



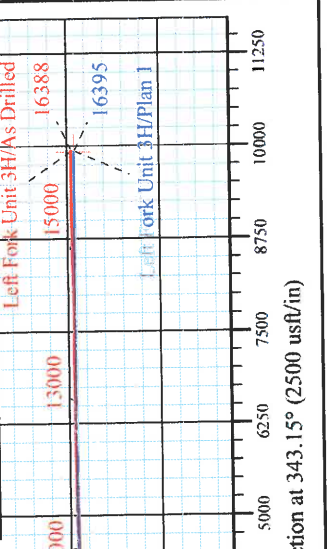
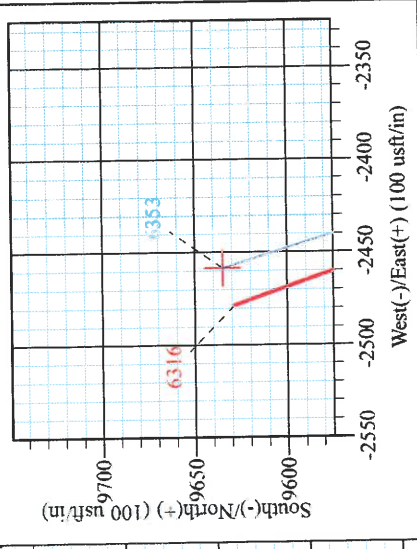
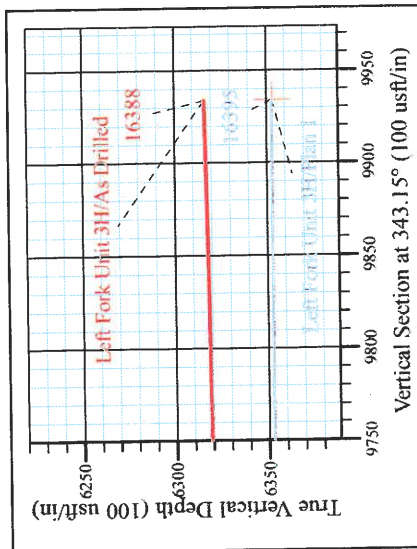
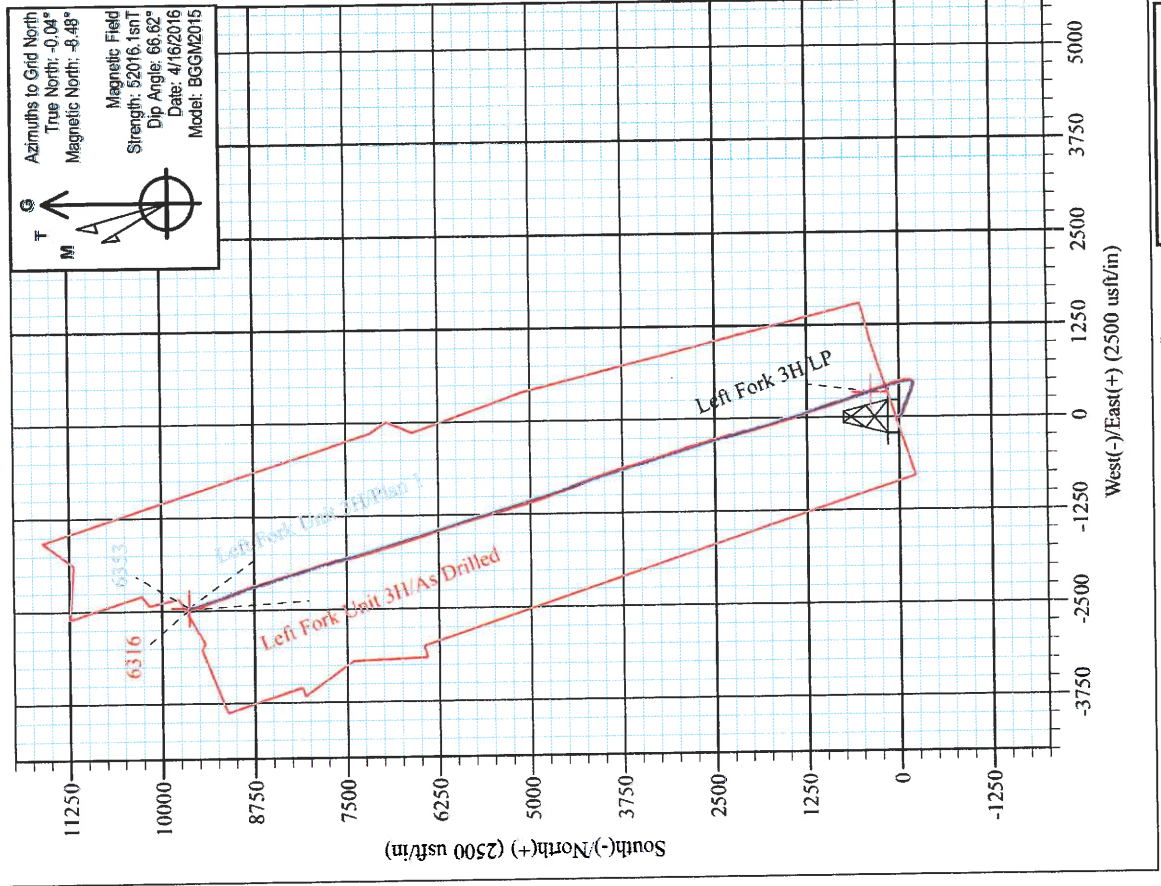
Lockhart Heirs West Pad: Left Fork/Harris
 Left Fork Unit 3H
 Plan 1
 Patterson 347: 1021' GL + 25' KB @ 1046.0usft
 Ritchie County WV

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: Left Fork Unit 3H SHL

4-N-S	0.0	+E-W	0.0	Northing	14230951.11	Latitude	39° 11' 22.283 N	Longitude	80° 55' 41.417 W
True Vertical Depth (2500 usft/in)	-5000			True Vertical Depth (100 usft/in)	6250				



Shane Rhodes
 12:30, April 26, 2016
 Scientific Drilling International
 124 Vista Drive
 Charleroi, PA 15022

Left Fork Unit 3H
 Approx. BHL
 39° 12' 57.508 N 80° 56' 12.823 W

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 Office of Oil and Gas
 WV Department of
 Environmental Protection
 FEB 01 2017
 05/26/2017



Antero Resources

**Ritchie County WV
Lockhart Heirs West Pad: Left Fork/Harris
Left Fork Unit 3H**

Original Wellpath

Design: As Drilled

Survey Report - Geographic

26 April, 2016



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Office of Oil and Gas

FEB 01 2017

WV Department of
Environmental Protection
05/26/2017



Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Left Fork Unit 3H
Project:	Ritchie County WV	TVD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Site:	Lockhart Heirs West Pad: Left Fork/Harris	MD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Well:	Left Fork Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Project	Ritchie County WV, Ritchie County WV, WV North		
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	Lockhart Heirs West Pad: Left Fork/Harris, Site Center: Left Fork 1H				
Site Position:		Northing:	14,230,960.12 usft	Latitude:	39° 11' 22.372 N
From:	Map	Easting:	1,660,769.52 usft	Longitude:	80° 55' 41.406 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.05 °

Well	Left Fork Unit 3H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,230,951.11 usft	Latitude:	39° 11' 22.283 N
	+E/-W	0.0 usft	Easting:	1,660,768.67 usft	Longitude:	80° 55' 41.417 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,046.0 usft	Ground Level:	1,021.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	4/16/2016	-8.44	66.62	52,016

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	343.15

Survey Program	Date 4/26/2016				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
25.0	5,502.0	Survey #4- Def. Final Gyro KOP (Original)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,526.0	16,388.0	Survey #5 - SDI MWD Surveys (Original W	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	14,230,951.11	1,660,768.67	39° 11' 22.283 N	80° 55' 41.417 W
25.0	0.19	226.67	25.0	0.0	0.0	14,230,951.08	1,660,768.64	39° 11' 22.282 N	80° 55' 41.417 W
50.0	0.38	226.67	50.0	-0.1	-0.1	14,230,950.99	1,660,768.55	39° 11' 22.281 N	80° 55' 41.418 W
75.0	0.57	226.67	75.0	-0.3	-0.3	14,230,950.85	1,660,768.39	39° 11' 22.280 N	80° 55' 41.420 W
100.0	0.76	226.67	100.0	-0.5	-0.5	14,230,950.65	1,660,768.18	39° 11' 22.278 N	80° 55' 41.423 W
125.0	0.78	220.71	125.0	-0.7	-0.7	14,230,950.41	1,660,767.95	39° 11' 22.273 N	80° 55' 41.426 W
150.0	0.75	220.41	150.0	-1.0	-0.9	14,230,950.16	1,660,767.74	39° 11' 22.274 N	80° 55' 41.431 W
175.0	0.64	225.47	175.0	-1.2	-1.1	14,230,949.93	1,660,767.53	39° 11' 22.269 N	80° 55' 41.433 W
200.0	0.58	212.90	200.0	-1.4	-1.3	14,230,949.73	1,660,767.36	39° 11' 22.261 N	80° 55' 41.435 W
225.0	0.50	211.31	225.0	-1.6	-1.4	14,230,949.53	1,660,767.24	39° 11' 22.261 N	80° 55' 41.435 W
250.0	0.33	217.61	250.0	-1.7	-1.5	14,230,949.38	1,660,767.14	39° 11' 22.265 N	80° 55' 41.436 W



Scientific Drilling International
Survey Report - Geographic



Company: Antero Resources
Project: Ritchie County WV
Site: Lockhart Heirs West Pad: Left Fork/Harris
Well: Left Fork Unit 3H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Left Fork Unit 3H
Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Grid
Minimum Curvature
Antero NE

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
275.0	0.33	213.96	275.0	-1.8	-1.6	14,230,949.26	1,660,767.05	39° 11' 22.264 N	80° 55' 41.437 W
300.0	0.26	181.35	300.0	-2.0	-1.7	14,230,949.15	1,660,767.01	39° 11' 22.263 N	80° 55' 41.438 W
325.0	0.31	199.30	325.0	-2.1	-1.7	14,230,949.03	1,660,766.99	39° 11' 22.262 N	80° 55' 41.438 W
350.0	0.35	196.22	350.0	-2.2	-1.7	14,230,948.89	1,660,766.94	39° 11' 22.261 N	80° 55' 41.439 W
375.0	0.36	181.83	375.0	-2.4	-1.7	14,230,948.74	1,660,766.92	39° 11' 22.259 N	80° 55' 41.439 W
400.0	0.42	175.97	400.0	-2.5	-1.7	14,230,948.57	1,660,766.92	39° 11' 22.257 N	80° 55' 41.439 W
425.0	0.37	154.08	425.0	-2.7	-1.7	14,230,948.40	1,660,766.96	39° 11' 22.256 N	80° 55' 41.438 W
450.0	0.66	145.70	450.0	-2.9	-1.6	14,230,948.21	1,660,767.08	39° 11' 22.254 N	80° 55' 41.437 W
475.0	0.76	147.19	475.0	-3.2	-1.4	14,230,947.95	1,660,767.25	39° 11' 22.251 N	80° 55' 41.435 W
500.0	1.22	143.39	500.0	-3.5	-1.2	14,230,947.60	1,660,767.50	39° 11' 22.248 N	80° 55' 41.432 W
525.0	1.61	137.98	525.0	-4.0	-0.8	14,230,947.13	1,660,767.89	39° 11' 22.243 N	80° 55' 41.427 W
550.0	2.12	135.08	550.0	-4.6	-0.2	14,230,946.54	1,660,768.46	39° 11' 22.237 N	80° 55' 41.420 W
575.0	2.87	133.08	574.9	-5.3	0.6	14,230,945.78	1,660,769.24	39° 11' 22.230 N	80° 55' 41.410 W
600.0	3.69	129.22	599.9	-6.3	1.7	14,230,944.85	1,660,770.32	39° 11' 22.221 N	80° 55' 41.396 W
625.0	4.67	129.66	624.8	-7.4	3.1	14,230,943.69	1,660,771.73	39° 11' 22.209 N	80° 55' 41.378 W
650.0	5.36	128.37	649.7	-8.8	4.8	14,230,942.31	1,660,773.43	39° 11' 22.196 N	80° 55' 41.356 W
675.0	6.13	126.94	674.6	-10.3	6.7	14,230,940.79	1,660,775.41	39° 11' 22.180 N	80° 55' 41.331 W
700.0	6.84	125.57	699.4	-12.0	9.0	14,230,939.12	1,660,777.69	39° 11' 22.164 N	80° 55' 41.302 W
725.0	7.06	126.00	724.3	-13.8	11.5	14,230,937.35	1,660,780.14	39° 11' 22.146 N	80° 55' 41.271 W
750.0	7.11	125.22	749.1	-15.6	14.0	14,230,935.55	1,660,782.65	39° 11' 22.129 N	80° 55' 41.239 W
775.0	7.16	125.41	773.9	-17.3	16.5	14,230,933.76	1,660,785.18	39° 11' 22.111 N	80° 55' 41.207 W
800.0	7.30	125.71	798.7	-19.2	19.1	14,230,931.93	1,660,787.74	39° 11' 22.093 N	80° 55' 41.175 W
825.0	7.32	125.52	823.5	-21.0	21.7	14,230,930.08	1,660,790.33	39° 11' 22.074 N	80° 55' 41.142 W
850.0	7.32	124.61	848.3	-22.9	24.3	14,230,928.25	1,660,792.93	39° 11' 22.056 N	80° 55' 41.109 W
875.0	7.46	124.46	873.1	-24.7	26.9	14,230,926.42	1,660,795.58	39° 11' 22.038 N	80° 55' 41.075 W
900.0	7.50	124.84	897.8	-26.5	29.6	14,230,924.57	1,660,798.26	39° 11' 22.020 N	80° 55' 41.041 W
925.0	7.52	124.89	922.6	-28.4	32.3	14,230,922.71	1,660,800.94	39° 11' 22.001 N	80° 55' 41.007 W
950.0	7.41	123.31	947.4	-30.2	35.0	14,230,920.89	1,660,803.63	39° 11' 21.983 N	80° 55' 40.973 W
975.0	7.08	117.95	972.2	-31.8	37.7	14,230,919.28	1,660,806.34	39° 11' 21.968 N	80° 55' 40.939 W
1,000.0	7.00	116.25	997.0	-33.2	40.4	14,230,917.88	1,660,809.06	39° 11' 21.954 N	80° 55' 40.904 W
1,025.0	6.73	115.74	1,021.9	-34.5	43.1	14,230,916.57	1,660,811.75	39° 11' 21.941 N	80° 55' 40.870 W
1,050.0	6.67	114.76	1,046.7	-35.8	45.7	14,230,915.33	1,660,814.39	39° 11' 21.928 N	80° 55' 40.836 W
1,075.0	6.78	113.88	1,071.5	-37.0	48.4	14,230,914.12	1,660,817.06	39° 11' 21.916 N	80° 55' 40.802 W
1,100.0	6.70	113.66	1,096.3	-38.2	51.1	14,230,912.94	1,660,819.74	39° 11' 21.905 N	80° 55' 40.768 W
1,125.0	6.76	112.62	1,121.2	-39.3	53.8	14,230,911.79	1,660,822.43	39° 11' 21.893 N	80° 55' 40.734 W
1,150.0	6.76	112.94	1,146.0	-40.5	56.5	14,230,910.65	1,660,825.15	39° 11' 21.882 N	80° 55' 40.700 W
1,175.0	6.75	112.80	1,170.8	-41.6	59.2	14,230,909.51	1,660,827.86	39° 11' 21.871 N	80° 55' 40.665 W
1,200.0	6.80	111.78	1,195.6	-42.7	61.9	14,230,908.39	1,660,830.59	39° 11' 21.860 N	80° 55' 40.631 W
1,225.0	6.79	112.12	1,220.5	-43.8	64.7	14,230,907.28	1,660,833.33	39° 11' 21.849 N	80° 55' 40.596 W
1,250.0	6.97	112.23	1,245.3	-45.0	67.4	14,230,906.15	1,660,836.10	39° 11' 21.838 N	80° 55' 40.560 W
1,275.0	6.97	112.05	1,270.1	-46.1	70.2	14,230,905.01	1,660,838.91	39° 11' 21.826 N	80° 55' 40.525 W
1,300.0	7.07	112.29	1,294.9	-47.3	73.1	14,230,903.86	1,660,841.74	39° 11' 21.815 N	80° 55' 40.489 W
1,325.0	7.06	112.30	1,319.7	-48.4	75.9	14,230,902.69	1,660,844.59	39° 11' 21.803 N	80° 55' 40.453 W
1,350.0	6.84	109.55	1,344.5	-49.5	78.7	14,230,901.61	1,660,847.41	39° 11' 21.792 N	80° 55' 40.417 W
1,375.0	6.76	109.71	1,369.4	-50.5	81.5	14,230,900.61	1,660,850.20	39° 11' 21.783 N	80° 55' 40.381 W
1,400.0	6.74	108.82	1,394.2	-51.5	84.3	14,230,899.64	1,660,852.97	39° 11' 21.773 N	80° 55' 40.346 W
1,425.0	6.55	107.48	1,419.0	-52.4	87.1	14,230,898.74	1,660,855.72	39° 11' 21.764 N	80° 55' 40.311 W
1,450.0	5.88	106.61	1,443.9	-53.2	89.6	14,230,897.95	1,660,858.31	39° 11' 21.756 N	80° 55' 40.278 W
1,475.0	5.91	105.20	1,468.7	-53.9	92.1	14,230,897.24	1,660,860.78	39° 11' 21.749 N	80° 55' 40.247 W
1,500.0	5.76	104.40	1,493.6	-54.5	94.6	14,230,896.59	1,660,863.24	39° 11' 21.743 N	80° 55' 40.216 W
1,525.0	5.58	104.76	1,518.5	-55.1	97.0	14,230,895.97	1,660,865.63	39° 11' 21.737 N	80° 55' 40.185 W
1,550.0	5.72	103.22	1,543.4	-55.7	99.3	14,230,895.38	1,660,868.01	39° 11' 21.731 N	80° 55' 40.154 W
1,575.0	5.64	103.92	1,568.3	-56.3	101.8	14,230,894.80	1,660,870.42	39° 11' 21.725 N	80° 55' 40.125 W
1,600.0	5.80	103.50	1,593.1	-56.9	104.2	14,230,894.21	1,660,872.84	39° 11' 21.719 N	80° 55' 40.094 W
1,625.0	5.82	105.17	1,618.0	-57.5	106.6	14,230,893.58	1,660,875.29	39° 11' 21.713 N	80° 55' 40.063 W



Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Left Fork Unit 3H
Project:	Ritchie County WV	TVD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Site:	Lockhart Heirs West Pad: Left Fork/Harris	MD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Well:	Left Fork Unit 3H	North Reference:	Grid
Wellbore:	Original Well/path	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,650.0	5.88	105.93	1,642.9	-58.2	109.1	14,230,892.90	1,660,877.75	39° 11' 21.706 N	80° 55' 40.031 W
1,675.0	6.02	105.69	1,667.7	-58.9	111.6	14,230,892.19	1,660,880.24	39° 11' 21.699 N	80° 55' 40.000 W
1,700.0	5.93	107.05	1,692.6	-59.6	114.1	14,230,891.46	1,660,882.74	39° 11' 21.692 N	80° 55' 39.968 W
1,725.0	6.18	109.98	1,717.5	-60.5	116.6	14,230,890.62	1,660,885.24	39° 11' 21.684 N	80° 55' 39.936 W
1,750.0	6.15	112.53	1,742.3	-61.5	119.1	14,230,889.65	1,660,887.74	39° 11' 21.674 N	80° 55' 39.905 W
1,775.0	6.36	111.24	1,767.2	-62.5	121.6	14,230,888.63	1,660,890.27	39° 11' 21.664 N	80° 55' 39.872 W
1,800.0	6.38	112.46	1,792.0	-63.5	124.2	14,230,887.60	1,660,892.84	39° 11' 21.654 N	80° 55' 39.840 W
1,825.0	6.60	112.12	1,816.9	-64.6	126.8	14,230,886.53	1,660,895.45	39° 11' 21.643 N	80° 55' 39.807 W
1,850.0	6.61	112.18	1,841.7	-65.7	129.5	14,230,885.44	1,660,898.12	39° 11' 21.632 N	80° 55' 39.773 W
1,875.0	6.70	111.15	1,866.5	-66.7	132.1	14,230,884.38	1,660,900.81	39° 11' 21.622 N	80° 55' 39.739 W
1,900.0	6.80	111.65	1,891.3	-67.8	134.9	14,230,883.30	1,660,903.55	39° 11' 21.611 N	80° 55' 39.704 W
1,925.0	6.79	111.33	1,916.2	-68.9	137.6	14,230,882.22	1,660,906.30	39° 11' 21.600 N	80° 55' 39.669 W
1,950.0	7.04	111.48	1,941.0	-70.0	140.4	14,230,881.12	1,660,909.10	39° 11' 21.589 N	80° 55' 39.633 W
1,975.0	7.08	111.47	1,965.8	-71.1	143.3	14,230,880.00	1,660,911.96	39° 11' 21.578 N	80° 55' 39.597 W
2,000.0	6.92	108.16	1,990.6	-72.1	146.2	14,230,878.96	1,660,914.83	39° 11' 21.568 N	80° 55' 39.561 W
2,025.0	6.71	101.31	2,015.4	-72.9	149.0	14,230,878.21	1,660,917.69	39° 11' 21.561 N	80° 55' 39.524 W
2,050.0	6.53	100.14	2,040.3	-73.4	151.9	14,230,877.67	1,660,920.52	39° 11' 21.555 N	80° 55' 39.488 W
2,075.0	6.13	97.37	2,065.1	-73.9	154.6	14,230,877.25	1,660,923.24	39° 11' 21.551 N	80° 55' 39.454 W
2,100.0	5.30	90.90	2,090.0	-74.0	157.1	14,230,877.06	1,660,925.72	39° 11' 21.549 N	80° 55' 39.422 W
2,125.0	4.64	84.23	2,114.9	-74.0	159.2	14,230,877.14	1,660,927.88	39° 11' 21.550 N	80° 55' 39.395 W
2,150.0	4.38	79.97	2,139.8	-73.7	161.2	14,230,877.41	1,660,929.83	39° 11' 21.553 N	80° 55' 39.370 W
2,175.0	3.96	77.36	2,164.8	-73.3	162.9	14,230,877.77	1,660,931.61	39° 11' 21.556 N	80° 55' 39.347 W
2,200.0	2.97	71.87	2,189.7	-73.0	164.4	14,230,878.16	1,660,933.07	39° 11' 21.560 N	80° 55' 39.329 W
2,225.0	2.08	64.88	2,214.7	-72.6	165.4	14,230,878.55	1,660,934.09	39° 11' 21.564 N	80° 55' 39.316 W
2,250.0	1.62	60.25	2,239.7	-72.2	166.1	14,230,878.92	1,660,934.81	39° 11' 21.567 N	80° 55' 39.307 W
2,275.0	0.98	60.97	2,264.7	-71.9	166.6	14,230,879.20	1,660,935.31	39° 11' 21.570 N	80° 55' 39.300 W
2,300.0	0.27	301.26	2,289.7	-71.8	166.8	14,230,879.33	1,660,935.44	39° 11' 21.572 N	80° 55' 39.299 W
2,325.0	1.09	259.69	2,314.7	-71.8	166.5	14,230,879.32	1,660,935.16	39° 11' 21.571 N	80° 55' 39.302 W
2,350.0	1.31	259.93	2,339.7	-71.9	166.0	14,230,879.23	1,660,934.64	39° 11' 21.571 N	80° 55' 39.309 W
2,375.0	1.55	258.84	2,364.6	-72.0	165.4	14,230,879.11	1,660,934.03	39° 11' 21.569 N	80° 55' 39.317 W
2,400.0	1.74	249.74	2,389.6	-72.2	164.7	14,230,878.91	1,660,933.34	39° 11' 21.567 N	80° 55' 39.325 W
2,425.0	1.74	248.26	2,414.6	-72.5	164.0	14,230,878.64	1,660,932.63	39° 11' 21.565 N	80° 55' 39.334 W
2,450.0	1.70	250.59	2,439.6	-72.7	163.3	14,230,878.38	1,660,931.93	39° 11' 21.562 N	80° 55' 39.343 W
2,475.0	1.30	240.03	2,464.6	-73.0	162.7	14,230,878.11	1,660,931.34	39° 11' 21.560 N	80° 55' 39.351 W
2,500.0	0.73	223.97	2,489.6	-73.3	162.3	14,230,877.86	1,660,930.98	39° 11' 21.557 N	80° 55' 39.355 W
2,525.0	0.53	198.50	2,514.6	-73.5	162.2	14,230,877.63	1,660,930.83	39° 11' 21.555 N	80° 55' 39.357 W
2,550.0	0.66	180.31	2,539.6	-73.7	162.1	14,230,877.38	1,660,930.79	39° 11' 21.552 N	80° 55' 39.358 W
2,575.0	0.69	171.70	2,564.6	-74.0	162.1	14,230,877.09	1,660,930.82	39° 11' 21.549 N	80° 55' 39.357 W
2,600.0	0.63	173.43	2,589.6	-74.3	162.2	14,230,876.80	1,660,930.85	39° 11' 21.547 N	80° 55' 39.357 W
2,625.0	0.68	170.44	2,614.6	-74.6	162.2	14,230,876.52	1,660,930.89	39° 11' 21.544 N	80° 55' 39.356 W
2,650.0	0.74	167.68	2,639.6	-74.9	162.3	14,230,876.21	1,660,930.95	39° 11' 21.541 N	80° 55' 39.356 W
2,675.0	0.72	164.20	2,664.6	-75.2	162.4	14,230,875.91	1,660,931.03	39° 11' 21.538 N	80° 55' 39.355 W
2,700.0	0.67	163.29	2,689.6	-75.5	162.4	14,230,875.61	1,660,931.11	39° 11' 21.535 N	80° 55' 39.354 W
2,725.0	0.61	161.93	2,714.6	-75.8	162.5	14,230,875.35	1,660,931.20	39° 11' 21.532 N	80° 55' 39.353 W
2,750.0	0.68	160.97	2,739.6	-76.0	162.6	14,230,875.08	1,660,931.29	39° 11' 21.530 N	80° 55' 39.351 W
2,775.0	0.67	158.58	2,764.6	-76.3	162.7	14,230,874.81	1,660,931.39	39° 11' 21.527 N	80° 55' 39.350 W
2,800.0	0.66	160.41	2,789.6	-76.6	162.8	14,230,874.53	1,660,931.49	39° 11' 21.524 N	80° 55' 39.349 W
2,825.0	0.75	157.74	2,814.6	-76.9	162.9	14,230,874.25	1,660,931.60	39° 11' 21.521 N	80° 55' 39.347 W
2,850.0	0.73	154.94	2,839.6	-77.2	163.1	14,230,873.95	1,660,931.73	39° 11' 21.518 N	80° 55' 39.346 W
2,875.0	0.76	146.97	2,864.6	-77.4	163.2	14,230,873.67	1,660,931.89	39° 11' 21.516 N	80° 55' 39.344 W
2,900.0	0.64	149.53	2,889.6	-77.7	163.4	14,230,873.41	1,660,932.05	39° 11' 21.514 N	80° 55' 39.342 W
2,925.0	0.62	141.94	2,914.6	-77.9	163.5	14,230,873.18	1,660,932.20	39° 11' 21.511 N	80° 55' 39.340 W
2,950.0	0.69	136.22	2,939.6	-78.1	163.7	14,230,872.97	1,660,932.39	39° 11' 21.509 N	80° 55' 39.337 W
2,975.0	0.71	137.28	2,964.6	-78.4	163.9	14,230,872.74	1,660,932.60	39° 11' 21.506 N	80° 55' 39.335 W
3,000.0	0.68	132.30	2,989.6	-78.6	164.1	14,230,872.53	1,660,932.82	39° 11' 21.504 N	80° 55' 39.332 W



Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Left Fork Unit 3H
Project:	Ritchie County WV	TVD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Site:	Lockhart Heirs West Pad: Left Fork/Harris	MD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Well:	Left Fork Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,025.0	0.56	130.84	3,014.6	-78.8	164.4	14,230,872.35	1,660,933.02	39° 11' 21.503 N	80° 55' 39.329 W
3,050.0	0.60	128.84	3,039.6	-78.9	164.5	14,230,872.19	1,660,933.21	39° 11' 21.501 N	80° 55' 39.327 W
3,075.0	0.57	122.91	3,064.6	-79.1	164.8	14,230,872.04	1,660,933.42	39° 11' 21.499 N	80° 55' 39.324 W
3,100.0	0.51	119.68	3,089.6	-79.2	165.0	14,230,871.92	1,660,933.62	39° 11' 21.498 N	80° 55' 39.322 W
3,125.0	0.51	116.30	3,114.6	-79.3	165.1	14,230,871.81	1,660,933.82	39° 11' 21.497 N	80° 55' 39.319 W
3,150.0	0.41	111.86	3,139.6	-79.4	165.3	14,230,871.73	1,660,934.00	39° 11' 21.496 N	80° 55' 39.317 W
3,175.0	0.31	107.60	3,164.6	-79.4	165.5	14,230,871.68	1,660,934.15	39° 11' 21.496 N	80° 55' 39.315 W
3,200.0	0.40	109.64	3,189.6	-79.5	165.6	14,230,871.63	1,660,934.29	39° 11' 21.495 N	80° 55' 39.313 W
3,225.0	0.37	115.79	3,214.6	-79.5	165.8	14,230,871.56	1,660,934.45	39° 11' 21.495 N	80° 55' 39.311 W
3,250.0	0.31	100.79	3,239.6	-79.6	165.9	14,230,871.51	1,660,934.59	39° 11' 21.494 N	80° 55' 39.310 W
3,275.0	0.29	124.74	3,264.6	-79.6	166.0	14,230,871.46	1,660,934.71	39° 11' 21.494 N	80° 55' 39.308 W
3,300.0	0.37	133.77	3,289.6	-79.7	166.1	14,230,871.37	1,660,934.82	39° 11' 21.493 N	80° 55' 39.307 W
3,325.0	0.48	134.83	3,314.6	-79.9	166.3	14,230,871.24	1,660,934.95	39° 11' 21.492 N	80° 55' 39.305 W
3,350.0	0.40	139.82	3,339.6	-80.0	166.4	14,230,871.10	1,660,935.08	39° 11' 21.490 N	80° 55' 39.303 W
3,375.0	0.50	134.41	3,364.6	-80.1	166.5	14,230,870.96	1,660,935.21	39° 11' 21.489 N	80° 55' 39.302 W
3,400.0	0.38	139.58	3,389.6	-80.3	166.7	14,230,870.82	1,660,935.34	39° 11' 21.487 N	80° 55' 39.300 W
3,425.0	0.48	139.43	3,414.6	-80.4	166.8	14,230,870.68	1,660,935.47	39° 11' 21.486 N	80° 55' 39.298 W
3,450.0	0.48	141.41	3,439.6	-80.6	166.9	14,230,870.52	1,660,935.60	39° 11' 21.484 N	80° 55' 39.297 W
3,475.0	0.53	138.91	3,464.6	-80.8	167.1	14,230,870.35	1,660,935.74	39° 11' 21.483 N	80° 55' 39.295 W
3,500.0	0.69	146.60	3,489.5	-81.0	167.2	14,230,870.13	1,660,935.90	39° 11' 21.481 N	80° 55' 39.293 W
3,525.0	0.66	145.90	3,514.5	-81.2	167.4	14,230,869.89	1,660,936.06	39° 11' 21.478 N	80° 55' 39.291 W
3,550.0	0.89	143.71	3,539.5	-81.5	167.6	14,230,869.61	1,660,936.26	39° 11' 21.475 N	80° 55' 39.288 W
3,575.0	0.95	151.49	3,564.5	-81.8	167.8	14,230,869.27	1,660,936.47	39° 11' 21.472 N	80° 55' 39.286 W
3,600.0	0.89	154.06	3,589.5	-82.2	168.0	14,230,868.92	1,660,936.66	39° 11' 21.469 N	80° 55' 39.283 W
3,625.0	1.01	158.65	3,614.5	-82.6	168.2	14,230,868.54	1,660,936.82	39° 11' 21.465 N	80° 55' 39.281 W
3,650.0	1.10	156.08	3,639.5	-83.0	168.3	14,230,868.11	1,660,937.00	39° 11' 21.461 N	80° 55' 39.279 W
3,675.0	0.97	158.79	3,664.5	-83.4	168.5	14,230,867.70	1,660,937.17	39° 11' 21.456 N	80° 55' 39.277 W
3,700.0	1.04	158.19	3,689.5	-83.8	168.7	14,230,867.29	1,660,937.33	39° 11' 21.452 N	80° 55' 39.275 W
3,725.0	0.98	160.72	3,714.5	-84.2	168.8	14,230,866.88	1,660,937.49	39° 11' 21.448 N	80° 55' 39.273 W
3,750.0	1.12	153.16	3,739.5	-84.7	169.0	14,230,866.46	1,660,937.67	39° 11' 21.444 N	80° 55' 39.270 W
3,775.0	1.30	147.13	3,764.5	-85.1	169.3	14,230,866.00	1,660,937.93	39° 11' 21.440 N	80° 55' 39.267 W
3,800.0	1.25	146.98	3,789.5	-85.6	169.6	14,230,865.53	1,660,938.24	39° 11' 21.435 N	80° 55' 39.263 W
3,825.0	1.47	139.88	3,814.5	-86.0	169.9	14,230,865.06	1,660,938.59	39° 11' 21.430 N	80° 55' 39.259 W
3,850.0	2.15	128.04	3,839.5	-86.6	170.5	14,230,864.53	1,660,939.17	39° 11' 21.425 N	80° 55' 39.251 W
3,875.0	3.14	121.28	3,864.5	-87.2	171.5	14,230,863.88	1,660,940.12	39° 11' 21.419 N	80° 55' 39.239 W
3,900.0	4.39	116.90	3,889.4	-88.0	172.9	14,230,863.09	1,660,941.56	39° 11' 21.411 N	80° 55' 39.221 W
3,925.0	4.89	116.83	3,914.3	-88.9	174.7	14,230,862.18	1,660,943.37	39° 11' 21.402 N	80° 55' 39.198 W
3,950.0	5.63	115.98	3,939.2	-89.9	176.8	14,230,861.16	1,660,945.42	39° 11' 21.392 N	80° 55' 39.172 W
3,975.0	6.20	115.54	3,964.1	-91.1	179.1	14,230,860.04	1,660,947.74	39° 11' 21.381 N	80° 55' 39.143 W
4,000.0	6.23	116.10	3,988.9	-92.2	181.5	14,230,858.86	1,660,950.18	39° 11' 21.369 N	80° 55' 39.112 W
4,025.0	6.39	115.75	4,013.8	-93.4	184.0	14,230,857.66	1,660,952.65	39° 11' 21.357 N	80° 55' 39.080 W
4,050.0	6.30	114.33	4,038.6	-94.6	186.5	14,230,856.49	1,660,955.15	39° 11' 21.346 N	80° 55' 39.048 W
4,075.0	6.18	111.68	4,063.5	-95.7	189.0	14,230,855.43	1,660,957.65	39° 11' 21.335 N	80° 55' 39.017 W
4,100.0	6.19	109.60	4,088.3	-96.6	191.5	14,230,854.48	1,660,960.17	39° 11' 21.326 N	80° 55' 38.985 W
4,125.0	6.21	106.98	4,113.2	-97.5	194.1	14,230,853.63	1,660,962.73	39° 11' 21.317 N	80° 55' 38.952 W
4,150.0	6.24	104.36	4,138.0	-98.2	196.7	14,230,852.90	1,660,965.34	39° 11' 21.310 N	80° 55' 38.919 W
4,175.0	6.16	102.91	4,162.9	-98.8	199.3	14,230,852.27	1,660,967.97	39° 11' 21.304 N	80° 55' 38.886 W
4,200.0	6.23	101.09	4,187.8	-99.4	201.9	14,230,851.70	1,660,970.60	39° 11' 21.298 N	80° 55' 38.852 W
4,225.0	6.39	100.67	4,212.6	-99.9	204.6	14,230,851.19	1,660,973.30	39° 11' 21.293 N	80° 55' 38.818 W
4,250.0	6.20	100.72	4,237.4	-100.4	207.3	14,230,850.68	1,660,976.00	39° 11' 21.288 N	80° 55' 38.784 W
4,275.0	6.24	100.54	4,262.3	-100.9	210.0	14,230,850.18	1,660,978.66	39° 11' 21.283 N	80° 55' 38.750 W
4,300.0	6.47	100.60	4,287.1	-101.4	212.7	14,230,849.67	1,660,981.38	39° 11' 21.278 N	80° 55' 38.715 W
4,325.0	6.59	102.47	4,312.0	-102.0	215.5	14,230,849.10	1,660,984.16	39° 11' 21.272 N	80° 55' 38.680 W
4,350.0	7.45	105.93	4,336.8	-102.8	218.5	14,230,848.35	1,660,987.12	39° 11' 21.265 N	80° 55' 38.642 W
4,375.0	8.14	109.03	4,361.6	-103.8	221.7	14,230,847.32	1,660,990.35	39° 11' 21.258 N	80° 55' 38.601 W

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Scientific Drilling International
Survey Report - Geographic



Company: Antero Resources
Project: Ritchie County WV
Site: Lockhart Heirs West Pad: Left Fork/Harris
Well: Left Fork Unit 3H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Left Fork Unit 3H
Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Grid
Minimum Curvature
Antero NE

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,400.0	8.46	110.08	4,386.3	-105.0	225.1	14,230,846.12	1,660,993.76	39° 11' 21.243 N	80° 55' 38.558 W
4,425.0	8.61	110.27	4,411.0	-106.3	228.6	14,230,844.84	1,660,997.24	39° 11' 21.230 N	80° 55' 38.514 W
4,450.0	8.71	110.07	4,435.7	-107.6	232.1	14,230,843.54	1,661,000.77	39° 11' 21.217 N	80° 55' 38.469 W
4,475.0	9.60	111.58	4,460.4	-109.0	235.8	14,230,842.12	1,661,004.49	39° 11' 21.203 N	80° 55' 38.422 W
4,500.0	10.07	112.23	4,485.1	-110.6	239.8	14,230,840.53	1,661,008.45	39° 11' 21.187 N	80° 55' 38.371 W
4,525.0	10.45	112.05	4,509.7	-112.3	243.9	14,230,838.85	1,661,012.57	39° 11' 21.171 N	80° 55' 38.319 W
4,550.0	10.49	110.96	4,534.2	-113.9	248.1	14,230,837.19	1,661,016.80	39° 11' 21.154 N	80° 55' 38.265 W
4,575.0	10.58	110.24	4,558.8	-115.5	252.4	14,230,835.58	1,661,021.08	39° 11' 21.138 N	80° 55' 38.211 W
4,600.0	10.75	109.61	4,583.4	-117.1	256.8	14,230,834.00	1,661,025.43	39° 11' 21.123 N	80° 55' 38.156 W
4,625.0	10.93	108.97	4,607.9	-118.7	261.2	14,230,832.45	1,661,029.87	39° 11' 21.107 N	80° 55' 38.099 W
4,650.0	10.79	107.80	4,632.5	-120.1	265.7	14,230,830.96	1,661,034.34	39° 11' 21.092 N	80° 55' 38.043 W
4,675.0	10.89	107.41	4,657.0	-121.6	270.2	14,230,829.54	1,661,038.82	39° 11' 21.078 N	80° 55' 37.986 W
4,700.0	11.12	107.25	4,681.6	-123.0	274.7	14,230,828.12	1,661,043.37	39° 11' 21.064 N	80° 55' 37.928 W
4,725.0	11.27	106.65	4,706.1	-124.4	279.4	14,230,826.70	1,661,048.02	39° 11' 21.050 N	80° 55' 37.869 W
4,750.0	11.48	105.81	4,730.6	-125.8	284.1	14,230,825.33	1,661,052.75	39° 11' 21.037 N	80° 55' 37.809 W
4,775.0	11.40	106.58	4,755.1	-127.2	288.8	14,230,823.94	1,661,057.51	39° 11' 21.023 N	80° 55' 37.748 W
4,800.0	10.96	110.57	4,779.7	-128.7	293.4	14,230,822.40	1,661,062.11	39° 11' 21.008 N	80° 55' 37.690 W
4,825.0	10.75	112.91	4,804.2	-130.4	297.8	14,230,820.66	1,661,066.48	39° 11' 20.990 N	80° 55' 37.634 W
4,850.0	11.10	113.43	4,828.8	-132.3	302.2	14,230,818.80	1,661,070.83	39° 11' 20.972 N	80° 55' 37.579 W
4,875.0	10.93	115.46	4,853.3	-134.3	306.5	14,230,816.82	1,661,075.18	39° 11' 20.952 N	80° 55' 37.524 W
4,900.0	10.35	118.74	4,877.9	-136.4	310.6	14,230,814.72	1,661,079.29	39° 11' 20.932 N	80° 55' 37.472 W
4,925.0	10.34	120.08	4,902.5	-138.6	314.5	14,230,812.52	1,661,083.20	39° 11' 20.910 N	80° 55' 37.422 W
4,950.0	10.21	119.59	4,927.1	-140.8	318.4	14,230,810.30	1,661,087.07	39° 11' 20.888 N	80° 55' 37.373 W
4,975.0	9.64	118.62	4,951.7	-142.9	322.2	14,230,808.20	1,661,090.83	39° 11' 20.867 N	80° 55' 37.325 W
5,000.0	8.57	117.82	4,976.4	-144.8	325.7	14,230,806.33	1,661,094.32	39° 11' 20.848 N	80° 55' 37.281 W
5,025.0	8.45	116.62	5,001.1	-146.5	328.9	14,230,804.64	1,661,097.61	39° 11' 20.832 N	80° 55' 37.239 W
5,050.0	8.59	116.00	5,025.8	-148.1	332.3	14,230,803.00	1,661,100.93	39° 11' 20.815 N	80° 55' 37.197 W
5,075.0	8.75	114.55	5,050.5	-149.7	335.7	14,230,801.39	1,661,104.34	39° 11' 20.799 N	80° 55' 37.153 W
5,100.0	8.92	112.51	5,075.2	-151.3	339.2	14,230,799.86	1,661,107.86	39° 11' 20.784 N	80° 55' 37.109 W
5,125.0	8.92	111.00	5,099.9	-152.7	342.8	14,230,798.42	1,661,111.46	39° 11' 20.770 N	80° 55' 37.063 W
5,150.0	8.79	110.63	5,124.6	-154.1	346.4	14,230,797.05	1,661,115.05	39° 11' 20.757 N	80° 55' 37.017 W
5,175.0	8.68	108.74	5,149.3	-155.3	350.0	14,230,795.77	1,661,118.63	39° 11' 20.744 N	80° 55' 36.972 W
5,200.0	8.74	108.11	5,174.1	-156.5	353.6	14,230,794.58	1,661,122.22	39° 11' 20.732 N	80° 55' 36.926 W
5,225.0	8.83	106.71	5,198.8	-157.7	357.2	14,230,793.43	1,661,125.86	39° 11' 20.721 N	80° 55' 36.880 W
5,250.0	9.32	105.77	5,223.4	-158.8	361.0	14,230,792.33	1,661,129.65	39° 11' 20.710 N	80° 55' 36.833 W
5,275.0	10.00	104.01	5,248.1	-159.9	365.0	14,230,791.26	1,661,133.70	39° 11' 20.699 N	80° 55' 36.780 W
5,300.0	10.84	104.00	5,272.7	-160.9	369.4	14,230,790.16	1,661,138.09	39° 11' 20.688 N	80° 55' 36.725 W
5,325.0	11.06	103.62	5,297.2	-162.1	374.0	14,230,789.03	1,661,142.70	39° 11' 20.677 N	80° 55' 36.666 W
5,350.0	11.12	103.00	5,321.8	-163.2	378.7	14,230,787.92	1,661,147.38	39° 11' 20.666 N	80° 55' 36.607 W
5,375.0	11.06	102.75	5,346.3	-164.3	383.4	14,230,786.85	1,661,152.07	39° 11' 20.655 N	80° 55' 36.547 W
5,400.0	11.28	101.82	5,370.8	-165.3	388.1	14,230,785.82	1,661,156.80	39° 11' 20.645 N	80° 55' 36.487 W
5,425.0	11.40	104.16	5,395.3	-166.4	392.9	14,230,784.71	1,661,161.59	39° 11' 20.634 N	80° 55' 36.426 W
5,450.0	11.54	106.55	5,419.8	-167.7	397.7	14,230,783.40	1,661,166.38	39° 11' 20.621 N	80° 55' 36.365 W
5,475.0	11.62	111.00	5,444.3	-169.3	402.5	14,230,781.78	1,661,171.13	39° 11' 20.605 N	80° 55' 36.305 W
5,500.0	12.14	111.99	5,468.8	-171.2	407.3	14,230,779.90	1,661,175.92	39° 11' 20.586 N	80° 55' 36.244 W
5,525.0	12.19	112.06	5,492.8	-171.4	407.6	14,230,779.74	1,661,176.31	39° 11' 20.585 N	80° 55' 36.239 W
5,526.0	12.99	110.45	5,494.2	-173.3	412.5	14,230,777.84	1,661,181.18	39° 11' 20.566 N	80° 55' 36.177 W
First SDI MWD @ 5526									
5,620.0	14.85	108.41	5,585.4	-180.8	433.8	14,230,770.35	1,661,202.51	39° 11' 20.492 N	80° 55' 35.906 W
5,652.0	14.85	108.65	5,616.3	-183.4	441.6	14,230,767.74	1,661,210.29	39° 11' 20.466 N	80° 55' 35.808 W
5,714.0	13.29	107.62	5,676.5	-188.1	455.9	14,230,763.04	1,661,224.61	39° 11' 20.419 N	80° 55' 35.626 W
5,746.0	11.92	97.14	5,707.7	-189.6	462.7	14,230,761.52	1,661,231.40	39° 11' 20.404 N	80° 55' 35.540 W
5,777.0	11.18	80.12	5,738.1	-189.5	468.9	14,230,761.64	1,661,237.54	39° 11' 20.405 N	80° 55' 35.462 W
5,808.0	11.62	64.17	5,768.5	-187.6	474.6	14,230,763.51	1,661,243.31	39° 11' 20.424 N	80° 55' 35.388 W
5,840.0	12.90	49.91	5,799.8	-183.9	480.3	14,230,767.22	1,661,248.94	39° 11' 20.460 N	80° 55' 35.317 W



Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Left Fork Unit 3H
Project:	Ritchie County WV	TVD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Site:	Lockhart Heirs West Pad: Left Fork/Harris	MD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Well:	Left Fork Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,871.0	14.69	37.27	5,829.9	-178.5	485.3	14,230,772.58	1,661,253.97	39° 11' 20.513 N	80° 55' 35.253 W
5,902.0	15.70	26.72	5,859.8	-171.7	489.6	14,230,779.45	1,661,258.24	39° 11' 20.581 N	80° 55' 35.198 W
5,934.0	16.76	14.23	5,890.5	-163.3	492.7	14,230,787.79	1,661,261.32	39° 11' 20.664 N	80° 55' 35.159 W
5,965.0	18.62	6.70	5,920.1	-154.1	494.3	14,230,797.04	1,661,263.00	39° 11' 20.755 N	80° 55' 35.138 W
5,997.0	20.79	1.84	5,950.2	-143.3	495.1	14,230,807.80	1,661,263.78	39° 11' 20.862 N	80° 55' 35.128 W
6,028.0	23.36	358.05	5,978.9	-131.7	495.1	14,230,819.44	1,661,263.74	39° 11' 20.977 N	80° 55' 35.128 W
6,060.0	25.94	356.87	6,008.0	-118.3	494.5	14,230,832.77	1,661,263.15	39° 11' 21.109 N	80° 55' 35.135 W
6,072.0	27.04	356.46	6,018.7	-113.0	494.2	14,230,838.11	1,661,262.83	39° 11' 21.161 N	80° 55' 35.139 W
Sycamore @ 6072									
6,091.0	28.78	355.87	6,035.5	-104.1	493.6	14,230,846.99	1,661,262.24	39° 11' 21.249 N	80° 55' 35.147 W
6,122.0	31.94	354.36	6,062.3	-88.5	492.2	14,230,862.60	1,661,260.89	39° 11' 21.403 N	80° 55' 35.164 W
6,154.0	35.01	352.50	6,089.0	-71.0	490.2	14,230,880.12	1,661,258.86	39° 11' 21.577 N	80° 55' 35.189 W
6,185.0	38.04	351.58	6,113.9	-52.7	487.6	14,230,898.39	1,661,256.30	39° 11' 21.757 N	80° 55' 35.222 W
6,217.0	41.18	350.63	6,138.5	-32.6	484.5	14,230,918.55	1,661,253.14	39° 11' 21.957 N	80° 55' 35.262 W
6,248.0	44.27	349.79	6,161.3	-11.8	480.9	14,230,939.27	1,661,249.56	39° 11' 22.162 N	80° 55' 35.307 W
6,271.0	46.85	348.95	6,177.4	4.3	477.9	14,230,955.41	1,661,246.53	39° 11' 22.321 N	80° 55' 35.345 W
Middlesex @ 6271									
6,279.0	47.75	348.67	6,182.8	10.1	476.7	14,230,961.17	1,661,245.39	39° 11' 22.378 N	80° 55' 35.360 W
6,310.0	51.00	346.86	6,203.0	33.1	471.7	14,230,984.16	1,661,240.40	39° 11' 22.606 N	80° 55' 35.423 W
6,342.0	54.02	345.07	6,222.5	57.7	465.6	14,231,008.79	1,661,234.23	39° 11' 22.849 N	80° 55' 35.501 W
6,373.0	56.73	342.62	6,240.1	82.2	458.5	14,231,033.28	1,661,227.13	39° 11' 23.091 N	80° 55' 35.591 W
6,404.0	59.34	341.84	6,256.5	107.2	450.4	14,231,058.32	1,661,219.10	39° 11' 23.339 N	80° 55' 35.693 W
6,436.0	60.97	341.65	6,272.4	133.6	441.7	14,231,084.68	1,661,210.41	39° 11' 23.600 N	80° 55' 35.803 W
6,454.0	62.05	340.99	6,281.0	148.6	436.7	14,231,099.67	1,661,205.34	39° 11' 23.748 N	80° 55' 35.867 W
Burkett @ 6454									
6,467.0	62.84	340.52	6,287.0	159.4	432.9	14,231,110.55	1,661,201.54	39° 11' 23.856 N	80° 55' 35.915 W
6,498.0	66.11	340.32	6,300.4	185.8	423.5	14,231,136.90	1,661,192.16	39° 11' 24.116 N	80° 55' 36.034 W
6,522.0	69.06	340.52	6,309.5	206.7	416.1	14,231,157.80	1,661,184.73	39° 11' 24.323 N	80° 55' 36.128 W
Tully @ 6522									
6,530.0	70.04	340.58	6,312.3	213.8	413.6	14,231,164.87	1,661,182.23	39° 11' 24.393 N	80° 55' 36.160 W
6,561.0	73.14	340.57	6,322.1	241.5	403.8	14,231,192.61	1,661,172.45	39° 11' 24.667 N	80° 55' 36.284 W
6,584.0	74.57	340.33	6,328.5	262.3	396.4	14,231,213.43	1,661,165.06	39° 11' 24.873 N	80° 55' 36.378 W
Marcellus @ 6584									
6,592.0	75.07	340.25	6,330.6	269.6	393.8	14,231,220.69	1,661,162.46	39° 11' 24.945 N	80° 55' 36.411 W
6,623.0	77.37	340.73	6,338.0	298.0	383.7	14,231,249.07	1,661,152.40	39° 11' 25.226 N	80° 55' 36.538 W
6,655.0	81.16	341.00	6,343.9	327.7	373.4	14,231,278.77	1,661,142.10	39° 11' 25.519 N	80° 55' 36.669 W
6,673.0	83.91	340.85	6,346.3	344.5	367.6	14,231,295.64	1,661,136.27	39° 11' 25.886 N	80° 55' 36.743 W
6,713.0	88.56	340.66	6,348.9	382.2	354.4	14,231,333.31	1,661,123.11	39° 11' 26.059 N	80° 55' 36.909 W
6,736.0	90.20	341.06	6,349.2	403.9	346.9	14,231,355.03	1,661,115.57	39° 11' 26.274 N	80° 55' 37.005 W
6,775.0	90.84	341.00	6,348.8	440.8	334.2	14,231,391.92	1,661,102.90	39° 11' 26.639 N	80° 55' 37.166 W
6,869.0	90.50	341.25	6,347.7	529.7	303.8	14,231,480.85	1,661,072.49	39° 11' 27.518 N	80° 55' 37.551 W
6,963.0	90.44	341.95	6,346.9	618.9	274.2	14,231,570.04	1,661,042.82	39° 11' 28.400 N	80° 55' 37.927 W
7,057.0	89.56	342.77	6,346.9	708.5	245.7	14,231,659.62	1,661,014.34	39° 11' 29.286 N	80° 55' 38.288 W
7,152.0	89.90	342.54	6,347.4	799.2	217.3	14,231,750.30	1,660,986.01	39° 11' 30.183 N	80° 55' 38.647 W
7,246.0	90.67	343.38	6,346.9	889.1	189.8	14,231,840.17	1,660,958.47	39° 11' 31.072 N	80° 55' 38.996 W
7,340.0	89.06	342.33	6,347.1	978.9	162.1	14,231,929.99	1,660,930.76	39° 11' 31.960 N	80° 55' 39.347 W
7,434.0	89.56	341.43	6,348.3	1,068.2	132.9	14,232,019.32	1,660,901.53	39° 11' 32.844 N	80° 55' 39.718 W
7,528.0	90.54	342.62	6,348.2	1,157.6	103.9	14,232,108.73	1,660,872.52	39° 11' 33.728 N	80° 55' 40.086 W
7,622.0	89.26	340.07	6,348.3	1,246.7	73.8	14,232,197.78	1,660,842.46	39° 11' 34.609 N	80° 55' 40.467 W
7,716.0	89.66	341.05	6,349.2	1,335.3	42.5	14,232,286.42	1,660,811.17	39° 11' 35.491 N	80° 55' 40.863 W
7,810.0	90.27	341.69	6,349.3	1,424.4	12.5	14,232,375.49	1,660,781.14	39° 11' 36.372 N	80° 55' 41.261 W
7,904.0	90.47	344.75	6,348.7	1,514.4	-14.7	14,232,465.48	1,660,754.01	39° 11' 37.257 N	80° 55' 41.588 W
7,998.0	88.96	343.73	6,349.2	1,604.8	-40.2	14,232,555.94	1,660,728.48	39° 11' 38.151 N	80° 55' 41.911 W
8,093.0	89.97	344.49	6,350.0	1,696.2	-66.2	14,232,647.30	1,660,702.47	39° 11' 39.058 N	80° 55' 42.241 W



Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Left Fork Unit 3H
Project:	Ritchie County WV	TVD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Site:	Lockhart Heirs West Pad: Left Fork/Harris	MD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Well:	Left Fork Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,361.0	90.00	341.76	6,331.3	6,733.9	-1,598.3	14,237,685.05	1,659,170.40	39° 12' 28.879 N	80° 56' 1.661 W
13,456.0	89.93	342.79	6,331.3	6,824.4	-1,627.2	14,237,775.54	1,659,141.48	39° 12' 29.774 N	80° 56' 2.028 W
13,550.0	90.97	345.38	6,330.6	6,914.8	-1,653.0	14,237,865.92	1,659,115.71	39° 12' 30.668 N	80° 56' 2.355 W
13,644.0	90.00	341.85	6,329.8	7,005.0	-1,679.5	14,237,956.08	1,659,089.20	39° 12' 31.559 N	80° 56' 2.691 W
13,738.0	89.09	343.43	6,330.5	7,094.7	-1,707.5	14,238,045.80	1,659,061.15	39° 12' 32.447 N	80° 56' 3.046 W
13,832.0	89.33	345.34	6,331.8	7,185.2	-1,732.8	14,238,136.31	1,659,035.85	39° 12' 33.342 N	80° 56' 3.367 W
13,926.0	89.40	344.42	6,332.9	7,275.9	-1,757.3	14,238,227.05	1,659,011.34	39° 12' 34.239 N	80° 56' 3.678 W
14,020.0	89.93	344.75	6,333.4	7,366.6	-1,782.3	14,238,317.67	1,658,986.35	39° 12' 35.135 N	80° 56' 3.994 W
14,115.0	90.50	346.81	6,333.1	7,458.6	-1,805.7	14,238,409.75	1,658,963.02	39° 12' 36.036 N	80° 56' 4.290 W
14,209.0	90.07	346.10	6,332.6	7,550.0	-1,827.7	14,238,501.14	1,658,941.00	39° 12' 36.950 N	80° 56' 4.569 W
14,303.0	90.03	344.29	6,332.5	7,640.9	-1,851.7	14,238,592.01	1,658,916.98	39° 12' 37.848 N	80° 56' 4.874 W
14,397.0	91.08	344.95	6,331.6	7,731.5	-1,876.6	14,238,682.64	1,658,892.05	39° 12' 38.745 N	80° 56' 5.190 W
14,491.0	90.54	343.49	6,330.3	7,822.0	-1,902.2	14,238,773.09	1,658,866.49	39° 12' 39.639 N	80° 56' 5.514 W
14,585.0	90.74	343.17	6,329.2	7,912.0	-1,929.1	14,238,863.13	1,658,839.53	39° 12' 40.530 N	80° 56' 5.855 W
14,680.0	91.07	342.55	6,327.7	8,002.8	-1,957.1	14,238,953.90	1,658,811.54	39° 12' 41.427 N	80° 56' 6.210 W
14,774.0	91.24	342.44	6,325.8	8,092.4	-1,985.4	14,239,043.53	1,658,783.27	39° 12' 42.314 N	80° 56' 6.569 W
14,868.0	90.50	344.05	6,324.4	8,182.4	-2,012.5	14,239,133.52	1,658,756.17	39° 12' 43.204 N	80° 56' 6.912 W
14,962.0	90.57	344.01	6,323.5	8,272.8	-2,038.4	14,239,223.89	1,658,730.31	39° 12' 44.098 N	80° 56' 7.240 W
15,056.0	90.54	343.24	6,322.6	8,363.0	-2,064.9	14,239,314.07	1,658,703.81	39° 12' 44.990 N	80° 56' 7.576 W
15,150.0	89.63	340.79	6,322.5	8,452.4	-2,093.9	14,239,403.47	1,658,674.79	39° 12' 45.874 N	80° 56' 7.944 W
15,245.0	90.30	343.51	6,322.5	8,542.8	-2,123.0	14,239,493.89	1,658,645.67	39° 12' 46.768 N	80° 56' 8.314 W
15,339.0	90.57	344.08	6,321.8	8,633.0	-2,149.2	14,239,584.15	1,658,619.44	39° 12' 47.661 N	80° 56' 8.646 W
15,433.0	90.84	344.16	6,320.7	8,723.4	-2,174.9	14,239,674.56	1,658,593.72	39° 12' 48.555 N	80° 56' 8.972 W
15,527.0	90.67	342.76	6,319.4	8,813.5	-2,201.7	14,239,764.66	1,658,566.97	39° 12' 49.446 N	80° 56' 9.311 W
15,622.0	89.97	340.51	6,318.9	8,903.7	-2,231.6	14,239,854.81	1,658,537.04	39° 12' 50.337 N	80° 56' 9.691 W
15,716.0	89.23	341.04	6,319.6	8,992.5	-2,262.6	14,239,943.57	1,658,506.09	39° 12' 51.215 N	80° 56' 10.084 W
15,810.0	89.93	341.15	6,320.2	9,081.4	-2,293.0	14,240,032.49	1,658,475.63	39° 12' 52.095 N	80° 56' 10.470 W
15,904.0	90.30	340.62	6,320.1	9,170.2	-2,323.8	14,240,121.28	1,658,444.86	39° 12' 52.973 N	80° 56' 10.860 W
15,998.0	90.13	342.54	6,319.7	9,259.3	-2,353.5	14,240,210.46	1,658,415.16	39° 12' 53.855 N	80° 56' 11.237 W
16,092.0	90.07	341.59	6,319.5	9,348.8	-2,382.5	14,240,299.89	1,658,386.21	39° 12' 54.739 N	80° 56' 11.604 W
16,186.0	90.37	340.65	6,319.2	9,437.7	-2,412.9	14,240,388.83	1,658,355.80	39° 12' 55.619 N	80° 56' 11.990 W
16,281.0	90.94	341.04	6,318.1	9,527.5	-2,444.0	14,240,478.56	1,658,324.63	39° 12' 56.507 N	80° 56' 12.385 W
16,326.0	91.04	341.25	6,317.3	9,570.1	-2,458.6	14,240,521.17	1,658,310.08	39° 12' 56.928 N	80° 56' 12.570 W
Last SDI MWD @ 16326									
16,388.0	91.04	341.25	6,316.2	9,628.7	-2,478.5	14,240,579.84	1,658,290.16	39° 12' 57.508 N	80° 56' 12.822 W
Projection To Bit @ 16388 MD / 6316 TVD									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,072.0	6,018.7	Sycamore @ 6072		0.00		
6,271.0	6,177.4	Middlesex @ 6271		0.00		
6,454.0	6,281.0	Burkett @ 6454		0.00		
6,522.0	6,309.5	Tully @ 6522		0.00		
6,584.0	6,328.5	Marcellus @ 6584		0.00		

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COMPASS 5090.1 Build 74

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Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Left Fork Unit 3H
Project:	Ritchie County WV	TVD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Site:	Lockhart Heirs West Pad: Left Fork/Harris	MD Reference:	Patterson 347: 1021' GL + 25' KB @ 1046.0usft
Well:	Left Fork Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,526.0	5,494.2	-173.3	412.5	First SDI MWD @ 5526
16,326.0	6,317.3	9,570.1	-2,458.6	Last SDI MWD @ 16326
16,388.0	6,316.2	9,628.7	-2,478.5	Projection To Bit @ 16388 MD / 6316 TVD

Checked By: _____ Approved By: _____ Date: _____

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