



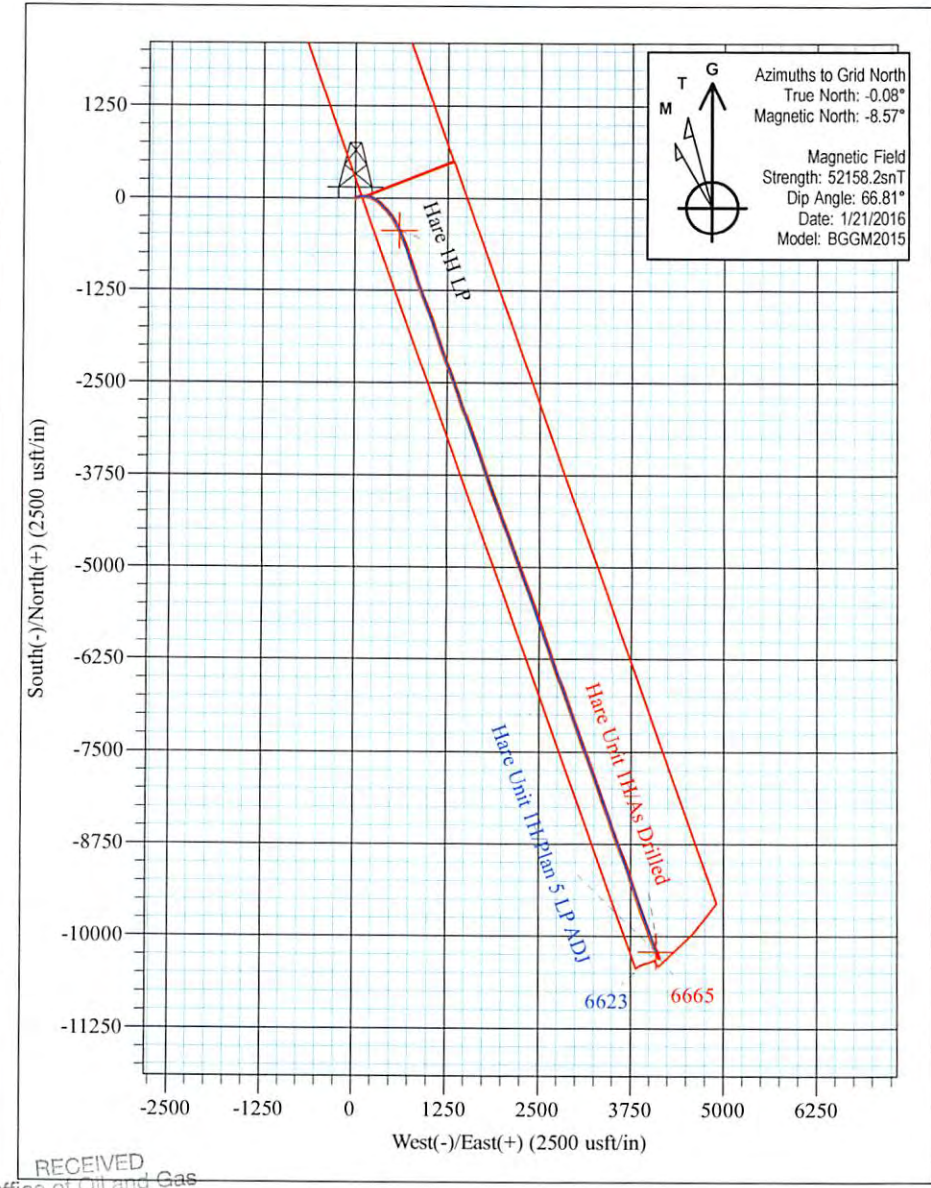
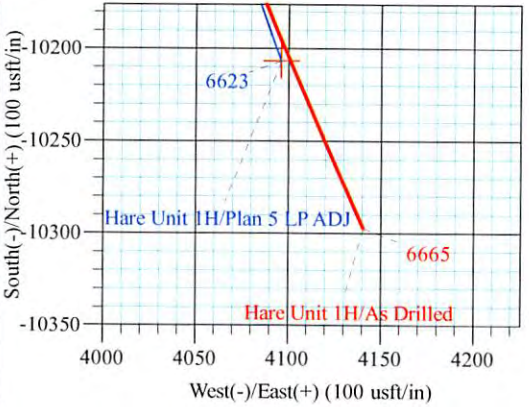
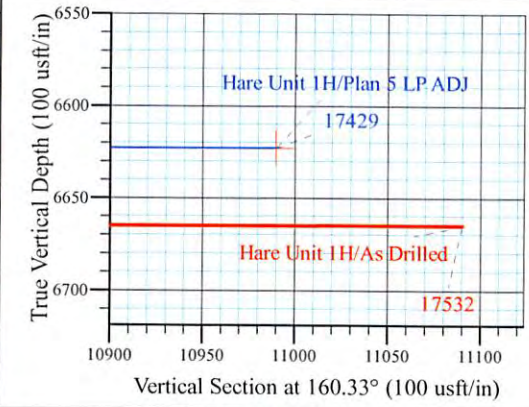
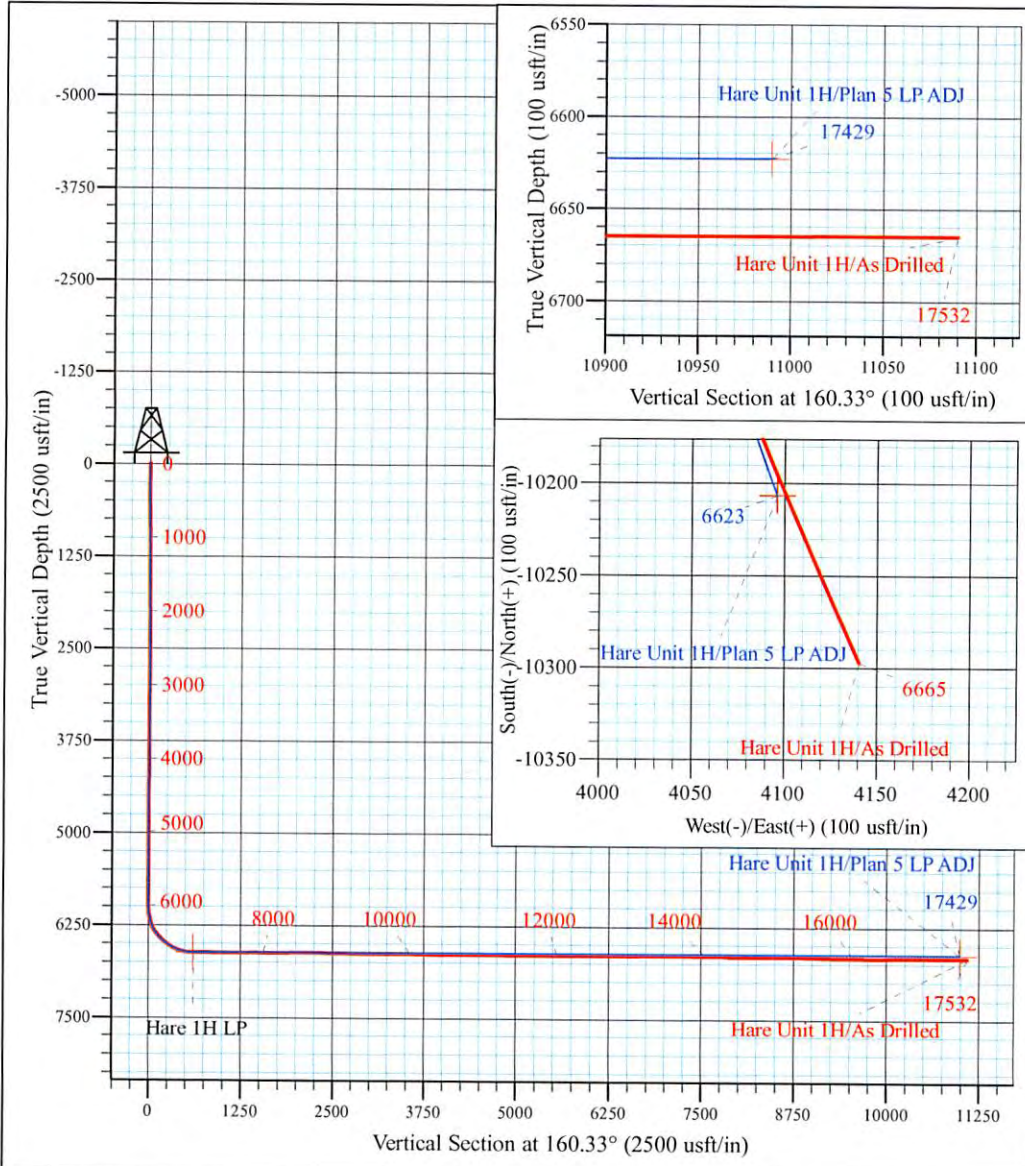
Estlack Pad: Hare/Jubee/Lucy/Matthews/Melvin  
 Hare Unit 1H  
 Plan 5 LP ADJ  
 Frontier 32: 1141' GL + 32' KB @ 1173.0usft  
 Tyler County WV

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 1H SHL**

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14312832.65	1674804.62	39° 24' 51.751 N	80° 52' 41.683 W



Azimuths to Grid North  
 True North: -0.08°  
 Magnetic North: -8.57°

Magnetic Field  
 Strength: 52158.2snT  
 Dip Angle: 66.81°  
 Date: 1/21/2016  
 Model: BGGM2015

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**Hare Unit 1H**  
**Approx. BHL**  
**39° 23' 9.878 N 80° 51' 49.104 W**

Shane Rhodes  
 11:36, January 27 2016  
 Scientific Drilling International  
 124 Vista Drive  
 Charleroi, PA 15022





Scientific Drilling International  
Survey Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Hare Unit 1H
<b>Project:</b>	Tyler County WV	<b>TVD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Site:</b>	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	<b>MD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Well:</b>	Hare Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Antero NE

<b>Project</b>	Tyler County WV, Tyler Co West Virginia		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

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

<b>Well</b>	Hare Unit 1H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,312,832.65 usft	<b>Latitude:</b>	39° 24' 51.751 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,674,804.62 usft	<b>Longitude:</b>	80° 52' 41.683 W
<b>Position Uncertainty</b>		2.0 usft	<b>Wellhead Elevation:</b>	1,173.0 usft	<b>Ground Level:</b>	1,141.0 usft

<b>Wellbore</b>	Original Wellpath				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2015	10/22/2015	-8.48	66.84	52,187
	BGGM2015	1/21/2016	-8.49	66.81	52,158

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	160.33	

<b>Survey Program</b>	<b>Date</b>	1/28/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
100.0	5,868.4	Survey #3 - Final Def Gyro (Original Wellp	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,892.0	17,532.0	Survey #4 - MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

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
100.0	0.14	84.37	100.0	0.0	0.1	0.0	0.14	0.14	0.00
200.0	0.15	55.12	200.0	0.1	0.4	0.0	0.07	0.01	-29.25
300.0	0.10	58.31	300.0	0.2	0.5	0.0	0.05	-0.05	3.19
400.0	0.16	40.71	400.0	0.4	0.7	-0.1	0.07	0.06	-17.60
500.0	1.42	70.85	500.0	0.9	2.0	-0.2	1.28	1.26	30.14
600.0	3.14	69.87	599.9	2.2	5.7	-0.2	1.72	1.72	-0.98
700.0	5.04	72.31	699.6	4.5	12.5	-0.1	1.91	1.90	2.44

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Survey Report



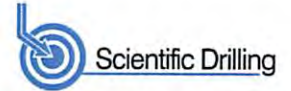
<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Hare Unit 1H
<b>Project:</b>	Tyler County WW	<b>TVD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Site:</b>	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	<b>MD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Well:</b>	Hare Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	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)
800.0	5.73	72.76	799.2	7.3	21.4	0.3	0.69	0.69	0.45
900.0	4.90	77.05	898.8	9.8	30.3	1.0	0.92	-0.83	4.29
1,000.0	3.80	80.23	998.5	11.3	37.8	2.1	1.13	-1.10	3.18
1,100.0	2.90	81.49	1,098.3	12.2	43.5	3.2	0.90	-0.90	1.26
1,200.0	2.21	76.10	1,198.2	13.1	47.9	3.8	0.73	-0.69	-5.39
1,300.0	1.68	79.88	1,298.2	13.8	51.2	4.3	0.55	-0.53	3.78
1,400.0	1.11	74.97	1,398.1	14.3	53.6	4.6	0.58	-0.57	-4.91
1,500.0	0.88	78.04	1,498.1	14.7	55.3	4.8	0.24	-0.23	3.07
1,600.0	0.65	66.47	1,598.1	15.1	56.6	4.8	0.28	-0.23	-11.57
1,700.0	0.57	82.00	1,698.1	15.4	57.6	4.9	0.18	-0.08	15.53
1,800.0	0.56	81.71	1,798.1	15.5	58.6	5.1	0.01	-0.01	-0.29
1,900.0	0.46	87.31	1,898.1	15.6	59.4	5.3	0.11	-0.10	5.60
2,000.0	0.32	91.29	1,998.1	15.6	60.1	5.5	0.14	-0.14	3.98
2,100.0	0.26	108.38	2,098.1	15.5	60.6	5.8	0.10	-0.06	17.09
2,200.0	0.61	146.31	2,198.1	15.0	61.1	6.4	0.44	0.35	37.93
2,300.0	0.29	144.43	2,298.1	14.4	61.6	7.2	0.32	-0.32	-1.88
2,400.0	0.29	9.25	2,398.1	14.4	61.8	7.2	0.54	0.00	-135.18
2,500.0	0.44	348.75	2,498.1	15.0	61.7	6.6	0.20	0.15	-20.50
2,600.0	0.05	329.00	2,598.1	15.5	61.6	6.2	0.39	-0.39	-19.75
2,700.0	0.34	352.56	2,698.1	15.8	61.6	5.8	0.29	0.29	23.56
2,800.0	0.17	315.01	2,798.1	16.2	61.4	5.4	0.23	-0.17	-37.55
2,900.0	0.35	229.72	2,898.1	16.1	61.1	5.4	0.38	0.18	-85.29
3,000.0	0.39	300.87	2,998.1	16.1	60.6	5.2	0.43	0.04	71.15
3,100.0	0.48	290.79	3,098.1	16.4	59.9	4.7	0.12	0.09	-10.08
3,200.0	0.52	274.85	3,198.1	16.6	59.0	4.2	0.14	0.04	-15.94
3,300.0	0.35	267.95	3,298.1	16.6	58.3	4.0	0.18	-0.17	-6.90
3,400.0	0.39	290.63	3,398.1	16.7	57.6	3.7	0.15	0.04	22.68
3,500.0	0.33	283.13	3,498.1	16.9	57.0	3.3	0.08	-0.06	-7.50
3,600.0	0.32	280.41	3,598.1	17.0	56.5	3.0	0.02	-0.01	-2.72
3,700.0	0.38	287.13	3,698.1	17.2	55.9	2.6	0.07	0.06	6.72
3,800.0	0.37	288.35	3,798.0	17.4	55.3	2.2	0.01	-0.01	1.22
3,900.0	0.41	296.98	3,898.0	17.6	54.6	1.8	0.07	0.04	8.63
4,000.0	0.40	288.68	3,998.0	17.9	54.0	1.3	0.06	-0.01	-8.30
4,100.0	0.47	302.64	4,098.0	18.2	53.3	0.8	0.13	0.07	13.96
4,200.0	0.33	290.64	4,198.0	18.6	52.7	0.3	0.16	-0.14	-12.00
4,300.0	0.29	287.39	4,298.0	18.7	52.2	-0.1	0.04	-0.04	-3.25
4,400.0	0.39	286.03	4,398.0	18.9	51.6	-0.4	0.10	0.10	-1.36
4,500.0	0.29	275.79	4,498.0	19.0	51.0	-0.7	0.12	-0.10	-10.24
4,600.0	0.28	262.37	4,598.0	19.0	50.6	-0.9	0.07	-0.01	-13.42
4,700.0	0.32	253.78	4,698.0	18.9	50.0	-1.0	0.06	0.04	-8.59
4,800.0	0.24	283.68	4,798.0	18.9	49.6	-1.1	0.16	-0.08	29.90
4,900.0	0.25	261.55	4,898.0	18.9	49.2	-1.3	0.09	0.01	-22.13

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Survey Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Hare Unit 1H
<b>Project:</b>	Tyler County WV	<b>TVD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Site:</b>	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	<b>MD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Well:</b>	Hare Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	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)
5,000.0	0.25	266.18	4,998.0	18.9	48.7	-1.4	0.02	0.00	4.63
5,100.0	0.25	247.85	5,098.0	18.8	48.3	-1.4	0.08	0.00	-18.33
5,200.0	0.30	244.63	5,198.0	18.6	47.9	-1.4	0.05	0.05	-3.22
5,300.0	0.18	220.33	5,298.0	18.3	47.5	-1.3	0.15	-0.12	-24.30
5,400.0	0.16	195.38	5,398.0	18.1	47.4	-1.1	0.08	-0.02	-24.95
5,500.0	0.13	213.96	5,498.0	17.9	47.3	-0.9	0.06	-0.03	18.58
5,600.0	0.08	159.47	5,598.0	17.7	47.2	-0.8	0.11	-0.05	-54.49
5,700.0	0.20	256.47	5,698.0	17.6	47.1	-0.7	0.22	0.12	97.00
5,800.0	0.44	313.73	5,798.0	17.8	46.7	-1.1	0.37	0.24	57.26
5,868.4	0.52	249.93	5,866.4	17.9	46.2	-1.3	0.75	0.12	-93.27
5,892.0	0.41	274.75	5,890.0	17.9	46.0	-1.3	0.96	-0.47	105.17
<b>First SDI MWD @ 5892</b>									
5,924.0	1.14	79.25	5,922.0	17.9	46.2	-1.3	4.81	2.28	514.25
5,955.0	4.97	86.18	5,953.0	18.1	47.8	-0.9	12.39	12.35	22.35
5,987.0	9.97	86.41	5,984.7	18.3	52.0	0.2	15.63	15.63	0.72
6,019.0	14.27	82.42	6,016.0	19.0	58.7	1.8	13.68	13.44	-12.47
6,051.0	17.83	81.78	6,046.7	20.3	67.4	3.6	11.14	11.13	-2.00
6,082.0	20.58	89.03	6,076.0	21.0	77.6	6.3	11.73	8.87	23.39
6,114.0	22.53	91.63	6,105.7	20.9	89.3	10.3	6.78	6.09	8.13
6,146.0	25.49	94.00	6,135.0	20.3	102.3	15.3	9.73	9.25	7.41
6,178.0	28.92	94.40	6,163.4	19.2	116.9	21.3	10.73	10.72	1.25
6,210.0	31.38	92.50	6,191.1	18.3	132.9	27.6	8.24	7.69	-5.94
6,242.0	35.25	90.02	6,217.8	17.9	150.5	33.8	12.82	12.09	-7.75
6,273.0	37.70	93.71	6,242.8	17.3	168.9	40.6	10.61	7.90	11.90
6,296.0	37.85	99.04	6,261.0	15.7	182.9	46.8	14.20	0.64	23.17
<b>SCMR @ 6296</b>									
6,305.0	37.97	101.11	6,268.0	14.7	188.4	49.5	14.20	1.36	23.01
6,336.0	39.10	107.07	6,292.3	10.0	207.1	60.3	12.52	3.65	19.23
6,368.0	40.90	113.23	6,316.8	2.9	226.3	73.4	13.59	5.63	19.25
6,399.0	42.57	118.50	6,340.0	-6.1	244.9	88.2	12.53	5.39	17.00
6,430.0	43.99	121.47	6,362.5	-16.7	263.3	104.4	8.01	4.58	9.58
6,462.0	46.14	125.06	6,385.1	-29.1	282.2	122.4	10.40	6.72	11.22
6,494.0	47.48	127.76	6,407.0	-43.0	301.0	141.8	7.44	4.19	8.44
6,525.0	48.66	129.56	6,427.8	-57.4	319.0	161.4	5.76	3.81	5.81
6,531.0	48.96	129.98	6,431.7	-60.3	322.5	165.3	7.25	4.95	7.04
<b>MDLX @ 6531</b>									
6,557.0	50.26	131.77	6,448.6	-73.2	337.4	182.5	7.25	5.01	6.88
6,589.0	52.04	134.09	6,468.6	-90.2	355.7	204.7	7.93	5.56	7.25
6,621.0	53.40	135.02	6,488.0	-108.1	373.8	227.6	4.84	4.25	2.91
6,652.0	55.64	136.24	6,506.0	-126.1	391.5	250.5	7.90	7.23	3.94
6,684.0	58.34	137.58	6,523.4	-145.7	409.8	275.2	9.14	8.44	4.19
6,713.0	60.44	138.85	6,538.2	-164.3	426.4	298.3	8.14	7.22	4.36
<b>BRKT @ 6713</b>									
6,715.0	60.58	138.93	6,539.2	-165.6	427.6	299.9	8.14	7.25	4.26

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<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Hare Unit 1H
<b>Project:</b>	Tyler County WV	<b>TVD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Site:</b>	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	<b>MD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Well:</b>	Hare Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	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)	
6,747.0	63.10	140.49	6,554.3	-187.2	445.8	326.3	8.97	7.88	4.88	
6,779.0	65.16	141.80	6,568.3	-209.6	463.9	353.5	7.42	6.44	4.09	
6,780.0	65.27	141.83	6,568.7	-210.3	464.4	354.4	10.83	10.48	3.04	
<b>Tily @ 6780</b>										
6,810.0	68.41	142.72	6,580.5	-232.1	481.3	380.6	10.83	10.48	2.97	
6,842.0	71.77	144.69	6,591.4	-256.4	499.1	409.4	11.99	10.50	6.16	
6,871.0	75.04	146.95	6,599.7	-279.4	514.7	436.3	13.53	11.29	7.78	
<b>MRCL_HOT @ 6871</b>										
6,873.0	75.27	147.10	6,600.2	-281.0	515.8	438.2	13.53	11.33	7.65	
6,905.0	77.48	149.50	6,607.7	-307.4	532.1	468.6	10.04	6.91	7.50	
6,936.0	79.06	150.82	6,614.0	-333.8	547.2	498.5	6.58	5.10	4.26	
6,967.0	83.17	153.29	6,618.8	-360.8	561.5	528.8	15.42	13.26	7.97	
6,995.0	85.94	154.68	6,621.4	-385.9	573.8	556.5	11.06	9.89	4.96	
7,026.0	89.17	157.54	6,622.8	-414.2	586.3	587.3	13.91	10.42	9.23	
7,058.0	89.70	157.56	6,623.1	-443.7	598.5	619.3	1.66	1.66	0.06	
7,090.0	89.74	156.37	6,623.2	-473.2	611.0	651.3	3.72	0.13	-3.72	
7,122.0	89.90	156.45	6,623.3	-502.5	623.8	683.2	0.56	0.50	0.25	
7,216.0	89.48	157.85	6,623.9	-589.1	660.4	777.0	1.55	-0.45	1.49	
7,311.0	88.44	159.18	6,625.6	-677.5	695.1	872.0	1.78	-1.09	1.40	
7,404.0	90.22	160.94	6,626.7	-764.9	726.8	964.9	2.69	1.91	1.89	
7,499.0	88.50	160.74	6,627.7	-854.7	758.0	1,059.9	1.82	-1.81	-0.21	
7,593.0	91.27	163.89	6,627.9	-944.2	786.6	1,153.9	4.46	2.95	3.35	
7,688.0	90.03	160.99	6,626.8	-1,034.7	815.2	1,248.8	3.32	-1.31	-3.05	
7,782.0	89.99	160.90	6,626.8	-1,123.6	845.9	1,342.8	0.10	-0.04	-0.10	
7,877.0	89.79	161.73	6,627.0	-1,213.6	876.4	1,437.8	0.90	-0.21	0.87	
7,972.0	89.85	159.17	6,627.3	-1,303.1	908.1	1,532.7	2.70	0.06	-2.69	
8,067.0	89.21	158.05	6,628.1	-1,391.6	942.8	1,627.7	1.36	-0.67	-1.18	
8,162.0	90.42	158.54	6,628.4	-1,479.8	977.9	1,722.6	1.37	1.27	0.52	
8,256.0	89.08	158.97	6,628.8	-1,567.4	1,012.0	1,816.6	1.50	-1.43	0.46	
8,351.0	90.28	161.07	6,629.3	-1,656.7	1,044.4	1,911.6	2.55	1.26	2.21	
8,444.0	91.36	161.67	6,628.0	-1,744.8	1,074.1	2,004.6	1.33	1.16	0.65	
8,540.0	90.62	161.06	6,626.3	-1,835.8	1,104.8	2,100.5	1.00	-0.77	-0.64	
8,635.0	89.57	161.70	6,626.2	-1,925.8	1,135.1	2,195.5	1.29	-1.11	0.67	
8,729.0	90.18	162.49	6,626.4	-2,015.2	1,164.0	2,289.5	1.06	0.65	0.84	
8,823.0	90.31	159.84	6,626.0	-2,104.2	1,194.4	2,383.4	2.82	0.14	-2.82	
8,917.0	89.30	159.15	6,626.3	-2,192.2	1,227.3	2,477.4	1.30	-1.07	-0.73	
9,013.0	88.60	158.84	6,628.1	-2,281.8	1,261.7	2,573.4	0.80	-0.73	-0.32	
9,108.0	89.44	161.08	6,629.7	-2,371.1	1,294.3	2,668.4	2.52	0.88	2.36	
9,202.0	89.61	160.78	6,630.5	-2,459.9	1,325.0	2,762.4	0.37	0.18	-0.32	
9,296.0	89.84	160.75	6,630.9	-2,548.7	1,355.9	2,856.4	0.25	0.24	-0.03	
9,390.0	88.97	160.59	6,631.9	-2,637.4	1,387.1	2,950.3	0.94	-0.93	-0.17	
9,485.0	90.18	161.92	6,632.6	-2,727.3	1,417.6	3,045.3	1.89	1.27	1.40	

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Survey Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Hare Unit 1H
<b>Project:</b>	Tyler County WV	<b>TVD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Site:</b>	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	<b>MD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Well:</b>	Hare Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	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)
9,579.0	89.37	158.72	6,633.0	-2,815.8	1,449.2	3,139.3	3.51	-0.86	-3.40
9,673.0	89.74	158.20	6,633.7	-2,903.2	1,483.7	3,233.3	0.68	0.39	-0.55
9,768.0	90.14	160.61	6,633.8	-2,992.2	1,517.2	3,328.2	2.57	0.42	2.54
9,862.0	89.44	160.28	6,634.1	-3,080.7	1,548.6	3,422.2	0.82	-0.74	-0.35
9,956.0	89.61	159.66	6,634.9	-3,169.0	1,580.8	3,516.2	0.68	0.18	-0.66
10,051.0	89.47	158.86	6,635.7	-3,257.9	1,614.5	3,611.2	0.85	-0.15	-0.84
10,145.0	89.50	160.83	6,636.5	-3,346.1	1,646.8	3,705.2	2.10	0.03	2.10
10,240.0	89.34	160.39	6,637.5	-3,435.7	1,678.4	3,800.2	0.49	-0.17	-0.46
10,334.0	89.84	160.47	6,638.2	-3,524.3	1,709.9	3,894.2	0.54	0.53	0.09
10,428.0	89.91	160.44	6,638.4	-3,612.9	1,741.3	3,988.2	0.08	0.07	-0.03
10,523.0	89.81	160.94	6,638.6	-3,702.5	1,772.7	4,083.2	0.54	-0.11	0.53
10,617.0	88.63	161.29	6,639.9	-3,791.5	1,803.2	4,177.2	1.31	-1.26	0.37
10,712.0	89.54	162.10	6,641.4	-3,881.6	1,833.0	4,272.1	1.28	0.96	0.85
10,807.0	90.91	161.08	6,641.0	-3,971.8	1,863.0	4,367.1	1.80	1.44	-1.07
10,899.0	89.77	159.38	6,640.5	-4,058.3	1,894.1	4,459.1	2.22	-1.24	-1.85
10,995.0	89.33	158.38	6,641.2	-4,147.9	1,928.7	4,555.1	1.14	-0.46	-1.04
11,090.0	89.44	160.72	6,642.3	-4,236.9	1,961.9	4,650.0	2.47	0.12	2.46
11,184.0	90.51	162.29	6,642.3	-4,326.0	1,991.7	4,744.0	2.02	1.14	1.67
11,278.0	89.74	160.04	6,642.1	-4,415.0	2,022.0	4,838.0	2.53	-0.82	-2.39
11,372.0	88.36	158.94	6,643.6	-4,503.0	2,055.0	4,932.0	1.88	-1.47	-1.17
11,467.0	88.27	159.03	6,646.4	-4,591.7	2,089.0	5,026.9	0.13	-0.09	0.09
11,563.0	90.95	161.60	6,647.1	-4,682.0	2,121.4	5,122.9	3.87	2.79	2.68
11,657.0	90.61	161.65	6,645.8	-4,771.2	2,151.0	5,216.8	0.37	-0.36	0.05
11,751.0	89.84	159.80	6,645.4	-4,860.0	2,182.0	5,310.8	2.13	-0.82	-1.97
11,845.0	89.57	158.90	6,645.9	-4,947.9	2,215.2	5,404.8	1.00	-0.29	-0.96
11,939.0	89.61	159.47	6,646.6	-5,035.8	2,248.6	5,498.8	0.61	0.04	0.61
12,034.0	89.64	160.42	6,647.2	-5,125.0	2,281.1	5,593.8	1.00	0.03	1.00
12,128.0	90.34	160.41	6,647.2	-5,213.6	2,312.6	5,687.8	0.74	0.74	-0.01
12,222.0	90.01	159.88	6,647.0	-5,302.0	2,344.6	5,781.8	0.66	-0.35	-0.56
12,316.0	89.84	158.66	6,647.1	-5,389.9	2,377.8	5,875.8	1.31	-0.18	-1.30
12,410.0	90.38	159.48	6,646.9	-5,477.7	2,411.4	5,969.7	1.04	0.57	0.87
12,504.0	89.47	160.04	6,647.0	-5,565.9	2,443.9	6,063.7	1.14	-0.97	0.60
12,598.0	90.41	161.43	6,647.1	-5,654.6	2,475.0	6,157.7	1.79	1.00	1.48
12,693.0	90.31	160.77	6,646.5	-5,744.5	2,505.7	6,252.7	0.70	-0.11	-0.69
12,787.0	90.24	159.64	6,646.1	-5,832.9	2,537.6	6,346.7	1.20	-0.07	-1.20
12,880.0	91.42	162.27	6,644.7	-5,920.8	2,567.9	6,439.7	3.10	1.27	2.83
12,974.0	91.02	161.43	6,642.7	-6,010.1	2,597.2	6,533.6	0.99	-0.43	-0.89
13,069.0	89.71	161.77	6,642.1	-6,100.3	2,627.2	6,628.6	1.42	-1.38	0.36
13,163.0	90.24	162.08	6,642.2	-6,189.6	2,656.3	6,722.6	0.65	0.56	0.33
13,257.0	90.98	161.23	6,641.2	-6,278.9	2,685.9	6,816.5	1.20	0.79	-0.90
13,352.0	90.11	160.85	6,640.3	-6,368.7	2,716.8	6,911.5	1.00	-0.92	-0.40
13,446.0	90.31	160.09	6,639.9	-6,457.3	2,748.2	7,005.5	0.84	0.21	-0.81
13,541.0	89.17	158.32	6,640.3	-6,546.1	2,781.9	7,100.5	2.22	-1.20	-1.86

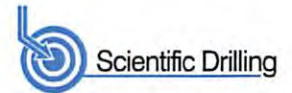
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Survey Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Hare Unit 1H
<b>Project:</b>	Tyler County WV	<b>TVD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Site:</b>	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	<b>MD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Well:</b>	Hare Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	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)
13,636.0	89.03	158.50	6,641.8	-6,634.4	2,816.9	7,195.4	0.24	-0.15	0.19
13,730.0	90.04	160.28	6,642.6	-6,722.4	2,850.0	7,289.4	2.18	1.07	1.89
13,825.0	88.93	160.41	6,643.4	-6,811.8	2,881.9	7,384.4	1.18	-1.17	0.14
13,920.0	89.30	161.38	6,644.9	-6,901.6	2,913.0	7,479.4	1.09	0.39	1.02
14,015.0	90.28	162.00	6,645.3	-6,991.8	2,942.8	7,574.4	1.22	1.03	0.65
14,110.0	89.40	160.31	6,645.5	-7,081.7	2,973.5	7,669.4	2.01	-0.93	-1.78
14,205.0	88.53	159.04	6,647.2	-7,170.8	3,006.5	7,764.3	1.62	-0.92	-1.34
14,299.0	88.39	159.11	6,649.8	-7,258.5	3,040.1	7,858.3	0.17	-0.15	0.07
14,394.0	89.57	160.20	6,651.5	-7,347.6	3,073.1	7,953.2	1.69	1.24	1.15
14,489.0	90.41	161.20	6,651.5	-7,437.2	3,104.5	8,048.2	1.37	0.88	1.05
14,584.0	89.47	159.93	6,651.6	-7,526.8	3,136.1	8,143.2	1.66	-0.99	-1.34
14,680.0	89.06	158.43	6,652.8	-7,616.6	3,170.2	8,239.2	1.62	-0.43	-1.56
14,776.0	89.70	160.05	6,653.8	-7,706.3	3,204.2	8,335.2	1.81	0.67	1.69
14,871.0	89.94	159.73	6,654.1	-7,795.5	3,236.9	8,430.2	0.42	0.25	-0.34
14,966.0	89.43	159.85	6,654.7	-7,884.7	3,269.7	8,525.2	0.55	-0.54	0.13
15,062.0	89.06	160.42	6,655.9	-7,974.9	3,302.3	8,621.2	0.71	-0.39	0.59
15,156.0	89.70	161.40	6,656.9	-8,063.8	3,333.1	8,715.1	1.25	0.68	1.04
15,251.0	89.84	161.78	6,657.3	-8,153.9	3,363.1	8,810.1	0.43	0.15	0.40
15,347.0	89.30	162.25	6,658.1	-8,245.2	3,392.7	8,906.1	0.75	-0.56	0.49
15,441.0	88.76	160.09	6,659.6	-8,334.2	3,423.1	9,000.0	2.37	-0.57	-2.30
15,536.0	89.57	161.21	6,661.0	-8,423.8	3,454.5	9,095.0	1.45	0.85	1.18
15,631.0	89.27	159.74	6,662.0	-8,513.3	3,486.3	9,190.0	1.58	-0.32	-1.55
15,725.0	89.77	160.79	6,662.8	-8,601.8	3,518.0	9,284.0	1.24	0.53	1.12
15,821.0	89.47	159.18	6,663.4	-8,692.0	3,550.9	9,380.0	1.71	-0.31	-1.68
15,915.0	90.31	160.38	6,663.6	-8,780.2	3,583.4	9,474.0	1.56	0.89	1.28
16,011.0	88.76	158.02	6,664.4	-8,869.9	3,617.5	9,570.0	2.94	-1.61	-2.46
16,105.0	88.43	158.08	6,666.7	-8,957.1	3,652.6	9,663.9	0.36	-0.35	0.06
16,200.0	88.33	159.73	6,669.4	-9,045.7	3,686.8	9,758.8	1.74	-0.11	1.74
16,296.0	91.62	162.29	6,669.4	-9,136.4	3,718.0	9,854.8	4.34	3.43	2.67
16,390.0	90.54	160.79	6,667.6	-9,225.6	3,747.7	9,948.7	1.97	-1.15	-1.60
16,485.0	90.41	161.08	6,666.8	-9,315.4	3,778.8	10,043.7	0.33	-0.14	0.31
16,582.0	90.07	162.84	6,666.4	-9,407.6	3,808.8	10,140.7	1.85	-0.35	1.81
16,677.0	90.24	160.72	6,666.2	-9,497.8	3,838.5	10,235.6	2.24	0.18	-2.23
16,771.0	90.20	160.41	6,665.8	-9,586.5	3,869.8	10,329.6	0.33	-0.04	-0.33
16,865.0	90.44	161.33	6,665.3	-9,675.3	3,900.6	10,423.6	1.01	0.26	0.98
16,960.0	89.60	160.75	6,665.3	-9,765.1	3,931.5	10,518.6	1.07	-0.88	-0.61
17,056.0	90.04	161.13	6,665.6	-9,855.8	3,962.8	10,614.6	0.61	0.46	0.40
17,152.0	90.34	159.48	6,665.2	-9,946.2	3,995.2	10,710.6	1.75	0.31	-1.72
17,247.0	90.00	158.31	6,665.0	-10,034.9	4,029.4	10,805.6	1.28	-0.36	-1.23
17,342.0	89.83	157.25	6,665.1	-10,122.8	4,065.3	10,900.5	1.13	-0.18	-1.12
17,438.0	90.14	156.62	6,665.1	-10,211.1	4,102.9	10,996.3	0.73	0.32	-0.66
17,470.0	90.07	156.36	6,665.1	-10,240.5	4,115.7	11,028.3	0.84	-0.22	-0.81

Last SDI MWD @ 17470

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Survey Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Hare Unit 1H
<b>Project:</b>	Tyler County WV	<b>TVD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Site:</b>	Estlack Pad: Hare/Jujubee/Lucy/Matthews/Melvin	<b>MD Reference:</b>	Frontier 32: 1141' GL + 32' KB @ 1173.0usft
<b>Well:</b>	Hare Unit 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	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)
17,532.0	90.07	156.36	6,665.0	-10,297.3	4,140.5	11,090.1	0.00	0.00	0.00
Projection To Bit @ 17532 MD / 6665 TVD									

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,296.0	6,261.0	SCMR @ 6296		0.00	
6,531.0	6,431.7	MDLX @ 6531		0.00	
6,713.0	6,538.2	BRKT @ 6713		0.00	
6,780.0	6,568.7	Tily @ 6780		0.00	
6,871.0	6,599.7	MRCL_HOT @ 6871		0.00	

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
5,892.0	5,890.0	17.9	46.0	First SDI MWD @ 5892
17,470.0	6,665.1	-10,240.5	4,115.7	Last SDI MWD @ 17470
17,532.0	6,665.0	-10,297.3	4,140.5	Projection To Bit @ 17532 MD / 6665 TVD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

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