



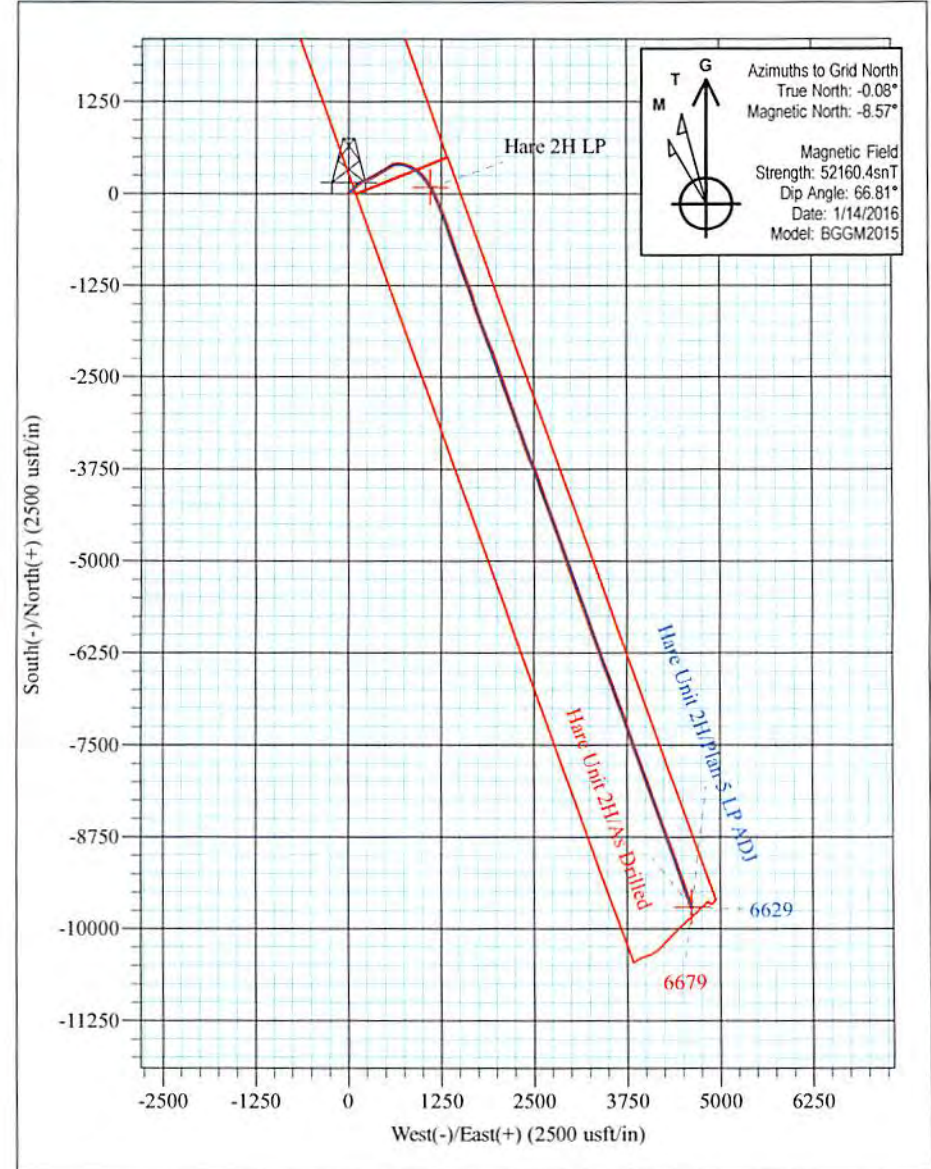
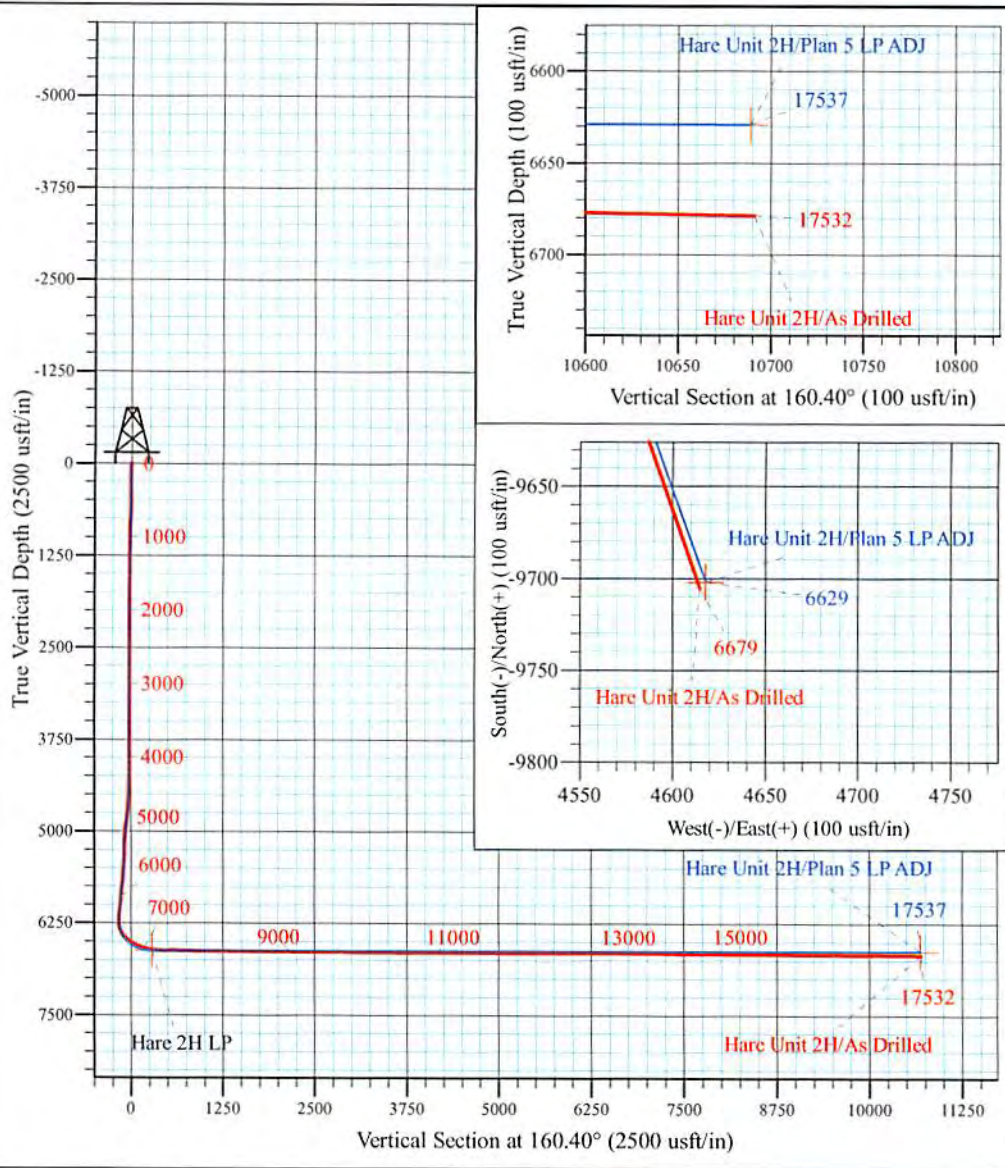
Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin
 Hare Unit 2H
 Plan 5 LP ADJ
 Frontier 32: 1141' GL + 32' KB @ 1173.0usft
 Tyler County WV

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: **Hare Unit 2H SHL**

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14312841.57	1674799.47	39° 24' 51.839 N	80° 52' 41.748 W

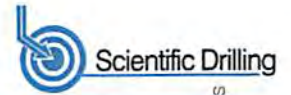


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 Shane Rhodes
 13:32, January 19 2016
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 Scientific Drilling International
 124 Vista Drive
 Charleroi, PA 15022
 WV Department of Environmental Protection

Hare Unit 2H
 Approx. BHL
 39° 23' 15.812 N 80° 51' 43.115 W



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Survey Report



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WV Department of
Environmental Protection

Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Project	Tyler County WV, Tyler Co West Virginia		
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 78 W)		

Site	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin, Site Center: Hare Unit 1H				
Site Position:		Northing:	14,312,832.65 usft	Latitude:	39° 24' 51.751 N
From:	Map	Easting:	1,674,804.62 usft	Longitude:	80° 52' 41.682 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.08 °

Well	Hare Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,312,841.57 usft	Latitude:	39° 24' 51.839 N
	+E/-W	0.0 usft	Easting:	1,674,799.47 usft	Longitude:	80° 52' 41.748 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,173.0 usft	Ground Level:	1,141.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	11/5/2015	-8.48	66.83	52,183
	BGGM2015	1/14/2016	-8.49	66.81	52,160

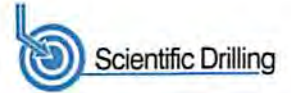
Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	160.40	

Survey Program	Date	1/21/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
25.0	6,001.9	Survey #6 Final Def Gyro (Original Wellpa	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
6,041.0	17,532.0	Survey #7 - 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	
25.0	0.05	297.03	25.0	0.0	0.0	0.0	0.20	0.20	0.00	
50.0	0.11	297.03	50.0	0.0	0.0	0.0	0.24	0.24	0.00	
75.0	0.16	297.03	75.0	0.0	-0.1	-0.1	0.20	0.20	0.00	
100.0	0.22	297.03	100.0	0.1	-0.2	-0.1	0.24	0.24	0.00	
125.0	0.25	299.88	125.0	0.1	-0.3	-0.2	0.13	0.12	11.40	
150.0	0.15	236.34	150.0	0.1	-0.3	-0.2	0.91	-0.40	-254.16	
175.0	0.16	286.69	175.0	0.1	-0.4	-0.3	0.53	0.04	201.40	



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Mathews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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Environmental Protection

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)
200.0	0.29	315.60	200.0	0.2	-0.5	-0.3	0.67	0.52	115.64
225.0	0.21	291.55	225.0	0.3	-0.6	-0.4	0.52	-0.32	-96.20
250.0	0.17	312.60	250.0	0.3	-0.6	-0.5	0.32	-0.16	84.20
275.0	0.11	288.64	275.0	0.3	-0.7	-0.5	0.33	-0.24	-95.84
300.0	0.18	307.08	300.0	0.4	-0.7	-0.6	0.33	0.28	73.76
325.0	0.21	298.02	325.0	0.4	-0.8	-0.6	0.17	0.12	-36.24
350.0	0.20	315.04	350.0	0.5	-0.9	-0.7	0.25	-0.04	68.08
375.0	0.25	322.77	375.0	0.5	-0.9	-0.8	0.23	0.20	30.92
400.0	0.16	340.91	400.0	0.6	-1.0	-0.9	0.44	-0.36	72.56
425.0	0.64	36.31	425.0	0.8	-0.9	-1.0	2.26	1.92	221.60
450.0	1.34	40.44	450.0	1.1	-0.6	-1.2	2.81	2.80	16.52
475.0	1.98	36.21	475.0	1.7	-0.2	-1.6	2.60	2.56	-16.92
500.0	2.50	39.13	500.0	2.4	0.4	-2.2	2.13	2.08	11.68
525.0	3.11	41.75	524.9	3.4	1.2	-2.8	2.49	2.44	10.48
550.0	3.71	45.32	549.9	4.4	2.2	-3.4	2.54	2.40	14.28
575.0	4.38	47.77	574.8	5.6	3.5	-4.1	2.77	2.68	9.80
600.0	5.00	49.97	599.7	7.0	5.1	-4.9	2.58	2.48	8.80
625.0	5.64	51.00	624.6	8.5	6.8	-5.7	2.59	2.56	4.12
650.0	6.18	50.75	649.5	10.1	8.8	-6.5	2.16	2.16	-1.00
675.0	6.56	51.36	674.3	11.8	11.0	-7.5	1.54	1.52	2.44
700.0	6.51	51.36	699.2	13.6	13.2	-8.4	0.20	-0.20	0.00
725.0	6.82	50.10	724.0	15.4	15.5	-9.4	1.37	1.24	-5.04
750.0	6.94	50.66	748.8	17.4	17.8	-10.4	0.55	0.48	2.24
775.0	6.71	51.57	773.7	19.2	20.1	-11.4	1.02	-0.92	3.64
800.0	6.25	52.69	798.5	20.9	22.3	-12.3	1.91	-1.84	4.48
825.0	5.99	54.15	823.4	22.5	24.4	-13.0	1.21	-1.04	5.84
850.0	5.79	53.23	848.2	24.1	26.5	-13.8	0.88	-0.80	-3.68
875.0	5.41	53.52	873.1	25.5	28.5	-14.5	1.52	-1.52	1.16
900.0	5.30	54.54	898.0	26.9	30.4	-15.1	0.58	-0.44	4.08
925.0	4.71	53.76	922.9	28.2	32.1	-15.7	2.38	-2.36	-3.12
950.0	4.44	55.17	947.8	29.3	33.8	-16.3	1.17	-1.08	5.64
975.0	4.30	54.81	972.7	30.4	35.3	-16.8	0.57	-0.56	-1.44
1,000.0	3.79	55.34	997.7	31.4	36.8	-17.3	2.05	-2.04	2.12
1,025.0	3.55	56.45	1,022.6	32.3	38.1	-17.7	1.00	-0.96	4.44
1,050.0	3.29	56.26	1,047.6	33.1	39.3	-18.0	1.04	-1.04	-0.76
1,075.0	3.10	56.12	1,072.6	33.9	40.5	-18.4	0.76	-0.76	-0.56
1,100.0	2.94	60.55	1,097.5	34.6	41.6	-18.7	1.13	-0.64	17.72
1,125.0	2.75	57.20	1,122.5	35.3	42.7	-18.9	1.01	-0.76	-13.40
1,150.0	2.40	59.60	1,147.5	35.8	43.6	-19.1	1.46	-1.40	9.60
1,175.0	2.08	53.48	1,172.4	36.4	44.4	-19.4	1.60	-1.28	-24.48
1,200.0	2.07	61.99	1,197.4	36.9	45.2	-19.6	1.23	-0.04	34.04
1,225.0	1.89	54.54	1,222.4	37.3	45.9	-19.7	1.25	-0.72	-29.80



Scientific Drilling International
Survey Report



Company: Antero Resources
Project: Tyler County WV
Site: Estlack Pad:
 Hare/Jujubee/Lucy/Matthews/Melvin
Well: Hare Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Hare Unit 2H
TVD Reference: Frontier 32: 1141' GL + 32' KB @ 1173.0usft
MD Reference: Frontier 32: 1141' GL + 32' KB @ 1173.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

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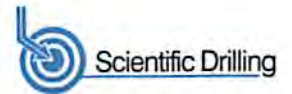
WV Department of
Environmental Protection

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)
1,250.0	1.66	61.38	1,247.4	37.7	46.6	-19.9	1.25	-0.92	27.36
1,275.0	1.44	58.40	1,272.4	38.1	47.2	-20.0	0.94	-0.88	-11.92
1,300.0	1.38	56.90	1,297.4	38.4	47.7	-20.2	0.28	-0.24	-6.00
1,325.0	1.32	59.58	1,322.4	38.7	48.2	-20.3	0.35	-0.24	10.72
1,350.0	1.08	61.67	1,347.4	39.0	48.6	-20.4	0.98	-0.96	8.36
1,375.0	1.06	62.50	1,372.4	39.2	49.1	-20.4	0.10	-0.08	3.32
1,400.0	0.99	62.87	1,397.4	39.4	49.5	-20.5	0.28	-0.28	1.48
1,425.0	0.85	61.97	1,422.4	39.6	49.8	-20.6	0.56	-0.56	-3.60
1,450.0	0.81	75.25	1,447.4	39.7	50.1	-20.6	0.78	-0.16	53.12
1,475.0	0.66	68.19	1,472.4	39.8	50.5	-20.6	0.70	-0.60	-28.24
1,500.0	0.48	65.20	1,497.4	39.9	50.7	-20.6	0.73	-0.72	-11.96
1,525.0	0.44	68.32	1,522.4	40.0	50.9	-20.6	0.19	-0.16	12.48
1,550.0	0.35	53.56	1,547.4	40.1	51.0	-20.6	0.54	-0.36	-59.04
1,575.0	0.35	69.44	1,572.4	40.1	51.1	-20.6	0.39	0.00	63.52
1,600.0	0.25	78.29	1,597.3	40.2	51.3	-20.6	0.44	-0.40	35.40
1,625.0	0.30	82.04	1,622.3	40.2	51.4	-20.6	0.21	0.20	15.00
1,650.0	0.25	90.63	1,647.3	40.2	51.5	-20.6	0.26	-0.20	34.36
1,675.0	0.28	71.81	1,672.3	40.2	51.6	-20.6	0.37	0.12	-75.28
1,700.0	0.29	67.55	1,697.3	40.3	51.7	-20.6	0.09	0.04	-17.04
1,725.0	0.31	80.21	1,722.3	40.3	51.9	-20.6	0.28	0.08	50.64
1,750.0	0.30	63.83	1,747.3	40.3	52.0	-20.6	0.35	-0.04	-65.52
1,775.0	0.31	77.44	1,772.3	40.4	52.1	-20.6	0.29	0.04	54.44
1,800.0	0.33	81.08	1,797.3	40.4	52.3	-20.5	0.11	0.08	14.56
1,825.0	0.33	84.99	1,822.3	40.4	52.4	-20.5	0.09	0.00	15.64
1,850.0	0.36	81.34	1,847.3	40.4	52.5	-20.5	0.15	0.12	-14.60
1,875.0	0.32	63.10	1,872.3	40.5	52.7	-20.5	0.46	-0.16	-72.96
1,900.0	0.34	81.24	1,897.3	40.5	52.8	-20.5	0.42	0.08	72.56
1,925.0	0.31	81.64	1,922.3	40.5	53.0	-20.4	0.12	-0.12	1.60
1,950.0	0.32	69.79	1,947.3	40.6	53.1	-20.4	0.26	0.04	-47.40
1,975.0	0.32	77.19	1,972.3	40.6	53.2	-20.4	0.17	0.00	29.60
2,000.0	0.26	89.14	1,997.3	40.6	53.4	-20.4	0.34	-0.24	47.80
2,025.0	0.19	93.45	2,022.3	40.6	53.4	-20.3	0.29	-0.28	17.24
2,050.0	0.17	87.87	2,047.3	40.6	53.5	-20.3	0.11	-0.08	-22.32
2,075.0	0.13	95.55	2,072.3	40.6	53.6	-20.3	0.18	-0.16	30.72
2,100.0	0.11	35.83	2,097.3	40.6	53.6	-20.3	0.48	-0.08	-238.88
2,125.0	0.07	119.66	2,122.3	40.7	53.7	-20.3	0.50	-0.16	335.32
2,150.0	0.10	78.04	2,147.3	40.7	53.7	-20.3	0.27	0.12	-166.48
2,175.0	0.12	114.41	2,172.3	40.6	53.7	-20.3	0.28	0.08	145.48
2,200.0	0.03	115.18	2,197.3	40.6	53.8	-20.2	0.36	-0.36	3.08
2,225.0	0.03	145.52	2,222.3	40.6	53.8	-20.2	0.06	0.00	121.36
2,250.0	0.05	27.30	2,247.3	40.6	53.8	-20.2	0.28	0.08	-472.88
2,275.0	0.15	148.09	2,272.3	40.6	53.8	-20.2	0.72	0.40	483.16
2,300.0	0.03	147.16	2,297.3	40.6	53.8	-20.2	0.48	-0.48	-3.72



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Mathews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	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)
2,325.0	0.06	219.81	2,322.3	40.6	53.8	-20.2	0.23	0.12	290.60
2,350.0	0.04	11.34	2,347.3	40.6	53.8	-20.2	0.39	-0.08	606.12
2,375.0	0.05	262.46	2,372.3	40.6	53.8	-20.2	0.29	0.04	-435.52
2,400.0	0.08	268.61	2,397.3	40.6	53.8	-20.2	0.12	0.12	24.60
2,425.0	0.12	234.88	2,422.3	40.6	53.7	-20.2	0.28	0.16	-134.92
2,450.0	0.01	172.21	2,447.3	40.5	53.7	-20.2	0.46	-0.44	-250.68
2,475.0	0.12	296.33	2,472.3	40.5	53.7	-20.2	0.50	0.44	496.48
2,500.0	0.13	279.01	2,497.3	40.6	53.7	-20.2	0.16	0.04	-69.28
2,525.0	0.14	262.55	2,522.3	40.6	53.6	-20.2	0.16	0.04	-65.84
2,550.0	0.14	277.10	2,547.3	40.6	53.5	-20.3	0.14	0.00	58.20
2,575.0	0.24	260.46	2,572.3	40.6	53.4	-20.3	0.45	0.40	-66.56
2,600.0	0.30	242.54	2,597.3	40.5	53.3	-20.3	0.41	0.24	-71.68
2,625.0	0.28	239.93	2,622.3	40.5	53.2	-20.3	0.10	-0.08	-10.44
2,650.0	0.20	235.61	2,647.3	40.4	53.1	-20.2	0.33	-0.32	-17.28
2,675.0	0.24	239.23	2,672.3	40.4	53.1	-20.2	0.17	0.16	14.48
2,700.0	0.22	240.71	2,697.3	40.3	53.0	-20.2	0.08	-0.08	5.92
2,725.0	0.18	225.32	2,722.3	40.2	52.9	-20.2	0.27	-0.16	-61.56
2,750.0	0.15	233.51	2,747.3	40.2	52.8	-20.1	0.15	-0.12	32.76
2,775.0	0.23	244.59	2,772.3	40.2	52.8	-20.1	0.35	0.32	44.32
2,800.0	0.21	246.15	2,797.3	40.1	52.7	-20.1	0.08	-0.08	6.24
2,825.0	0.27	249.41	2,822.3	40.1	52.6	-20.1	0.25	0.24	13.04
2,850.0	0.23	246.55	2,847.3	40.0	52.5	-20.1	0.17	-0.16	-11.44
2,875.0	0.28	247.82	2,872.3	40.0	52.4	-20.1	0.20	0.20	5.08
2,900.0	0.34	244.92	2,897.3	39.9	52.3	-20.1	0.25	0.24	-11.60
2,925.0	0.31	243.65	2,922.3	39.9	52.1	-20.1	0.12	-0.12	-5.08
2,950.0	0.34	254.61	2,947.3	39.8	52.0	-20.1	0.28	0.12	43.84
2,975.0	0.31	260.88	2,972.3	39.8	51.9	-20.1	0.19	-0.12	25.08
3,000.0	0.33	256.60	2,997.3	39.8	51.7	-20.1	0.12	0.08	-17.12
3,025.0	0.26	268.62	3,022.3	39.8	51.6	-20.1	0.37	-0.28	48.08
3,050.0	0.39	262.60	3,047.3	39.7	51.5	-20.2	0.54	0.52	-24.08
3,075.0	0.41	255.74	3,072.3	39.7	51.3	-20.2	0.21	0.08	-27.44
3,100.0	0.46	249.23	3,097.3	39.7	51.1	-20.2	0.28	0.20	-26.04
3,125.0	0.37	251.86	3,122.3	39.6	50.9	-20.2	0.37	-0.36	10.52
3,150.0	0.32	238.37	3,147.3	39.5	50.8	-20.2	0.38	-0.20	-53.96
3,175.0	0.34	257.31	3,172.3	39.5	50.7	-20.2	0.44	0.08	75.76
3,200.0	0.33	250.53	3,197.3	39.4	50.5	-20.2	0.16	-0.04	-27.12
3,225.0	0.27	253.79	3,222.3	39.4	50.4	-20.2	0.25	-0.24	13.04
3,250.0	0.26	260.18	3,247.3	39.4	50.3	-20.2	0.12	-0.04	25.56
3,275.0	0.32	257.70	3,272.3	39.3	50.2	-20.2	0.25	0.24	-9.92
3,300.0	0.28	260.96	3,297.3	39.3	50.0	-20.3	0.17	-0.16	13.04
3,325.0	0.31	255.97	3,322.3	39.3	49.9	-20.3	0.16	0.12	-19.96
3,350.0	0.34	267.88	3,347.3	39.3	49.8	-20.3	0.29	0.12	47.64

Office of Oil and Gas

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WV Department of Environmental Protection



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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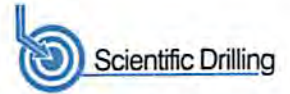
WV Department of
Environmental Protection

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)
3,375.0	0.28	259.07	3,372.3	39.3	49.6	-20.3	0.31	-0.24	-35.24
3,400.0	0.37	258.84	3,397.3	39.2	49.5	-20.4	0.36	0.36	-0.92
3,425.0	0.32	257.80	3,422.3	39.2	49.4	-20.4	0.20	-0.20	-4.16
3,450.0	0.35	250.73	3,447.3	39.2	49.2	-20.4	0.20	0.12	-28.28
3,475.0	0.32	250.03	3,472.3	39.1	49.1	-20.4	0.12	-0.12	-2.80
3,500.0	0.28	256.98	3,497.3	39.1	49.0	-20.4	0.22	-0.16	27.80
3,525.0	0.25	257.81	3,522.3	39.1	48.8	-20.4	0.12	-0.12	3.32
3,550.0	0.25	258.39	3,547.3	39.0	48.7	-20.4	0.01	0.00	2.32
3,575.0	0.29	265.46	3,572.3	39.0	48.6	-20.4	0.21	0.16	28.28
3,600.0	0.30	266.23	3,597.3	39.0	48.5	-20.5	0.04	0.04	3.08
3,625.0	0.33	263.54	3,622.3	39.0	48.4	-20.5	0.13	0.12	-10.76
3,650.0	0.29	261.19	3,647.3	39.0	48.2	-20.5	0.17	-0.16	-9.40
3,675.0	0.28	275.09	3,672.3	39.0	48.1	-20.6	0.28	-0.04	55.60
3,700.0	0.30	277.43	3,697.3	39.0	48.0	-20.6	0.09	0.08	9.36
3,725.0	0.35	288.65	3,722.3	39.0	47.8	-20.7	0.32	0.20	44.88
3,750.0	0.37	285.00	3,747.3	39.1	47.7	-20.8	0.12	0.08	-14.60
3,775.0	0.37	279.88	3,772.3	39.1	47.5	-20.9	0.13	0.00	-20.48
3,800.0	0.38	287.77	3,797.3	39.1	47.4	-21.0	0.21	0.04	31.56
3,825.0	0.36	285.80	3,822.3	39.2	47.2	-21.1	0.09	-0.08	-7.88
3,850.0	0.42	288.15	3,847.3	39.2	47.0	-21.2	0.25	0.24	9.40
3,875.0	0.42	278.45	3,872.3	39.3	46.9	-21.3	0.28	0.00	-38.80
3,900.0	0.39	276.42	3,897.3	39.3	46.7	-21.4	0.13	-0.12	-8.12
3,925.0	0.39	279.74	3,922.3	39.3	46.5	-21.4	0.09	0.00	13.28
3,950.0	0.34	280.73	3,947.3	39.4	46.4	-21.5	0.20	-0.20	3.96
3,975.0	0.34	271.14	3,972.3	39.4	46.2	-21.6	0.23	0.00	-38.36
4,000.0	0.32	272.75	3,997.3	39.4	46.1	-21.6	0.09	-0.08	6.44
4,025.0	0.34	291.06	4,022.3	39.4	45.9	-21.7	0.43	0.08	73.24
4,050.0	0.38	288.94	4,047.3	39.5	45.8	-21.8	0.17	0.16	-8.48
4,075.0	0.35	291.05	4,072.3	39.5	45.6	-21.9	0.13	-0.12	8.44
4,100.0	0.40	285.55	4,097.3	39.6	45.5	-22.0	0.25	0.20	-22.00
4,125.0	0.34	289.24	4,122.3	39.6	45.3	-22.1	0.26	-0.24	14.76
4,150.0	0.37	279.94	4,147.3	39.6	45.2	-22.2	0.26	0.12	-37.20
4,175.0	0.39	271.23	4,172.3	39.7	45.0	-22.3	0.24	0.08	-34.84
4,200.0	0.34	269.27	4,197.3	39.7	44.9	-22.3	0.21	-0.20	-7.84
4,225.0	0.42	270.27	4,222.3	39.7	44.7	-22.4	0.32	0.32	4.00
4,250.0	0.29	284.51	4,247.3	39.7	44.5	-22.4	0.62	-0.52	56.96
4,275.0	0.58	25.12	4,272.3	39.8	44.5	-22.6	2.78	1.16	402.44
4,300.0	1.75	52.93	4,297.3	40.2	44.9	-22.8	5.06	4.68	111.24
4,325.0	2.92	47.48	4,322.3	40.8	45.7	-23.1	4.76	4.68	-21.80
4,350.0	4.26	48.06	4,347.2	41.9	46.8	-23.7	5.36	5.36	2.32
4,375.0	5.69	48.87	4,372.1	43.3	48.4	-24.5	5.73	5.72	3.24
4,400.0	6.88	48.34	4,397.0	45.1	50.5	-25.6	4.77	4.76	-2.12
4,425.0	7.05	48.18	4,421.8	47.1	52.8	-26.7	0.68	0.68	-0.64



Scientific Drilling International
Survey Report



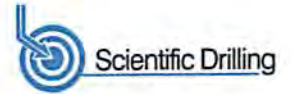
Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Mathews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	North Reference:	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)
4,450.0	6.81	46.38	4,446.6	49.2	55.0	-27.9	1.29	-0.96	-7.20
4,475.0	6.77	44.56	4,471.5	51.2	57.1	-29.1	0.88	-0.16	-7.28
4,500.0	6.51	44.95	4,496.3	53.3	59.1	-30.4	1.06	-1.04	1.56
4,525.0	6.13	43.73	4,521.1	55.3	61.0	-31.6	1.61	-1.52	-4.88
4,550.0	5.81	42.00	4,546.0	57.2	62.8	-32.8	1.47	-1.28	-6.92
4,575.0	6.22	41.89	4,570.9	59.1	64.6	-34.0	1.64	1.64	-0.44
4,600.0	7.16	44.30	4,595.7	61.2	66.6	-35.4	3.92	3.76	9.64
4,625.0	7.36	44.73	4,620.5	63.5	68.8	-36.7	0.83	0.80	1.72
4,650.0	7.30	42.47	4,645.3	65.8	71.0	-38.2	1.18	-0.24	-9.04
4,675.0	7.95	42.30	4,670.1	68.3	73.2	-39.7	2.60	2.60	-0.66
4,700.0	9.11	40.92	4,694.8	71.0	75.7	-41.5	4.71	4.64	-5.52
4,725.0	10.97	41.99	4,719.4	74.3	78.6	-43.6	7.48	7.44	4.28
4,750.0	12.01	43.55	4,743.9	77.9	81.9	-45.9	4.34	4.16	6.24
4,775.0	13.11	43.21	4,768.3	81.9	85.7	-48.4	4.41	4.40	-1.36
4,800.0	14.48	43.02	4,792.6	86.3	89.7	-51.1	5.48	5.48	-0.76
4,825.0	15.39	42.04	4,816.7	91.0	94.1	-54.2	3.78	3.64	-3.92
4,850.0	16.21	40.43	4,840.8	96.1	98.6	-57.5	3.72	3.28	-6.44
4,875.0	16.23	40.19	4,864.8	101.4	103.1	-61.0	0.28	0.08	-0.96
4,900.0	16.48	39.71	4,888.8	106.8	107.6	-64.5	1.14	1.00	-1.92
4,925.0	16.99	40.94	4,912.7	112.3	112.3	-68.2	2.48	2.04	4.92
4,950.0	17.31	43.04	4,936.6	117.8	117.2	-71.7	2.79	1.28	8.40
4,975.0	17.36	46.29	4,960.5	123.1	122.5	-74.9	3.88	0.20	13.00
5,000.0	17.60	49.58	4,984.3	128.1	128.0	-77.8	4.07	0.96	13.16
5,025.0	17.80	52.41	5,008.1	132.9	133.9	-80.3	3.53	0.80	11.32
5,050.0	18.09	55.22	5,031.9	137.5	140.1	-82.5	3.65	1.16	11.24
5,075.0	18.18	59.12	5,055.7	141.7	146.7	-84.3	4.87	0.36	15.60
5,100.0	18.63	62.63	5,079.4	145.5	153.6	-85.6	4.78	1.80	14.04
5,125.0	19.03	64.51	5,103.1	149.1	160.8	-86.5	2.91	1.60	7.52
5,150.0	19.61	65.59	5,126.7	152.6	168.3	-87.3	2.72	2.32	4.32
5,175.0	20.38	65.31	5,150.2	156.1	176.1	-88.0	3.10	3.08	-1.12
5,200.0	21.43	65.58	5,173.5	159.8	184.2	-88.8	4.22	4.20	1.08
5,225.0	22.23	66.21	5,196.7	163.6	192.7	-89.5	3.33	3.20	2.52
5,250.0	22.95	66.80	5,219.8	167.5	201.5	-90.2	3.02	2.88	2.36
5,275.0	23.71	67.07	5,242.8	171.4	210.6	-90.8	3.07	3.04	1.08
5,300.0	24.40	67.16	5,265.6	175.3	220.0	-91.4	2.76	2.76	0.36
5,325.0	24.95	67.03	5,288.3	179.4	229.6	-92.0	2.21	2.20	-0.52
5,350.0	24.76	66.71	5,311.0	183.5	239.3	-92.6	0.93	-0.76	-1.28
5,375.0	24.12	66.00	5,333.7	187.7	248.7	-93.3	2.82	-2.56	-2.84
5,400.0	23.65	64.91	5,356.6	191.9	257.9	-94.2	2.58	-1.88	-4.36
5,425.0	23.58	63.91	5,379.5	196.2	267.0	-95.3	1.63	-0.28	-4.00
5,450.0	24.20	63.68	5,402.4	200.7	276.1	-96.4	2.51	2.48	-0.92
5,475.0	24.95	63.42	5,425.1	205.3	285.4	-97.7	3.03	3.00	-1.04

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Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Mathews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

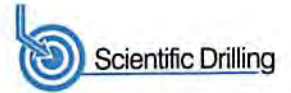
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,500.0	25.72	63.63	5,447.7	210.1	294.9	-98.9	3.10	3.08	0.84	
5,525.0	26.25	63.60	5,470.2	214.9	304.8	-100.2	2.12	2.12	-0.12	
5,550.0	26.11	63.34	5,492.6	219.8	314.6	-101.6	0.72	-0.56	-1.04	
5,575.0	25.55	62.41	5,515.1	224.8	324.3	-103.0	2.76	-2.24	-3.72	
5,600.0	24.91	61.38	5,537.7	229.8	333.7	-104.6	3.10	-2.56	-4.12	
5,625.0	25.23	61.25	5,560.4	234.9	343.0	-106.2	1.30	1.28	-0.52	
5,650.0	25.32	61.03	5,583.0	240.1	352.4	-108.0	0.52	0.36	-0.88	
5,675.0	25.03	60.40	5,605.6	245.3	361.6	-109.7	1.58	-1.16	-2.52	
5,700.0	24.50	59.04	5,628.3	250.5	370.7	-111.7	3.11	-2.12	-5.44	
5,725.0	24.62	57.88	5,651.0	256.0	379.5	-113.8	1.99	0.48	-4.64	
5,750.0	25.23	57.60	5,673.7	261.6	388.4	-116.1	2.49	2.44	-1.12	
5,775.0	25.38	57.04	5,696.3	267.4	397.4	-118.6	1.13	0.60	-2.24	
5,800.0	25.09	56.63	5,718.9	273.2	406.4	-121.1	1.35	-1.16	-1.64	
5,825.0	25.48	56.42	5,741.5	279.1	415.3	-123.6	1.60	1.56	-0.84	
5,850.0	25.91	57.32	5,764.1	285.0	424.3	-126.2	2.32	1.72	3.60	
5,875.0	25.53	58.76	5,786.6	290.8	433.5	-128.5	2.93	-1.52	5.76	
5,900.0	24.86	59.02	5,809.2	296.3	442.7	-130.6	2.72	-2.68	1.04	
5,925.0	25.09	59.68	5,831.9	301.6	451.7	-132.6	1.45	0.92	2.64	
5,950.0	25.42	60.80	5,854.5	306.9	461.0	-134.5	2.32	1.32	4.48	
5,975.0	24.73	60.75	5,877.1	312.1	470.2	-136.3	2.76	-2.76	-0.20	
6,001.9	23.97	60.66	5,901.6	317.5	479.9	-138.1	2.83	-2.82	-0.33	
6,041.0	24.29	59.12	5,937.3	325.6	493.7	-141.1	1.81	0.82	-3.94	
First SDI MWD @ 6041										
6,069.0	23.98	58.54	5,962.9	331.5	503.5	-143.4	1.39	-1.11	-2.07	
6,100.0	23.76	57.25	5,991.2	338.1	514.2	-146.1	1.83	-0.71	-4.16	
6,132.0	24.40	56.81	6,020.4	345.3	525.1	-149.1	2.08	2.00	-1.38	
6,163.0	25.50	57.82	6,048.5	352.3	536.1	-152.1	3.81	3.55	3.28	
6,195.0	25.17	58.67	6,077.5	359.5	547.8	-154.9	1.53	-1.03	2.66	
6,226.0	24.78	57.97	6,105.6	366.4	558.9	-157.7	1.58	-1.26	-2.26	
6,258.0	24.09	56.63	6,134.7	373.5	570.0	-160.7	2.77	-2.16	-4.19	
6,289.0	23.41	55.84	6,163.1	380.5	580.4	-163.7	2.42	-2.19	-2.55	
6,321.0	23.36	57.75	6,192.4	387.4	591.0	-166.7	2.37	-0.16	5.97	
6,352.0	24.66	67.15	6,220.8	393.2	602.2	-168.4	13.02	4.19	30.32	
6,384.0	27.15	75.13	6,249.6	397.7	615.4	-168.2	13.37	7.78	24.94	
6,398.0	28.20	78.15	6,262.0	399.2	621.8	-167.5	12.52	7.51	21.56	
Sycamore @ 6398										
6,415.0	29.56	81.54	6,276.8	400.6	629.8	-166.1	12.52	7.99	19.95	
6,446.0	33.27	87.31	6,303.3	402.2	645.9	-162.2	15.39	11.97	18.61	
6,478.0	36.90	91.27	6,329.5	402.4	664.3	-156.2	13.38	11.34	12.38	
6,509.0	40.69	94.55	6,353.6	401.4	683.7	-148.8	13.90	12.23	10.58	
6,541.0	45.05	98.79	6,377.1	398.8	705.3	-139.1	16.33	13.63	13.25	
6,572.0	48.82	102.09	6,398.3	394.7	727.5	-127.8	14.43	12.16	10.65	
6,604.0	52.60	104.86	6,418.5	388.9	751.6	-114.2	13.58	11.81	8.66	

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WV Department of
 Environmental Protection



Scientific Drilling International
Survey Report



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Well:	Hare Unit 2H	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)	
6,629.0	54.62	107.09	6,433.4	383.3	770.9	-102.5	10.81	8.08	8.93	
Middlesex @ 6629										
6,635.0	55.11	107.61	6,436.8	381.9	775.6	-99.6	10.81	8.18	8.65	
6,667.0	57.31	110.70	6,454.6	373.1	800.7	-82.9	10.57	6.88	9.66	
6,698.0	59.23	114.99	6,470.9	362.9	825.0	-65.1	13.30	6.19	13.84	
6,730.0	60.86	117.95	6,486.9	350.5	849.8	-45.2	9.50	5.09	9.25	
6,761.0	63.05	120.80	6,501.5	337.1	873.7	-24.5	10.76	7.06	9.19	
6,793.0	64.62	124.31	6,515.6	321.7	897.9	-1.8	11.00	4.91	10.97	
6,824.0	66.03	127.07	6,528.5	305.2	920.7	21.3	9.28	4.55	8.90	
6,851.0	66.60	129.94	6,539.4	289.8	940.1	42.3	9.96	2.11	10.63	
Burkett @ 6851										
6,856.0	66.71	130.47	6,541.4	286.9	943.6	46.3	9.96	2.22	10.58	
6,887.0	67.30	134.29	6,553.5	267.6	964.7	71.5	11.50	1.90	12.32	
6,918.0	68.37	137.47	6,565.2	247.0	984.6	97.6	10.11	3.45	10.26	
6,933.0	69.09	138.33	6,570.6	236.7	994.0	110.5	7.21	4.83	5.75	
Tully @ 6933										
6,950.0	69.92	139.30	6,576.6	224.7	1,004.5	125.3	7.21	4.86	5.69	
6,981.0	71.38	141.31	6,586.8	202.2	1,023.2	152.8	7.72	4.71	6.48	
7,013.0	73.02	143.48	6,596.6	178.0	1,041.8	181.7	8.24	5.13	6.78	
7,031.0	74.57	144.48	6,601.6	164.1	1,051.9	198.3	10.12	8.60	5.55	
Marcellus @ 7031										
7,044.0	75.69	145.19	6,605.0	153.8	1,059.2	210.4	10.12	8.63	5.47	
7,076.0	79.75	146.89	6,611.8	127.9	1,076.6	240.7	13.71	12.69	5.31	
7,107.0	82.84	148.39	6,616.5	102.0	1,093.0	270.6	11.06	9.97	4.84	
7,134.0	84.64	149.28	6,619.4	79.0	1,106.9	296.9	7.43	6.67	3.30	
7,165.0	86.96	151.62	6,621.7	52.1	1,122.2	327.3	10.61	7.48	7.55	
7,197.0	87.20	152.81	6,623.3	23.8	1,137.1	359.0	3.79	0.75	-3.72	
7,228.0	88.10	153.85	6,624.6	-3.8	1,151.0	389.7	-4.43	2.90	3.35	
7,291.0	91.03	155.67	6,625.1	-60.8	1,177.8	452.4	5.47	4.65	2.89	
7,385.0	90.45	158.04	6,623.9	-147.2	1,214.8	546.2	2.60	-0.62	2.52	
7,480.0	87.22	158.17	6,625.8	-235.3	1,250.2	641.1	3.40	-3.40	0.14	
7,574.0	88.83	160.23	6,629.0	-323.2	1,283.5	735.0	2.78	1.71	2.19	
7,669.0	89.03	159.49	6,630.8	-412.3	1,316.2	830.0	0.81	0.21	-0.78	
7,763.0	90.10	162.87	6,631.5	-501.3	1,346.6	924.0	3.77	1.14	3.60	
7,857.0	89.13	161.31	6,632.1	-590.7	1,375.5	1,017.9	1.95	-1.03	-1.66	
7,950.0	89.63	161.41	6,633.2	-678.9	1,405.2	1,110.9	0.55	0.54	0.11	
8,045.0	90.13	161.43	6,633.4	-768.9	1,435.4	1,205.9	0.53	0.53	0.02	
8,139.0	89.79	160.70	6,633.4	-857.8	1,466.0	1,299.9	0.86	-0.36	-0.78	
8,233.0	90.16	160.45	6,633.5	-946.5	1,497.2	1,393.9	0.48	0.39	-0.27	
8,327.0	88.81	159.83	6,634.3	-1,034.9	1,529.1	1,487.9	1.58	-1.44	-0.66	
8,421.0	89.38	159.86	6,635.8	-1,123.1	1,561.5	1,581.8	0.61	0.61	0.03	
8,515.0	89.48	159.20	6,636.7	-1,211.2	1,594.4	1,675.8	0.71	0.11	-0.70	
8,610.0	90.12	159.54	6,637.1	-1,300.1	1,627.9	1,770.8	0.76	0.67	0.36	

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Scientific Drilling International
Survey Report



Company: Antero Resources
Project: Tyler County WV
Site: Estlack Pad:
 Hare/Jubee/Lucy/Mathews/Melvin
Well: Hare Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Hare Unit 2H
TVD Reference: Frontier 32: 1141' GL + 32' KB @ 1173.0usft
MD Reference: Frontier 32: 1141' GL + 32' KB @ 1173.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
8,704.0	90.62	161.37	6,636.4	-1,388.6	1,659.3	1,854.8	2.02	0.53	1.95
8,798.0	90.35	161.15	6,635.7	-1,477.7	1,689.5	1,958.8	0.37	-0.29	-0.23
8,892.0	89.41	161.33	6,635.8	-1,566.7	1,719.7	2,052.8	1.02	-1.00	0.19
8,986.0	89.98	161.97	6,636.3	-1,655.9	1,749.3	2,146.8	0.91	0.61	0.68
9,081.0	90.28	160.65	6,636.1	-1,745.9	1,779.8	2,241.7	1.42	0.32	-1.39
9,175.0	89.48	160.51	6,636.3	-1,834.5	1,811.0	2,335.7	0.86	-0.85	-0.15
9,269.0	89.58	158.68	6,637.1	-1,922.6	1,843.8	2,429.7	1.95	0.11	-1.95
9,363.0	89.55	158.31	6,637.8	-2,010.1	1,878.3	2,523.7	0.39	-0.03	-0.39
9,458.0	89.71	157.62	6,638.4	-2,098.1	1,913.9	2,618.6	0.75	0.17	-0.73
9,553.0	89.48	159.50	6,639.1	-2,186.5	1,948.6	2,713.5	1.99	-0.24	1.98
9,648.0	88.97	162.18	6,640.4	-2,276.3	1,979.8	2,808.5	2.87	-0.54	2.82
9,742.0	88.98	161.61	6,642.1	-2,365.6	2,009.0	2,902.5	0.61	0.01	-0.61
9,836.0	89.75	162.35	6,643.1	-2,455.0	2,038.1	2,996.4	1.14	0.82	0.79
9,932.0	88.94	160.58	6,644.2	-2,546.0	2,068.6	3,092.4	2.03	-0.84	-1.84
10,027.0	89.25	160.01	6,645.7	-2,635.4	2,100.6	3,187.4	0.68	0.33	-0.60
10,122.0	90.42	161.15	6,646.0	-2,725.0	2,132.2	3,282.4	1.72	1.23	1.20
10,217.0	89.71	160.45	6,645.9	-2,814.7	2,163.4	3,377.4	1.05	-0.75	-0.74
10,312.0	89.11	160.19	6,646.9	-2,904.2	2,195.4	3,472.4	0.69	-0.63	-0.27
10,407.0	89.51	159.97	6,648.0	-2,993.5	2,227.8	3,567.3	0.48	0.42	-0.23
10,503.0	90.29	162.65	6,648.2	-3,084.4	2,258.6	3,663.3	2.91	0.81	2.79
10,598.0	89.68	160.86	6,648.2	-3,174.6	2,288.3	3,758.3	1.99	-0.64	-1.88
10,692.0	88.81	161.43	6,649.4	-3,263.6	2,318.7	3,852.3	1.11	-0.93	0.61
10,787.0	88.07	158.24	6,652.0	-3,352.7	2,351.4	3,947.2	3.45	-0.78	-3.36
10,882.0	91.87	162.01	6,652.1	-3,442.0	2,383.7	4,042.2	5.63	4.00	3.97
10,977.0	90.36	159.95	6,650.2	-3,531.8	2,414.7	4,137.2	2.69	-1.59	-2.17
11,071.0	89.32	158.28	6,650.5	-3,619.6	2,448.2	4,231.1	2.09	-1.11	-1.78
11,166.0	88.88	158.15	6,652.0	-3,707.2	2,484.9	4,326.0	2.29	-0.46	-2.24
11,260.0	90.76	160.84	6,652.3	-3,794.6	2,519.4	4,419.9	5.38	2.00	4.99
11,354.0	90.16	161.51	6,651.5	-3,883.6	2,549.7	4,513.9	0.96	-0.64	0.71
11,448.0	89.96	160.77	6,651.4	-3,972.5	2,580.1	4,607.9	0.82	-0.21	-0.79
11,542.0	89.99	159.82	6,651.5	-4,061.0	2,611.8	4,701.9	1.01	0.03	-1.01
11,637.0	90.16	160.21	6,651.3	-4,150.3	2,644.3	4,796.9	0.45	0.18	0.41
11,732.0	89.28	160.21	6,651.8	-4,239.7	2,676.4	4,891.9	0.93	-0.93	0.00
11,827.0	89.69	162.31	6,652.6	-4,329.7	2,707.0	4,986.8	2.25	0.43	2.21
11,922.0	89.18	159.93	6,653.6	-4,419.5	2,737.7	5,081.8	2.56	-0.54	-2.51
12,018.0	89.62	159.74	6,654.6	-4,509.6	2,770.8	5,177.8	0.50	0.46	-0.20
12,113.0	89.82	159.94	6,655.1	-4,598.8	2,803.5	5,272.8	0.30	0.21	0.21
12,208.0	90.12	161.62	6,655.1	-4,688.5	2,834.8	5,367.8	1.80	0.32	1.77
12,303.0	90.53	160.43	6,654.6	-4,778.4	2,865.7	5,462.8	1.32	0.43	-1.25
12,397.0	90.80	160.65	6,653.5	-4,867.0	2,897.0	5,556.8	0.37	0.29	0.23
12,491.0	90.13	162.46	6,652.7	-4,956.1	2,926.7	5,650.8	2.05	-0.71	1.93
12,586.0	90.66	162.36	6,652.1	-5,046.7	2,955.4	5,745.7	0.57	0.56	-0.11
12,682.0	90.93	161.21	6,650.7	-5,137.9	2,985.4	5,841.7	1.23	0.28	-1.20

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Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	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)
12,777.0	89.99	159.55	6,650.0	-5,227.4	3,017.3	5,936.6	2.01	-0.99	-1.75
12,871.0	90.70	159.69	6,649.4	-5,315.5	3,050.1	6,030.6	0.77	0.76	0.15
12,966.0	89.12	160.59	6,649.5	-5,404.8	3,082.3	6,125.6	1.91	-1.66	0.95
13,060.0	89.73	160.72	6,650.5	-5,493.5	3,113.5	6,219.6	0.66	0.65	0.14
13,154.0	90.63	160.97	6,650.2	-5,582.3	3,144.3	6,313.6	0.99	0.96	0.27
13,249.0	89.83	159.73	6,649.8	-5,671.8	3,176.3	6,408.6	1.55	-0.84	-1.37
13,344.0	90.36	159.94	6,649.7	-5,760.9	3,209.0	6,503.6	0.60	0.56	0.22
13,438.0	89.02	160.00	6,650.2	-5,849.3	3,241.2	6,597.6	1.43	-1.43	0.06
13,533.0	89.76	160.01	6,651.2	-5,938.5	3,273.7	6,692.6	0.78	0.78	0.01
13,627.0	90.10	160.13	6,651.3	-6,026.9	3,305.7	6,786.6	0.38	0.36	0.13
13,722.0	88.75	159.64	6,652.2	-6,116.1	3,338.4	6,881.6	1.51	-1.42	-0.52
13,815.0	89.02	159.86	6,654.0	-6,203.3	3,370.6	6,974.6	0.37	0.29	0.24
13,909.0	89.66	160.16	6,655.1	-6,291.7	3,402.7	7,068.5	0.75	0.68	0.32
14,004.0	88.72	160.50	6,656.5	-6,381.1	3,434.7	7,163.5	1.05	-0.99	0.36
14,100.0	88.79	159.27	6,658.6	-6,471.2	3,467.7	7,259.5	1.28	0.07	-1.28
14,194.0	89.46	160.03	6,660.0	-6,559.3	3,500.4	7,353.5	1.08	0.71	0.81
14,288.0	90.16	160.44	6,660.3	-6,647.8	3,532.2	7,447.5	0.86	0.74	0.44
14,383.0	89.79	159.63	6,660.3	-6,737.1	3,564.6	7,542.5	0.94	-0.39	-0.85
14,477.0	88.95	158.99	6,661.4	-6,825.0	3,597.8	7,636.5	1.12	-0.89	-0.68
14,572.0	89.99	160.65	6,662.3	-6,914.2	3,630.6	7,731.4	2.06	1.09	1.75
14,668.0	89.32	160.63	6,662.8	-7,004.8	3,662.4	7,827.4	0.70	-0.70	-0.02
14,763.0	90.00	159.57	6,663.4	-7,094.1	3,694.7	7,922.4	1.33	0.72	-1.12
14,858.0	89.73	160.89	6,663.6	-7,183.5	3,726.9	8,017.4	1.42	-0.28	1.39
14,953.0	88.99	161.78	6,664.7	-7,273.5	3,757.3	8,112.4	1.22	-0.78	0.94
15,048.0	89.56	161.45	6,665.9	-7,363.6	3,787.2	8,207.4	0.69	0.60	-0.35
15,143.0	90.37	162.12	6,665.9	-7,453.9	3,816.9	8,302.4	1.11	0.85	0.71
15,237.0	89.39	160.21	6,666.1	-7,542.8	3,847.3	8,396.3	2.28	-1.04	-2.03
15,332.0	89.29	158.67	6,667.2	-7,631.8	3,880.6	8,491.3	1.62	-0.11	-1.62
15,427.0	89.90	158.51	6,667.9	-7,720.2	3,915.3	8,586.3	0.66	0.64	-0.17
15,523.0	89.22	161.10	6,668.6	-7,810.3	3,948.5	8,682.3	2.79	-0.71	2.70
15,618.0	90.23	161.27	6,669.1	-7,900.2	3,979.1	8,777.2	1.08	1.06	0.18
15,713.0	88.89	161.10	6,669.8	-7,990.1	4,009.7	8,872.2	1.42	-1.41	-0.18
15,808.0	89.59	161.47	6,671.1	-8,080.1	4,040.2	8,967.2	0.83	0.74	0.39
15,903.0	90.50	162.27	6,671.0	-8,170.4	4,069.8	9,062.2	1.28	0.96	0.64
15,998.0	89.29	159.54	6,671.2	-8,260.1	4,100.8	9,157.2	3.14	-1.27	-2.87
16,094.0	90.13	159.47	6,671.7	-8,350.1	4,134.5	9,253.1	0.88	0.88	-0.07
16,189.0	89.73	160.65	6,671.8	-8,439.4	4,166.9	9,348.1	1.31	-0.42	1.24
16,283.0	90.47	160.47	6,671.6	-8,528.0	4,198.1	9,442.1	0.81	0.79	-0.19
16,379.0	89.19	159.95	6,671.9	-8,618.3	4,230.6	9,538.1	1.44	-1.33	-0.54
16,474.0	89.83	159.21	6,672.7	-8,707.4	4,263.8	9,633.1	1.03	0.67	-0.78
16,570.0	89.26	159.86	6,673.5	-8,797.3	4,297.3	9,729.1	0.90	-0.59	0.68
16,664.0	89.96	159.94	6,674.1	-8,885.6	4,329.7	9,823.1	0.75	0.74	0.09

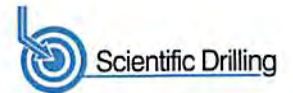
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Environmental Protection



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hare Unit 2H
Project:	Tyler County WV	TVD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Site:	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	MD Reference:	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
Well:	Hare Unit 2H	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)
16,758.0	90.16	161.39	6,674.0	-8,974.3	4,360.8	9,917.1	1.56	0.21	1.54
16,853.0	89.66	160.95	6,674.2	-9,064.2	4,391.4	10,012.1	0.70	-0.53	-0.46
16,949.0	90.33	161.03	6,674.2	-9,154.9	4,422.7	10,108.1	0.70	0.70	0.08
17,043.0	89.26	160.38	6,674.5	-9,243.6	4,453.8	10,202.0	1.33	-1.14	-0.69
17,138.0	90.03	160.69	6,675.1	-9,333.2	4,485.4	10,297.0	0.87	0.81	0.33
17,232.0	89.46	160.80	6,675.5	-9,421.9	4,516.4	10,391.0	0.62	-0.61	0.12
17,326.0	90.06	160.84	6,675.9	-9,510.7	4,547.3	10,485.0	0.64	0.64	0.04
17,421.0	88.72	160.90	6,676.9	-9,600.5	4,578.4	10,580.0	1.41	-1.41	0.06
17,470.0	89.12	160.83	6,677.9	-9,646.8	4,594.5	10,629.0	0.83	0.82	-0.14
Last SDI MWD @ 17470									
17,532.0	89.12	160.83	6,678.8	-9,705.3	4,614.8	10,691.0	0.00	0.00	0.00
Projection To Bit @ 17532 MD / 6678 TVD									

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Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,398.0	6,262.0	Sycamore @ 6398		0.00	
6,629.0	6,433.4	Middlesex @ 6629		0.00	
6,851.0	6,539.4	Burkett @ 6851		0.00	
6,933.0	6,570.6	Tully @ 6933		0.00	
7,031.0	6,601.6	Marcellus @ 7031		0.00	

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,041.0	5,937.3	325.6	493.7	First SDI MWD @ 6041
17,470.0	6,677.9	-9,646.8	4,594.5	Last SDI MWD @ 17470
17,532.0	6,678.8	-9,705.3	4,614.8	Projection To Bit @ 17532 MD / 6678 TVD

Checked By: _____ Approved By: _____ Date: _____