



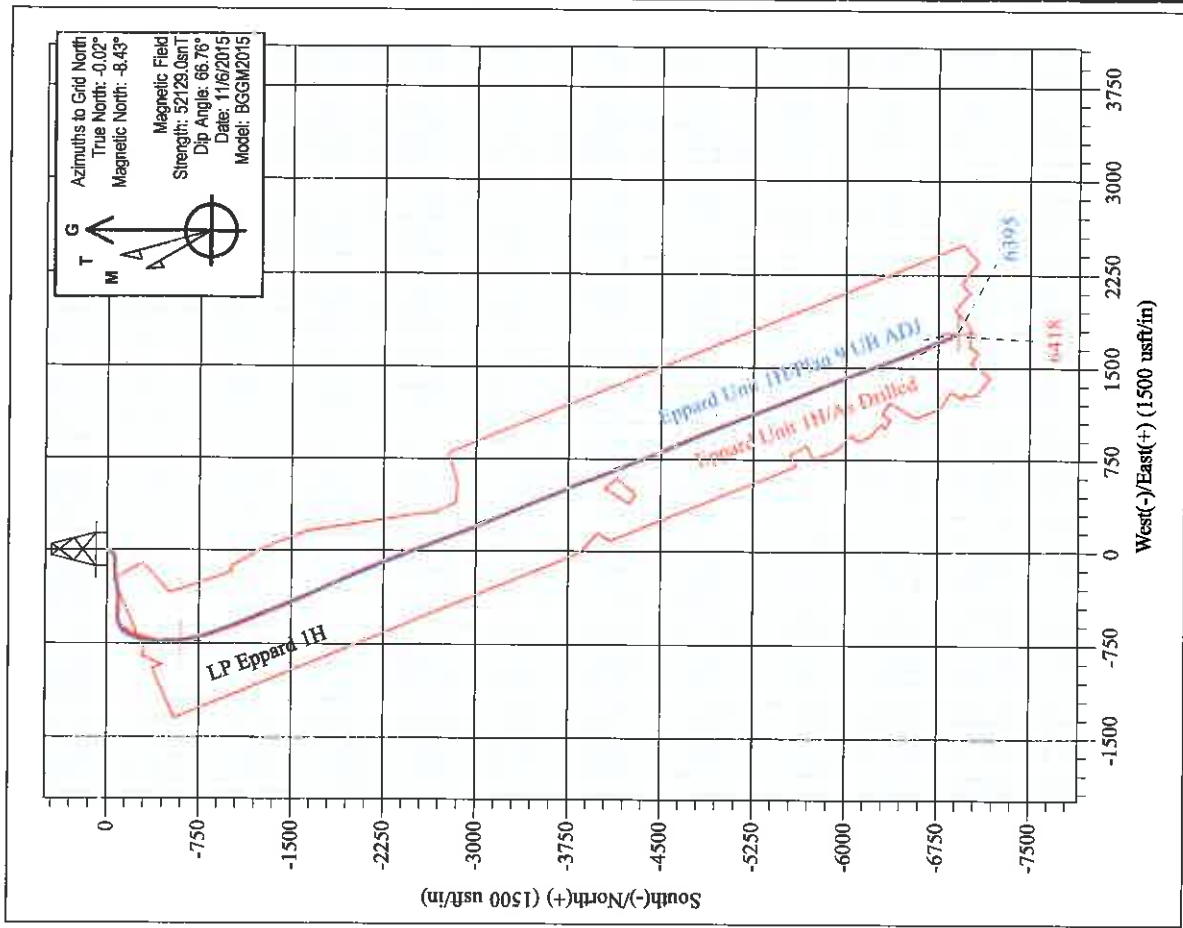
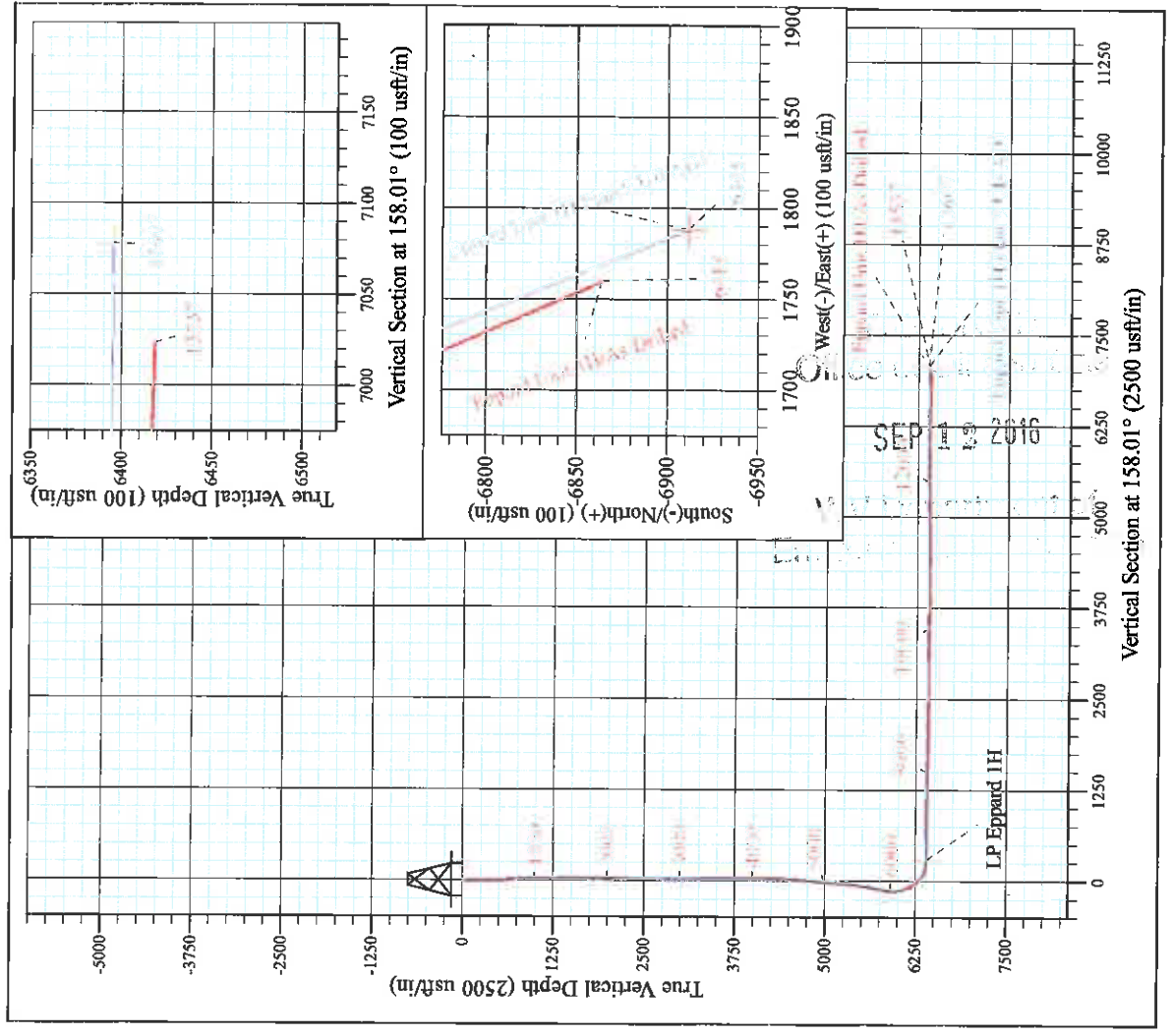
Chartlene Pad: Hendershot/Paige/Eppard/Brook/Bow  
 Eppard Unit 1H  
 Plan 9 UB ADJ  
 Patterson 347: 1118' GL + 25' KB @ 1143.0usft  
 Ritchie County WV

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



WELL DETAILS: **Eppard Unit 1H SHL**

+N/-S	+E/-W	Northing	Latitude	Longitude
0.0	0.0	14271020.72	39° 17' 58.541 N	80° 57' 49.384 W



**Eppard Unit 1H**  
 Approx. **BHL**  
 39° 16' 50.667 N 80° 57' 27.029 W

Shane Rhodes  
 13:31, November 17 2015  
 Scientific Drilling International  
 124 Visa Drive  
 Charleroi, PA 15022



# **Antero Resources**

**Ritchie County WV**

**Charlene Pad: Hendershot/Paige/Eppard/Brook/Bow**

**Eppard Unit 1H**

**Original Wellpath**

**Design: As Drilled**

## **Standard Survey Report**

**17 November, 2015**





<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347. 1118' GL + 25' KB @ 1143.0usft
<b>Site:</b>	Charlene Pad: Hendershot/Paige/Eppard/Brook/Bow	<b>MD Reference:</b>	Patterson 347. 1118' GL + 25' KB @ 1143.0usft
<b>Well:</b>	Eppard 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>	Ritchie County WV, Ritchie County WV, WV North		
<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>	Charlene Pad Hendershot/Paige/Eppard/Brook/Bow, SHL Hendershot Unit 1H				
<b>Site Position:</b>		<b>Northing:</b>	14,270,988.12 usft	<b>Latitude:</b>	39° 17' 58.219 N
<b>From:</b>	Map	<b>Easting:</b>	1,650,704.41 usft	<b>Longitude:</b>	80° 57' 49.084 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.02 °

<b>Well</b>	Eppard Unit 1H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,271,020.72 usft	<b>Latitude:</b>	39° 17' 58.541 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,650,680.87 usft	<b>Longitude:</b>	80° 57' 49.384 W
<b>Position Uncertainty</b>		2.0 usft	<b>Wellhead Elevation:</b>	1,143.0 usft	<b>Ground Level:</b>	1,118.0 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</b>
	BGGM2015	11/6/2015	(°)	(°)	(nT)
			-8.41	66.76	52,129

<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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	158.01	

<b>Survey Program</b>	<b>Date</b>	11/17/2015			
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
(usft)	(usft)				
112.0	5,787.0	Survey #12 Def Final Gyro (Original Wellp	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,912.0	13,537.0	Survey #13 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 10.1	

<b>Survey</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Vertical</b>	<b>Dogleg</b>	<b>Build</b>	<b>Turn</b>	
<b>Depth</b>	(°)	(°)	<b>Depth</b>	(usft)	(usft)	<b>Section</b>	<b>Rate</b>	<b>Rate</b>	<b>Rate</b>	
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
112.0	0.67	327.76	112.0	0.6	-0.3	-0.6	0.60	0.60	0.00	
<b>First SDI Gyro @ 100 MD</b>										
137.0	0.64	331.44	137.0	0.8	-0.5	-0.9	0.21	-0.12	14.72	
162.0	0.70	317.95	162.0	1.0	-0.7	-1.2	0.67	0.24	-53.96	
187.0	0.64	302.06	187.0	1.2	-0.9	-1.5	0.78	-0.24	-63.56	
212.0	0.77	276.82	212.0	1.3	-1.2	-1.7	1.33	0.52	-100.96	
237.0	0.74	288.71	237.0	1.3	-1.5	-1.8	0.44	-0.12	-32.44	



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Site:</b>	Charlene Pad	<b>MD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
	Hendershot/Paige/Eppard/Brook/Bow		
<b>Well:</b>	Eppard 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)
262.0	0.91	249.16	262.0	1.3	-1.8	-1.9	1.31	0.68	-78.20
287.0	1.23	235.90	287.0	1.0	-2.3	-1.8	1.61	1.28	-53.04
312.0	1.78	224.46	312.0	0.6	-2.7	-1.6	2.50	2.20	-45.76
337.0	2.27	213.87	337.0	-0.1	-3.3	-1.2	2.46	1.96	-42.36
362.0	2.84	210.58	361.9	-1.0	-3.9	-0.5	2.35	2.28	-13.16
387.0	2.91	208.14	386.9	-2.1	-4.5	0.3	0.56	0.28	-9.76
412.0	3.14	201.96	411.9	-3.3	-5.1	1.2	1.60	0.92	-24.72
437.0	3.57	193.12	436.8	-4.7	-5.5	2.3	2.89	1.72	-35.36
462.0	3.84	190.16	461.8	-6.3	-5.8	3.7	1.32	1.08	-11.84
487.0	4.37	186.49	486.7	-8.1	-6.1	5.2	2.37	2.12	-14.68
512.0	4.52	186.72	511.6	-10.0	-6.3	6.9	0.60	0.60	0.92
537.0	4.52	185.41	536.6	-11.9	-6.5	8.6	0.41	0.00	-5.24
562.0	4.63	184.57	561.5	-13.9	-6.7	10.4	0.52	0.44	-3.36
587.0	4.75	183.31	586.4	-16.0	-6.8	12.3	0.63	0.48	-5.04
612.0	5.03	184.30	611.3	-18.1	-7.0	14.2	1.17	1.12	3.96
637.0	5.09	184.45	636.2	-20.3	-7.1	16.1	0.25	0.24	0.60
662.0	5.12	185.33	661.1	-22.5	-7.3	18.1	0.34	0.12	3.52
687.0	5.15	185.81	686.0	-24.7	-7.5	20.1	0.21	0.12	1.92
712.0	5.09	185.75	710.9	-27.0	-7.8	22.1	0.24	-0.24	-0.24
737.0	5.15	190.05	735.8	-29.2	-8.1	24.0	1.55	0.24	17.20
762.0	5.04	197.59	760.7	-31.3	-8.6	25.8	2.71	-0.44	30.16
787.0	4.78	207.40	785.6	-33.3	-9.4	27.3	3.51	-1.04	39.24
812.0	4.62	221.54	810.5	-35.0	-10.5	28.5	4.67	-0.64	56.56
837.0	4.59	224.98	835.4	-36.4	-11.9	29.3	1.11	-0.12	13.76
862.0	4.57	236.55	860.4	-37.7	-13.5	29.9	3.69	-0.08	46.28
887.0	4.60	240.07	885.3	-38.7	-15.2	30.2	1.13	0.12	14.08
912.0	4.53	240.88	910.2	-39.7	-16.9	30.5	0.38	-0.28	3.24
937.0	4.37	240.47	935.1	-40.7	-18.6	30.7	0.65	-0.64	-1.64
962.0	4.21	240.51	960.1	-41.6	-20.2	31.0	0.64	-0.64	0.16
987.0	3.91	241.61	985.0	-42.4	-21.8	31.2	1.24	-1.20	4.40
1,012.0	3.74	241.01	1,009.9	-43.2	-23.2	31.4	0.70	-0.68	-2.40
1,037.0	3.52	242.67	1,034.9	-44.0	-24.6	31.6	0.98	-0.88	6.64
1,062.0	3.30	242.30	1,059.9	-44.7	-25.9	31.7	0.88	-0.88	-1.48
1,087.0	3.27	239.47	1,084.8	-45.4	-27.2	31.9	0.66	-0.12	-11.32
1,112.0	3.22	239.94	1,109.8	-46.1	-28.4	32.1	0.23	-0.20	1.88
1,137.0	3.10	240.48	1,134.7	-46.8	-29.6	32.3	0.49	-0.48	2.16
1,162.0	3.07	242.18	1,159.7	-47.4	-30.8	32.4	0.39	-0.12	6.80
1,187.0	2.88	241.77	1,184.7	-48.0	-31.9	32.6	0.76	-0.76	-1.64
1,212.0	2.95	242.76	1,209.6	-48.6	-33.1	32.7	0.34	0.28	3.96



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143 0usft
<b>Site:</b>	Charlene Pad: Hendershot/Paige/Eppard/Brook/Bow	<b>MD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143 0usft
<b>Well:</b>	Eppard 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)
1,237.0	2.60	240.51	1,234.6	-49.2	-34.1	32.8	1.47	-1.40	-9.00
1,262.0	2.66	238.44	1,259.6	-49.8	-35.1	33.0	0.45	0.24	-8.28
1,287.0	2.67	239.14	1,284.5	-50.4	-36.1	33.2	0.14	0.04	2.80
1,312.0	2.59	241.26	1,309.5	-50.9	-37.1	33.3	0.50	-0.32	8.48
1,337.0	2.50	240.75	1,334.5	-51.5	-38.1	33.5	0.37	-0.36	-2.04
1,362.0	2.37	241.16	1,359.5	-52.0	-39.0	33.6	0.52	-0.52	1.64
1,387.0	2.28	242.93	1,384.5	-52.5	-39.9	33.7	0.46	-0.36	7.08
1,412.0	2.24	243.96	1,409.4	-52.9	-40.8	33.8	0.23	-0.16	4.12
1,437.0	2.12	241.52	1,434.4	-53.3	-41.6	33.9	0.61	-0.48	-9.76
1,462.0	2.01	240.54	1,459.4	-53.8	-42.4	34.0	0.46	-0.44	-3.92
1,487.0	2.08	243.48	1,484.4	-54.2	-43.2	34.1	0.50	0.28	11.76
1,512.0	1.99	243.97	1,509.4	-54.6	-44.0	34.2	0.37	-0.36	1.96
1,537.0	1.86	246.50	1,534.4	-54.9	-44.8	34.2	0.62	-0.52	10.12
1,562.0	1.75	246.64	1,559.3	-55.3	-45.5	34.2	0.44	-0.44	0.56
1,587.0	1.67	248.99	1,584.3	-55.5	-46.2	34.2	0.43	-0.32	9.40
1,612.0	1.49	243.38	1,609.3	-55.8	-46.8	34.2	0.95	-0.72	-22.44
1,637.0	1.56	243.20	1,634.3	-56.1	-47.4	34.3	0.28	0.28	-0.72
1,662.0	1.56	242.44	1,659.3	-56.4	-48.0	34.4	0.08	0.00	-3.04
1,687.0	1.48	243.51	1,684.3	-56.7	-48.6	34.4	0.34	-0.32	4.28
1,712.0	1.47	244.26	1,709.3	-57.0	-49.2	34.5	0.09	-0.04	3.00
1,737.0	1.40	245.48	1,734.3	-57.3	-49.7	34.5	0.31	-0.28	4.88
1,762.0	1.30	245.78	1,759.3	-57.5	-50.3	34.5	0.40	-0.40	1.20
1,787.0	1.21	249.97	1,784.3	-57.7	-50.8	34.5	0.51	-0.36	16.76
1,812.0	0.97	250.67	1,809.3	-57.9	-51.2	34.5	0.96	-0.96	2.80
1,837.0	1.00	252.54	1,834.3	-58.0	-51.6	34.5	0.18	0.12	7.48
1,862.0	0.88	252.44	1,859.3	-58.1	-52.0	34.4	0.48	-0.48	-0.40
1,887.0	0.96	253.23	1,884.3	-58.3	-52.4	34.4	0.32	0.32	3.16
1,912.0	0.78	252.06	1,909.2	-58.4	-52.8	34.4	0.72	-0.72	-4.68
1,937.0	0.72	252.67	1,934.2	-58.5	-53.1	34.3	0.24	-0.24	2.44
1,962.0	0.69	245.95	1,959.2	-58.6	-53.4	34.3	0.35	-0.12	-26.88
1,987.0	0.74	243.49	1,984.2	-58.7	-53.6	34.4	0.23	0.20	-9.64
2,012.0	0.71	247.58	2,009.2	-58.9	-53.9	34.4	0.24	-0.12	16.36
2,037.0	0.68	252.40	2,034.2	-59.0	-54.2	34.4	0.26	-0.12	19.28
2,062.0	0.59	252.78	2,059.2	-59.0	-54.5	34.3	0.36	-0.36	1.52
2,087.0	0.50	266.04	2,084.2	-59.1	-54.7	34.3	0.62	-0.36	53.04
2,112.0	0.49	259.12	2,109.2	-59.1	-54.9	34.2	0.24	-0.04	-27.68
2,137.0	0.51	258.83	2,134.2	-59.2	-55.1	34.2	0.08	0.08	-1.16
2,162.0	0.42	263.37	2,159.2	-59.2	-55.3	34.2	0.39	-0.36	18.16
2,187.0	0.26	267.89	2,184.2	-59.2	-55.5	34.1	0.65	-0.64	18.08





<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Site:</b>	Charlene Pad: Hendershot/Paige/Eppard/Brook/Bow	<b>MD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Well:</b>	Eppard 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)
2,212.0	0.26	233.16	2,209.2	-59.2	-55.6	34.1	0.62	0.00	-138.92
2,237.0	0.36	254.78	2,234.2	-59.3	-55.7	34.1	0.61	0.40	86.48
2,262.0	0.47	259.03	2,259.2	-59.3	-55.9	34.1	0.46	0.44	17.00
2,287.0	0.34	261.51	2,284.2	-59.4	-56.1	34.0	0.52	-0.52	9.92
2,312.0	0.39	254.63	2,309.2	-59.4	-56.2	34.0	0.27	0.20	-27.52
2,337.0	0.38	255.11	2,334.2	-59.4	-56.4	34.0	0.04	-0.04	1.92
2,362.0	0.43	245.19	2,359.2	-59.5	-56.5	34.0	0.34	0.20	-39.68
2,387.0	0.24	244.39	2,384.2	-59.6	-56.7	34.0	0.76	-0.76	-3.20
2,412.0	0.18	210.28	2,409.2	-59.6	-56.7	34.0	0.54	-0.24	-136.44
2,437.0	0.19	237.33	2,434.2	-59.7	-56.8	34.1	0.35	0.04	108.20
2,462.0	0.23	255.74	2,459.2	-59.7	-56.9	34.1	0.31	0.16	73.64
2,487.0	0.39	273.29	2,484.2	-59.7	-57.0	34.0	0.74	0.64	70.20
2,512.0	0.26	267.13	2,509.2	-59.7	-57.2	34.0	0.54	-0.52	-24.64
2,537.0	0.19	287.37	2,534.2	-59.7	-57.3	33.9	0.42	-0.28	80.96
2,562.0	0.12	281.99	2,559.2	-59.7	-57.3	33.9	0.29	-0.28	-21.52
2,587.0	0.16	322.25	2,584.2	-59.7	-57.4	33.8	0.41	0.16	161.04
2,612.0	0.09	264.83	2,609.2	-59.6	-57.4	33.8	0.54	-0.28	-229.68
2,637.0	0.13	237.04	2,634.2	-59.6	-57.5	33.8	0.26	0.16	-111.16
2,662.0	0.19	261.70	2,659.2	-59.7	-57.5	33.8	0.36	0.24	98.64
2,687.0	0.23	261.81	2,684.2	-59.7	-57.6	33.8	0.16	0.16	0.44
2,712.0	0.20	290.06	2,709.2	-59.7	-57.7	33.7	0.44	-0.12	113.00
2,737.0	0.11	295.62	2,734.2	-59.6	-57.8	33.7	0.36	-0.36	22.24
2,762.0	0.04	298.76	2,759.2	-59.6	-57.8	33.7	0.28	-0.28	12.56
2,787.0	0.11	214.25	2,784.2	-59.6	-57.8	33.7	0.45	0.28	-338.04
2,812.0	0.20	236.83	2,809.2	-59.7	-57.9	33.7	0.43	0.36	90.32
2,837.0	0.22	272.60	2,834.2	-59.7	-57.9	33.7	0.52	0.08	143.08
2,862.0	0.20	283.72	2,859.2	-59.7	-58.0	33.6	0.18	-0.08	44.48
2,887.0	0.15	258.08	2,884.2	-59.7	-58.1	33.6	0.37	-0.20	-102.56
2,912.0	0.09	243.94	2,909.2	-59.7	-58.2	33.6	0.27	-0.24	-56.56
2,937.0	0.18	233.99	2,934.2	-59.7	-58.2	33.6	0.37	0.36	-39.80
2,962.0	0.21	246.45	2,959.2	-59.8	-58.3	33.6	0.21	0.12	49.84
2,987.0	0.18	241.75	2,984.2	-59.8	-58.4	33.6	0.14	-0.12	-18.80
3,012.0	0.15	320.71	3,009.2	-59.8	-58.4	33.6	0.84	-0.12	315.84
3,037.0	0.12	193.31	3,034.2	-59.8	-58.4	33.6	0.97	-0.12	-509.60
3,062.0	0.05	180.69	3,059.2	-59.9	-58.5	33.6	0.29	-0.28	-50.48
3,087.0	0.14	229.85	3,084.2	-59.9	-58.5	33.6	0.46	0.36	196.64
3,112.0	0.12	249.51	3,109.2	-59.9	-58.5	33.6	0.19	-0.08	78.64
3,137.0	0.06	280.27	3,134.2	-59.9	-58.6	33.6	0.30	-0.24	123.04
3,162.0	0.07	125.27	3,159.2	-59.9	-58.6	33.6	0.51	0.04	-620.00
3,187.0	0.11	156.05	3,184.2	-60.0	-58.5	33.7	0.25	0.16	123.12



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Site:</b>	Charlene Pad: Hendershot/Paige/Eppard/Brook/Bow	<b>MD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Well:</b>	Eppard 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)
3,212.0	0.13	173.36	3,209.2	-60.0	-58.5	33.7	0.16	0.08	69.24
3,237.0	0.09	227.52	3,234.2	-60.0	-58.5	33.8	0.43	-0.16	216.64
3,262.0	0.02	107.77	3,259.2	-60.1	-58.5	33.8	0.41	-0.28	-479.00
3,287.0	0.06	89.13	3,284.2	-60.1	-58.5	33.8	0.17	0.16	-74.56
3,312.0	0.08	101.56	3,309.2	-60.1	-58.5	33.8	0.10	0.08	49.72
3,337.0	0.14	120.77	3,334.2	-60.1	-58.5	33.8	0.28	0.24	76.84
3,362.0	0.02	174.89	3,359.2	-60.1	-58.4	33.9	0.52	-0.48	216.48
3,387.0	0.03	140.08	3,384.2	-60.1	-58.4	33.9	0.07	0.04	-139.24
3,412.0	0.02	107.92	3,409.2	-60.1	-58.4	33.9	0.07	-0.04	-128.64
3,437.0	0.08	75.54	3,434.2	-60.1	-58.4	33.9	0.28	0.24	-129.52
3,462.0	0.10	114.02	3,459.2	-60.1	-58.4	33.9	0.25	0.08	153.92
3,487.0	0.16	123.51	3,484.2	-60.1	-58.3	33.9	0.25	0.24	37.96
3,512.0	0.13	129.98	3,509.2	-60.2	-58.3	34.0	0.14	-0.12	25.88
3,537.0	0.13	138.38	3,534.2	-60.2	-58.2	34.0	0.08	0.00	33.60
3,562.0	0.07	141.23	3,559.2	-60.3	-58.2	34.1	0.24	-0.24	11.40
3,587.0	0.05	247.46	3,584.2	-60.3	-58.2	34.1	0.39	-0.08	424.92
3,612.0	0.04	219.79	3,609.2	-60.3	-58.2	34.1	0.09	-0.04	-110.68
3,637.0	0.03	28.90	3,634.2	-60.3	-58.2	34.1	0.28	-0.04	676.44
3,662.0	0.07	132.49	3,659.2	-60.3	-58.2	34.1	0.33	0.16	414.36
3,687.0	0.08	85.97	3,684.2	-60.3	-58.2	34.1	0.24	0.04	-186.08
3,712.0	0.13	128.04	3,709.2	-60.3	-58.1	34.2	0.35	0.20	168.28
3,737.0	0.09	129.46	3,734.2	-60.3	-58.1	34.2	0.16	-0.16	5.68
3,762.0	0.16	154.04	3,759.2	-60.4	-58.1	34.3	0.35	0.28	98.32
3,787.0	0.02	236.78	3,784.2	-60.4	-58.0	34.3	0.63	-0.56	330.96
3,812.0	0.06	185.56	3,809.2	-60.4	-58.1	34.3	0.20	0.16	-204.88
3,837.0	0.05	120.94	3,834.2	-60.5	-58.0	34.3	0.24	-0.04	-258.48
3,862.0	0.10	73.03	3,859.2	-60.5	-58.0	34.3	0.30	0.20	-191.64
3,887.0	0.06	95.63	3,884.2	-60.5	-58.0	34.3	0.20	-0.16	90.40
3,912.0	0.03	212.95	3,909.2	-60.5	-58.0	34.4	0.31	-0.12	469.28
3,937.0	0.11	3.88	3,934.2	-60.4	-58.0	34.3	0.55	0.32	603.72
3,962.0	0.06	254.80	3,959.2	-60.4	-58.0	34.3	0.57	-0.20	-436.32
3,987.0	0.06	241.32	3,984.2	-60.4	-58.0	34.3	0.06	0.00	-53.92
4,012.0	0.18	221.20	4,009.2	-60.5	-58.0	34.3	0.50	0.48	-80.48
4,037.0	0.27	209.57	4,034.2	-60.5	-58.1	34.4	0.40	0.36	-46.52
4,062.0	0.26	209.48	4,059.2	-60.6	-58.2	34.5	0.04	-0.04	-0.36
4,087.0	0.26	202.07	4,084.2	-60.7	-58.2	34.5	0.13	0.00	-29.64
4,112.0	0.28	222.26	4,109.2	-60.8	-58.3	34.6	0.39	0.08	80.76
4,137.0	0.31	251.81	4,134.2	-60.9	-58.4	34.6	0.61	0.12	118.20
4,162.0	0.44	240.05	4,159.2	-61.0	-58.5	34.6	0.60	0.52	-47.04



**Company:** Antero Resources  
**Project:** Ritchie County WV  
**Site:** Charlene Pad:  
 Hendershot/Paige/Eppard/Brook/Bow  
**Well:** Eppard Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Eppard Unit 1H  
**TVD Reference:** Patterson 347' 1118' GL + 25' KB @ 1143.0usft  
**MD Reference:** Patterson 347' 1118' GL + 25' KB @ 1143.0usft  
**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)
4,187.0	0.60	226.97	4,184.2	-81.1	-58.7	34.7	0.79	0.64	-52.32
4,212.0	0.62	241.05	4,209.2	-81.3	-58.9	34.8	0.60	0.08	56.32
4,237.0	0.72	241.63	4,234.2	-81.4	-59.2	34.8	0.40	0.40	2.32
4,262.0	0.71	239.48	4,259.2	-81.6	-59.4	34.8	0.11	-0.04	-8.60
4,287.0	1.03	250.64	4,284.2	-81.7	-59.8	34.8	1.44	1.28	44.64
4,312.0	2.31	258.68	4,309.2	-81.9	-60.5	34.7	5.19	5.12	32.16
4,337.0	3.09	261.56	4,334.2	-82.1	-61.7	34.5	3.17	3.12	11.52
4,362.0	3.93	264.57	4,359.1	-82.3	-63.2	34.1	3.44	3.36	12.04
4,387.0	4.59	266.64	4,384.1	-82.4	-65.0	33.5	2.71	2.64	8.28
4,412.0	5.11	269.19	4,409.0	-82.5	-67.1	32.8	2.25	2.08	10.20
4,437.0	5.67	271.52	4,433.9	-82.5	-68.5	31.9	2.40	2.24	9.32
4,462.0	6.50	273.94	4,458.7	-82.3	-72.1	30.8	3.47	3.32	9.68
4,487.0	7.36	275.95	4,483.5	-82.1	-75.1	29.4	3.57	3.44	8.04
4,512.0	8.34	277.07	4,508.3	-81.7	-78.5	27.8	3.97	3.92	4.48
4,537.0	8.74	276.59	4,533.0	-81.2	-82.2	26.0	1.63	1.60	-1.92
4,562.0	8.84	276.58	4,557.7	-80.8	-86.0	24.2	0.40	0.40	-0.04
4,587.0	9.01	276.22	4,582.4	-80.4	-89.9	22.3	0.72	0.68	-1.44
4,612.0	9.12	275.66	4,607.1	-80.0	-93.8	20.5	0.56	0.44	-2.24
4,637.0	9.47	274.32	4,631.8	-59.6	-97.8	18.7	1.65	1.40	-5.36
4,662.0	10.30	272.20	4,656.4	-59.4	-102.1	16.8	3.62	3.32	-8.48
4,687.0	11.05	270.86	4,681.0	-59.3	-106.7	15.0	3.16	3.00	-5.36
4,712.0	11.76	269.59	4,705.5	-59.2	-111.7	13.1	3.01	2.84	-5.08
4,737.0	12.08	268.95	4,729.9	-59.3	-116.8	11.2	1.38	1.28	-2.56
4,762.0	12.30	268.20	4,754.4	-59.4	-122.1	9.4	1.08	0.88	-3.00
4,787.0	12.65	267.15	4,778.8	-59.7	-127.5	7.6	1.67	1.40	-4.20
4,812.0	12.96	266.40	4,803.2	-60.0	-133.0	5.8	1.41	1.24	-3.00
4,837.0	13.16	265.98	4,827.5	-60.3	-138.7	4.0	0.89	0.80	-1.68
4,862.0	13.14	265.29	4,851.9	-60.8	-144.3	2.3	0.63	-0.08	-2.76
4,887.0	13.41	265.44	4,876.2	-61.2	-150.1	0.6	1.09	1.08	0.60
4,912.0	13.66	265.28	4,900.5	-61.7	-155.9	-1.1	1.01	1.00	-0.64
4,937.0	14.14	266.64	4,924.8	-62.1	-161.9	-3.0	2.32	1.92	5.44
4,962.0	14.85	268.06	4,949.0	-62.4	-168.1	-5.1	3.18	2.84	5.68
4,987.0	15.72	268.80	4,973.1	-62.6	-174.7	-7.4	3.57	3.48	2.96
5,012.0	16.76	268.95	4,997.1	-62.7	-181.7	-9.9	4.16	4.16	0.60
5,037.0	17.52	268.09	5,021.0	-62.9	-189.1	-12.4	3.20	3.04	-3.44
5,062.0	18.12	266.88	5,044.8	-63.3	-196.7	-15.0	2.82	2.40	-4.84
5,087.0	18.65	265.03	5,068.5	-63.8	-204.6	-17.4	3.15	2.12	-7.40
5,112.0	18.96	262.66	5,092.2	-64.7	-212.6	-19.6	3.30	1.24	-9.48
5,137.0	19.21	260.02	5,115.8	-65.9	-220.7	-21.5	3.59	1.00	-10.56





**Company:** Antero Resources  
**Project:** Ritchie County WV  
**Site:** Charlene Pad:  
 Hendershot/Paige/Eppard/Brook/Bow  
**Well:** Eppard Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Eppard Unit 1H  
**TVD Reference:** Patterson 347: 1118' GL + 25' KB @ 1143.0usft  
**MD Reference:** Patterson 347: 1118' GL + 25' KB @ 1143.0usft  
**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)	
5,162.0	19.72	258.76	5,139.4	-67.5	-228.9	-23.1	2.64	2.04	-5.04	
5,187.0	20.01	258.23	5,162.9	-69.2	-237.2	-24.7	1.37	1.16	-2.12	
5,212.0	20.49	258.02	5,186.3	-70.9	-245.6	-26.2	1.94	1.92	-0.84	
5,237.0	21.18	258.32	5,209.7	-72.8	-254.4	-27.8	2.79	2.76	1.20	
5,262.0	22.04	259.10	5,232.9	-74.6	-263.4	-29.5	3.63	3.44	3.12	
5,287.0	22.66	260.09	5,256.1	-76.3	-272.7	-31.4	2.90	2.48	3.96	
5,312.0	23.49	260.48	5,279.1	-77.9	-282.4	-33.5	3.38	3.32	1.56	
5,337.0	23.97	260.56	5,302.0	-79.6	-292.3	-35.7	1.92	1.92	0.32	
5,362.0	23.95	260.93	5,324.8	-81.2	-302.3	-37.9	0.61	-0.08	1.48	
5,387.0	23.93	261.87	5,347.7	-82.7	-312.4	-40.2	1.53	-0.08	3.76	
5,412.0	24.07	262.70	5,370.5	-84.1	-322.4	-42.8	1.46	0.56	3.32	
5,437.0	23.60	264.14	5,393.4	-85.3	-332.5	-45.4	2.99	-1.88	5.78	
5,462.0	23.58	265.99	5,416.3	-86.1	-342.4	-48.4	2.96	-0.08	7.40	
5,487.0	23.43	267.26	5,439.2	-86.7	-352.4	-51.6	2.11	-0.60	5.08	
5,512.0	22.99	269.00	5,462.2	-87.0	-362.2	-54.9	3.26	-1.76	6.96	
5,537.0	22.28	269.47	5,485.2	-87.2	-371.9	-58.4	2.93	-2.84	1.88	
5,562.0	22.18	269.57	5,508.4	-87.2	-381.3	-61.9	0.43	-0.40	0.40	
5,587.0	22.28	269.87	5,531.5	-87.3	-390.8	-65.4	0.61	0.40	1.20	
5,612.0	22.31	269.99	5,554.7	-87.3	-400.3	-68.9	0.22	0.12	0.48	
5,637.0	22.70	270.72	5,577.8	-87.2	-409.8	-72.6	1.92	1.56	2.92	
5,662.0	23.34	270.66	5,600.8	-87.1	-419.6	-76.3	2.56	2.56	-0.24	
5,687.0	24.25	270.60	5,623.6	-87.0	-429.7	-80.2	3.64	3.64	-0.24	
5,712.0	25.10	270.71	5,646.4	-86.9	-440.1	-84.2	3.40	3.40	0.44	
5,737.0	24.88	270.36	5,669.0	-86.8	-450.7	-88.3	1.06	-0.88	-1.40	
5,762.0	25.10	270.47	5,691.7	-86.7	-461.2	-92.3	0.90	0.88	0.44	
5,787.0	25.13	270.91	5,714.3	-86.6	-471.9	-96.4	0.76	0.12	1.76	
<b>Last SDI Gyro @ 5775 MD</b>										
5,912.0	25.61	270.23	5,827.3	-86.1	-525.4	-116.9	0.45	0.38	-0.54	
<b>First SDI MWD @ 5912</b>										
5,943.0	24.88	269.97	5,855.3	-86.0	-538.6	-121.9	2.38	-2.35	-0.84	
5,975.0	24.46	268.68	5,884.4	-86.2	-552.0	-126.8	2.13	-1.31	-4.03	
6,006.0	24.20	261.90	5,912.6	-87.2	-564.7	-130.6	9.05	-0.84	-21.87	
6,037.0	25.13	249.77	5,940.8	-90.4	-577.2	-132.3	16.57	3.00	-39.13	
6,069.0	27.48	235.42	5,969.5	-96.9	-589.6	-130.9	21.13	7.34	-44.84	
6,100.0	29.02	228.40	5,996.8	-106.0	-601.2	-126.6	11.81	4.97	-22.65	
6,132.0	29.24	225.22	6,024.8	-116.7	-612.5	-121.2	4.89	0.69	-9.94	
6,163.0	30.82	220.04	6,051.6	-128.1	-623.0	-114.5	9.79	5.10	-16.71	
6,195.0	33.16	214.17	6,078.8	-141.6	-633.2	-105.8	12.15	7.31	-18.34	
6,226.0	35.31	210.56	6,104.4	-156.3	-642.5	-95.6	9.54	6.94	-11.65	



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Site:</b>	Charlene Pad: Hendershot/Paige/Eppard/Brook/Bow	<b>MD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Well:</b>	Eppard 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)
6,257.0	36.61	207.02	6,129.5	-172.3	-651.3	-84.1	7.91	4.19	-11.42
6,288.0	36.70	205.86	6,154.4	-188.9	-659.5	-71.8	2.25	0.29	-3.74
6,320.0	38.05	202.28	6,179.8	-206.6	-667.4	-58.4	7.99	4.22	-11.19
6,351.0	38.87	199.55	6,204.1	-224.6	-674.3	-44.2	6.08	2.65	-8.81
6,378.0	40.25	197.99	6,224.9	-240.9	-679.8	-31.2	6.30	5.12	-5.78
<b>Middlesex @ 6378</b>									
6,383.0	40.51	197.71	6,228.7	-244.0	-680.8	-28.7	6.30	5.16	-5.58
6,414.0	43.26	196.05	6,251.8	-263.8	-686.8	-12.6	9.56	8.87	-5.35
6,446.0	46.65	195.32	6,274.4	-285.5	-692.9	5.3	10.72	10.59	-2.28
6,477.0	51.00	194.79	6,294.8	-308.1	-699.0	23.9	14.09	14.03	-1.71
6,508.0	56.13	194.33	6,313.2	-332.2	-705.2	43.9	16.59	16.55	-1.48
6,534.0	60.10	193.91	6,327.0	-353.6	-710.6	61.8	15.32	15.26	-1.63
<b>Burket @ 6534</b>									
6,539.0	60.86	193.83	6,329.4	-357.8	-711.7	65.3	15.32	15.26	-1.55
6,571.0	65.14	192.54	6,344.0	-385.6	-718.2	88.6	13.85	13.38	-4.03
6,592.0	67.80	190.47	6,352.3	-404.4	-722.0	104.7	15.57	12.68	-9.86
<b>Tully @ 6592</b>									
6,602.0	69.08	189.51	6,356.0	-413.6	-723.6	112.6	15.57	12.77	-9.58
6,634.0	72.55	186.89	6,366.5	-443.5	-727.9	138.7	13.32	10.84	-8.19
6,644.0	73.68	185.69	6,369.4	-453.0	-729.0	147.1	16.06	11.25	-11.98
<b>Marcellus @ 6644</b>									
6,665.0	76.06	183.22	6,374.9	-473.2	-730.5	165.3	16.06	11.35	-11.77
6,696.0	78.54	178.84	6,381.7	-503.4	-731.1	193.1	15.94	8.00	-14.13
6,728.0	80.00	174.23	6,387.7	-534.8	-729.2	222.9	14.87	4.56	-14.41
6,755.0	82.45	171.73	6,391.8	-561.3	-725.9	248.7	12.89	9.07	-9.26
6,788.0	86.78	169.88	6,394.7	-591.8	-721.0	278.7	15.18	13.97	-5.97
6,818.0	89.36	169.26	6,395.8	-623.2	-715.2	310.1	8.29	8.06	-1.94
6,881.0	90.37	168.72	6,396.0	-685.0	-703.2	371.9	1.82	1.60	-0.86
6,975.0	90.00	164.84	6,395.7	-776.5	-681.7	464.8	4.15	-0.39	-4.13
7,069.0	89.23	163.66	6,396.3	-867.0	-658.1	558.2	1.50	-0.82	-1.26
7,163.0	90.23	160.51	6,396.7	-956.4	-627.2	652.0	3.52	1.06	-3.35
7,257.0	89.97	160.29	6,396.6	-1,045.0	-595.7	745.9	0.36	-0.28	-0.23
7,352.0	90.24	156.65	6,396.4	-1,133.3	-560.8	840.9	3.84	0.28	-3.83
7,446.0	90.54	156.73	6,395.6	-1,219.7	-523.6	934.9	0.33	0.32	0.09
7,540.0	88.76	158.29	6,396.3	-1,306.5	-487.7	1,028.8	2.52	-1.89	1.66
7,634.0	88.59	158.66	6,398.5	-1,393.9	-453.2	1,122.8	0.43	-0.18	0.39
7,728.0	88.32	158.15	6,401.0	-1,481.3	-418.6	1,216.8	0.61	-0.29	-0.54
7,822.0	89.40	156.02	6,402.9	-1,567.9	-382.0	1,310.7	2.54	1.15	-2.27
7,916.0	89.50	155.57	6,403.8	-1,653.6	-343.5	1,404.7	0.49	0.11	-0.48
8,010.0	89.70	155.51	6,404.5	-1,739.2	-304.6	1,498.6	0.22	0.21	-0.06



Scientific Drilling International  
Survey Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347- 1118' GL + 25' KB @ 1143 0usft
<b>Site:</b>	Charlene Pad	<b>MD Reference:</b>	Patterson 347- 1118' GL + 25' KB @ 1143 0usft
	Hendershot/Paige/Eppard/Brook/Bow		
<b>Well:</b>	Eppard 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)
8,105.0	89.06	156.14	6,405.5	-1,825.8	-285.7	1,593.5	0.95	-0.87	0.66
8,199.0	88.22	154.04	6,407.7	-1,911.0	-226.1	1,687.4	2.41	-0.89	-2.23
8,293.0	88.93	157.93	6,410.1	-1,996.9	-187.9	1,781.2	4.21	0.76	4.14
8,387.0	89.23	157.21	6,411.6	-2,083.7	-152.0	1,875.2	0.83	0.32	-0.77
8,481.0	89.53	157.38	6,412.6	-2,170.5	-115.7	1,969.2	0.37	0.32	0.18
8,575.0	89.56	156.73	6,413.3	-2,257.0	-79.1	2,063.2	0.69	0.03	-0.69
8,669.0	89.50	160.28	6,414.1	-2,344.5	-44.6	2,157.2	3.78	-0.06	3.78
8,764.0	89.36	160.08	6,415.1	-2,433.8	-12.4	2,252.1	0.26	-0.15	-0.21
8,858.0	89.66	158.58	6,415.9	-2,521.8	20.7	2,346.1	1.63	0.32	-1.60
8,952.0	90.94	159.70	6,415.4	-2,609.6	54.2	2,440.1	1.81	1.36	1.19
9,046.0	90.94	158.76	6,413.8	-2,697.5	87.5	2,534.0	1.00	0.00	-1.00
9,140.0	91.21	158.99	6,412.1	-2,785.1	121.4	2,628.0	0.38	0.29	0.24
9,233.0	90.03	159.33	6,411.1	-2,872.1	154.5	2,721.0	1.32	-1.27	0.37
9,327.0	90.64	158.77	6,410.5	-2,959.8	188.1	2,814.9	0.88	0.65	-0.60
9,421.0	90.70	158.51	6,409.4	-3,047.4	222.3	2,908.9	0.28	0.06	-0.28
9,516.0	88.29	157.65	6,410.2	-3,135.5	257.8	3,003.9	2.69	-2.54	-0.91
9,610.0	87.92	156.10	6,413.3	-3,221.9	294.7	3,097.8	1.69	-0.39	-1.65
9,704.0	89.60	156.19	6,415.4	-3,307.8	332.7	3,191.8	1.79	1.79	0.10
9,798.0	89.53	156.39	6,416.1	-3,393.9	370.5	3,285.7	0.23	-0.07	0.21
9,892.0	90.30	158.55	6,416.2	-3,480.7	406.5	3,379.7	2.44	0.82	2.30
9,986.0	89.63	157.85	6,416.3	-3,568.0	441.4	3,473.7	1.03	-0.71	-0.74
10,080.0	90.40	157.96	6,416.3	-3,655.1	476.8	3,567.7	0.83	0.82	0.12
10,174.0	87.62	154.32	6,417.9	-3,741.0	514.8	3,661.6	4.87	-2.96	-3.87
10,269.0	90.47	159.86	6,419.5	-3,828.5	551.7	3,756.6	6.56	3.00	5.83
10,363.0	91.54	162.94	6,417.8	-3,917.5	581.7	3,850.4	3.47	1.14	3.28
10,457.0	90.27	157.47	6,416.3	-4,005.9	613.5	3,944.2	5.97	-1.35	-5.82
10,551.0	90.00	158.09	6,416.1	-4,093.0	649.1	4,038.2	0.72	-0.29	0.66
10,645.0	89.56	157.08	6,416.5	-4,179.9	684.9	4,132.2	1.17	-0.47	-1.07
10,739.0	90.00	158.12	6,416.8	-4,266.8	720.7	4,226.2	1.20	0.47	1.11
10,834.0	89.50	157.16	6,417.3	-4,354.6	756.9	4,321.2	1.14	-0.53	-1.01
10,928.0	90.13	157.78	6,417.6	-4,441.4	792.9	4,415.2	0.94	0.67	0.66
11,022.0	90.81	158.40	6,416.8	-4,528.6	828.0	4,509.2	0.98	0.72	0.66
11,116.0	89.90	155.09	6,416.2	-4,615.0	865.1	4,603.2	3.65	-0.97	-3.52
11,210.0	89.50	156.24	6,416.7	-4,700.6	903.8	4,697.1	1.30	-0.43	1.22
11,304.0	91.48	158.25	6,415.9	-4,787.3	940.2	4,791.1	3.00	2.11	2.14
11,399.0	91.58	157.52	6,413.4	-4,875.3	975.9	4,886.0	0.78	0.11	-0.77
11,492.0	92.28	156.91	6,410.2	-4,961.0	1,011.9	4,979.9	1.00	0.75	-0.68
11,586.0	90.87	160.23	6,407.6	-5,048.4	1,046.2	5,072.9	3.84	-1.50	3.53
11,680.0	90.30	158.39	6,406.7	-5,136.4	1,079.5	5,166.9	2.05	-0.61	-1.96



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Eppard Unit 1H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Site:</b>	Charlene Pad Hendershot/Paige/Eppard/Brook/Bow	<b>MD Reference:</b>	Patterson 347 1118' GL + 25' KB @ 1143.0usft
<b>Well:</b>	Eppard 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)
11,774.0	90.27	158.31	6,406.2	-5,223.7	1,114.1	5,260.9	0.09	-0.03	-0.09
11,868.0	90.23	158.81	6,405.8	-5,311.2	1,148.5	5,354.9	0.53	-0.04	0.53
11,962.0	90.20	159.28	6,405.5	-5,399.0	1,182.1	5,448.9	0.50	-0.03	0.50
12,056.0	90.00	158.64	6,405.3	-5,486.7	1,215.9	5,542.9	0.71	-0.21	-0.68
12,150.0	89.70	158.01	6,405.5	-5,574.1	1,250.6	5,636.8	0.74	-0.32	-0.67
12,243.0	89.97	157.96	6,405.8	-5,660.3	1,285.4	5,729.8	0.30	0.29	-0.05
12,337.0	90.13	157.99	6,405.7	-5,747.5	1,320.7	5,823.8	0.17	0.17	0.03
12,431.0	90.34	157.67	6,405.3	-5,834.5	1,356.2	5,917.8	0.41	0.22	-0.34
12,526.0	90.13	157.90	6,404.9	-5,922.5	1,392.1	6,012.8	0.33	-0.22	0.24
12,620.0	90.57	158.61	6,404.4	-6,009.8	1,426.9	6,106.8	0.89	0.47	0.76
12,714.0	88.86	159.80	6,404.8	-6,097.6	1,460.3	6,200.8	2.22	-1.82	1.27
12,808.0	89.09	159.61	6,406.5	-6,185.8	1,492.9	6,294.8	0.32	0.24	-0.20
12,902.0	88.96	159.96	6,408.1	-6,274.0	1,525.3	6,388.7	0.40	-0.14	0.37
12,996.0	89.33	159.66	6,409.5	-6,362.2	1,557.8	6,482.6	0.51	0.39	-0.32
13,090.0	89.83	159.01	6,410.2	-6,450.1	1,591.0	6,576.6	0.87	0.53	-0.69
13,184.0	89.83	159.58	6,410.5	-6,538.1	1,624.2	6,670.6	0.61	0.00	0.61
13,278.0	88.42	157.75	6,411.9	-6,625.6	1,658.4	6,764.6	2.46	-1.50	-1.95
13,372.0	88.76	156.57	6,414.2	-6,712.2	1,694.9	6,858.5	1.31	0.36	-1.26
13,467.0	88.46	156.99	6,416.5	-6,799.5	1,732.3	6,953.5	0.54	-0.32	0.44
13,480.0	88.66	156.73	6,416.9	-6,811.4	1,737.4	6,966.5	2.52	1.54	-2.00
<b>Last SDI MWD @ 13480</b>									
13,537.0	88.66	156.73	6,418.2	-6,863.8	1,759.9	7,023.4	0.00	0.00	0.00
<b>Projection To Bit @ 13537 MD / 6418 TVD</b>									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,378.0	6,224.9	Middlesex @ 6378		0.00	
6,534.0	6,327.0	Burket @ 6534		0.00	
6,592.0	6,352.3	Tully @ 6592		0.00	
6,644.0	6,369.4	Marcellus @ 6644		0.00	



**Company:** Antero Resources  
**Project:** Ritchie County WV  
**Site:** Charlene Pad:  
 Hendershot/Paige/Eppard/Brook/Bow  
**Well:** Eppard Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Eppard Unit 1H  
**TVD Reference:** Patterson 347 1118' GL + 25' KB @ 1143.0usft  
**MD Reference:** Patterson 347. 1118' GL + 25' KB @ 1143.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Antero NE

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
112.0	112.0	0.6	-0.3	First SDI Gyro @ 100 MD
5,787.0	5,714.3	-86.6	-471.9	Last SDI Gyro @ 5775 MD
5,912.0	5,827.3	-86.1	-525.4	First SDI MWD @ 5912
13,480.0	6,416.9	-8,811.4	1,737.4	Last SDI MWD @ 13480
13,537.0	6,418.2	-6,863.8	1,759.9	Projection To Bit @ 13537 MD / 6418 TVD

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