.32	161.416	1.24	0.43	1.16	
12603.00	89.540	157.370	6927.61	5495.90	-5217.07	1760.56	1705684.51	14279011.95	39°19'16.762"N	80°46'09.574"W	5506.13	161.352	0.99	-0.64	-0.75	
12697.00	90.310	157.980	6927.74	5589.90	-5304.03	1796.27	1705720.21	14278925.03	39°19'15.902"N	80°46'08.732"W	5599.34	161.291	1.05	0.82	0.65	
12791.00	90.150	156.650	6927.36	5683.89	-5390.75	1832.52	1705756.44	14278838.34	39°19'15.034"N	80°46'08.273"W	5693.71	161.225	1.43	-0.17	-1.41	
12885.00	90.580	156.420	6926.76	5777.87	-5476.98	1869.95	1705793.86	14278752.15	39°19'14.181"N	80°46'07.814"W	5787.40	161.149	0.52	0.46	-0.24	
12979.00	90.490	155.190	6925.88	5871.80	-5562.71	1908.47	1705832.37	14278666.45	39°19'13.333"N	80°46'07.312"W	5880.99	161.084	1.31	-0.10	-1.31	
13073.00	90.220	153.900	6925.30	5965.64	-5647.59	1948.87	1705872.75	14278581.61	39°19'12.493"N	80°46'06.810"W	5974.39	160.961	1.40	-0.29	-1.37	
13167.00	90.150	147.220	6925.00	6058.82	-5729.40	1995.04	1705918.81	14278499.83	39°19'11.683"N	80°46'06.216"W	6066.81	160.801	7.11	-0.07	-7.11	
13261.00	90.150	148.130	6924.75	6151.34	-5808.83	2045.31	1705969.15	14278420.43	39°19'10.897"N	80°46'05.579"W	6158.39	160.603	0.97	0.00	0.97	
13355.00	90.090	151.550	6924.55	6244.41	-5890.10	2092.53	1706016.35	14278339.20	39°19'10.092"N	80°46'04.981"W	6250.75	160.442	3.64	-0.06	3.64	





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 8 of 11



REFERENCE WELLPATH IDENTIFICATION		Slot	Slot #09
Operator	ANTERO RESOURCES CORPORATION	Well	Northrop Unit 2H
Area	Doddridge Co., WY	Wellbore	Northrop Unit 2H AWB
Field	Doddridge		
Facility	Alexander Pad		

WELLPATH DATA (205 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
13450.00	90.090	154.200	6924.40	6339.04	-5974.64	2135.84	1706059.64	14278254.69	39°19'09.256"N	80°46'04.433"W	6344.93	160.329	2.79	0.00	2.79	
13546.00	90.150	157.560	6924.20	6434.97	-6062.24	2175.06	1706098.85	14278167.12	39°19'08.389"N	80°46'03.937"W	6440.63	160.263	3.50	0.06	3.50	
13639.00	90.120	162.130	6923.98	6527.89	-6149.53	2207.10	1706130.88	14278079.87	39°19'07.525"N	80°46'03.532"W	6533.60	160.257	4.91	-0.03	4.91	
13733.00	90.580	162.310	6923.41	6621.61	-6239.03	2235.80	1706159.57	14277990.40	39°19'06.640"N	80°46'03.170"W	6627.55	160.285	0.53	0.49	0.19	
13826.00	90.180	160.310	6922.79	6714.44	-6327.12	2265.60	1706189.36	14277902.34	39°19'05.768"N	80°46'02.793"W	6720.52	160.299	2.19	-0.43	-2.15	
13920.00	90.180	161.870	6922.50	6808.28	-6416.05	2296.06	1706219.81	14277813.45	39°19'04.889"N	80°46'02.409"W	6814.51	160.310	1.66	0.00	1.66	
14014.00	90.460	162.800	6921.97	6902.00	-6505.61	2324.59	1706248.32	14277723.92	39°19'04.003"N	80°46'02.049"W	6908.45	160.337	1.03	0.30	0.99	
14108.00	91.020	160.350	6920.76	6995.78	-6594.78	2354.29	1706278.01	14277634.79	39°19'03.121"N	80°46'01.674"W	7002.41	160.354	2.67	0.60	-2.61	
14201.00	90.120	158.460	6919.83	7088.74	-6681.83	2387.00	1706310.71	14277547.78	39°19'02.260"N	80°46'01.260"W	7095.39	160.341	2.25	-0.97	-2.03	
14295.00	90.120	159.330	6919.64	7182.72	-6769.52	2420.85	1706344.54	14277460.12	39°19'01.392"N	80°46'00.833"W	7189.36	160.322	0.93	0.00	0.93	
14390.00	90.430	158.450	6919.18	7277.70	-6858.14	2455.06	1706378.74	14277371.53	39°19'00.515"N	80°46'00.400"W	7284.33	160.304	0.98	0.33	-0.93	
14484.00	90.800	155.050	6918.17	7371.67	-6944.49	2492.16	1706415.83	14277285.22	39°18'59.661"N	80°45'59.931"W	7378.13	160.259	3.64	0.39	-3.62	
14578.00	90.280	153.510	6917.29	7465.48	-7029.17	2532.95	1706456.60	14277200.57	39°18'58.823"N	80°45'59.415"W	7471.62	160.183	1.73	-0.55	-1.64	
14672.00	90.310	153.930	6916.80	7559.23	-7113.45	2574.57	1706498.20	14277116.32	39°18'57.989"N	80°45'58.888"W	7565.03	160.103	0.45	0.03	0.45	
14766.00	90.120	155.240	6916.45	7653.07	-7198.35	2614.91	1706538.53	14277031.46	39°18'57.149"N	80°45'58.377"W	7658.60	160.036	1.41	-0.20	1.39	
14860.00	90.580	153.870	6915.87	7746.91	-7283.23	2655.30	1706578.90	14276946.61	39°18'56.309"N	80°45'57.866"W	7752.17	159.969	1.54	0.49	-1.46	
14955.00	90.520	153.540	6914.96	7841.66	-7368.40	2697.38	1706620.96	14276861.48	39°18'55.466"N	80°45'57.334"W	7846.60	159.894	0.35	-0.06	-0.35	
15050.00	90.550	156.360	6914.08	7936.52	-7454.45	2737.60	1706661.16	14276775.46	39°18'54.614"N	80°45'56.825"W	7941.24	159.835	2.97	0.03	2.97	
15144.00	90.220	159.570	6913.44	8030.51	-7541.57	2772.86	1706696.41	14276688.38	39°18'53.752"N	80°45'56.379"W	8035.17	159.813	3.43	-0.35	3.41	
15238.00	90.770	161.180	6912.63	8124.41	-7630.10	2804.43	1706727.97	14276603.88	39°18'52.877"N	80°45'55.960"W	8129.16	159.819	1.81	0.59	1.71	
15332.00	90.650	162.620	6911.47	8218.17	-7719.44	2833.63	1706757.16	14276510.58	39°18'51.993"N	80°45'55.612"W	8223.09	159.843	1.54	-0.13	1.53	
15426.00	90.890	168.630	6910.20	8311.25	-7810.45	2856.95	1706780.47	14276419.61	39°18'51.093"N	80°45'55.318"W	8316.57	159.908	6.40	0.26	6.39	
15520.00	90.800	170.880	6908.82	8403.22	-7902.94	2873.67	1706797.18	14276327.16	39°18'50.178"N	80°45'55.109"W	8409.18	160.018	2.40	-0.10	2.39	
15540.00	90.580	170.820	6908.57	8422.71	-7922.68	2876.85	1706800.36	14276307.42	39°18'49.983"N	80°45'55.069"W	8428.83	160.043	1.14	-1.10	-0.30	
15565.00	90.580	170.820	6908.32	8447.07	-7947.36	2880.84	1706804.35	14276282.75	39°18'49.739"N	80°45'55.019"W	8453.38	160.075	0.00	0.00	0.00	Projected MD at TD: 15565'





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 9 of 11



**REFERENCE WELLPATH IDENTIFICATION**

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Northrop Unit 2H
Field	Doddridge	Wellbore	Northrop Unit 2H AWB
Facility	Alexander Pad		

**HOLE & CASING SECTIONS - Ref Wellbore: Northrop Unit 2H AWB Ref Wellpath: Northrop Unit 2H AWP Proj: 15565'**

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start NIS [ft]	Start E/W [ft]	End NIS [ft]	End E/W [ft]
20in Conductor	25.00	105.00	80.00	25.00	105.00	0.00	0.00	-0.47	-0.11
17.5in Open Hole	105.00	580.30	475.30	105.00	580.29	-0.47	-0.11	-3.07	-1.87
13.375in Casing Surface	25.00	580.30	555.30	25.00	580.29	0.00	0.00	-3.07	-1.87
12.25in Open Hole	580.30	2573.10	1992.80	580.29	2567.53	-3.07	-1.87	-6.42	-81.75
9.625in Casing Intermediate	25.00	2573.10	2548.10	25.00	2567.53	0.00	0.00	-6.42	-81.75
8.75in Open Hole	2573.10	6563.00	3989.90	2567.53	6509.69	-6.42	-81.75	283.59	-279.59
8.5in Open Hole	6563.00	15565.00	9002.00	6509.69	6908.32	283.59	-279.59	-7947.36	2880.84
5.5in Casing Production	25.00	15565.00	15540.00	25.00	6908.32	0.00	0.00	-7947.36	2880.84

**TARGETS**

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Northrop Unit 2H POE Rev-2	6837.00	-70.43	-227.44	1703697.30	14284156.55	39°20'07.669"N	80°46'34.317"W	point
Northrop Unit 2H AZI Rev-2	6878.00	-639.59	-79.39	1703845.29	14283587.61	39°20'02.040"N	80°46'32.451"W	point
Northrop Unit 2H BHL Rev-2	6878.00	-7949.99	2894.35	1706817.85	14276280.12	39°18'49.713"N	80°45'54.847"W	point
Northrop Unit 2H LP Rev-2	6878.00	-290.92	-183.79	1703740.94	14283936.15	39°20'05.489"N	80°46'33.768"W	point

05/03/2019





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565'

Page 10 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Northrop Unit 2H
Field	Doddridge	Wellbore	Northrop Unit 2H AWB
Facility	Alexander Pad		

WELLPATH COMPOSITION - Ref Wellbore: Northrop Unit 2H AWB Ref Wellpath: Northrop Unit 2H AWP Proj: 15565'			
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
25.00	578.00	Gyrodatta standard - Drop gyro or Multi-shot	01_Gyrodatta MS Gyro <17'-1/2"> (50'-578')
578.00	2528.00	ISCVSA MWD, Rev. 4 (Standard)	02_WFT EM <12'-1/4"> (578')(649'-2528')
2528.00	6487.00	ISCVSA MWD, Rev. 4 (Standard)	03_WFT EM <8'-3/4"> (2528')(2661'-6487')
6487.00	6650.00	BHI Auto Trak Curve (Short)	04_BH AT Curve <8'-1/2"> (6487')(6538'-6650')
6650.00	15540.00	BHI Auto Trak Curve (Extreme Short spacing)	05_BH AT Curve (X-Short) <8'-1/2"> (6650')(6697'-15540')
15540.00	15565.00	Blind Drilling (std)	Projection to bit
			Northrop Unit 2H AWB
			Northrop Unit 2H AWB
			Northrop Unit 2H AWB
			Northrop Unit 2H AWB
			Northrop Unit 2H AWB

05/03/2019





# Actual Wellpath Report

Northrop Unit 2H AWP Proj: 15565  
Page 11 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Northrop Unit 2H
Field	Doddridge	Wellbore	Northrop Unit 2H AWB
Facility	Alexander Pad		

COMMENTS
<p><b>Wellpath general comments</b>                      API: 47-017-06857-0000                      BH Job #: 9120448                      Rig: Patterson 342                      Duration: 4/20/2018-4/22/2018                      Gyrodatta MS Gyro &lt;17-1/2"&gt; (50'-578')                      WFD EM &lt;12-1/4"&gt; (578')(649'-2528')                      WFD EM &lt;8-3/4"&gt; (2528')(2661'-6487')                      BH AT Curve &lt;8-1/2"&gt; (6487')(6538'-6650')                      Burket: 6897'MD / 6759'TVD                      Tully: 6953'MD / 6790'TVD                      BH AT Curve (X-Short) &lt;8-1/2"&gt; (6650')(6697'-15540')                      Hamilton: 7038'MD / 6828'TVD                      POE Marcellus: 7063'MD / 6837'TVD                      Projected MD at TD: 15565'</p>

05/03/2019