



Arers 1H 1050 GL - 25 K8 @ 1075 Gush
Gr. 1050.0

Arers Unit 1H
Doddridge County WV
Northing: 14251304.73
Easting: 1762639.40
As Drilled



WELL DETAILS Arers Unit 1H
Ground Level: 1050.0

+N/-S	+E/-W	Northing	Longitude
0.0	0.0	14251304.73	1762639.40

LEGEND

- ✕ Arers Unit 2H, Original Wellpath, As Drilled VO
- ✕ Caswell Unit 2H, Original Wellpath, As Drilled VO
- ✕ Oneacre Unit 2H, Original Wellpath, As Drilled VO
- ✕ Walter Unit 3H, Original Wellpath, As Drilled VO
- ✕ Walter Unit 1H, Original Wellpath, As Drilled VO
- ✕ Caswell Unit 1H, Original Wellpath, As Drilled VO
- ✕ Ruth Unit 1H, Original Wellpath, As Drilled VO
- ✕ Arers Unit 2H, Original Wellpath, As Drilled VO
- ✕ Arers Unit 1H, Original Wellpath, Plan 4 VO
- ✕ As Drilled

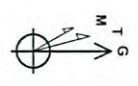
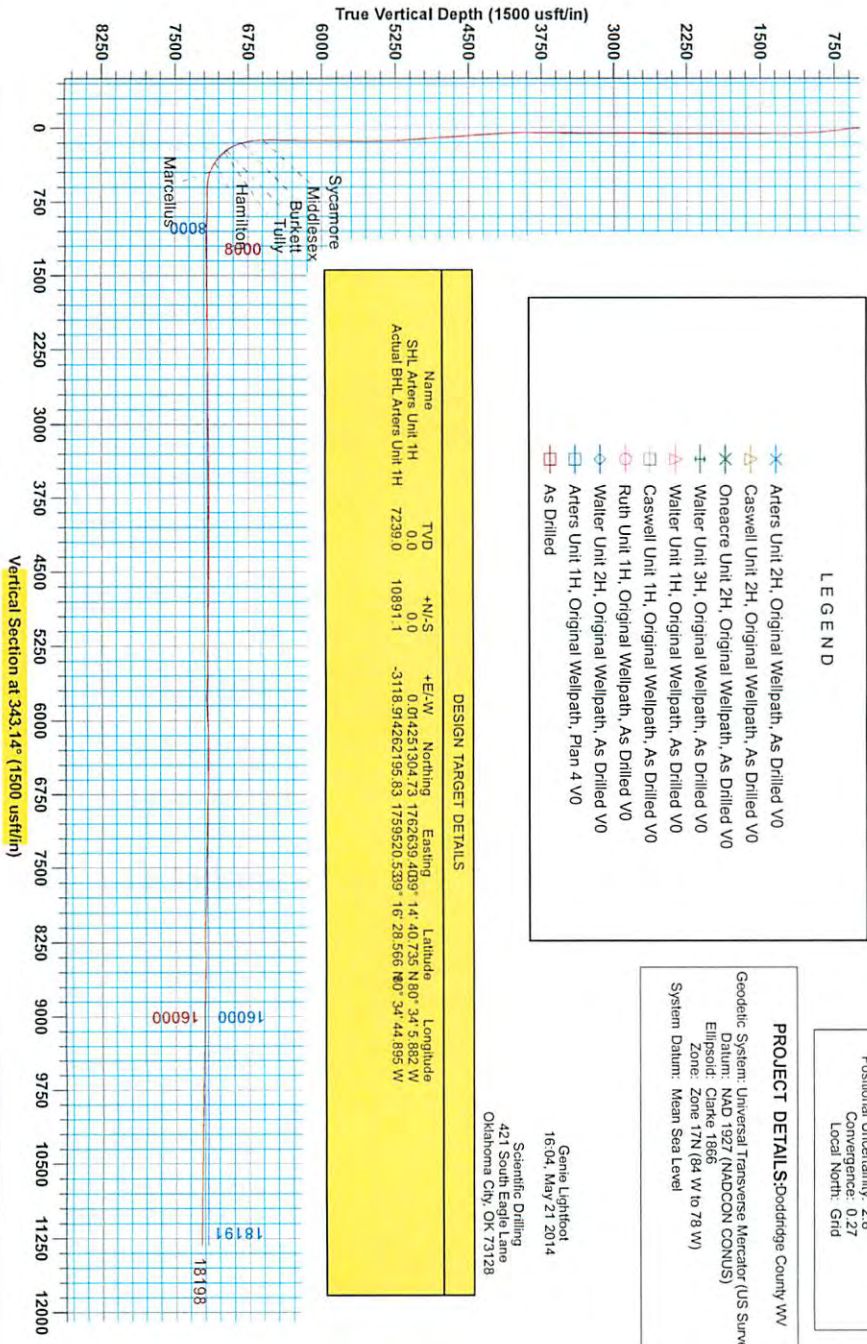
SITE DETAILS: Ruth/Walter/Caswell/Arers

Center is Ruth Unit 1
Site Centre Northing: 14251337.29
Easting: 1762659.77
Positional Uncertainty: 2.8
Convergence: 0.27
Local North: Grid

PROJECT DETAILS: Doddridge County WV
Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1983 (NAD83 CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)
System Datum: Mean Sea Level

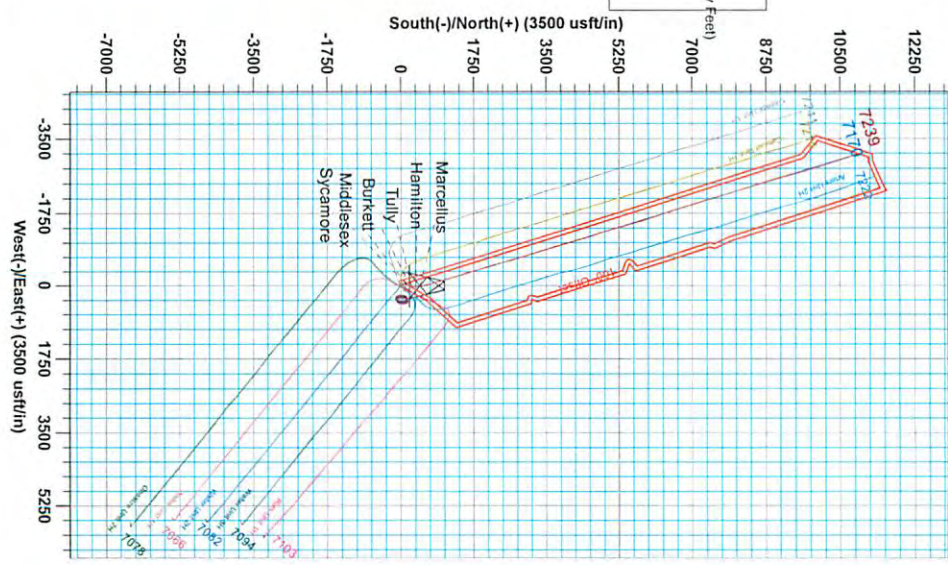
Game Lightfoot
16-04, May 21 2014
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK 73128

DESIGN TARGET DETAILS			
Name	TVD	+N/-S	+E/-W
SHL Arers Unit 1H	0.0	0.0	0.0
Actual BHL Arers Unit 1H	7236.0	10897.1	-3118.9



To convert Magnetic North to Grid, Subtract 8.87°
To convert True North to Grid, Subtract 0.27°

Azimuths to Grid North
True North: -0.27°
Magnetic North: -8.87°
Magnetic Field Strength: 52293.25nT
Dip Angle: 66.78°
Date: 1/29/2014
Model: IGRF2010



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06/05/2015



Antero Resources

Doddridge County WV
Ruth/Walter/Caswell/Arters
Arters Unit 1H
Original Wellpath

Design: As Drilled

EOW Completion Report

21 May, 2014

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Company: Antero Resources	Local Co-ordinate Reference: Well Arters Unit 1H
Project: Doddridge County WV	TVD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
Site: Ruth/Walter/Caswell/Arters	MD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
Well: Arters Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Project	Doddridge County WV, McClellan District		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Ruth/Walter/Caswell/Arters, Center is Ruth Unit 1				
Site Position:	Northing:	14,251,337.29 usft	Latitude:	39° 14' 41.054 N	
From: Map	Easting:	1,762,689.77 usft	Longitude:	80° 34' 5.240 W	
Position Uncertainty:	2.8 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.27 °

Well	Arters Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,251,304.73 usft	Latitude:	39° 14' 40.735 N
	+E/-W	0.0 usft	Easting:	1,762,639.40 usft	Longitude:	80° 34' 5.882 W
Position Uncertainty	2.8 usft	Wellhead Elevation:	1,075.0 usft	Ground Level:	1,050.0 usft	

Wellbore	Original Wellpath				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/29/2014	-8.60	66.78	52,293

Design	As Drilled			
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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	343.14

Survey Program	Date	5/21/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	6,554.0	Survey #6 Def Gyro to KOP (Original Well	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,612.0	18,198.0	Survey #7 MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1	

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
100.0	0.46	269.11	100.0	0.0	-0.4	0.1	0.46
200.0	0.37	230.23	200.0	-0.2	-1.1	0.1	0.29
300.0	0.51	187.59	300.0	-0.9	-1.4	-0.4	0.35
400.0	1.10	285.06	400.0	-1.1	-2.3	-0.3	1.27
500.0	3.01	338.02	499.9	1.6	-4.3	2.8	2.51
600.0	5.69	1.61	599.6	9.0	-5.1	10.1	3.17
700.0	8.38	4.09	698.9	21.2	-2.7	21.6	2.71
800.0	8.39	4.05	797.8	35.8	-2.7	35.2	0.01
900.0	4.23	2.37	897.2	46.8	-2.7	45.5	4.16
1,000.0	3.35	359.28	997.0	53.4		51.8	0.90

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Project: Doddridge County WV	TVD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
Site: Ruth/Walter/Caswell/Arters	MD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
Well: Arters Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)		
1,100.0	1.45	354.47	1,096.9	57.5	-2.8	55.9	1.91		
1,200.0	0.93	354.38	1,196.8	59.6	-3.0	57.9	0.52		
1,300.0	0.44	21.66	1,296.8	60.8	-2.9	59.0	0.58		
1,400.0	0.53	21.39	1,396.8	61.6	-2.6	59.7	0.09		
1,500.0	0.28	53.70	1,496.8	62.1	-2.2	60.1	0.33		
1,600.0	0.35	62.27	1,596.8	62.4	-1.8	60.3	0.08		
1,700.0	0.09	70.78	1,696.8	62.6	-1.4	60.3	0.26		
1,800.0	0.24	144.50	1,796.8	62.4	-1.2	60.1	0.23		
1,900.0	0.19	103.18	1,896.8	62.2	-1.0	59.8	0.16		
2,000.0	0.03	67.89	1,996.8	62.2	-0.8	59.8	0.17		
2,100.0	0.13	135.65	2,096.8	62.1	-0.7	59.7	0.12		
2,200.0	0.18	142.68	2,196.8	61.9	-0.5	59.4	0.05		
2,300.0	0.19	119.63	2,296.8	61.7	-0.2	59.1	0.07		
2,400.0	0.20	114.36	2,396.8	61.6	0.1	58.9	0.02		
2,500.0	0.22	120.55	2,496.8	61.4	0.4	58.7	0.03		
2,600.0	0.23	117.32	2,596.8	61.2	0.7	58.4	0.02		
2,700.0	0.17	89.16	2,696.8	61.1	1.1	58.2	0.11		
2,800.0	0.20	113.28	2,796.8	61.1	1.4	58.0	0.08		
2,900.0	0.24	107.60	2,896.8	60.9	1.7	57.8	0.05		
3,000.0	0.57	127.56	2,996.8	60.6	2.3	57.3	0.35		
3,100.0	0.54	116.58	3,096.8	60.0	3.1	56.6	0.11		
3,200.0	0.56	135.44	3,196.8	59.5	3.9	55.8	0.18		
3,300.0	0.34	78.99	3,296.8	59.2	4.5	55.3	0.47		
3,400.0	0.30	86.90	3,396.8	59.3	5.1	55.2	0.06		
3,500.0	0.31	110.09	3,496.8	59.2	5.6	55.0	0.12		
3,600.0	0.35	131.55	3,596.8	58.9	6.1	54.6	0.13		
3,700.0	0.38	104.36	3,696.8	58.6	6.6	54.2	0.17		
3,800.0	0.19	144.54	3,796.8	58.4	7.0	53.8	0.26		
3,900.0	0.46	126.30	3,896.8	58.0	7.5	53.4	0.29		
4,000.0	0.48	121.13	3,996.8	57.6	8.1	52.7	0.05		
4,100.0	4.07	293.04	4,096.7	58.7	5.2	54.7	4.55		
4,200.0	7.10	288.10	4,196.2	62.0	-3.9	60.5	3.07		
4,300.0	6.25	287.05	4,295.6	65.6	-15.0	67.1	0.86		
4,400.0	5.32	287.07	4,395.0	68.5	-24.6	72.7	0.93		
4,500.0	6.14	313.67	4,494.6	73.6	-32.9	80.0	2.75		
4,600.0	5.57	315.22	4,594.0	80.7	-40.2	88.9	0.59		
4,700.0	4.34	290.65	4,693.7	85.5	-47.2	95.5	2.42		
4,800.0	3.49	285.53	4,793.4	87.6	-53.6	99.4	0.92		
4,900.0	7.81	300.34	4,892.9	91.9	-62.4	106.0	4.52		
5,000.0	5.77	311.07	4,992.2	98.6	-72.1	115.3	2.39		
5,100.0	3.45	322.89	5,091.9	104.3	-77.7	122.4	2.49		
5,200.0	2.45	333.85	5,191.8	108.6	-81.4	127.3	1.14		
5,300.0	1.80	350.89	5,291.7	112.1	-81.4	131.0	0.90		
5,400.0	1.28	24.52	5,391.7	114.7	-81.4	133.4	1.02		

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Project:	Doddridge County WV	TVD Reference:	Arters 1H 1050 GL + 25 KB @ 1075.0usft
Site:	Ruth/Walter/Caswell/Arters	MD Reference:	Arters 1H 1050 GL + 25 KB @ 1075.0usft
Well:	Arters Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
5,500.0	1.47	69.10		5,491.6	116.2	-79.8	134.3	1.06	
5,600.0	1.55	92.96		5,591.6	116.5	-77.2	133.9	0.63	
5,700.0	1.69	100.01		5,691.6	116.2	-74.4	132.8	0.24	
5,800.0	1.64	105.54		5,791.5	115.6	-71.6	131.4	0.17	
5,900.0	1.24	128.72		5,891.5	114.5	-69.4	129.7	0.70	
6,000.0	1.11	132.25		5,991.5	113.2	-67.8	128.0	0.15	
6,100.0	0.83	123.99		6,091.5	112.1	-66.5	126.6	0.31	
6,200.0	0.65	121.73		6,191.5	111.4	-65.4	125.6	0.18	
6,300.0	0.91	113.74		6,291.4	110.8	-64.2	124.7	0.28	
6,400.0	0.89	111.88		6,391.4	110.2	-62.7	123.7	0.04	
6,500.0	1.06	110.58		6,491.4	109.6	-61.2	122.6	0.17	
6,554.0	0.92	121.92		6,545.4	109.2	-60.3	122.0	0.44	
6,607.0	1.99	60.45		6,598.4	109.4	-59.2	121.9	3.30	
Sycamore									
6,612.0	2.14	58.41		6,603.4	109.5	-59.0	121.9	3.30	
6,643.0	6.72	43.79		6,634.3	111.1	-57.3	122.9	15.10	
6,675.0	10.11	39.81		6,665.9	114.6	-54.2	125.4	10.74	
6,706.0	12.72	36.65		6,696.3	119.5	-50.4	128.9	8.65	
6,737.0	16.04	37.84		6,726.3	125.6	-45.7	133.4	10.75	
6,769.0	19.46	37.75		6,756.8	133.3	-39.7	139.1	10.69	
6,800.0	22.75	37.14		6,785.7	142.2	-33.0	145.6	10.64	
6,830.0	25.12	36.45		6,813.2	151.9	-25.7	152.8	7.96	
Middlesex									
6,831.0	25.20	36.43		6,814.1	152.2	-25.4	153.1	7.96	
6,863.0	27.74	36.51		6,842.7	163.7	-16.9	161.6	7.94	
6,894.0	31.06	32.77		6,869.7	176.2	-8.3	171.1	12.23	
6,925.0	33.71	28.21		6,895.9	190.5	0.1	182.3	11.62	
6,957.0	37.04	22.35		6,922.0	207.3	7.9	196.1	14.85	
6,988.0	38.67	17.17		6,946.5	225.2	14.4	211.3	11.52	
7,016.0	39.02	11.52		6,968.3	242.2	18.7	226.4	12.72	
Burkett									
7,020.0	39.09	10.72		6,971.4	244.7	19.2	228.6	12.72	
7,048.0	41.34	6.33		6,992.8	262.5	21.8	244.9	12.93	
Tully									
7,051.0	41.59	5.88		6,995.0	264.5	22.1	246.7	12.93	
7,082.0	45.05	3.62		7,017.6	285.7	23.8	266.5	12.23	
7,114.0	46.75	0.40		7,039.8	308.7	24.6	288.3	8.97	
7,145.0	48.99	356.99		7,060.6	331.6	24.1	310.4	10.90	
7,176.0	52.53	355.72		7,080.2	355.6	22.5	333.8	11.85	
7,195.0	55.50	355.85		7,091.4	370.9	21.4	348.8	15.67	
Hamilton									
7,208.0	57.54	355.93		7,098.6	381.7	16.4	359.3	15.67	
7,239.0	62.19	355.85		7,114.1	408.5	16.4	385.5	15.00	
7,270.0	66.53	354.79		7,127.6	436.3	16.4	412.8	14.34	
7,302.0	69.77	353.31		7,139.5	465.9	16.4	442.0	11.00	

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Site: Ruth/Walter/Caswell/Arters	MD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
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Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,307.0	70.42	352.99	7,141.2	470.5	12.8	446.6	14.22
Marcellus							
7,333.0	73.78	351.38	7,149.2	495.0	9.4	471.0	14.22
7,365.0	76.43	349.64	7,157.4	525.5	4.3	501.7	9.81
7,396.0	80.51	348.45	7,163.6	555.3	-1.5	531.9	13.69
7,411.0	82.16	347.89	7,165.8	569.9	-4.5	546.7	11.60
7,427.0	84.26	347.43	7,167.7	585.4	-7.9	562.5	13.43
7,447.0	86.35	346.38	7,169.4	604.8	-12.4	582.4	11.69
7,479.0	88.72	345.52	7,170.7	635.8	-20.2	614.3	7.88
7,510.0	88.96	345.57	7,171.4	665.8	-27.9	645.3	0.79
7,604.0	88.86	343.18	7,173.2	756.3	-53.2	739.2	2.54
7,698.0	89.19	343.77	7,174.8	846.4	-80.0	833.2	0.72
7,793.0	88.76	343.94	7,176.5	937.7	-106.4	928.2	0.49
7,887.0	90.37	343.72	7,177.2	1,027.9	-132.5	1,022.2	1.73
7,981.0	89.97	343.76	7,176.9	1,118.2	-158.9	1,116.2	0.43
8,075.0	90.07	342.40	7,176.9	1,208.1	-186.2	1,210.2	1.45
8,169.0	89.80	341.92	7,177.0	1,297.6	-215.0	1,304.2	0.59
8,263.0	91.68	343.16	7,175.7	1,387.2	-243.2	1,398.1	2.40
8,358.0	89.87	341.80	7,174.5	1,477.8	-271.8	1,493.1	2.38
8,452.0	90.20	341.69	7,174.4	1,567.1	-301.3	1,587.1	0.37
8,546.0	90.94	343.00	7,173.5	1,656.6	-329.8	1,681.1	1.60
8,641.0	90.13	339.40	7,172.6	1,746.6	-360.4	1,776.0	3.88
8,735.0	90.97	340.92	7,171.7	1,835.0	-392.3	1,869.9	1.85
8,829.0	91.68	341.66	7,169.5	1,924.0	-422.4	1,963.8	1.09
8,923.0	90.34	342.44	7,167.9	2,013.4	-451.4	2,057.8	1.65
9,017.0	89.93	344.06	7,167.6	2,103.4	-478.5	2,151.8	1.78
9,111.0	90.34	344.06	7,167.4	2,193.8	-504.3	2,245.7	0.44
9,206.0	90.81	345.12	7,166.5	2,285.4	-529.5	2,340.7	1.22
9,300.0	90.13	345.01	7,165.7	2,376.2	-553.8	2,434.6	0.73
9,394.0	91.34	345.41	7,164.5	2,467.1	-577.7	2,528.6	1.36
9,489.0	90.94	345.71	7,162.6	2,559.0	-601.4	2,623.5	0.53
9,583.0	90.13	342.82	7,161.7	2,649.5	-626.9	2,717.4	3.19
9,677.0	90.07	342.27	7,161.5	2,739.2	-655.1	2,811.4	0.59
9,771.0	91.17	342.11	7,160.5	2,828.7	-683.9	2,905.4	1.18
9,866.0	90.77	343.51	7,158.9	2,919.4	-711.9	3,000.4	1.53
9,960.0	90.54	343.29	7,157.8	3,009.5	-738.8	3,094.4	0.34
10,053.0	89.80	344.72	7,157.6	3,098.9	-764.4	3,187.4	1.73
10,147.0	90.47	345.49	7,157.3	3,189.7	-788.6	3,281.3	1.09
10,241.0	88.83	342.14	7,157.9	3,280.0	-814.8	3,375.3	3.97
10,336.0	89.40	342.25	7,159.4	3,370.4	-843.8	3,470.3	0.61
10,430.0	91.34	342.91	7,158.8	3,460.1	-872.0	3,564.3	2.18
10,524.0	90.07	341.89	7,157.6	3,549.7	-900.4	3,658.2	1.73
10,618.0	90.17	343.07	7,157.4	3,639.3	-928.7	3,752.2	1.26
10,712.0	88.42	342.13	7,158.6	3,729.0	-956.8	3,846.2	2.11
10,807.0	89.60	342.75	7,160.2	3,819.6	-985.4	3,941.2	1.40

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Company: Antero Resources	Local Co-ordinate Reference: Well Arters Unit 1H
Project: Doddridge County WV	TVD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
Site: Ruth/Walter/Caswell/Arters	MD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
Well: Arters Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
10,901.0	90.10	344.09	7,160.5	3,909.7	-1,012.3	4,035.2	1.52	
10,995.0	89.20	342.03	7,161.0	3,999.6	-1,039.6	4,129.2	2.39	
11,089.0	90.54	345.13	7,161.3	4,089.7	-1,066.2	4,223.2	3.59	
11,183.0	90.34	344.27	7,160.5	4,180.4	-1,091.0	4,317.1	0.94	
11,277.0	89.90	345.30	7,160.3	4,271.1	-1,115.7	4,411.1	1.19	
11,368.0	89.03	344.89	7,161.2	4,359.0	-1,139.1	4,502.0	1.06	
11,460.0	89.40	343.97	7,162.5	4,447.6	-1,163.8	4,594.0	1.08	
11,552.0	89.73	342.75	7,163.2	4,535.8	-1,190.1	4,686.0	1.37	
11,644.0	90.54	340.19	7,162.9	4,623.0	-1,219.4	4,777.9	2.92	
11,737.0	88.46	339.16	7,163.7	4,710.2	-1,251.7	4,870.8	2.50	
11,830.0	88.96	340.80	7,165.8	4,797.6	-1,283.5	4,963.6	1.84	
11,922.0	88.46	342.08	7,167.9	4,884.7	-1,312.8	5,055.5	1.49	
12,015.0	89.97	344.25	7,169.2	4,973.7	-1,339.7	5,148.5	2.84	
12,106.0	89.50	345.27	7,169.6	5,061.5	-1,363.6	5,239.5	1.23	
12,198.0	89.20	345.14	7,170.7	5,150.5	-1,387.1	5,331.4	0.36	
12,291.0	90.17	344.12	7,171.2	5,240.2	-1,411.8	5,424.4	1.51	
12,383.0	88.20	341.55	7,172.5	5,328.0	-1,438.9	5,516.3	3.52	
12,477.0	87.01	343.89	7,176.4	5,417.7	-1,466.8	5,610.3	2.79	
12,571.0	86.17	345.56	7,182.0	5,508.2	-1,491.5	5,704.0	1.99	
12,657.0	89.87	345.12	7,185.0	5,591.4	-1,513.3	5,789.9	4.33	
12,666.0	90.07	344.82	7,185.0	5,600.1	-1,515.6	5,798.9	4.01	
12,729.0	92.25	345.08	7,183.7	5,660.9	-1,532.0	5,861.9	3.48	
12,751.0	94.63	345.61	7,182.4	5,682.1	-1,537.5	5,883.8	11.08	
12,760.0	95.07	345.55	7,181.6	5,690.8	-1,539.7	5,892.8	4.93	
12,854.0	93.69	344.01	7,174.4	5,781.2	-1,564.3	5,986.5	2.20	
12,949.0	91.64	341.79	7,170.0	5,871.9	-1,592.2	6,081.3	3.18	
13,043.0	92.31	341.63	7,166.8	5,961.1	-1,621.7	6,175.3	0.73	
13,137.0	91.01	341.27	7,164.1	6,050.2	-1,651.6	6,269.2	1.43	
13,231.0	90.10	341.54	7,163.1	6,139.3	-1,681.6	6,363.1	1.01	
13,325.0	88.86	341.79	7,164.0	6,228.5	-1,711.2	6,457.1	1.35	
13,419.0	89.60	341.37	7,165.3	6,317.7	-1,740.9	6,551.0	0.91	
13,513.0	88.29	341.27	7,167.0	6,406.7	-1,771.0	6,645.0	1.40	
13,608.0	87.99	342.14	7,170.1	6,496.9	-1,800.8	6,739.9	0.97	
13,702.0	88.89	343.04	7,172.6	6,586.5	-1,828.9	6,833.9	1.35	
13,796.0	88.63	344.60	7,174.7	6,676.8	-1,855.1	6,927.8	1.68	
13,890.0	89.70	344.14	7,176.0	6,767.3	-1,880.4	7,021.8	1.24	
13,984.0	88.56	343.47	7,177.5	6,857.5	-1,906.6	7,115.8	1.41	
14,079.0	89.16	343.14	7,179.4	6,948.5	-1,933.9	7,210.7	0.72	
14,173.0	87.58	342.11	7,182.0	7,038.2	-1,961.9	7,304.7	2.01	
14,267.0	89.97	343.24	7,184.0	7,127.9	-1,989.9	7,398.7	2.81	
14,361.0	89.73	343.02	7,184.3	7,217.9	-2,017.2	7,492.7	0.35	
14,455.0	88.56	342.73	7,185.7	7,307.7	-2,044.9	7,586.7	1.28	
14,549.0	89.70	342.04	7,187.1	7,397.3	-2,072.3	7,680.6	1.42	
14,644.0	89.09	342.39	7,188.1	7,487.7	-2,102.3	7,775.6	0.74	

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Site: Ruth/Walter/Caswell/Arters	MD Reference: Arters 1H 1050 GL + 25 KB @ 1075.0usft
Well: Arters Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
14,738.0	87.65	344.34	7,190.8	7,577.7	-2,129.2	7,869.6	2.58	
14,832.0	87.08	344.70	7,195.1	7,668.2	-2,154.3	7,963.4	0.72	
14,926.0	88.05	344.39	7,199.1	7,758.7	-2,179.3	8,057.3	1.08	
15,021.0	89.80	345.24	7,200.9	7,850.4	-2,204.2	8,152.3	2.05	
15,115.0	90.13	343.35	7,200.9	7,940.9	-2,229.7	8,246.2	2.04	
15,209.0	91.80	343.31	7,199.4	8,030.9	-2,256.6	8,340.2	1.78	
15,303.0	90.07	341.97	7,197.8	8,120.6	-2,284.7	8,434.2	2.33	
15,397.0	88.96	341.65	7,198.6	8,209.9	-2,314.0	8,528.2	1.23	
15,491.0	88.56	341.15	7,200.7	8,299.0	-2,344.0	8,622.1	0.68	
15,585.0	88.99	340.85	7,202.7	8,387.9	-2,374.6	8,716.0	0.56	
15,679.0	88.81	341.81	7,204.5	8,476.9	-2,404.7	8,810.0	1.04	
15,773.0	88.64	343.22	7,206.6	8,566.5	-2,432.9	8,903.9	1.51	
15,868.0	88.72	344.19	7,208.8	8,657.7	-2,459.5	8,998.9	1.02	
15,962.0	91.07	345.10	7,208.9	8,748.3	-2,484.4	9,092.9	2.68	
16,056.0	89.43	343.04	7,208.5	8,838.7	-2,510.2	9,186.8	2.80	
16,150.0	90.03	344.08	7,209.0	8,928.9	-2,536.8	9,280.8	1.28	
16,245.0	89.43	343.20	7,209.4	9,020.0	-2,563.6	9,375.8	1.12	
16,339.0	87.24	344.02	7,212.1	9,110.1	-2,590.1	9,469.8	2.49	
16,433.0	87.61	346.04	7,216.4	9,200.9	-2,614.3	9,563.6	2.18	
16,527.0	88.22	345.88	7,219.8	9,292.0	-2,637.1	9,657.4	0.67	
16,621.0	89.63	345.19	7,221.5	9,383.0	-2,660.6	9,751.3	1.67	
16,715.0	90.64	344.55	7,221.3	9,473.7	-2,685.1	9,845.3	1.27	
16,810.0	87.79	344.93	7,222.6	9,565.4	-2,710.1	9,940.2	3.03	
16,905.0	88.56	344.47	7,225.6	9,656.9	-2,735.2	10,035.2	0.94	
17,000.0	88.83	344.74	7,227.8	9,748.5	-2,760.4	10,130.1	0.40	
17,095.0	90.10	346.30	7,228.7	9,840.5	-2,784.2	10,225.0	2.12	
17,189.0	89.87	343.65	7,228.7	9,931.3	-2,808.5	10,319.0	2.83	
17,284.0	90.23	341.87	7,228.6	10,022.0	-2,836.7	10,413.9	1.91	
17,378.0	88.93	341.49	7,229.3	10,111.2	-2,866.2	10,507.9	1.44	
17,473.0	89.56	340.71	7,230.6	10,201.1	-2,897.0	10,602.8	1.06	
17,567.0	90.13	339.71	7,230.8	10,289.5	-2,928.8	10,696.7	1.22	
17,662.0	89.33	341.85	7,231.3	10,379.2	-2,960.1	10,791.6	2.40	
17,756.0	88.63	343.01	7,233.0	10,468.8	-2,988.5	10,885.6	1.44	
17,851.0	90.23	343.46	7,233.9	10,559.8	-3,015.9	10,980.6	1.75	
17,946.0	88.72	343.14	7,234.8	10,650.8	-3,043.2	11,075.6	1.62	
18,040.0	88.96	342.70	7,236.7	10,740.6	-3,070.8	11,169.6	0.53	
18,140.0	89.25	342.08	7,238.2	10,835.9	-3,101.0	11,269.5	0.68	
18,198.0	89.25	342.08	7,239.0	10,891.1	-3,118.9	11,327.5	0.00	

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Project:	Doddridge County WV	TVD Reference:	Arters 1H 1050 GL + 25 KB @ 1075.0usft
Site:	Ruth/Walter/Caswell/Arters	MD Reference:	Arters 1H 1050 GL + 25 KB @ 1075.0usft
Well:	Arters Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,607.0	6,598.4	109.4	-59.2	Sycamore
6,830.0	6,813.2	151.9	-25.7	Middlesex
7,016.0	6,968.3	242.2	18.7	Burkett
7,048.0	6,992.8	262.5	21.8	Tully
7,195.0	7,091.4	370.9	21.4	Hamilton
7,307.0	7,141.2	470.5	12.8	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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