



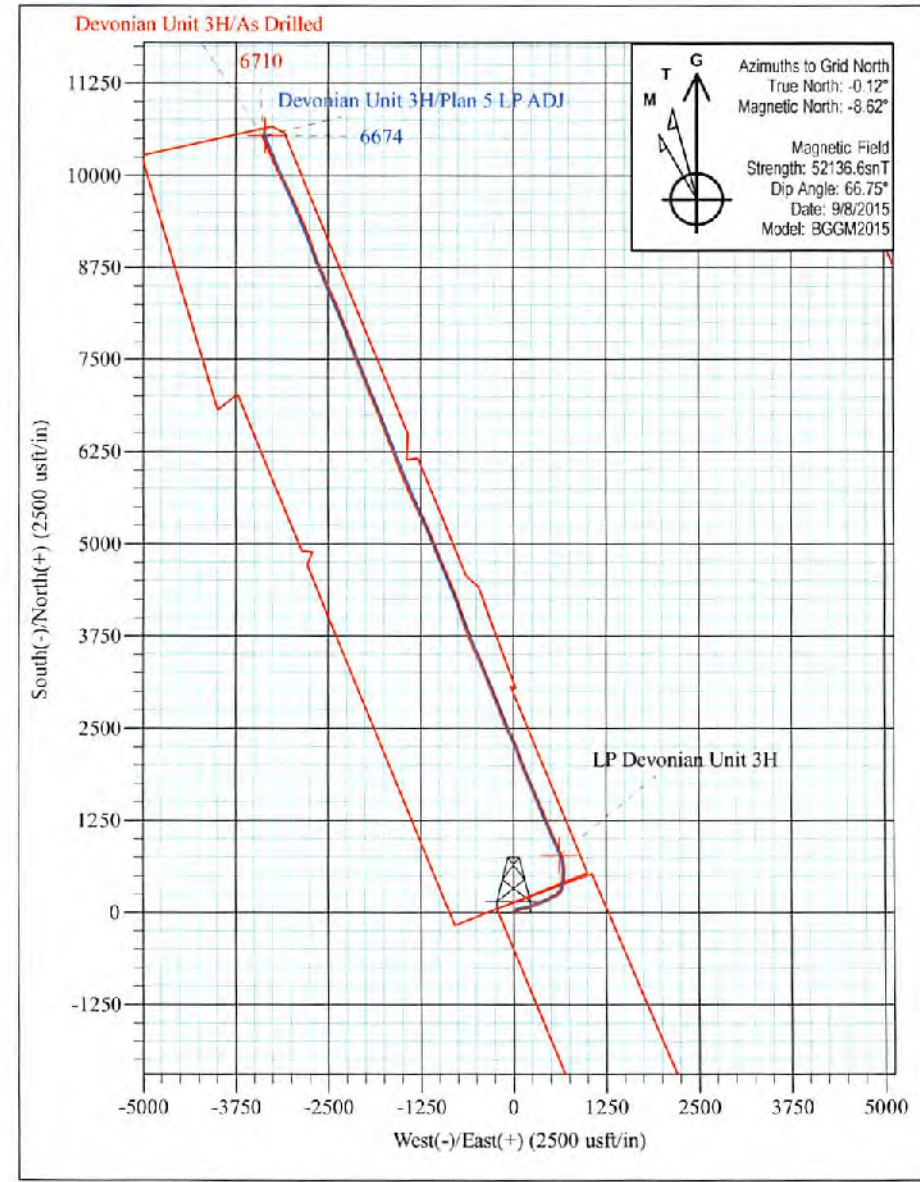
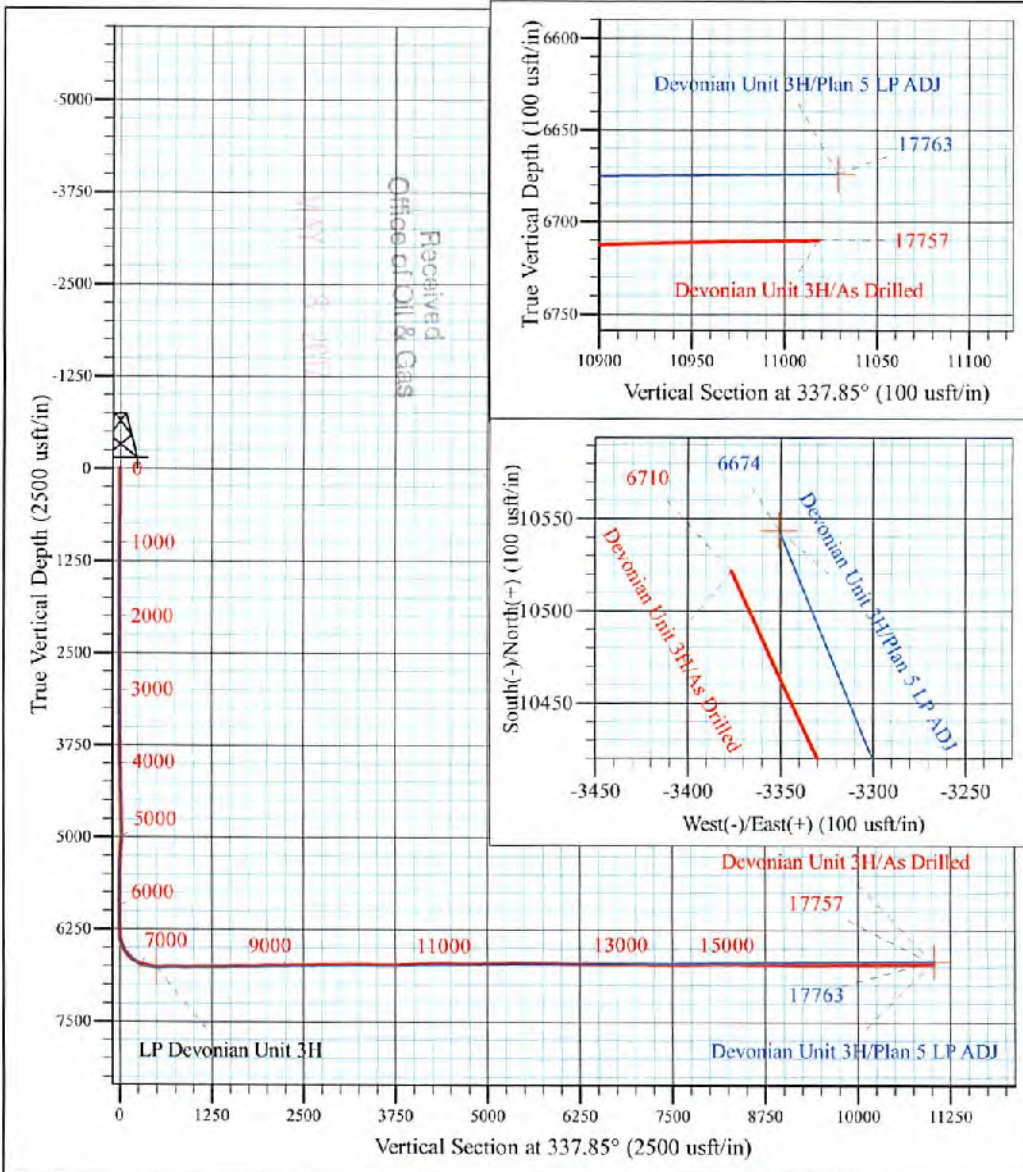
Rock Run Pad:Wentz/Twyford/Devonian
 Devonian Unit 3H
 Plan 5 LP ADJ
 Patterson 347: GL 1171' + KB 25' @ 1196.0usft
 Doddridge County WV

PROJECT DETAILS:
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level



WELL DETAILS: **Devonian Unit 3H SHL**

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14272993.78	1692813.40	39° 18' 17.540 N	80° 48' 53.180 W



Devonian Unit 3H
Approx. BHL
 39° 20' 1.640 N 80° 49' 35.892 W

Shane Rhodes
 9:02, September 24 2015
 Scientific Drilling International
 124 Vista Drive
 Charleroi, PA 15022



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WW	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Project	Doddridge County WW, McClellan District		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 76 W)		

Site	Rock Run Pad:Wentz/Twyford/Devonian				
Site Position:	Northing:	14,272,993.14 usft	Latitude:	39° 18' 17.534 N	
From:	Map	Easting:	1,692,783.84 usft	Longitude:	80° 48' 53.556 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.12 °

Well	Devonian Unit 3H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,272,993.78 usft	Latitude:	39° 18' 17.540 N
	+E/-W	0.0 usft	Easting:	1,692,813.39 usft	Longitude:	80° 48' 53.180 W
Position Uncertainty	2.0 usft	Wellhead Elevation:	1,196.0 usft	Ground Level:	1,171.0 usft	

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	8/8/2015	-8.51	66.75	52,137

Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	337.85	

Survey Program	Date 9/24/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
101.3	6,171.7	Survey #7 Def Final Gyro (Original Wellpa	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
6,171.7	17,757.0	Survey #8 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00		
101.3	0.15	351.68	101.3	0.1	0.0	0.1	0.15	0.15	0.00		
126.1	0.13	331.90	126.1	0.2	0.0	0.2	0.21	-0.08	-79.69		
151.0	0.18	296.45	151.0	0.2	-0.1	0.2	0.43	0.20	-142.54		
175.8	0.15	315.11	175.8	0.3	-0.1	0.3	0.25	-0.12	75.12		
200.8	0.19	295.55	200.8	0.3	-0.2	0.4	0.28	0.16	-76.12		
225.7	0.19	273.45	225.7	0.3	-0.3	0.4	0.29	0.00	-89.04		
250.3	0.17	343.33	250.3	0.4	-0.3	0.5	0.84	-0.08	283.03		
275.0	0.14	326.70	275.0	0.4	-0.4	0.5	0.22	-0.12	-67.38		
300.9	0.20	309.28	300.9	0.5	-0.4	0.6	0.30	0.23	-67.44		



Scientific Drilling International
Survey Report

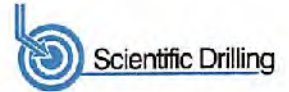


Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
326.8	0.28	292.60	326.8	0.5	-0.5	0.7	0.41	0.31	-64.33
350.3	0.23	358.93	350.3	0.6	-0.6	0.8	1.20	-0.21	281.78
375.8	0.19	310.70	375.8	0.7	-0.6	0.9	0.69	-0.16	-189.29
400.7	0.29	335.40	400.7	0.8	-0.7	1.0	0.57	0.40	99.28
425.6	0.23	345.73	425.6	0.9	-0.7	1.1	0.30	-0.24	41.42
450.6	0.57	71.72	450.6	1.0	-0.6	1.1	2.40	1.36	344.93
475.4	1.06	80.04	475.4	1.0	-0.2	1.1	2.02	1.97	33.48
500.4	1.13	81.88	500.4	1.1	0.2	0.9	0.31	0.28	7.37
525.6	1.49	84.23	525.6	1.2	0.8	0.8	1.45	1.43	9.33
551.5	2.28	87.69	551.4	1.2	1.7	0.5	3.08	3.05	13.35
576.0	3.30	89.90	575.9	1.3	2.8	0.1	4.18	4.16	9.01
600.8	3.46	88.95	600.7	1.3	4.3	-0.4	0.68	0.64	-3.83
625.3	4.09	85.97	625.1	1.4	5.9	-1.0	2.70	2.57	-12.18
650.5	4.92	81.84	650.3	1.6	7.9	-1.5	3.53	3.29	-16.36
675.6	5.47	79.24	675.3	1.9	10.1	-2.0	2.38	2.19	-10.37
700.6	5.55	79.75	700.2	2.4	12.5	-2.5	0.38	0.32	2.04
725.1	5.68	79.23	724.5	2.8	14.8	-3.0	0.57	0.53	-2.12
750.9	5.73	79.32	750.2	3.3	17.4	-3.5	0.20	0.19	0.35
776.0	5.95	78.94	775.2	3.8	19.9	-4.0	0.89	0.87	-1.51
801.2	6.10	78.62	800.2	4.3	22.5	-4.5	0.61	0.60	-1.27
825.6	6.07	78.26	824.5	4.8	25.0	-5.0	0.20	-0.12	-1.47
850.7	6.05	78.77	849.5	5.3	27.6	-5.5	0.23	-0.08	2.03
875.3	6.22	77.92	874.0	5.9	30.2	-5.9	0.78	0.69	-3.45
900.6	5.98	77.54	899.0	6.4	32.8	-6.4	0.97	-0.95	-1.51
925.8	5.02	76.51	924.1	7.0	35.1	-6.8	3.83	-3.81	-4.08
951.1	4.30	73.52	949.4	7.5	37.1	-7.0	3.00	-2.84	-11.81
975.1	4.19	74.44	973.3	8.0	38.8	-7.2	0.54	-0.46	3.83
1,000.3	3.95	75.89	998.5	8.5	40.6	-7.5	1.03	-0.95	5.74
1,025.6	3.70	74.13	1,023.7	8.9	42.2	-7.7	1.09	-0.69	-6.97
1,050.1	3.34	73.80	1,048.1	9.3	43.6	-7.8	1.47	-1.47	-1.35
1,075.3	3.19	73.70	1,073.3	9.7	45.0	-8.0	0.59	-0.59	-0.40
1,100.0	2.88	75.44	1,098.0	10.1	46.3	-8.1	1.39	-1.34	7.06
1,125.3	2.66	75.84	1,123.2	10.4	47.5	-8.3	0.79	-0.79	1.56
1,150.9	2.37	74.60	1,148.8	10.6	48.5	-8.4	1.15	-1.13	-4.85
1,175.5	2.25	78.90	1,173.4	10.9	49.5	-8.6	0.85	-0.49	17.44
1,201.0	2.06	75.30	1,198.9	11.1	50.4	-8.8	0.92	-0.75	-14.15
1,225.7	1.85	75.01	1,223.6	11.3	51.3	-8.9	0.85	-0.85	-1.17
1,250.6	1.58	78.38	1,248.4	11.5	52.0	-9.0	1.16	-1.09	13.56
1,275.5	1.63	77.92	1,273.3	11.6	52.7	-9.1	0.21	0.20	-1.85
1,300.2	1.38	74.14	1,298.1	11.8	53.3	-9.2	1.08	-1.01	-15.25
1,326.3	1.31	72.10	1,324.1	12.0	53.9	-9.2	0.33	-0.27	-7.82
1,350.6	1.16	73.26	1,348.5	12.1	54.4	-9.3	0.63	-0.62	4.85
1,375.6	1.13	68.69	1,373.4	12.3	54.9	-9.3	0.39	-0.12	-16.42



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,401.7	0.88	71.05	1,399.5	12.4	55.3	-9.3	0.97	-0.96	9.05	
1,425.9	0.80	69.99	1,423.7	12.5	55.6	-9.4	0.34	-0.33	-4.37	
1,450.8	0.74	69.45	1,448.6	12.7	55.9	-9.4	0.24	-0.24	-2.17	
1,475.8	0.66	68.35	1,473.6	12.8	56.2	-9.4	0.33	-0.32	-4.41	
1,500.8	0.52	73.48	1,498.6	12.9	56.5	-9.4	0.60	-0.56	20.49	
1,525.6	0.55	60.97	1,523.4	12.9	56.7	-9.4	0.49	0.12	-50.48	
1,551.2	0.42	64.52	1,549.0	13.0	56.9	-9.4	0.52	-0.51	13.87	
1,575.5	0.39	71.76	1,573.3	13.1	57.0	-9.4	0.24	-0.12	29.79	
1,600.5	0.30	73.57	1,598.3	13.2	57.2	-9.4	0.36	-0.36	7.24	
1,626.8	0.29	76.72	1,624.6	13.2	57.3	-9.4	0.07	-0.04	11.97	
1,651.0	0.34	71.20	1,648.8	13.2	57.4	-9.4	0.24	0.21	-22.79	
1,676.0	0.36	63.91	1,673.8	13.3	57.6	-9.4	0.19	0.08	-29.14	
1,700.4	0.29	62.39	1,698.2	13.3	57.7	-9.4	0.29	-0.29	-6.24	
1,726.0	0.19	65.05	1,723.8	13.4	57.8	-9.4	0.39	-0.39	10.37	
1,750.5	0.13	59.74	1,748.3	13.4	57.8	-9.4	0.25	-0.25	-21.71	
1,775.5	0.11	27.80	1,773.3	13.5	57.9	-9.4	0.28	-0.08	-127.96	
1,800.7	0.18	28.86	1,798.5	13.5	57.9	-9.3	0.28	0.28	4.19	
1,825.6	0.15	315.75	1,823.4	13.6	57.9	-9.3	0.60	-0.12	-293.61	
1,850.8	0.10	13.48	1,848.6	13.6	57.9	-9.2	0.51	-0.20	229.91	
1,875.8	0.12	16.34	1,873.6	13.7	57.9	-9.2	0.08	0.08	11.43	
1,900.3	0.13	29.19	1,898.1	13.7	57.9	-9.1	0.12	0.04	52.41	
1,925.4	0.13	44.20	1,923.2	13.8	58.0	-9.1	0.14	0.00	59.73	
1,951.7	0.23	16.58	1,949.5	13.8	58.0	-9.1	0.49	0.38	-105.14	
1,975.0	0.14	353.60	1,972.8	13.9	58.0	-9.0	0.49	-0.39	-98.42	
2,000.2	0.08	41.92	1,998.0	14.0	58.0	-9.0	0.42	-0.24	192.28	
2,025.6	0.13	25.58	2,023.4	14.0	58.0	-8.9	0.23	0.20	-64.23	
2,050.8	0.18	11.91	2,048.6	14.1	58.1	-8.9	0.25	0.20	-54.17	
2,075.5	0.19	53.52	2,073.3	14.1	58.1	-8.8	0.53	0.04	168.80	
2,100.3	0.25	343.14	2,098.1	14.2	58.1	-8.8	1.04	0.24	-283.90	
2,125.4	0.22	21.62	2,123.2	14.3	58.1	-8.7	0.63	-0.12	153.43	
2,150.7	0.17	349.49	2,148.5	14.4	58.1	-8.6	0.47	-0.20	-127.00	
2,175.4	0.24	17.79	2,173.2	14.5	58.1	-8.5	0.49	0.28	114.48	
2,201.3	0.21	23.47	2,199.1	14.6	58.2	-8.5	0.14	-0.12	21.91	
2,225.3	0.20	332.11	2,223.1	14.6	58.2	-8.4	0.74	-0.04	-214.36	
2,250.1	0.16	346.56	2,247.9	14.7	58.1	-8.3	0.24	-0.16	58.38	
2,276.2	0.16	12.28	2,274.0	14.6	58.1	-8.2	0.27	0.00	98.32	
2,300.7	0.24	19.34	2,298.5	14.9	58.2	-8.2	0.34	0.33	28.85	
2,325.5	0.24	38.78	2,323.3	14.9	58.2	-8.1	0.33	0.00	78.39	
2,350.9	0.22	13.35	2,348.7	15.0	58.3	-8.0	0.41	-0.08	-100.16	
2,375.6	0.15	19.40	2,373.4	15.1	58.3	-8.0	0.29	-0.28	24.48	
2,401.2	0.21	12.41	2,398.0	15.2	58.3	-7.9	0.25	0.23	-27.28	
2,425.2	0.30	340.34	2,423.0	15.3	58.3	-7.8	0.69	0.37	-133.40	
2,450.1	0.34	355.36	2,447.9	15.4	58.3	-7.7	0.37	0.16	60.49	

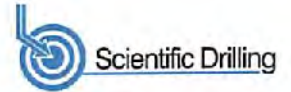


Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
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Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,475.3	0.26	344.35	2,473.1	15.6	58.2	-7.6	0.39	-0.32	-43.67	
2,501.2	0.26	353.65	2,499.0	15.7	58.2	-7.4	0.16	0.00	35.85	
2,550.3	0.06	329.74	2,548.1	15.8	58.2	-7.3	0.42	-0.41	-48.67	
2,575.2	0.13	346.93	2,573.0	15.8	58.2	-7.3	0.30	0.28	69.04	
2,601.2	0.21	359.71	2,599.0	15.9	58.2	-7.2	0.34	0.31	49.17	
2,625.2	0.20	358.43	2,623.0	16.0	58.2	-7.1	0.05	-0.04	-5.33	
2,650.5	0.19	359.58	2,648.3	16.1	58.2	-7.0	0.04	-0.04	4.55	
2,676.2	0.19	10.60	2,674.0	16.2	58.2	-7.0	0.14	0.00	43.01	
2,700.4	0.17	330.18	2,698.2	16.2	58.2	-6.9	0.52	-0.08	-166.61	
2,725.4	0.30	322.55	2,723.2	16.3	58.1	-6.8	0.53	0.52	-30.51	
2,750.5	0.30	330.92	2,748.3	16.4	58.0	-6.7	0.17	0.00	33.43	
2,776.1	0.39	299.62	2,773.9	16.5	57.9	-6.5	0.80	0.35	-122.03	
2,800.1	0.27	1.83	2,797.9	16.6	57.9	-6.4	1.49	-0.50	259.42	
2,825.6	0.36	319.84	2,823.4	16.8	57.8	-6.3	0.94	0.35	-164.41	
2,850.7	0.41	325.61	2,848.5	16.9	57.7	-6.1	0.25	0.20	23.03	
2,875.2	0.47	335.39	2,873.0	17.1	57.6	-5.9	0.39	0.24	39.87	
2,900.6	0.46	329.94	2,898.4	17.2	57.5	-5.7	0.18	-0.04	-21.44	
2,925.7	0.53	321.63	2,923.5	17.4	57.4	-5.5	0.40	0.28	-33.15	
2,950.4	0.50	328.93	2,948.2	17.6	57.3	-5.3	0.29	-0.12	29.59	
2,975.4	0.67	310.41	2,973.2	17.8	57.1	-5.1	1.01	0.68	-73.99	
3,001.4	0.56	329.00	2,999.2	18.0	56.9	-4.8	0.87	-0.42	71.56	
3,025.0	0.54	323.63	3,022.8	18.2	56.8	-4.6	0.23	-0.08	-22.72	
3,050.7	0.61	311.90	3,048.5	18.4	56.6	-4.3	0.53	0.27	-45.71	
3,075.3	0.51	323.74	3,073.1	18.5	56.5	-4.1	0.82	-0.41	48.15	
3,101.1	0.61	319.68	3,098.8	18.7	56.3	-3.9	0.42	0.38	-15.75	
3,126.1	0.69	320.11	3,123.9	19.0	56.1	-3.6	0.32	0.32	1.72	
3,150.8	0.58	311.68	3,148.5	19.2	55.9	-3.3	0.58	-0.45	-34.14	
3,175.9	0.71	312.27	3,173.7	19.3	55.7	-3.1	0.52	0.52	2.35	
3,201.0	0.62	312.88	3,198.8	19.5	55.5	-2.8	0.36	-0.36	2.43	
3,225.2	0.62	305.08	3,223.0	19.7	55.3	-2.6	0.35	0.00	-32.23	
3,251.0	0.61	318.12	3,248.7	19.9	55.1	-2.4	0.54	-0.04	50.64	
3,275.8	0.57	316.06	3,273.6	20.1	54.9	-2.1	0.18	-0.16	-8.29	
3,300.8	0.57	311.56	3,298.6	20.3	54.8	-1.9	0.18	0.00	-18.00	
3,325.1	0.64	315.51	3,322.8	20.4	54.6	-1.7	0.34	0.29	16.28	
3,351.3	0.67	312.23	3,349.0	20.6	54.4	-1.4	0.18	0.11	-12.51	
3,375.0	0.46	313.39	3,372.8	20.8	54.2	-1.2	0.88	-0.88	4.88	
3,400.3	0.63	307.23	3,398.0	20.9	54.0	-1.0	0.71	0.67	-24.43	
3,425.1	0.63	321.59	3,422.8	21.1	53.8	-0.7	0.63	0.00	57.88	
3,451.3	0.61	321.94	3,449.1	21.4	53.6	-0.4	0.08	-0.08	1.33	
3,475.0	0.72	311.80	3,472.8	21.6	53.4	-0.2	0.68	0.46	-42.77	
3,500.9	0.60	313.48	3,498.7	21.8	53.2	0.1	0.47	-0.46	6.50	
3,525.2	0.65	319.95	3,522.9	22.0	53.0	0.3	0.36	0.21	26.67	
3,550.2	0.70	319.45	3,547.9	22.2	52.8	0.6	0.20	0.20	-2.00	
3,575.7	0.76	316.33	3,573.5	22.4	52.6	0.9	0.28	0.23	-12.21	



Scientific Drilling International
Survey Report

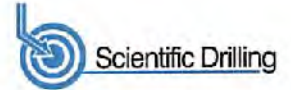


Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,600.3	0.81	316.42	3,598.0	22.7	52.4	1.2	0.20	0.20	0.37
3,625.9	0.71	316.34	3,623.6	22.9	52.2	1.6	0.39	-0.39	-0.31
3,651.0	0.87	316.25	3,648.8	23.2	51.9	1.9	0.64	0.64	-0.36
3,675.3	0.80	321.07	3,673.0	23.4	51.7	2.2	0.41	-0.29	19.84
3,700.2	0.84	312.29	3,698.0	23.7	51.4	2.5	0.53	0.16	-35.22
3,726.2	0.82	311.75	3,723.9	23.9	51.2	2.9	0.08	-0.08	-2.08
3,750.1	0.82	317.09	3,747.9	24.2	50.9	3.2	0.32	0.00	22.32
3,775.2	0.87	316.61	3,772.9	24.4	50.7	3.5	0.20	0.20	-1.92
3,801.0	0.89	317.20	3,798.7	24.7	50.4	3.9	0.09	0.08	2.29
3,825.9	0.78	322.10	3,823.6	25.0	50.2	4.2	0.53	-0.44	19.68
3,851.0	0.87	325.12	3,848.7	25.3	49.9	4.6	0.40	0.36	12.04
3,875.6	0.80	319.42	3,873.3	25.6	49.7	4.9	0.44	-0.28	-23.10
3,900.8	0.79	327.66	3,898.5	25.9	49.5	5.3	0.46	-0.04	32.72
3,925.8	0.77	331.19	3,923.5	26.2	49.3	5.6	0.21	-0.08	14.15
3,950.2	0.67	334.52	3,947.9	26.4	49.2	5.9	0.44	-0.41	13.61
3,976.0	0.75	322.93	3,973.7	26.7	49.0	6.2	0.64	0.31	-45.04
4,000.8	0.84	329.88	3,998.5	27.0	48.9	6.6	0.53	0.36	28.01
4,025.2	0.90	331.76	4,022.9	27.3	48.7	6.9	0.27	0.25	7.68
4,050.3	0.97	325.93	4,048.0	27.7	48.5	7.3	0.47	0.28	-23.25
4,076.3	0.90	321.57	4,074.0	28.0	48.2	7.8	0.38	-0.27	-16.76
4,100.4	0.86	322.80	4,098.1	28.3	48.0	8.1	0.18	-0.17	5.11
4,125.1	0.85	321.58	4,122.8	28.6	47.8	8.5	0.08	-0.04	-4.94
4,150.1	0.89	323.48	4,147.7	28.9	47.5	8.8	0.20	0.16	7.62
4,175.7	0.81	326.31	4,173.4	29.2	47.3	9.2	0.35	-0.31	11.04
4,200.7	0.83	326.50	4,198.4	29.5	47.1	9.6	0.08	0.08	0.76
4,225.8	0.86	329.33	4,223.5	29.8	46.9	9.9	0.21	0.12	11.30
4,250.7	0.85	337.80	4,248.4	30.1	46.7	10.3	0.51	-0.04	34.02
4,275.5	0.84	334.93	4,273.2	30.5	46.6	10.7	0.17	-0.04	-11.54
4,300.0	0.88	335.06	4,297.7	30.8	46.4	11.0	0.16	0.16	0.53
4,325.8	0.86	341.27	4,323.5	31.2	46.3	11.4	0.37	-0.08	24.06
4,350.8	0.94	332.39	4,348.5	31.5	46.1	11.8	0.64	0.32	-35.58
4,376.1	0.94	337.11	4,373.7	31.9	46.0	12.2	0.31	0.00	18.67
4,400.2	0.91	333.23	4,397.9	32.3	45.8	12.6	0.29	-0.12	-16.08
4,425.9	0.89	344.36	4,423.6	32.6	45.7	13.0	0.66	-0.08	43.31
4,450.1	0.95	336.19	4,447.7	33.0	45.5	13.4	0.60	0.25	-33.83
4,475.4	0.92	340.92	4,473.1	33.4	45.4	13.8	0.33	-0.12	18.67
4,501.3	1.03	339.73	4,498.9	33.8	45.2	14.3	0.43	0.42	-4.60
4,525.4	1.03	336.56	4,523.0	34.2	45.1	14.7	0.24	0.00	-13.15
4,550.3	0.88	349.41	4,548.0	34.6	44.9	15.1	1.04	-0.60	51.52
4,576.0	0.94	356.31	4,573.6	35.0	44.9	15.5	0.49	0.23	26.94
4,600.4	0.93	354.29	4,598.0	35.4	44.9	15.9	0.14	-0.04	-8.26
4,625.4	0.95	341.87	4,623.1	35.8	44.8	16.3	0.82	0.06	-49.62
4,653.1	0.95	349.44	4,650.7	36.2	44.7	16.7	0.45	0.00	27.40



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,676.9	1.20	358.08	4,674.5	36.7	44.6	17.1	1.25	1.05	36.33	
4,701.4	2.37	48.01	4,699.0	37.3	45.0	17.6	7.52	4.77	203.71	
4,728.5	5.44	50.64	4,726.0	38.5	46.4	18.1	11.34	11.32	9.70	
4,752.9	5.58	54.10	4,750.3	39.9	48.3	18.8	1.48	0.57	14.17	
4,777.3	5.85	50.92	4,774.6	41.4	50.2	19.4	1.70	1.11	-13.02	
4,801.7	5.67	54.50	4,798.9	42.9	52.1	20.0	1.65	-0.74	14.67	
4,828.7	6.97	56.42	4,825.7	44.5	54.6	20.7	4.88	4.82	7.12	
4,853.5	7.79	59.35	4,850.3	46.2	57.3	21.2	3.64	3.31	11.83	
4,878.0	7.99	58.97	4,874.6	48.0	60.2	21.7	0.84	0.81	-1.55	
4,902.3	8.10	58.02	4,898.7	49.7	63.1	22.3	0.71	0.45	-3.91	
4,926.9	7.54	73.65	4,923.0	51.1	66.1	22.4	8.93	-2.28	63.67	
4,951.3	7.56	78.50	4,947.2	51.9	69.2	22.0	2.61	0.08	19.88	
4,978.5	7.72	76.40	4,974.2	52.7	72.7	21.4	1.18	0.59	-7.70	
5,003.4	8.04	81.08	4,998.9	53.3	76.1	20.7	2.88	1.29	18.80	
5,026.1	9.27	86.23	5,021.3	53.7	79.5	19.8	6.40	5.42	22.68	
5,053.4	9.64	85.09	5,048.2	54.0	83.9	18.4	1.52	1.36	-4.18	
5,077.8	9.85	82.59	5,072.2	54.5	88.0	17.3	1.94	0.86	-10.25	
5,102.4	10.50	82.66	5,096.5	55.0	92.3	16.2	2.64	2.64	0.28	
5,126.9	11.95	81.94	5,120.5	55.7	97.1	15.0	5.96	5.93	-2.94	
5,151.5	12.07	82.93	5,144.6	56.3	102.1	13.7	0.97	0.49	4.02	
5,176.0	12.18	82.00	5,168.5	57.0	107.2	12.4	0.92	0.45	-3.80	
5,203.2	12.97	81.08	5,195.0	57.9	113.1	11.0	3.00	2.90	-3.45	
5,227.7	13.48	81.88	5,218.9	58.7	118.6	9.7	2.08	2.00	2.53	
5,252.2	13.58	81.14	5,242.7	59.6	124.3	8.3	0.71	0.49	-2.20	
5,276.0	13.40	79.14	5,265.8	60.5	129.8	7.1	2.10	-0.78	-8.40	
5,326.9	15.98	76.99	5,315.1	63.2	142.4	4.9	5.18	5.08	-4.22	
5,351.9	16.32	75.83	5,339.1	64.9	149.1	3.8	1.88	1.36	-4.85	
5,376.0	17.19	74.51	5,362.2	66.6	155.9	3.0	3.94	3.61	-5.47	
5,401.0	18.28	74.59	5,386.0	68.7	163.2	2.1	4.36	4.36	0.32	
5,426.0	18.95	74.07	5,409.7	70.8	170.9	1.2	2.76	2.68	-2.08	
5,452.0	18.81	72.72	5,434.3	73.2	179.0	0.4	1.76	-0.54	-5.18	
5,476.9	19.32	72.00	5,457.9	75.7	186.7	-0.3	2.25	2.05	-2.89	
5,501.8	19.90	72.31	5,481.3	78.3	194.7	-0.9	2.37	2.33	1.24	
5,526.3	20.35	72.04	5,504.3	80.8	202.7	-1.5	1.88	1.84	-1.10	
5,551.4	20.05	70.71	5,527.9	83.6	210.9	-2.1	2.18	-1.19	-5.29	
5,576.0	20.57	70.03	5,550.9	86.5	218.9	-2.5	2.32	2.12	-2.77	
5,601.6	21.28	70.11	5,574.8	89.6	227.5	-2.8	2.78	2.77	0.31	
5,626.0	21.50	69.05	5,597.5	92.7	235.9	-3.1	1.82	0.90	-4.35	
5,651.2	21.66	67.75	5,621.0	96.1	244.5	-3.2	2.00	0.83	-5.14	
5,677.0	22.69	68.17	5,644.9	99.8	253.5	-3.2	4.05	4.00	1.63	
5,702.4	24.18	69.06	5,668.2	103.4	262.9	-3.3	6.02	5.86	3.50	
5,726.6	24.53	68.19	5,690.3	107.1	272.2	-3.5	2.07	1.45	-3.59	
5,751.7	24.95	67.83	5,713.0	111.0	281.9	-3.5	1.78	1.66	-1.44	



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,777.5	26.05	69.45	5,736.3	115.1	292.3	-3.6	5.04	4.26	6.27	
5,801.5	26.84	70.59	5,757.8	118.7	302.3	-4.0	3.92	3.30	4.76	
5,826.6	26.44	70.38	5,780.2	122.5	313.0	-4.6	1.64	-1.59	-0.84	
5,851.1	26.06	69.64	5,802.2	126.2	323.1	-5.0	2.05	-1.55	-3.02	
5,877.1	26.65	69.49	5,825.5	130.2	333.9	-5.3	2.29	2.27	-0.58	
5,901.3	26.85	69.40	5,847.1	134.0	344.2	-5.6	0.64	0.82	-0.37	
5,926.6	26.37	68.82	5,869.7	138.1	354.7	-5.9	2.16	-1.90	-2.29	
5,952.1	25.47	67.28	5,892.6	142.2	365.1	-5.9	4.41	-3.53	-6.05	
5,975.9	24.88	66.48	5,914.3	146.2	374.4	-5.7	2.65	-2.47	-3.35	
6,001.9	24.14	65.27	5,937.9	150.6	384.2	-5.4	3.44	-2.85	-4.66	
6,026.4	24.09	65.02	5,960.2	154.8	393.3	-4.9	0.46	-0.20	-1.02	
6,051.9	24.78	67.00	5,983.5	159.1	403.0	-4.6	4.19	2.70	7.75	
6,076.2	25.73	68.58	6,005.4	163.0	412.5	-4.6	4.81	3.92	6.52	
6,101.7	25.64	68.41	6,028.4	167.1	422.8	-4.7	0.46	-0.35	-0.67	
6,126.6	24.86	67.02	6,050.9	171.1	432.6	-4.7	3.93	-3.13	-5.58	
6,151.2	24.92	66.36	6,073.2	175.2	442.2	-4.4	1.18	0.24	-2.68	
6,171.0	24.19	65.59	6,091.2	178.5	449.7	-4.2	4.04	-3.70	-3.89	
Last SDI Gyro @ 6171 MD										
6,171.7	24.16	65.56	6,091.9	178.7	449.9	-4.2	4.04	-3.69	-4.01	
6,284.0	21.85	60.30	6,195.3	196.5	489.0	-0.5	2.75	-2.06	-4.68	
First SDI MWD @ 6284 MD										
6,378.0	25.10	62.64	6,281.5	216.4	521.9	3.6	3.60	3.46	2.49	
6,408.0	29.43	65.41	6,309.0	222.6	534.7	4.5	14.55	13.97	8.94	
6,441.0	31.55	67.11	6,336.6	229.1	549.6	5.0	7.15	6.63	5.31	
6,472.0	31.70	63.74	6,363.0	235.8	564.3	5.7	5.72	0.48	-10.67	
6,480.0	31.98	61.67	6,389.8	237.8	568.1	6.0	14.12	3.51	-25.93	
Sycamore @ 6480 MD										
6,503.0	32.97	55.90	6,389.2	244.2	576.6	8.0	14.12	4.30	-25.07	
6,535.0	35.59	49.58	6,415.6	255.1	593.0	12.7	13.80	8.19	-19.75	
6,566.0	37.46	44.98	6,440.6	267.6	606.5	19.2	10.69	6.03	-14.84	
6,597.0	37.89	36.79	6,465.1	281.7	619.1	27.5	12.28	1.39	-19.97	
6,629.0	36.99	31.77	6,490.5	297.6	630.3	37.9	13.62	-2.81	-21.94	
6,660.0	37.71	26.35	6,515.2	314.0	639.5	49.7	10.86	2.32	-17.48	
6,683.0	38.58	22.32	6,533.3	326.9	645.3	59.5	11.45	3.77	-17.51	
Middlesex @ 6683 MD										
6,691.0	36.91	20.96	6,539.5	331.6	647.2	63.1	11.45	4.16	-17.04	
6,723.0	40.62	16.47	6,564.1	351.0	653.7	78.6	10.44	5.34	-14.03	
6,754.0	42.82	14.07	6,587.2	370.9	659.1	95.0	8.77	7.10	-7.74	
6,786.0	45.66	12.12	6,610.2	392.6	664.2	113.2	9.84	8.88	-6.09	
6,817.0	49.34	9.22	6,631.1	415.1	668.4	132.4	13.73	11.87	-9.35	
6,848.0	53.56	7.66	6,650.4	439.0	671.9	153.3	14.17	13.61	-5.03	
6,863.0	56.04	6.91	6,659.1	451.2	673.5	164.0	17.00	16.50	-4.99	
Burkett @ 6863 MD										
6,879.0	58.68	6.16	6,667.7	464.6	675.0	175.8	17.00	16.53	-4.70	



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,911.0	63.38	4.00	6,683.2	492.5	677.5	200.7	15.83	14.69	-6.75	
6,920.0	64.40	3.30	6,687.2	500.5	678.0	208.0	13.25	11.28	-7.74	
Tully @ 6920 MD										
6,942.0	66.89	1.65	6,696.2	520.5	678.9	226.2	13.25	11.34	-7.52	
6,974.0	69.64	359.63	6,708.1	550.3	679.2	253.6	10.40	8.59	-6.31	
6,998.0	71.64	357.97	6,716.0	572.9	678.7	274.7	10.60	8.35	-6.93	
Hamilton @ 6998 MD										
7,005.0	72.23	357.49	6,718.2	579.6	678.5	281.0	10.60	8.39	-6.82	
7,029.0	74.24	356.18	6,725.1	602.5	677.2	302.7	9.88	8.38	-5.47	
MRCL_HOT @ 7029 MD										
7,036.0	74.83	355.80	6,727.0	609.2	676.7	309.1	9.88	8.40	-5.40	
7,068.0	77.28	353.83	6,734.7	640.2	673.9	338.8	9.71	7.66	-6.16	
7,099.0	78.41	351.10	6,741.2	670.2	669.9	368.1	9.35	3.65	-8.81	
7,130.0	79.36	346.79	6,747.2	700.0	664.1	398.0	13.98	3.06	-13.90	
7,162.0	81.44	342.01	6,752.6	730.4	655.6	429.3	16.10	6.50	-14.94	
7,193.0	83.88	340.29	6,756.5	759.5	645.7	460.0	9.60	7.87	-5.55	
7,225.0	86.14	338.72	6,759.3	789.4	634.5	491.9	8.59	7.06	-4.91	
7,251.0	87.85	338.34	6,760.7	813.5	625.0	517.8	6.74	6.56	-1.45	
7,288.0	91.07	336.45	6,761.0	847.7	610.8	554.8	10.09	8.70	-5.11	
7,345.0	93.93	335.19	6,758.5	899.6	587.5	611.7	5.48	5.02	-2.21	
7,439.0	90.84	336.61	6,754.6	985.3	549.1	705.6	3.62	-3.29	1.51	
7,533.0	88.89	336.76	6,754.8	1,071.7	511.9	799.6	2.08	-2.07	0.16	
7,627.0	89.87	337.73	6,755.9	1,158.3	475.6	893.5	1.47	1.04	1.03	
7,721.0	90.10	338.42	6,755.9	1,245.5	440.5	987.5	0.77	0.24	0.73	
7,815.0	91.48	336.69	6,754.6	1,332.4	404.6	1,081.5	2.35	1.47	-1.84	
7,909.0	91.68	336.09	6,752.0	1,418.5	387.0	1,175.5	0.67	0.21	-0.64	
8,003.0	89.09	336.92	6,751.4	1,504.7	329.5	1,269.4	2.89	-2.76	0.88	
8,097.0	89.50	337.64	6,752.5	1,591.4	293.2	1,363.4	0.88	0.44	0.77	
8,191.0	90.27	336.94	6,752.7	1,678.1	256.9	1,457.4	1.11	0.82	-0.74	
8,285.0	90.91	338.53	6,751.7	1,765.1	221.3	1,551.4	1.82	0.68	1.69	
8,379.0	91.48	336.40	6,749.8	1,851.9	185.3	1,645.4	2.35	0.61	-2.27	
8,473.0	90.87	339.29	6,747.8	1,938.9	149.8	1,739.3	3.14	-0.65	3.07	
8,568.0	91.38	339.92	6,746.0	2,027.9	116.7	1,834.3	0.85	0.54	0.66	
8,662.0	91.71	341.27	6,743.4	2,116.6	85.5	1,928.1	1.48	0.35	1.44	
8,756.0	91.04	337.37	6,741.2	2,204.5	52.3	2,022.1	4.21	-0.71	-4.15	
8,850.0	91.38	335.76	6,739.2	2,290.7	15.0	2,116.0	1.75	0.38	-1.71	
8,944.0	90.03	334.59	6,738.0	2,376.0	-24.5	2,209.9	1.90	-1.44	-1.24	
9,039.0	90.00	338.12	6,738.0	2,463.0	-62.6	2,304.8	3.72	-0.03	3.72	
9,133.0	90.20	338.02	6,737.9	2,550.2	-97.7	2,398.8	0.24	0.21	-0.11	
9,227.0	91.81	337.43	6,736.2	2,637.2	-133.3	2,492.8	1.82	1.71	-0.63	
9,321.0	91.14	338.77	6,733.8	2,724.4	-168.4	2,586.8	1.59	-0.71	1.43	
9,415.0	89.50	339.82	6,733.3	2,812.3	-201.6	2,680.8	2.07	-1.74	1.12	
9,509.0	90.94	337.34	6,732.9	2,899.8	-235.9	2,774.7	3.05	1.53	-2.64	
9,604.0	90.67	337.62	6,731.4	2,967.5	-272.3	2,869.7	0.30	-0.07	0.29	



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,698.0	91.41	337.24	6,729.5	3,074.3	-308.4	2,963.7	0.70	0.57	-0.40
9,792.0	89.40	337.76	6,728.9	3,161.2	-344.4	3,057.7	2.21	-2.14	0.55
9,886.0	89.53	338.47	6,729.7	3,248.4	-379.4	3,151.7	0.77	0.14	0.76
9,960.0	89.50	337.39	6,730.5	3,335.5	-414.7	3,245.7	1.15	-0.03	-1.15
10,074.0	90.50	337.15	6,730.5	3,422.2	-451.0	3,339.7	1.09	1.06	-0.26
10,168.0	90.84	333.41	6,729.4	3,507.5	-490.3	3,433.6	3.99	0.36	-3.98
10,263.0	90.07	334.98	6,728.7	3,593.1	-531.7	3,528.4	1.84	-0.81	1.65
10,357.0	88.46	339.14	6,728.1	3,679.6	-568.3	3,622.3	4.47	-0.65	4.43
10,451.0	90.94	341.83	6,728.7	3,768.2	-599.7	3,716.2	3.27	1.57	2.86
10,545.0	91.71	340.46	6,728.6	3,857.1	-630.1	3,810.0	1.67	0.82	-1.46
10,639.0	92.25	338.26	6,723.3	3,945.0	-663.2	3,903.9	2.41	0.57	-2.34
10,734.0	92.12	339.80	6,719.7	4,033.7	-697.2	3,998.8	1.63	-0.14	1.62
10,828.0	90.47	340.91	6,717.6	4,122.2	-728.8	4,092.7	2.12	-1.76	1.18
10,922.0	91.01	341.28	6,718.4	4,211.1	-759.2	4,188.6	0.70	0.57	0.39
11,016.0	91.31	337.86	6,714.5	4,299.2	-792.0	4,280.5	3.65	0.32	-3.64
11,110.0	89.29	338.57	6,714.0	4,385.8	-828.4	4,374.5	2.55	-2.15	-1.37
11,204.0	89.16	337.45	6,715.2	4,472.3	-865.1	4,468.5	0.95	-0.14	0.94
11,298.0	89.97	335.80	6,716.0	4,558.6	-902.6	4,562.4	2.15	0.86	-1.97
11,392.0	90.44	338.88	6,715.6	4,644.6	-940.4	4,656.4	1.45	0.50	1.36
11,486.0	89.19	339.10	6,715.9	4,731.7	-975.7	4,750.4	2.71	-1.33	2.36
11,580.0	90.10	337.45	6,716.5	4,819.0	-1,010.4	4,844.4	2.00	0.97	-1.76
11,674.0	90.40	337.76	6,716.1	4,906.0	-1,046.3	4,938.4	0.46	0.32	0.33
11,768.0	90.54	337.42	6,715.3	4,992.8	-1,082.1	5,032.4	0.39	0.15	-0.36
11,862.0	90.74	336.64	6,714.3	5,079.4	-1,118.8	5,126.3	0.66	0.21	-0.83
11,956.0	89.73	337.86	6,713.9	5,166.1	-1,155.1	5,220.3	1.68	-1.07	1.30
12,051.0	90.10	337.10	6,714.0	5,253.8	-1,191.5	5,315.3	0.89	0.39	-0.80
12,145.0	90.30	334.70	6,713.7	5,339.6	-1,229.9	5,409.3	2.56	0.21	-2.55
12,239.0	90.23	336.75	6,713.3	5,425.3	-1,268.5	5,503.2	2.18	-0.07	2.18
12,334.0	90.34	332.06	6,712.8	5,511.0	-1,309.6	5,598.0	4.94	0.12	-4.94
12,428.0	90.30	335.30	6,712.3	5,595.2	-1,351.2	5,691.7	3.45	-0.04	3.45
12,522.0	91.04	337.60	6,711.2	5,681.4	-1,388.8	5,785.7	2.57	0.79	2.45
12,616.0	90.27	338.82	6,710.1	5,768.6	-1,423.7	5,879.7	1.53	-0.82	1.30
12,710.0	90.24	337.83	6,709.7	5,856.0	-1,458.4	5,973.7	1.05	-0.03	-1.05
12,804.0	89.43	339.31	6,709.9	5,943.5	-1,492.7	6,067.7	1.79	-0.86	1.57
12,899.0	89.16	338.63	6,711.1	6,032.2	-1,526.6	6,162.6	0.77	-0.28	-0.72
12,993.0	88.82	338.53	6,712.8	6,119.6	-1,561.1	6,256.6	0.38	-0.36	-0.11
13,087.0	90.13	338.24	6,713.6	6,207.0	-1,595.6	6,350.6	1.43	1.39	-0.31
13,181.0	89.97	337.51	6,713.5	6,294.1	-1,631.2	6,444.6	0.80	-0.17	-0.78
13,275.0	90.10	337.73	6,713.5	6,381.0	-1,667.0	6,538.6	0.27	0.14	0.23
13,369.0	89.93	340.45	6,713.5	6,468.6	-1,700.5	6,632.6	2.90	-0.18	2.89
13,464.0	89.73	339.70	6,713.7	6,556.1	-1,732.9	6,727.5	0.82	-0.21	-0.79
13,558.0	89.83	337.39	6,714.1	6,645.6	-1,767.3	6,821.5	2.46	0.11	-2.46
13,652.0	89.19	337.45	6,714.9	6,732.4	-1,803.4	6,915.5	0.68	-0.68	0.06
13,746.0	88.66	337.89	6,716.7	6,819.3	-1,839.1	7,009.5	0.73	-0.55	0.47



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1196.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,841.0	90.84	337.95	6,717.1	8,907.4	-1,874.8	7,104.5	2.30	2.29	0.06
13,935.0	91.24	337.42	6,715.4	8,994.3	-1,910.5	7,198.4	0.71	0.43	-0.56
14,029.0	90.13	339.14	6,714.3	7,081.6	-1,945.2	7,292.4	2.18	-1.18	1.83
14,123.0	89.60	339.01	6,714.5	7,169.4	-1,978.8	7,386.4	0.58	-0.56	-0.14
14,217.0	89.48	338.24	6,715.3	7,257.0	-2,013.1	7,480.4	0.83	-0.15	-0.82
14,311.0	89.80	338.77	6,715.9	7,344.4	-2,047.5	7,574.4	0.67	0.36	0.56
14,406.0	90.40	336.20	6,715.7	7,432.2	-2,083.9	7,669.4	2.78	0.63	-2.71
14,500.0	90.13	338.34	6,715.3	7,518.9	-2,120.2	7,763.4	2.29	-0.29	2.28
14,594.0	90.71	339.53	6,714.6	7,606.6	-2,154.0	7,857.3	1.41	0.62	1.27
14,688.0	91.17	339.16	6,713.0	7,694.5	-2,187.1	7,951.3	0.63	0.49	-0.39
14,782.0	90.54	339.21	6,711.6	7,782.4	-2,220.5	8,045.3	0.67	-0.67	0.05
14,877.0	89.73	341.04	6,711.4	7,871.7	-2,252.8	8,140.2	2.11	-0.65	1.93
14,971.0	90.77	337.86	6,711.0	7,959.7	-2,285.8	8,234.1	3.56	1.11	-3.38
15,065.0	86.35	337.96	6,711.7	8,046.8	-2,321.2	8,328.1	2.58	-2.57	0.11
15,159.0	86.25	338.04	6,714.5	8,133.9	-2,356.4	8,422.1	0.14	-0.11	0.09
15,253.0	89.53	336.69	6,716.3	8,220.7	-2,392.5	8,516.1	1.98	1.36	-1.44
15,346.0	89.46	335.64	6,717.1	8,305.7	-2,430.1	8,609.0	1.13	-0.08	-1.13
15,440.0	89.70	336.20	6,717.8	8,391.6	-2,468.5	8,703.0	0.65	0.26	0.60
15,534.0	90.37	336.38	6,717.8	8,477.6	-2,506.3	8,796.9	0.74	0.71	0.19
15,628.0	89.09	337.63	6,718.2	8,564.1	-2,543.0	8,890.9	1.90	-1.36	1.33
15,723.0	88.99	338.54	6,719.8	8,652.3	-2,578.4	8,985.9	0.96	-0.11	0.96
15,817.0	89.50	337.83	6,721.0	8,739.5	-2,613.5	9,079.9	1.11	0.54	-0.97
15,911.0	89.80	336.36	6,721.6	8,826.0	-2,650.3	9,173.9	1.39	0.32	-1.35
16,005.0	89.70	339.19	6,722.0	8,913.0	-2,685.8	9,267.9	3.01	-0.11	3.01
16,099.0	90.07	342.37	6,722.2	9,001.7	-2,716.7	9,361.7	3.41	0.39	3.38
16,194.0	89.87	340.86	6,722.3	9,091.9	-2,746.7	9,456.5	1.60	-0.21	-1.59
16,288.0	90.60	338.15	6,721.9	9,179.9	-2,779.6	9,550.5	2.99	0.78	-2.88
16,382.0	90.60	337.75	6,720.9	9,267.1	-2,814.9	9,644.5	0.43	0.00	-0.43
16,477.0	90.67	337.84	6,719.8	9,355.0	-2,850.8	9,739.4	0.12	0.07	0.09
16,571.0	89.23	338.91	6,719.9	9,442.4	-2,885.4	9,833.4	1.91	-1.53	1.14
16,665.0	90.87	337.52	6,719.8	9,529.7	-2,920.3	9,927.4	2.29	1.74	-1.48
16,759.0	91.07	336.78	6,718.3	9,616.3	-2,956.8	10,021.4	0.82	0.21	-0.79
16,853.0	90.27	335.12	6,717.2	9,702.1	-2,995.1	10,115.4	1.96	-0.85	-1.77
16,947.0	90.27	335.09	6,716.7	9,787.4	-3,034.7	10,209.2	0.03	0.00	-0.03
17,042.0	90.57	332.29	6,716.0	9,872.5	-3,076.8	10,304.0	2.96	0.32	-2.95
17,136.0	90.44	335.36	6,715.2	9,956.9	-3,118.3	10,397.7	3.27	-0.14	3.27
17,230.0	91.01	334.39	6,714.0	10,042.0	-3,158.2	10,491.6	1.20	0.81	-1.03
17,324.0	89.77	336.24	6,713.4	10,127.4	-3,197.4	10,585.5	2.37	-1.32	1.97
17,419.0	89.70	334.64	6,713.8	10,213.8	-3,236.9	10,680.4	1.69	-0.07	-1.68
17,513.0	90.13	336.62	6,713.9	10,299.4	-3,275.7	10,774.3	2.16	0.46	2.11
17,607.0	91.21	334.99	6,712.8	10,385.1	-3,314.2	10,868.3	2.08	1.15	-1.73
17,699.0	91.28	335.59	6,710.9	10,467.8	-3,352.2	10,959.1	0.68	0.08	0.68

Last SDI MWD @ 17698 MD



Company:	Antero Resources	Local Co-ordinate Reference:	Well Devonian Unit 3H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1171' + KB 25' @ 1195.0usft
Site:	Rock Run Pad:Wentz/Twyford/Devonian	MD Reference:	Patterson 347: GL 1171' + KB 25' @ 1195.0usft
Well:	Devonian Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buidl Rate (°/100usft)	Turn Rate (°/100usft)
17,757.0	90.97	336.20	6,709.7	10,521.6	-3,376.3	11,018.1	1.16	-0.53	1.03
Projection To Bit @ 17757 MD / 6709 TVD									

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,480.0	6,369.8	Sycamore @ 6480 MD		0.00	
6,683.0	6,533.3	Middlesex @ 6683 MD		0.00	
6,863.0	6,659.1	Burkett @ 6863 MD		0.00	
6,920.0	6,687.2	Tully @ 6920 MD		0.00	
6,998.0	6,718.0	Hamilton @ 6998 MD		0.00	
7,029.0	6,725.1	MRCL_HOT @ 7029 MD		0.00	

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,171.0	6,091.2	178.5	449.7	Last SDI Gyro @ 6171 MD
6,264.0	6,195.3	198.5	489.0	First SDI MWD @ 6264 MD
17,698.0	6,710.9	10,467.8	-3,352.2	Last SDI MWD @ 17698 MD
17,757.0	6,709.7	10,521.6	-3,376.3	Projection To Bit @ 17757 MD / 6709 TVD

Checked By: _____ Approved By: _____ Date: _____

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