

# ANTERO RESOURCES CORPORATION

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

Slot: Slot #09

Well: Cobra Unit 2H ST02

Wellbore: Cobra Unit 2H ST02 PWB



API: 47-017-06810-0200

BHI Job #: 8883995B

Rig: Frontier 22

Duration: 11/27/2017-12/11/2017

Plot reference wellbore is Cobra Unit 2H ST02 PWB Rev-B.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 22 (RKB)	North Reference: Grid north
Measured depths are referenced to Frontier 22 (RKB)	Scale: True distance
Frontier 22 (RKB) to Mean Sea Level: 914.5 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot: Slot #09): -590 feet	Created by: delat on 2018-01-11
Coordinates are in feet referenced to Slot	Database: WA, MP, EasternUS, Dpth

Gyrodatta MS Gyro <17-1/2"> (100'-472") : 0.27° Inc, 109.50ft MD, 109.50ft TVD, 0.18ft VS

WFT EM <12-1/4"> (472')(520'-2562') : 0.69° Inc, 529.50ft MD, 529.49ft TVD, 2.20ft VS

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Addie Pad	1695325.147	14283415.126	80°48'20.930"W
Slot	Local E (ft)	Grid East (US ft)	Longitude
Slot #09	-0.86	1695335.054	80°48'20.040"W
Comment	Cobra Unit 2H		
Frontier 22 (RKB) to Mud line (At Slot: Slot #09)			24.5ft
Mean Sea Level to Mud line (At Slot: Slot #09)			-890ft
Frontier 22 (RKB) to Mean Sea Level			914.5ft

WFT EM <8-3/4"> (2562')(2692'-7105') : 13.43° Inc, 2701.50ft MD, 2624.38ft TVD, -206.32ft VS

Well Profile Data						
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	Local N (ft)
Tie On	7990.00	89.970	343.150	6507.63	1148.90	6.85
Est. TOC	8000.00	90.095	343.237	6507.63	2469.54	123.51
ST Point	8100.00	90.976	343.240	6506.69	2437.82	133.47
End of 3D Arc	8219.82	90.200	346.750	6505.46	2406.80	232.99
On Abnormal	8219.82	90.200	337.654	6504.40	2314.22	3.00
BHL	16203.03	90.200	337.654	6477.60	8761.53	3.00
					-405.72	0.00
						8333.68

Well Data		
Well	Wellbore	Wellpath
Slot #09	Cobra Unit 2H	Cobra Unit 2H AMP Proj: 16211'
Slot #09	Cobra Unit 2H ST02	Cobra Unit 2H ST02 AMP Proj: 16175'
Slot #09	Cobra Unit 2H ST02 PWB	Cobra Unit 2H ST02 PWB Rev-B.0

BHI AT Curve <8-1/2"> (7114.5')(7163'-16151') : 60.64° Inc, 7163.00ft MD, 6372.38ft TVD, -655.21ft VS

Marcellus POE: 7396' MD : 6466.95ft TVD, 583.30ft N, 2623.17ft E

BHI AT Curve <8-1/2"> (7591')(7591'-16150') : 65.08° Inc, 7591.00ft MD, 6474.67ft TVD, -633.67ft VS

WFT EM <12-1/4"> (472')(520'-2562') : 0.69° Inc, 529.49ft TVD, 2.20ft VS

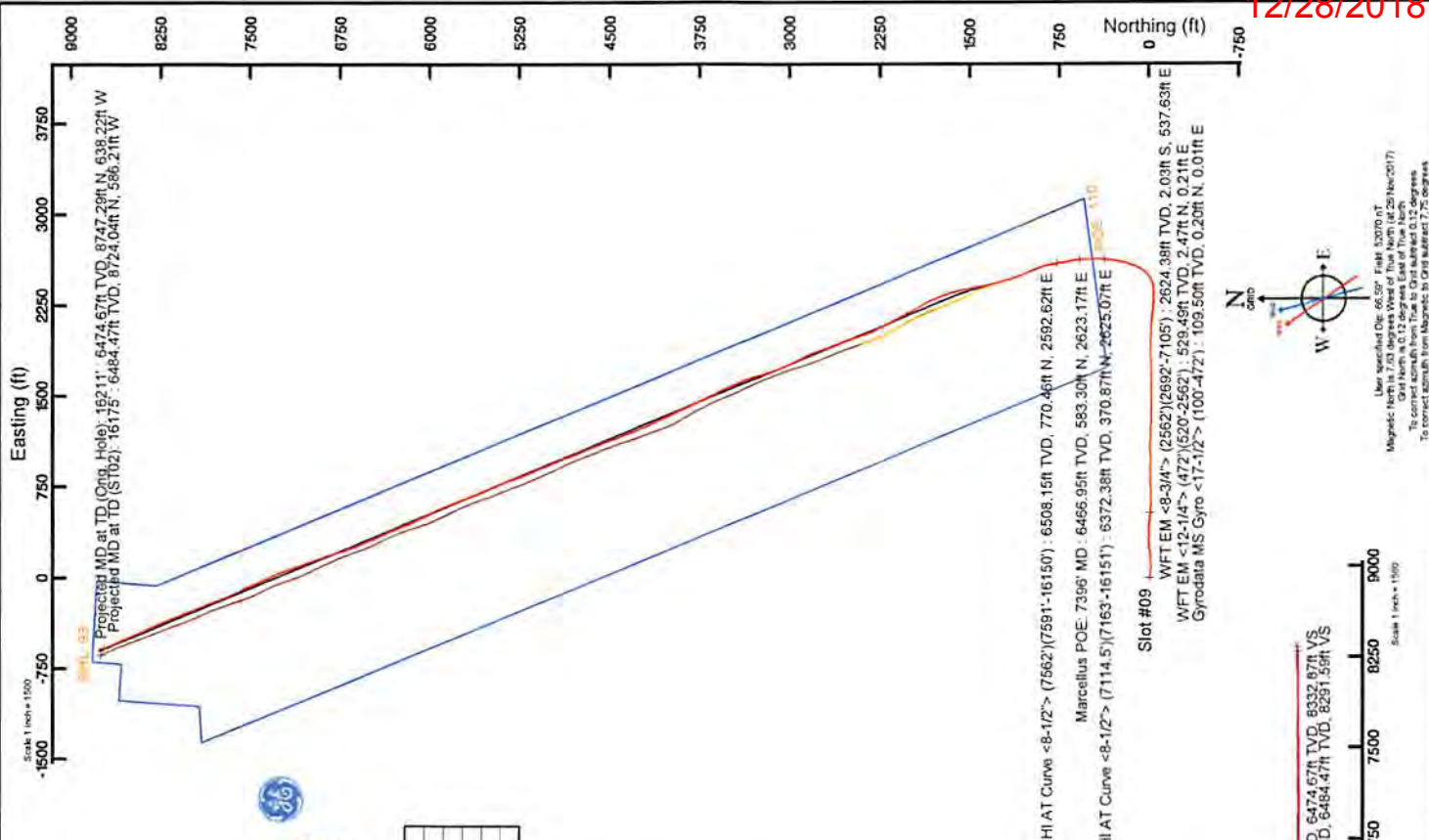
Gyrodatta MS Gyro <17-1/2"> (100'-472") : 0.27° Inc, 109.50ft MD, 109.50ft TVD, 0.18ft VS

Projected MD at TD (Orig, Hole): 16211' Inc, 16211.00ft MD, 6474.67ft TVD, 6332.67ft VS

Projected MD at TD (ST02): 16175' Inc, 16175.00ft MD, 6464.47ft TVD, 6291.58ft VS

Vertical Section (ft)

Azimuth 337.65° with reference 0.00 N, 0.00 E



Scale 1 inch = 1000'

Scale 1 inch = 100'

Scale 1 inch = 1000'

Scale 1 inch = 100'

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User specified Dip: 65.59° Right: 52070 nT  
 Magnetic North is 7.03 Degrees West of True North (at 25 Nov 2017)  
 Grid North is 0.12 Degrees East of True North  
 To correct azimuth from Magnetic to Grid subtract 7.25 degrees



# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'  
Page 1 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999603	Report Generated	11/Jan/2018 at 15:42
Convergence at slot	0.12° East	Database/Source file	WA_MPL_EasternUS_Defn/Cobra_Unit_2H_ST02_AWP_Proj_16175_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.86	69.94	1695395.05	14283414.27	39°20'00.520"N	80°48'20.040"W
Facility Reference Pt			1695325.15	14283415.13	39°20'00.530"N	80°48'20.930"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 22 (RKB) to Facility Vertical Datum	24.50ft
Horizontal Reference Pt	Slot	Frontier 22 (RKB) to Mean Sea Level	914.50ft
Vertical Reference Pt	Frontier 22 (RKB)	Frontier 22 (RKB) to Mud Line at Slot (Slot #09)	24.50ft
MD Reference Pt	Frontier 22 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	337.65°

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'

Page 2 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

WELLPATH DATA (202 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	2.630	0.00	0.00	0.00	0.00	1695395.05	14283414.27	39°20'00.520"N	80°48'20.040"W	0.00	0.000	0.00	0.00	0.00	
24.50	0.000	2.630	24.50	0.00	0.00	0.00	1695395.05	14283414.27	39°20'00.520"N	80°48'20.040"W	0.00	0.000	0.00	0.00	0.00	
109.50	0.270	2.630	109.50	0.18	0.20	0.01	1695395.06	14283414.47	39°20'00.522"N	80°48'20.040"W	0.20	2.630	0.32	0.32	3.09	Gyrodata MS Gyro <17-1/2"> (100'-472')
209.50	0.280	350.080	209.50	0.63	0.68	-0.02	1695395.03	14283414.94	39°20'00.527"N	80°48'20.040"W	0.68	358.129	0.06	0.01	-12.55	
309.50	0.260	350.600	309.50	1.09	1.14	-0.10	1695394.95	14283415.41	39°20'00.531"N	80°48'20.041"W	1.15	354.928	0.02	-0.02	0.52	
409.50	0.330	357.590	409.50	1.59	1.65	-0.15	1695394.90	14283415.92	39°20'00.536"N	80°48'20.042"W	1.66	354.798	0.08	0.07	6.99	
481.50	0.450	15.350	481.49	2.00	2.13	-0.08	1695394.97	14283416.40	39°20'00.541"N	80°48'20.041"W	2.13	357.736	0.23	0.17	24.67	
529.50	0.690	57.390	529.49	2.20	2.47	0.21	1695395.26	14283416.73	39°20'00.544"N	80°48'20.037"W	2.48	4.839	0.97	0.50	87.58	WFT EM <12-1/4"> (472')(520'-2562')
559.50	0.970	72.180	559.49	2.22	2.64	0.60	1695395.66	14283416.91	39°20'00.546"N	80°48'20.032"W	2.71	12.844	1.17	0.93	49.30	
619.50	1.990	89.050	619.47	1.80	2.82	2.13	1695397.18	14283417.08	39°20'00.548"N	80°48'20.013"W	3.53	37.066	1.83	1.70	28.12	
709.50	4.180	97.740	709.33	-0.42	2.40	6.94	1695401.99	14283416.67	39°20'00.544"N	80°48'19.952"W	7.35	70.916	2.48	2.43	9.66	
798.50	6.480	96.630	797.94	-4.48	1.38	15.15	1695410.19	14283415.65	39°20'00.533"N	80°48'19.847"W	15.21	84.776	2.59	2.58	-1.25	
892.50	9.000	98.740	891.08	-10.85	-0.35	27.68	1695422.73	14283413.92	39°20'00.516"N	80°48'19.688"W	27.69	90.715	2.70	2.68	2.24	
986.50	12.380	99.320	983.43	-19.94	-3.10	44.90	1695439.93	14283411.17	39°20'00.488"N	80°48'19.469"W	45.01	93.944	3.60	3.60	0.62	
1081.50	15.180	95.310	1075.69	-31.06	-5.90	67.34	1695462.36	14283408.37	39°20'00.460"N	80°48'19.183"W	67.59	95.004	3.11	2.95	-4.22	
1176.50	14.880	89.670	1167.45	-41.41	-6.98	91.92	1695486.94	14283407.29	39°20'00.449"N	80°48'18.870"W	92.19	94.341	1.57	-0.32	-5.94	
1271.50	14.930	84.830	1259.25	-49.60	-5.80	116.31	1695511.32	14283408.46	39°20'00.460"N	80°48'18.560"W	116.45	92.857	1.31	0.05	-5.09	
1365.50	15.890	85.570	1349.87	-57.13	-3.72	141.20	1695536.20	14283410.55	39°20'00.480"N	80°48'18.243"W	141.25	91.509	1.04	1.02	0.79	
1460.50	18.140	87.760	1440.71	-66.22	-2.14	168.95	1695563.93	14283412.13	39°20'00.495"N	80°48'17.890"W	168.96	90.724	2.46	2.37	2.31	
1554.50	18.510	85.090	1529.95	-75.72	-0.29	198.43	1695593.41	14283413.98	39°20'00.513"N	80°48'17.515"W	198.43	90.083	0.98	0.39	-2.84	
1649.50	18.940	81.470	1619.92	-83.93	3.29	228.71	1695623.67	14283417.55	39°20'00.548"N	80°48'17.129"W	228.73	89.176	1.30	0.45	-3.81	
1743.50	18.930	83.740	1708.83	-91.80	7.22	258.95	1695653.90	14283421.48	39°20'00.586"N	80°48'16.744"W	259.05	88.404	0.78	-0.01	2.41	
1838.50	18.880	87.950	1798.71	-101.40	9.45	289.63	1695684.57	14283423.71	39°20'00.607"N	80°48'16.354"W	289.78	88.132	1.44	-0.05	4.43	
1933.50	19.490	92.150	1888.44	-113.30	9.40	320.83	1695715.75	14283423.66	39°20'00.606"N	80°48'15.957"W	320.97	88.321	1.59	0.64	4.42	
2028.50	19.400	94.800	1978.03	-127.08	7.49	352.39	1695747.30	14283421.75	39°20'00.586"N	80°48'15.555"W	352.47	88.783	0.93	-0.09	2.79	
2122.50	18.590	91.860	2066.91	-140.34	5.69	382.92	1695777.82	14283419.96	39°20'00.568"N	80°48'15.167"W	382.96	89.148	1.33	-0.86	-3.13	
2217.50	18.660	89.440	2156.93	-152.20	5.35	413.25	1695808.14	14283419.61	39°20'00.564"N	80°48'14.781"W	413.29	89.258	0.82	0.07	-2.55	
2311.50	17.200	91.800	2246.37	-163.47	5.06	442.18	1695837.06	14283419.32	39°20'00.561"N	80°48'14.412"W	442.21	89.344	1.73	-1.55	2.51	
2406.50	14.320	95.320	2337.79	-174.67	3.53	467.93	1695862.80	14283417.79	39°20'00.545"N	80°48'14.085"W	467.94	89.568	3.19	-3.03	3.71	
2501.50	13.250	94.080	2430.05	-184.97	1.67	490.49	1695885.34	14283415.93	39°20'00.526"N	80°48'13.798"W	490.49	89.805	1.17	-1.13	-1.31	

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'

Page 3 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

WELLPATH DATA (202 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
2571.50	13.990	94.840	2498.08	-192.41	0.38	506.92	1695901.77	14283414.65	39°20'00.513"N	80°48'13.589"W	506.92	89.957	1.09	1.06	1.09	
2701.50	13.430	94.110	2624.38	-206.32	-2.03	537.63	1695932.47	14283412.24	39°20'00.488"N	80°48'13.198"W	537.64	90.216	0.45	-0.43	-0.56	WFT EM <8-3/4"> (2562')(2692'-7105')
2796.50	15.150	95.790	2716.44	-217.09	-4.07	560.99	1695955.82	14283410.20	39°20'00.468"N	80°48'12.901"W	561.01	90.416	1.86	1.81	1.77	
2890.50	17.780	94.570	2806.57	-229.38	-6.45	587.52	1695982.34	14283407.82	39°20'00.444"N	80°48'12.563"W	587.56	90.629	2.82	2.80	-1.30	
2986.50	20.360	91.870	2897.30	-242.87	-8.17	618.83	1696013.64	14283406.10	39°20'00.426"N	80°48'12.165"W	618.88	90.756	2.84	2.69	-2.81	
3081.50	22.250	89.840	2985.80	-256.44	-8.65	653.34	1696048.13	14283405.61	39°20'00.420"N	80°48'11.726"W	653.39	90.759	2.14	1.99	-2.14	
3176.50	24.440	88.160	3073.02	-270.13	-7.97	690.97	1696085.75	14283406.30	39°20'00.426"N	80°48'11.247"W	691.02	90.661	2.41	2.31	-1.77	
3270.50	26.560	86.720	3157.86	-283.81	-6.15	731.39	1696126.15	14283408.12	39°20'00.444"N	80°48'10.732"W	731.42	90.481	2.35	2.26	-1.53	
3364.50	28.990	87.240	3241.03	-298.31	-3.85	775.13	1696169.88	14283410.42	39°20'00.465"N	80°48'10.175"W	775.14	90.284	2.60	2.59	0.55	
3459.50	31.080	89.670	3323.27	-315.23	-2.60	822.65	1696217.38	14283411.67	39°20'00.477"N	80°48'09.571"W	822.66	90.181	2.55	2.20	2.56	
3553.50	32.890	92.360	3403.00	-335.00	-3.51	872.42	1696267.13	14283410.76	39°20'00.467"N	80°48'08.937"W	872.43	90.230	2.45	1.93	2.86	
3647.50	32.960	91.750	3481.90	-356.11	-5.34	923.48	1696318.17	14283408.93	39°20'00.447"N	80°48'08.288"W	923.50	90.331	0.36	0.07	-0.65	
3742.50	32.850	89.870	3561.66	-376.40	-6.07	975.08	1696369.75	14283408.20	39°20'00.439"N	80°48'07.631"W	975.10	90.357	1.08	-0.12	-1.98	
3836.50	32.390	87.890	3640.84	-394.75	-5.09	1025.74	1696420.38	14283409.18	39°20'00.448"N	80°48'06.986"W	1025.75	90.284	1.24	-0.49	-2.11	
3931.50	31.710	89.900	3721.36	-413.01	-4.11	1076.13	1696470.76	14283410.16	39°20'00.456"N	80°48'06.345"W	1076.14	90.219	1.33	-0.72	2.12	
4025.50	32.210	92.690	3801.11	-432.97	-5.24	1125.87	1696520.47	14283409.03	39°20'00.444"N	80°48'05.712"W	1125.88	90.267	1.66	0.53	2.97	
4120.50	31.320	91.920	3881.88	-453.84	-7.25	1175.84	1696570.42	14283407.01	39°20'00.423"N	80°48'05.076"W	1175.86	90.353	1.03	-0.94	-0.81	
4214.50	30.600	91.340	3962.49	-473.49	-8.63	1224.17	1696618.74	14283405.64	39°20'00.408"N	80°48'04.461"W	1224.20	90.404	0.83	-0.77	-0.62	
4309.50	32.200	93.720	4043.58	-494.33	-10.84	1273.61	1696668.16	14283403.43	39°20'00.385"N	80°48'03.832"W	1273.65	90.488	2.13	1.68	2.51	
4403.50	33.170	92.520	4122.69	-516.15	-13.60	1324.29	1696718.82	14283400.68	39°20'00.357"N	80°48'03.187"W	1324.36	90.588	1.24	1.03	-1.28	
4497.50	32.290	91.070	4201.77	-536.95	-15.19	1375.09	1696769.59	14283399.08	39°20'00.340"N	80°48'02.541"W	1375.17	90.633	1.25	-0.94	-1.54	
4592.50	33.150	88.970	4281.70	-556.48	-15.20	1426.43	1696820.92	14283399.07	39°20'00.339"N	80°48'01.887"W	1426.51	90.611	1.50	0.91	-2.21	
4687.50	33.320	90.230	4361.16	-575.94	-14.84	1478.49	1696872.96	14283399.43	39°20'00.341"N	80°48'01.224"W	1478.57	90.575	0.75	0.18	1.33	
4781.50	32.980	89.610	4439.86	-595.42	-14.77	1529.90	1696924.34	14283399.50	39°20'00.341"N	80°48'00.570"W	1529.97	90.553	0.51	-0.36	-0.66	
4876.50	33.350	90.430	4519.38	-615.20	-14.79	1581.86	1696976.29	14283399.48	39°20'00.340"N	80°47'59.909"W	1581.93	90.536	0.61	0.39	0.86	
4971.50	32.320	89.530	4599.21	-634.78	-14.78	1633.37	1697027.78	14283399.49	39°20'00.339"N	80°47'59.253"W	1633.44	90.518	1.20	-1.08	-0.95	
5065.50	32.950	88.900	4678.37	-653.41	-14.08	1684.06	1697078.44	14283400.19	39°20'00.344"N	80°47'58.608"W	1684.12	90.479	0.76	0.67	-0.67	
5160.50	32.310	87.810	4758.37	-671.52	-12.61	1735.26	1697129.63	14283401.66	39°20'00.358"N	80°47'57.957"W	1735.31	90.416	0.91	-0.67	-1.15	
5254.50	33.440	88.410	4837.32	-689.36	-10.93	1786.26	1697180.60	14283403.33	39°20'00.373"N	80°47'57.308"W	1786.29	90.351	1.25	1.20	0.64	
5348.50	32.730	87.720	4916.08	-707.26	-9.21	1837.54	1697231.86	14283405.06	39°20'00.389"N	80°47'56.655"W	1837.56	90.287	0.86	-0.76	-0.73	

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'  
Page 4 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

WELLPATH DATA (202 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
5443.50	32.130	89.700	4996.26	-725.56	-8.05	1888.47	1697282.77	14283406.22	39°20'00.400"N	80°47'56.007"W	1888.48	90.244	1.28	-0.63	2.08	
5538.50	33.310	91.880	5076.19	-745.75	-8.77	1939.80	1697334.09	14283405.49	39°20'00.391"N	80°47'55.354"W	1939.82	90.259	1.76	1.24	2.29	
5632.50	33.810	93.230	5154.52	-767.64	-11.09	1991.71	1697385.97	14283403.17	39°20'00.367"N	80°47'54.693"W	1991.74	90.319	0.96	0.53	1.44	
5727.50	32.380	91.720	5234.11	-789.43	-13.35	2043.53	1697437.77	14283400.92	39°20'00.344"N	80°47'54.034"W	2043.58	90.374	1.74	-1.51	-1.59	
5822.50	32.800	93.400	5314.15	-810.98	-15.64	2094.65	1697488.86	14283398.63	39°20'00.320"N	80°47'53.383"W	2094.70	90.428	1.05	0.44	1.77	
5916.50	34.100	95.280	5392.58	-834.26	-19.57	2146.30	1697540.50	14283394.70	39°20'00.280"N	80°47'52.726"W	2146.39	90.522	1.77	1.38	2.00	
6011.50	33.990	96.070	5471.30	-859.25	-24.83	2199.23	1697593.40	14283389.44	39°20'00.227"N	80°47'52.052"W	2199.37	90.647	0.48	-0.12	0.83	
6106.50	31.960	95.080	5550.99	-883.47	-29.87	2250.68	1697644.84	14283384.41	39°20'00.176"N	80°47'51.398"W	2250.88	90.760	2.21	-2.14	-1.04	
6200.50	31.930	93.670	5630.76	-905.84	-33.66	2300.27	1697694.41	14283380.62	39°20'00.137"N	80°47'50.767"W	2300.52	90.838	0.79	-0.03	-1.50	
6295.50	32.580	89.770	5711.11	-926.49	-35.17	2350.92	1697745.04	14283379.11	39°20'00.121"N	80°47'50.122"W	2351.19	90.857	2.29	0.68	-4.11	
6327.50	32.660	88.700	5738.06	-932.84	-34.94	2368.17	1697762.28	14283379.34	39°20'00.123"N	80°47'49.903"W	2368.43	90.845	1.82	0.25	-3.34	
6358.50	31.600	84.760	5764.31	-938.23	-34.00	2384.62	1697778.73	14283380.28	39°20'00.132"N	80°47'49.693"W	2384.87	90.817	7.57	-3.42	-12.71	
6390.50	29.920	79.690	5791.82	-942.37	-31.81	2400.83	1697794.93	14283382.47	39°20'00.153"N	80°47'49.487"W	2401.04	90.759	9.65	-5.25	-15.84	
6421.50	29.770	74.220	5818.71	-944.86	-28.33	2415.84	1697809.94	14283385.94	39°20'00.187"N	80°47'49.296"W	2416.01	90.672	8.79	-0.48	-17.65	
6453.50	30.870	69.520	5846.34	-946.04	-23.30	2431.18	1697825.27	14283390.98	39°20'00.237"N	80°47'49.100"W	2431.29	90.549	8.17	3.44	-14.69	
6485.50	31.910	65.550	5873.66	-946.00	-16.92	2446.57	1697840.65	14283397.35	39°20'00.300"N	80°47'48.904"W	2446.63	90.396	7.23	3.25	-12.41	
6516.50	32.810	62.290	5899.84	-944.91	-9.63	2461.47	1697855.54	14283404.64	39°20'00.371"N	80°47'48.715"W	2461.49	90.224	6.33	2.90	-10.52	
6548.50	33.370	57.890	5926.66	-942.61	-0.92	2476.60	1697870.67	14283413.35	39°20'00.457"N	80°47'48.522"W	2476.60	90.021	7.71	1.75	-13.75	
6579.50	34.330	52.820	5952.41	-938.93	8.90	2490.79	1697884.85	14283423.16	39°20'00.554"N	80°47'48.341"W	2490.81	89.795	9.62	3.10	-16.35	
6611.50	35.210	46.980	5978.70	-933.36	20.65	2504.73	1697898.79	14283434.91	39°20'00.670"N	80°47'48.163"W	2504.81	89.528	10.76	2.75	-18.25	
6642.50	35.210	41.200	6004.04	-926.22	33.48	2517.15	1697911.20	14283447.73	39°20'00.796"N	80°47'48.005"W	2517.38	89.238	10.75	0.00	-18.65	
6674.50	34.880	35.980	6030.24	-917.31	47.82	2528.61	1697922.65	14283462.07	39°20'00.938"N	80°47'47.859"W	2529.06	88.916	9.42	-1.03	-16.31	
6705.50	34.890	33.850	6055.67	-907.72	62.36	2538.75	1697932.80	14283476.60	39°20'01.081"N	80°47'47.729"W	2539.52	88.593	3.93	0.03	-6.87	
6737.50	34.840	30.550	6081.93	-897.11	77.83	2548.50	1697942.54	14283492.07	39°20'01.234"N	80°47'47.605"W	2549.69	88.251	5.90	-0.16	-10.31	
6768.50	36.070	27.940	6107.18	-885.94	93.52	2557.28	1697951.31	14283507.75	39°20'01.389"N	80°47'47.492"W	2558.99	87.906	6.29	3.97	-8.42	
6800.50	37.670	25.290	6132.78	-873.33	110.69	2565.87	1697959.90	14283524.91	39°20'01.558"N	80°47'47.383"W	2568.26	87.530	7.05	5.00	-8.28	
6831.50	39.150	22.990	6157.07	-860.07	128.26	2573.74	1697967.77	14283542.48	39°20'01.732"N	80°47'47.282"W	2576.93	87.147	6.64	4.77	-7.42	
6863.50	40.410	20.320	6181.67	-845.34	147.29	2581.29	1697975.31	14283561.50	39°20'01.920"N	80°47'47.185"W	2585.49	86.734	6.63	3.94	-8.34	
6894.50	41.940	17.530	6205.00	-830.00	166.60	2587.90	1697981.92	14283580.80	39°20'02.110"N	80°47'47.101"W	2593.25	86.317	7.71	4.94	-9.00	
6925.50	43.410	14.620	6227.80	-813.54	186.78	2593.71	1697987.73	14283600.98	39°20'02.310"N	80°47'47.026"W	2600.42	85.881	7.93	4.74	-9.39	

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'  
Page 5 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

WELLPATH DATA (202 stations) † = interpolated/extrapolated station																
MD	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)	(°)	("/100ft)	("/100ft)	("/100ft)	
6957.50	45.050	12.800	6250.73	-795.49	208.47	2598.99	1697993.01	14283622.65	39°20'02.524"N	80°47'46.958"W	2607.34	85.414	6.48	5.12	-5.69	
6972.00†	46.108	12.147	6260.87	-786.99	218.58	2601.23	1697995.25	14283632.76	39°20'02.624"N	80°47'46.929"W	2610.40	85.197	7.97	7.30	-4.50	Middlesex: 6972' MD
6989.50	47.390	11.390	6272.87	-776.44	231.06	2603.83	1697997.84	14283645.23	39°20'02.747"N	80°47'46.896"W	2614.06	84.929	7.97	7.32	-4.33	
7020.50	49.840	10.850	6293.36	-757.04	253.88	2608.31	1698002.32	14283668.04	39°20'02.972"N	80°47'46.838"W	2620.64	84.441	8.01	7.90	-1.74	
7051.50	52.770	10.670	6312.74	-736.77	277.65	2612.83	1698006.84	14283691.80	39°20'03.207"N	80°47'46.780"W	2627.54	83.934	9.46	9.45	-0.58	
7083.50	56.130	9.640	6331.34	-714.82	303.27	2617.41	1698011.42	14283717.41	39°20'03.460"N	80°47'46.721"W	2634.92	83.391	10.82	10.50	-3.22	
7114.50	58.950	7.160	6347.98	-692.34	329.14	2621.22	1698015.23	14283743.28	39°20'03.716"N	80°47'46.672"W	2641.81	82.843	11.33	9.10	-8.00	
7163.00	60.640	3.400	6372.38	-655.21	370.87	2625.07	1698019.07	14283784.99	39°20'04.128"N	80°47'46.622"W	2651.13	81.959	7.55	3.48	-7.75	BHI AT Curve <8-1/2"> (7114.5)/(7163'-16151')
7211.00†	63.217	2.156	6394.97	-616.87	413.17	2627.11	1698021.12	14283827.27	39°20'04.546"N	80°47'46.594"W	2659.40	81.062	5.83	5.37	-2.59	Burkett: 7211' MD
7230.00	64.240	1.680	6403.38	-601.33	430.19	2627.68	1698021.69	14283844.29	39°20'04.715"N	80°47'46.587"W	2662.67	80.702	5.83	5.38	-2.51	
7277.00	67.600	0.370	6422.55	-561.95	473.09	2628.44	1698022.45	14283887.17	39°20'05.139"N	80°47'46.576"W	2670.68	79.797	7.59	7.15	-2.79	
7279.00†	67.636	0.282	6423.32	-560.24	474.94	2628.46	1698022.46	14283889.02	39°20'05.157"N	80°47'46.576"W	2671.02	79.758	4.44	1.79	-4.39	Tully: 7279' MD
7326.00	68.490	358.230	6440.88	-519.71	518.53	2627.89	1698021.89	14283932.59	39°20'05.588"N	80°47'46.582"W	2678.56	78.838	4.44	1.82	-4.37	
7370.00†	67.720	355.076	6457.29	-481.12	559.28	2625.51	1698019.51	14283973.32	39°20'05.991"N	80°47'46.611"W	2684.41	77.975	6.88	-1.75	-7.17	Hamilton: 7370' MD
7373.00	67.670	354.860	6458.43	-478.47	562.04	2625.26	1698019.27	14283976.09	39°20'06.018"N	80°47'46.614"W	2684.75	77.916	6.88	-1.68	-7.21	
7396.00†	68.812	353.913	6466.95	-458.01	583.30	2623.17	1698017.18	14283997.33	39°20'06.228"N	80°47'46.640"W	2687.24	77.463	6.27	4.97	-4.12	Marcellus POE: 7396' MD
7420.00	70.010	352.940	6475.39	-436.39	605.62	2620.60	1698014.61	14284019.64	39°20'06.449"N	80°47'46.672"W	2689.67	76.987	6.27	4.99	-4.05	
7467.00	75.420	351.040	6489.35	-392.93	650.04	2614.34	1698008.35	14284064.05	39°20'06.888"N	80°47'46.750"W	2693.94	76.037	12.14	11.51	-4.04	
7515.00	80.180	349.550	6499.49	-347.17	696.27	2606.43	1698000.44	14284110.26	39°20'07.345"N	80°47'46.850"W	2697.82	75.044	10.37	9.92	-3.10	
7562.00	84.370	349.350	6505.81	-301.59	742.04	2597.90	1697991.92	14284156.01	39°20'07.798"N	80°47'46.957"W	2701.80	74.059	8.92	8.91	-0.43	
7591.00	86.370	349.580	6508.15	-273.29	770.46	2592.62	1697986.64	14284184.42	39°20'08.079"N	80°47'47.023"W	2704.68	73.449	6.94	6.90	0.79	BHI AT Curve <8-1/2"> (7562)/(7591'-16150')
7718.00	91.230	344.790	6510.81	-148.15	894.20	2564.47	1697958.50	14284308.11	39°20'09.302"N	80°47'47.378"W	2715.89	70.777	5.37	3.83	-3.77	
7813.00	90.310	337.950	6509.53	-53.42	984.16	2534.14	1697928.18	14284398.03	39°20'10.192"N	80°47'47.761"W	2718.53	68.776	7.26	-0.97	-7.20	
7908.00	89.600	337.390	6509.61	41.58	1072.03	2498.04	1697892.10	14284485.87	39°20'11.061"N	80°47'48.218"W	2718.36	66.774	0.95	-0.75	-0.59	
8003.00	90.150	343.590	6509.81	136.42	1161.53	2466.33	1697860.40	14284575.33	39°20'11.947"N	80°47'48.619"W	2726.16	64.782	6.55	0.58	6.53	
8098.00	90.180	344.780	6509.54	230.80	1252.93	2440.44	1697834.52	14284666.70	39°20'12.850"N	80°47'48.946"W	2743.28	62.824	1.25	0.03	1.25	
8193.00	90.090	347.890	6509.32	324.70	1345.23	2418.00	1697812.09	14284758.96	39°20'13.763"N	80°47'49.229"W	2767.02	60.911	3.28	-0.09	3.27	
8288.00	89.970	350.360	6509.27	417.79	1438.52	2400.08	1697794.18	14284852.21	39°20'14.686"N	80°47'49.455"W	2798.16	59.063	2.60	-0.13	2.60	
8383.00	90.180	349.980	6509.14	510.53	1532.12	2383.86	1697777.97	14284945.78	39°20'15.611"N	80°47'49.658"W	2833.76	57.271	0.46	0.22	-0.40	
8477.00	90.220	343.160	6508.81	603.34	1623.50	2362.04	1697756.15	14285037.12	39°20'16.515"N	80°47'49.933"W	2866.18	55.498	7.26	0.04	-7.26	

NOV 14 2018  
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 WV Department of Environmental Protection  
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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'  
Page 6 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

WELLPATH DATA (202 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
8572.00	90.120	341.020	6508.53	698.05	1713.89	2332.83	1697726.95	14285127.47	39°20'17.409"N	80°47'50.303"W	2894.74	53.696	2.26	-0.11	-2.25	
8667.00	90.180	336.820	6508.28	793.01	1802.51	2298.67	1697692.81	14285216.06	39°20'18.285"N	80°47'50.735"W	2921.12	51.898	4.42	0.06	-4.42	
8762.00	90.030	330.910	6508.11	887.76	1887.76	2256.84	1697651.00	14285301.27	39°20'19.129"N	80°47'51.265"W	2942.27	50.089	6.22	-0.16	-6.22	
8857.00	90.090	330.970	6508.01	982.11	1970.80	2210.70	1697604.87	14285384.28	39°20'19.951"N	80°47'51.850"W	2961.63	48.283	0.09	0.06	0.06	
8952.00	90.120	332.770	6507.84	1076.62	2054.58	2165.91	1697560.10	14285468.02	39°20'20.780"N	80°47'52.417"W	2985.37	46.511	1.89	0.03	1.89	
9047.00	90.060	332.780	6507.69	1171.27	2139.05	2122.45	1697516.66	14285552.47	39°20'21.616"N	80°47'52.968"W	3013.36	44.777	0.06	-0.06	0.01	
9141.00	90.090	332.940	6507.56	1264.95	2222.70	2079.57	1697473.79	14285636.08	39°20'22.443"N	80°47'53.511"W	3043.85	43.094	0.17	0.03	0.17	
9237.00	90.060	334.730	6507.44	1360.73	2308.86	2037.24	1697431.48	14285722.21	39°20'23.296"N	80°47'54.048"W	3079.15	41.424	1.86	-0.03	1.86	
9331.00	90.090	341.750	6507.32	1454.67	2396.11	2002.41	1697396.67	14285809.42	39°20'24.159"N	80°47'54.489"W	3122.66	39.885	7.47	0.03	7.47	
9425.00	90.740	342.110	6506.63	1549.40	2486.42	1972.95	1697367.21	14285899.70	39°20'25.052"N	80°47'54.861"W	3174.08	38.432	0.78	0.68	0.38	
9521.00	90.520	336.460	6505.58	1644.31	2575.24	1939.36	1697333.64	14285988.48	39°20'25.931"N	80°47'55.286"W	3223.81	36.983	5.95	-0.23	-5.95	
9616.00	90.060	340.380	6505.10	1739.29	2663.56	1904.42	1697298.72	14286076.76	39°20'26.804"N	80°47'55.728"W	3274.35	35.564	4.15	-0.48	4.13	
9711.00	90.490	342.150	6504.64	1834.09	2753.52	1873.91	1697268.22	14286166.69	39°20'27.694"N	80°47'56.114"W	3330.68	34.237	1.92	0.45	1.86	
9806.00	90.340	336.700	6503.96	1929.01	2842.43	1840.54	1697234.86	14286255.56	39°20'28.574"N	80°47'56.536"W	3386.29	32.924	5.74	-0.16	-5.74	
9900.00	90.030	332.000	6503.65	2022.83	2927.14	1799.86	1697194.20	14286340.24	39°20'29.412"N	80°47'57.051"W	3436.23	31.587	5.01	-0.33	-5.00	
9995.00	90.030	335.230	6503.60	2117.58	3012.23	1757.65	1697152.00	14286425.30	39°20'30.254"N	80°47'57.586"W	3487.53	30.264	3.40	0.00	3.40	
10090.00	90.060	337.860	6503.53	2212.55	3099.37	1719.84	1697114.21	14286512.40	39°20'31.116"N	80°47'58.065"W	3544.57	29.026	2.77	0.03	2.77	
10185.00	90.120	344.000	6503.38	2307.35	3189.12	1688.82	1697083.20	14286602.11	39°20'32.004"N	80°47'58.457"W	3608.68	27.904	6.46	0.06	6.46	
10279.00	90.650	345.050	6502.75	2400.67	3279.71	1663.74	1697058.13	14286692.66	39°20'32.899"N	80°47'58.774"W	3677.57	26.898	1.25	0.56	1.12	
10374.00	90.620	337.830	6501.69	2495.39	3369.70	1633.52	1697027.92	14286782.62	39°20'33.790"N	80°47'59.156"W	3744.76	25.863	7.60	-0.03	-7.60	
10468.00	90.220	336.310	6501.00	2589.38	3456.27	1596.90	1696991.32	14286869.15	39°20'34.646"N	80°47'59.620"W	3807.34	24.798	1.67	-0.43	-1.62	
10563.00	90.120	334.550	6500.72	2684.31	3542.66	1557.40	1696951.83	14286955.51	39°20'35.501"N	80°48'00.120"W	3869.88	23.731	1.86	-0.11	-1.85	
10657.00	90.090	333.220	6500.55	2778.10	3627.06	1516.02	1696910.47	14287039.88	39°20'36.336"N	80°48'00.644"W	3931.15	22.684	1.42	-0.03	-1.41	
10752.00	90.150	333.570	6500.35	2872.84	3712.00	1473.48	1696867.95	14287124.79	39°20'37.176"N	80°48'01.184"W	3993.76	21.651	0.37	0.06	0.37	
10847.00	90.250	334.800	6500.02	2967.66	3797.52	1432.11	1696826.68	14287210.27	39°20'38.022"N	80°48'01.708"W	4058.58	20.662	1.30	0.11	1.29	
10942.00	90.120	335.470	6499.71	3062.57	3883.71	1392.17	1696786.67	14287296.43	39°20'38.875"N	80°48'02.214"W	4125.69	19.721	0.72	-0.14	0.71	
11037.00	90.150	335.850	6499.49	3157.51	3970.27	1353.01	1696747.53	14287382.95	39°20'39.731"N	80°48'02.710"W	4194.48	18.818	0.40	0.03	0.40	
11131.00	90.090	335.010	6499.29	3251.44	4055.76	1313.93	1696708.46	14287468.41	39°20'40.577"N	80°48'03.205"W	4263.28	17.951	0.90	-0.06	-0.89	
11225.00	90.220	335.000	6499.04	3345.34	4140.95	1274.21	1696668.75	14287553.57	39°20'41.420"N	80°48'03.708"W	4332.56	17.104	0.14	0.14	-0.01	
11320.00	90.090	337.420	6498.78	3440.31	4227.87	1235.89	1696630.45	14287640.45	39°20'42.280"N	80°48'04.193"W	4404.81	16.295	2.55	-0.14	2.55	

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'

## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

## WELLPATH DATA (202 stations)

MD	Inclination	Azimuth	TVD	Vent Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
(m)	(°)	(°)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(°)	(m)	(m)	(m)	
11416.00	90.150	337.840	6498.58	3536.30	4316.65	1199.35	1696593.93	14287729.19	39°20'43.158"N	80°48'04.656"W	4480.17	15.528	0.44	0.06	0.44	
11510.00	90.150	340.060	6498.33	3630.27	4404.37	1165.59	1696560.18	14287816.88	39°20'44.026"N	80°48'05.083"W	4455.99	14.823	2.36	0.00	2.36	
11605.00	90.250	339.660	6498.00	3725.19	4493.65	1133.12	1696527.72	14287906.12	39°20'44.909"N	80°48'05.494"W	4634.31	14.153	0.15	0.11	-0.11	
11700.00	90.280	338.160	6497.56	3820.16	4582.37	1099.17	1696493.78	14287994.81	39°20'45.787"N	80°48'05.924"W	4712.35	13.489	1.89	0.03	-1.89	
11795.00	89.910	337.550	6487.40	3915.16	4670.36	1063.36	1696457.99	14288082.76	39°20'46.657"N	80°48'06.377"W	4789.88	12.827	0.75	-0.39	-0.64	
11890.00	90.150	338.330	6497.35	4010.16	4758.40	1027.68	1696422.32	14288170.77	39°20'47.528"N	80°48'06.829"W	4868.11	12.187	0.86	0.26	0.82	
11985.00	90.180	340.540	6497.08	4105.10	4847.34	994.31	1696388.97	14288259.68	39°20'48.408"N	80°48'07.251"W	4948.27	11.592	2.33	0.03	2.33	
12080.00	90.490	338.190	6496.04	4200.06	4936.18	960.67	1696355.34	14288348.48	39°20'49.287"N	80°48'07.677"W	5028.79	11.013	2.71	-0.32	-2.69	
12175.00	90.090	338.190	6496.04	4295.05	5024.31	925.21	1696319.90	14288436.57	39°20'50.159"N	80°48'08.125"W	5108.79	10.434	0.48	-0.42	0.22	
12270.00	89.970	335.790	6495.99	4390.04	5111.75	888.08	1696282.78	14288523.98	39°20'51.023"N	80°48'08.596"W	5188.32	9.858	2.53	-0.13	-2.53	
12363.00	90.060	337.750	6495.97	4483.02	5197.20	851.40	1696246.12	14288609.40	39°20'51.869"N	80°48'09.060"W	5266.48	9.304	2.11	0.10	2.11	
12458.00	90.180	341.080	6495.77	4577.96	5286.12	818.00	1696212.73	14288698.28	39°20'52.748"N	80°48'09.483"W	5349.04	8.796	3.51	0.13	3.51	
12553.00	90.220	340.730	6495.44	4672.81	5375.90	786.93	1696181.67	14288788.02	39°20'53.636"N	80°48'09.876"W	5433.19	8.328	0.37	0.04	-0.37	
12647.00	90.120	338.200	6495.16	4766.76	5463.92	753.96	1696148.71	14288876.00	39°20'54.507"N	80°48'10.293"W	5515.69	7.857	2.69	-0.11	-2.69	
12742.00	90.150	336.690	6494.94	4861.74	5551.32	716.76	1696111.52	14288963.37	39°20'55.372"N	80°48'10.764"W	5597.40	7.357	2.64	0.03	-2.64	
12837.00	89.910	336.330	6494.89	4956.70	5638.11	678.13	1696072.92	14289050.13	39°20'56.230"N	80°48'11.254"W	5678.75	6.858	0.72	-0.25	0.67	
12932.00	90.310	340.040	6494.70	5051.68	5726.30	642.83	1696037.63	14289138.28	39°20'57.103"N	80°48'11.700"W	5762.27	6.405	3.93	0.42	3.91	
13026.00	90.830	340.570	6493.77	5145.57	5814.79	611.16	1696005.97	14289226.74	39°20'57.978"N	80°48'12.101"W	5846.82	6.000	0.79	0.55	0.56	
13121.00	90.180	335.060	6492.93	5240.53	5902.72	575.30	1695970.13	14289314.63	39°20'58.848"N	80°48'12.555"W	5930.69	5.567	5.84	-0.68	-5.80	
13216.00	90.180	333.690	6492.63	5335.37	5988.37	534.22	1695929.06	14289400.25	39°20'59.695"N	80°48'13.076"W	6012.16	5.098	1.44	0.00	-1.44	
13310.00	90.090	333.380	6492.41	5429.13	6072.52	492.33	1695887.18	14289484.37	39°21'00.528"N	80°48'13.607"W	6092.45	4.635	0.34	-0.10	-0.33	
13405.00	89.540	335.870	6492.72	5524.99	6159.25	451.19	1695846.06	14289571.06	39°21'01.386"N	80°48'14.128"W	6175.76	4.190	2.66	-0.57	2.59	
13500.00	90.340	339.330	6492.82	5619.97	6247.07	414.99	1695809.88	14289658.85	39°21'02.255"N	80°48'14.586"W	6260.84	3.801	3.74	0.84	3.64	
13596.00	90.310	336.990	6492.28	5714.96	6335.25	379.65	1695774.56	14289746.99	39°21'03.127"N	80°48'15.034"W	6346.61	3.429	2.46	-0.03	-2.46	
13691.00	90.000	335.630	6492.03	5809.93	6422.24	341.49	1695736.40	14289833.94	39°21'03.988"N	80°48'15.517"W	6431.31	3.044	1.47	-0.33	-1.43	
13785.00	89.380	336.810	6492.53	5903.90	6508.25	303.58	1695698.52	14289919.93	39°21'04.839"N	80°48'15.997"W	6515.33	2.671	1.42	-0.66	1.26	
13880.00	90.520	339.440	6492.62	5998.89	6596.41	268.19	1695663.14	14290008.04	39°21'05.711"N	80°48'16.445"W	6601.85	2.328	3.02	1.20	2.77	
13975.00	89.720	340.230	6492.42	6093.82	6685.58	235.44	1695630.40	14290097.18	39°21'06.593"N	80°48'16.860"W	6689.72	2.017	1.18	-0.84	0.83	
14070.00	90.370	343.990	6492.34	6188.51	6775.97	206.27	1695601.24	14290187.53	39°21'07.487"N	80°48'17.229"W	6779.11	1.744	4.02	0.68	3.96	
14164.00	90.710	340.890	6491.46	6282.17	6865.57	177.91	1695572.89	14290277.10	39°21'08.373"N	80°48'17.587"W	6867.88	1.484	3.32	0.36	-3.30	

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'



## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION
Area	Doddridge Co., WV
Field	Doddridge
Facility	Addie Pad
Slot	Slot #09
Cobra Unit 2H ST02	Well
Cobra Unit 2H ST02 AWB	Wellbore
Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD	Sidetrack from

## WELLPATH DATA (202 stations)

MD	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)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
14258.00	90.150	340.360	6490.75	6376.04	6954.25	146.73	1695541.72	14290365.74	39°21'09.250"N	80°48'17.982"W	6955.80	1.209	0.82	-0.50	-0.56	
14353.00	90.220	341.350	6490.44	6470.89	7043.99	115.57	1695510.58	14290455.45	39°21'10.138"N	80°48'18.376"W	7044.94	0.940	1.04	0.07	1.04	
14448.00	90.340	341.860	6489.98	6565.66	7134.14	85.59	1695480.61	14290545.56	39°21'11.029"N	80°48'18.755"W	7134.65	0.687	0.55	0.13	0.54	
14544.00	91.170	339.870	6488.72	6661.49	7224.82	54.13	1695449.16	14290636.21	39°21'11.926"N	80°48'19.153"W	7225.02	0.429	0.86	-2.07	-2.81	
14639.00	89.750	334.320	6487.95	6756.45	7312.29	17.17	1695412.22	14290723.64	39°21'12.791"N	80°48'19.621"W	7312.31	0.135	6.03	-1.49	-5.84	
14734.00	89.600	336.990	6488.49	6851.38	7398.83	-21.99	1695373.08	14290810.15	39°21'13.648"N	80°48'20.117"W	7398.87	359.830	2.81	-0.16	2.81	
14828.00	90.180	335.850	6488.67	6945.36	7484.98	-59.59	1695335.49	14290896.26	39°21'14.500"N	80°48'20.594"W	7485.22	359.544	1.36	0.62	-1.21	
15019.00	90.090	335.320	6488.08	7136.03	7657.17	-142.20	1695252.91	14291068.39	39°21'16.203"N	80°48'21.641"W	7658.49	358.936	2.29	-0.14	2.28	
15114.00	90.280	339.560	6487.77	7231.00	7744.88	-178.64	1695216.48	14291156.06	39°21'17.071"N	80°48'22.102"W	7746.94	358.679	4.47	0.20	4.46	
15208.00	90.250	339.670	6487.34	7324.95	7832.99	-211.39	1695183.75	14291244.14	39°21'17.943"N	80°48'22.516"W	7835.85	358.454	0.12	-0.03	0.12	
15304.00	90.060	337.680	6487.08	7420.93	7922.42	-246.29	1695148.86	14291333.52	39°21'18.827"N	80°48'22.958"W	7926.24	358.219	2.08	-0.20	-2.07	
15400.00	90.340	339.990	6486.74	7516.90	8011.93	-280.95	1695114.21	14291423.01	39°21'19.713"N	80°48'23.397"W	8016.86	357.992	2.42	0.29	2.41	
15494.00	90.180	338.000	6486.32	7610.87	8099.68	-314.65	1695080.53	14291510.72	39°21'20.581"N	80°48'23.824"W	8105.79	357.775	2.12	-0.17	-2.12	
15589.00	90.220	337.820	6485.98	7705.87	8187.71	-350.37	1695044.82	14291598.71	39°21'21.452"N	80°48'24.276"W	8185.20	357.550	0.19	0.04	-0.19	
15684.00	90.090	337.190	6485.73	7800.87	8275.48	-386.72	1695008.49	14291686.45	39°21'22.320"N	80°48'24.736"W	8284.51	357.324	0.88	-0.14	-0.66	
15779.00	90.250	334.500	6485.45	7895.81	8362.15	-425.59	1694969.63	14291773.09	39°21'23.177"N	80°48'25.229"W	8372.98	357.086	2.84	0.17	-2.83	
15874.00	90.180	336.030	6485.09	7990.72	8448.43	-465.34	1694929.90	14291859.33	39°21'24.031"N	80°48'25.733"W	8461.24	356.847	1.61	-0.07	1.61	
15969.00	90.120	336.320	6484.84	8085.69	8535.34	-503.71	1694891.54	14291946.20	39°21'24.891"N	80°48'26.219"W	8550.19	356.623	0.31	-0.06	0.31	
16064.00	90.060	338.070	6484.69	8180.68	8622.91	-540.53	1694854.74	14292033.74	39°21'25.757"N	80°48'26.685"W	8639.83	356.413	1.84	-0.06	1.84	
16150.00	90.150	334.190	6484.53	8266.64	8701.54	-575.33	1694819.96	14292112.33	39°21'26.535"N	80°48'27.126"W	8720.54	356.217	4.51	0.10	-4.51	
16175.00	90.150	334.190	6484.47	8291.59	8724.04	-586.21	1694809.08	14292134.83	39°21'26.757"N	80°48'27.264"W	8743.72	356.156	0.00	0.00	0.00	Projected MD at TD: 16175'

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'

Page 9 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

HOLE & CASING SECTIONS - Ref Wellbore: Cobra Unit 2H ST02 AWB Ref Wellpath: Cobra Unit 2H ST02 AWP Proj: 16175'										
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]	
20in Conductor	24.50	104.50	80.00	24.50	104.50	0.00	0.00	0.18	0.01	
17.5in Open Hole	104.50	497.50	393.00	104.50	497.49	0.18	0.01	2.25	-0.03	
13.375in Casing Surface	24.50	497.50	473.00	24.50	497.49	0.00	0.00	2.25	-0.03	
12.75in Open Hole	497.50	2653.50	2156.00	497.49	2577.71	2.25	-0.03	-1.19	526.43	
9.625in Casing Intermediate	24.50	2653.50	2629.00	24.50	2577.71	0.00	0.00	-1.19	526.43	
8.75in Open Hole	2653.50	7187.50	4534.00	2577.71	6384.15	-1.19	526.43	392.33	2626.22	
8.5in Open Hole	7187.50	7562.00	374.50	6384.15	6505.81	392.33	2626.22	742.04	2597.90	
8.5in Open Hole	7562.00	16175.00	8613.00	6505.81	6484.47	742.04	2597.90	8724.04	-586.21	
5.5in Casing Production	24.50	16175.00	16150.50	24.50	6484.47	0.00	0.00	8724.04	-586.21	

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Cobra Unit 2H ST02 BHL Rev-1	6477.60	8761.53	-605.72	1694789.57	14292172.30	39°21'27.128"N	80°48'27.511"W	point

WELLPATH COMPOSITION - Ref Wellbore: Cobra Unit 2H ST02 AWB Ref Wellpath: Cobra Unit 2H ST02 AWP Proj: 16175'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.50	481.50	Gyrodatta standard - Drop gyro or Multi-shot	01_Gyrodatta MS Gyro <17-1/2"> (100'-472')	Cobra Unit 2H AWB
481.50	2571.50	ISCWSA MWD, Rev. 4 (Standard)	02_WFT EM <12-1/4"> (472')(520'-2562')	Cobra Unit 2H AWB
2571.50	7114.50	ISCWSA MWD, Rev. 4 (Standard)	03_WFT EM <8-3/4"> (2562')(2692'-7105')	Cobra Unit 2H AWB
7114.50	7562.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8-1/2"> (7114.5')(7163'-16151')	Cobra Unit 2H AWB
7562.00	16150.00	BHI AutoTrak Curve (Short)	06_AT Curve <8-1/2"> (7562')(7591'-16150')	Cobra Unit 2H ST02 AWB
16150.00	16175.00	Blind Drilling (std)	Projection to bit	Cobra Unit 2H ST02 AWB

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# Actual Wellpath Report

Cobra Unit 2H ST02 AWP Proj: 16175'

Page 10 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #09
Area	Doddridge Co., WV	Well	Cobra Unit 2H ST02
Field	Doddridge	Wellbore	Cobra Unit 2H ST02 AWB
Facility	Addie Pad	Sidetrack from	Cobra Unit 2H AWP Proj: 16211' at 7562.00 MD

COMMENTS
<p><b>Wellpath general comments</b>            API: 47-017-06810-0200            BHI Job #: 8883995B            Rig: Frontier 22            Duration: 11/27/2017-12/11/2017            BHI AT Curve &lt;8-1/2"&gt; (7562')(7591'-16150')            Projected MD at TD: 16175'            API: 47-017-06810-0000            BHI Job #: 8883995            Rig: Frontier 22            Duration: 11/27/2017-11/30/2017            Gyrodata MS Gyro &lt;17-1/2"&gt; (100'-472')            WFT EM &lt;12-1/4"&gt; (472')(520'-2562')            WFT EM &lt;8-3/4"&gt; (2562')(2692'-7105')            BHI AT Curve &lt;8-1/2"&gt; (7114.5')(7163'-16151')            Middlesex: 6972' MD            Burkett: 7211' MD            Tully: 7279' MD            Hamilton: 7370' MD            Marcellus POE: 7396' MD            Projected MD at TD: 16211'</p>

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