



Antero Resources
 Shale Unit 1H
 Doddridge County WV
 Northing: 14270984.73
 Easting: 1688838.21
 As Drilled

WELL DETAILS: Shale Unit 1H

General Level	1140.0	Longitude	
+N/-S	0.0	East	1688838.21
+E/-W	0.0	North	14270984.73
Lat	39° 17' 57.753" N	Long	80° 49' 43.818" W

REFERENCE INFORMATION

Coordinate (NAD83) Reference Well: Shale Unit 1H, Grid North
 Vertical (VD) Reference: State 1140.00, +19.40 @ 1155.00m
 Measured Depth Reference: State 1140.00, +19.40 @ 1155.00m
 Calculation Method: Minimum Deviation

PROJECT DETAILS: Doddridge County, WV

Geologic System: Universal Transverse Mercator (US Survey Feet)
 Datum: GDA 1920 (NAD83 CONUS)
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level



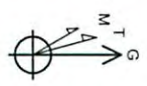
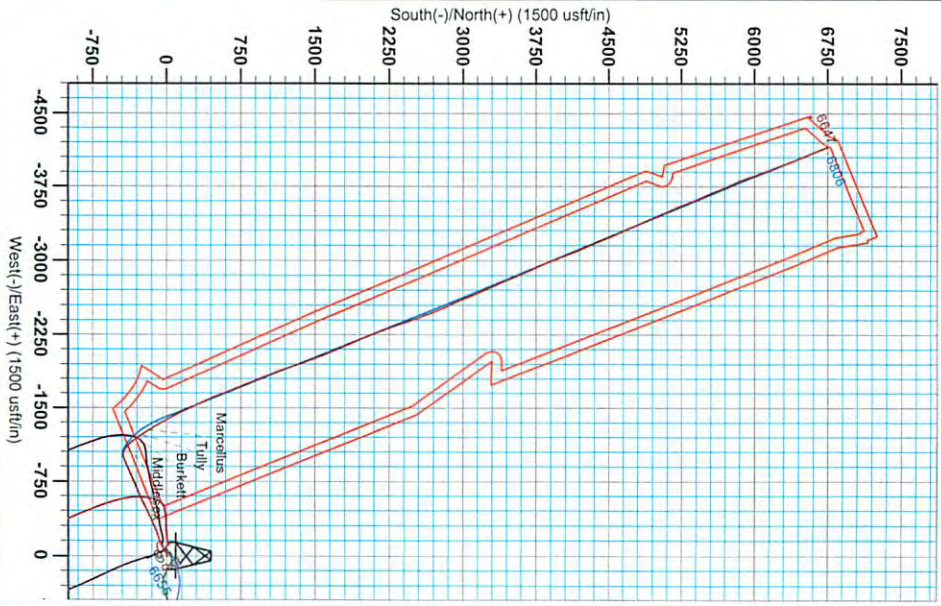
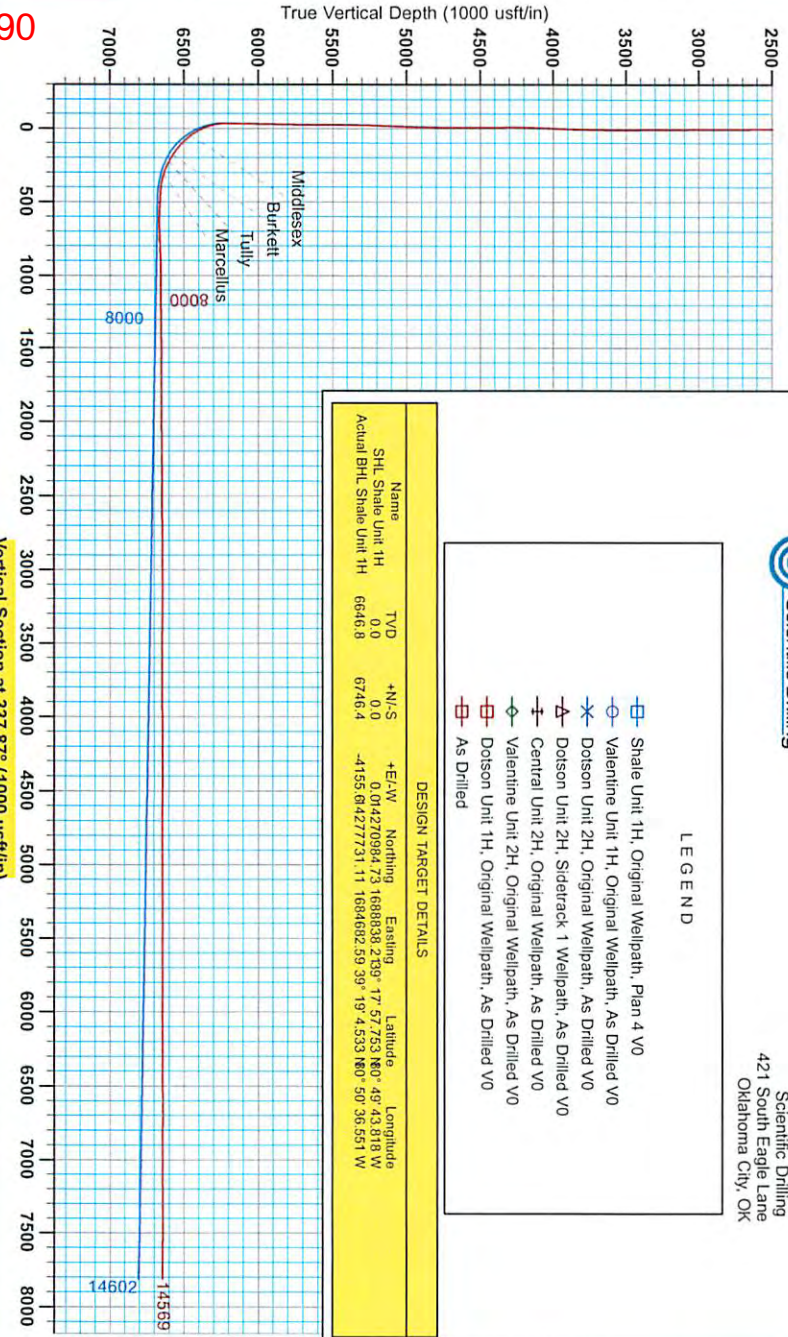
Gene Lightfoot
 11:54, January 31 2014
 Scientific Drilling
 421 South Eagle Lane
 Oklahoma City, OK

LEGEND

- Shale Unit 1H, Original Wellpath, Plan 4 V0
- Valentine Unit 1H, Original Wellpath, As Drilled V0
- ✱ Dotson Unit 2H, Original Wellpath, As Drilled V0
- △ Dotson Unit 2H, Siderack 1 Wellpath, As Drilled V0
- ⊥ Central Unit 2H, Original Wellpath, As Drilled V0
- ◇ Valentine Unit 2H, Original Wellpath, As Drilled V0
- ▣ Dotson Unit 1H, Original Wellpath, As Drilled V0
- ⊠ As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	East	Latitude	Longitude
SHL Shale Unit 1H	0.0	0.0	0.0	0.0	0.0	17° 57' 57.753" N	80° 49' 43.818" W
Actual BHL Shale Unit 1H	6646.8	6746.4	-4155.6	14277731.11	16884692.59	39° 19' 4.533" N	80° 50' 36.551" W



To convert Magnetic North to Grid, Subtract 8.53°
 To convert True North to Grid, Subtract 0.11°

Grid North
 True North: -0.11°
 Magnetic North: -8.53°
 Strength: 52383.2nT
 Dip Angle: 66.88°
 Date: 10/24/2013
 Model: IGRF2010

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Antero Resources

Doddridge County WV
Valentine/Dotson/Piggott/Shale Pad
Shale Unit 1H
Original Wellpath

Design: As Drilled

EOW Completion Report

31 January, 2014

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WV Department of
Environmental Protection



Scientific Drilling



Company:	Antero Resources	Local Co-ordinate Reference:	Well Shale Unit 1H
Project:	Doddridge County WV	TVD Reference:	Shale 1H 1146 GL + 19 KB @ 1165.0usft
Site:	Valentine/Dotson/Piggott/Shale Pad	MD Reference:	Shale 1H 1146 GL + 19 KB @ 1165.0usft
Well:	Shale 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	Valentine/Dotson/Piggott/Shale Pad		
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Site Position:		Northing:	14,270,970.12 usft	Latitude:	39° 17' 57.609 N
From:	Map	Easting:	1,688,801.46 usft	Longitude:	80° 49' 44.286 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.11 °

Well	Shale Unit 1H, Marcellus				
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Well Position	+N-S	0.0 usft	Northing:	14,270,984.73 usft	Latitude:	39° 17' 57.753 N
	+E-W	0.0 usft	Easting:	1,688,838.21 usft	Longitude:	80° 49' 43.818 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,165.0 usft	Ground Level:	1,146.0 usft

Wellbore	Original Wellpath				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/24/2013	-8.42	66.89	52,383

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	337.87

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Survey Program	Date 1/31/2014				
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From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
106.0	6,407.0	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
6,432.0	14,569.0	Survey #7 MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1

WV Department of
Environmental Protection

Survey										
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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
106.0	0.27	354.42	106.0	0.2	0.0	0.2	0.25
206.0	0.27	344.12	206.0	0.7	-0.1	0.7	0.05
306.0	0.29	345.80	306.0	1.2	-0.2	1.2	0.02
406.0	0.16	359.23	406.0	1.6	-0.3	1.6	0.14
506.0	0.13	24.14	506.0	1.8	-0.3	1.8	0.07
606.0	0.17	17.90	606.0	2.1	-0.2	2.0	0.04
706.0	0.21	37.16	706.0	2.3	0.0	2.2	0.07
806.0	0.20	33.42	806.0	2.6	0.2	2.4	0.02
906.0	0.18	42.27	906.0	2.9	0.4	2.5	0.04
1,006.0	0.17	5.88	1,006.0	3.2	0.5	2.7	0.11



Company: Antero Resources
 Project: Doddridge County WV
 Site: Valentine/Dotson/Piggott/Shale Pad
 Well: Shale Unit 1H
 Wellbore: Original Wellpath
 Design: As Drilled

Local Co-ordinate Reference: Well Shale Unit 1H
 TVD Reference: Shale 1H 1146 GL + 19 KB @ 1165.0usft
 MD Reference: Shale 1H 1146 GL + 19 KB @ 1165.0usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Oklahoma District

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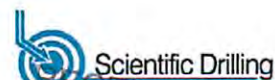
Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)
1,106.0	0.14	30.61	1,106.0	3.4	0.6	2.9	0.07
1,206.0	0.09	20.44	1,206.0	3.6	0.7	3.1	0.05
1,306.0	0.11	13.10	1,306.0	3.8	0.7	3.2	0.02
1,406.0	0.19	7.19	1,406.0	4.0	0.8	3.4	0.08
1,506.0	0.16	31.32	1,506.0	4.3	0.9	3.7	0.08
1,606.0	0.13	6.87	1,606.0	4.5	1.0	3.8	0.07
1,706.0	0.08	348.76	1,706.0	4.7	1.0	4.0	0.06
1,806.0	0.17	336.92	1,806.0	4.9	0.9	4.2	0.09
1,906.0	0.10	15.10	1,906.0	5.1	0.9	4.4	0.11
2,006.0	0.22	147.83	2,006.0	5.1	1.0	4.3	0.30
2,106.0	0.24	352.15	2,106.0	5.1	1.0	4.3	0.45
2,206.0	0.10	28.76	2,206.0	5.4	1.1	4.6	0.17
2,306.0	0.09	94.61	2,306.0	5.5	1.2	4.6	0.10
2,406.0	0.07	93.20	2,406.0	5.4	1.3	4.5	0.02
2,506.0	0.12	13.33	2,506.0	5.5	1.4	4.6	0.13
2,606.0	0.12	332.87	2,606.0	5.7	1.4	4.8	0.08
2,706.0	0.25	338.63	2,706.0	6.0	1.3	5.1	0.13
2,806.0	0.33	329.74	2,806.0	6.5	1.0	5.6	0.09
2,906.0	0.31	315.67	2,906.0	6.9	0.7	6.2	0.08
3,006.0	0.43	315.78	3,006.0	7.4	0.2	6.8	0.12
3,106.0	0.50	315.67	3,106.0	8.0	-0.3	7.5	0.07
3,206.0	0.44	324.42	3,206.0	8.6	-0.8	8.3	0.09
3,306.0	0.49	320.99	3,306.0	9.2	-1.3	9.1	0.06
3,406.0	0.54	317.18	3,406.0	9.9	-1.9	9.9	0.06
3,506.0	0.53	315.38	3,506.0	10.6	-2.6	10.8	0.02
3,606.0	2.84	253.73	3,605.9	10.2	-5.3	11.5	2.63
3,706.0	5.69	225.93	3,705.6	6.1	-11.2	9.9	3.44
3,806.0	7.97	236.50	3,804.9	-1.2	-20.6	6.6	2.59
3,906.0	10.37	240.27	3,903.6	-9.5	-34.2	4.1	2.47
4,006.0	13.83	237.25	4,001.4	-20.4	-52.0	0.7	3.52
4,106.0	17.84	237.21	4,097.6	-35.2	-75.0	-4.3	4.01
4,206.0	17.80	244.82	4,192.8	-50.0	-101.7	-8.0	2.33
4,306.0	19.93	248.73	4,287.4	-62.7	-131.4	-8.5	2.48
4,406.0	23.66	250.77	4,380.3	-75.5	-166.2	-7.3	3.81
4,506.0	25.94	249.88	4,471.0	-89.6	-205.7	-5.5	2.31
4,606.0	26.37	246.57	4,560.8	-106.0	-246.7	-5.2	1.52
4,706.0	26.86	245.98	4,650.2	-124.0	-287.7	-6.5	0.56
4,806.0	26.83	246.13	4,739.4	-142.3	-328.9	-7.9	0.07
4,906.0	25.71	247.90	4,829.1	-159.6	-369.7	-8.6	1.37
5,006.0	25.18	244.71	4,919.4	-176.8	-409.0	-9.7	1.47
5,106.0	25.65	242.56	5,009.7	-195.9	-447.5	-12.9	1.04
5,206.0	26.19	243.31	5,099.7	-215.8	-486.4	-16.7	0.63
5,306.0	27.14	244.90	5,189.0	-235.4	-526.7	-19.6	1.19
5,406.0	28.12	246.20	5,277.6	-254.6	-569.0	-21.5	1.15

06/05/2015



EOW Completion Report

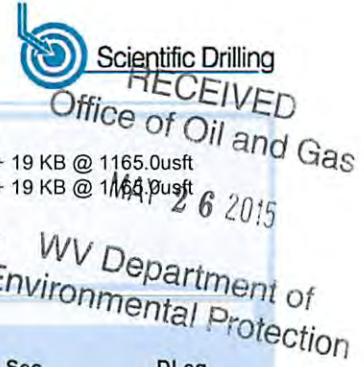


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Project:	Doddridge County WV	TVD Reference:	Shale 1H 1146 GL + 19 KB @ 1165.0usft
Site:	Valentine/Dotson/Piggott/Shale Pad	MD Reference:	Shale 1H 1146 GL + 19 KB @ 1165.0usft
Well:	Shale Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
5,506.0	27.31	245.54	5,366.2	-273.6	-611.4	-23.1	0.87
5,606.0	26.34	247.44	5,455.4	-291.6	-652.8	-24.2	1.29
5,706.0	26.02	248.54	5,545.1	-308.1	-693.7	-24.1	0.58
5,806.0	25.33	248.64	5,635.3	-323.9	-734.0	-23.6	0.69
5,906.0	26.01	246.96	5,725.4	-340.3	-774.1	-23.6	1.00
6,006.0	25.46	244.58	5,815.5	-358.1	-813.7	-25.2	1.17
6,106.0	25.75	245.44	5,905.7	-376.4	-852.9	-27.4	0.47
6,206.0	24.81	245.01	5,996.1	-394.3	-891.7	-29.3	0.96
6,306.0	24.64	246.89	6,086.9	-411.3	-929.8	-30.7	0.80
6,406.0	24.02	245.79	6,178.0	-427.8	-967.6	-31.8	0.77
6,407.0	24.02	245.78	6,179.0	-428.0	-968.0	-31.8	0.41
6,432.0	23.48	243.80	6,201.8	-432.3	-977.1	-32.4	3.85
6,462.0	23.83	249.86	6,229.3	-437.0	-988.1	-32.6	8.19
6,493.0	25.41	260.06	6,257.5	-440.3	-1,000.6	-31.0	14.60
6,524.0	27.17	269.82	6,285.3	-441.5	-1,014.2	-26.9	15.04
6,555.0	28.67	277.73	6,312.7	-440.5	-1,028.6	-20.6	12.88
6,586.0	30.07	285.81	6,339.7	-437.4	-1,043.5	-12.1	13.55
6,617.0	31.74	291.88	6,366.4	-432.2	-1,058.5	-1.6	11.40
6,648.0	33.59	297.68	6,392.5	-425.2	-1,073.7	10.6	11.72
6,678.0	35.67	304.51	6,417.1	-416.4	-1,088.3	24.2	14.67
6,709.0	39.22	309.63	6,441.8	-405.0	-1,103.3	40.4	15.22
6,726.0	40.46	311.20	6,454.8	-398.0	-1,111.6	50.1	9.41
Middlesex							
6,740.0	41.50	312.44	6,465.4	-391.8	-1,118.4	58.3	9.41
6,771.0	44.85	314.82	6,488.0	-377.2	-1,133.7	77.7	12.01
6,802.0	47.57	317.98	6,509.4	-361.0	-1,149.2	98.5	11.45
6,833.0	49.86	320.00	6,529.9	-343.4	-1,164.4	120.5	8.86
6,864.0	52.58	321.93	6,549.3	-324.6	-1,179.6	143.7	10.03
6,894.0	55.57	324.04	6,566.9	-305.2	-1,194.3	167.1	11.48
6,908.0	57.04	324.65	6,574.7	-295.8	-1,201.0	178.5	11.11
Burkett							
6,925.0	58.83	325.36	6,583.7	-284.0	-1,209.3	192.5	11.11
6,956.0	62.08	326.86	6,599.0	-261.6	-1,224.3	218.9	11.30
6,964.0	63.09	326.93	6,602.7	-255.6	-1,228.2	225.9	12.67
Tully							
6,987.0	66.00	327.13	6,612.6	-238.2	-1,239.5	246.3	12.67
7,018.0	69.03	328.88	6,624.4	-213.9	-1,254.7	274.5	11.08
7,049.0	72.55	330.37	6,634.6	-188.7	-1,269.5	303.4	12.23
7,055.0	73.27	330.35	6,636.4	-183.7	-1,272.3	309.1	12.00
Marcellus							
7,079.0	76.15	330.28	6,642.7	-163.6	-1,283.8	332.1	12.00
7,110.0	79.58	329.67	6,649.2	-137.3	-1,298.9	362.1	11.23
7,141.0	82.92	329.05	6,653.9	-111.0	-1,314.6	392.4	10.95
7,172.0	84.94	328.70	6,657.2	-84.6	-1,330.5	422.8	6.61
7,203.0	86.17	329.67	6,659.6	-58.1	-1,346.3	453.4	5.05



Company: Antero Resources
 Project: Doddridge County WV
 Site: Valentine/Dotson/Piggott/Shale Pad
 Well: Shale Unit 1H
 Wellbore: Original Wellpath
 Design: As Drilled

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 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,234.0	87.67	329.93	6,661.3	-31.3	-1,361.9	484.0	4.91
7,265.0	87.41	330.46	6,662.6	-4.4	-1,377.3	514.7	1.90
7,296.0	87.58	331.95	6,664.0	22.7	-1,392.2	545.5	4.83
7,327.0	88.11	332.66	6,665.1	50.1	-1,406.6	576.3	2.86
7,389.0	89.60	332.83	6,666.4	105.2	-1,435.0	638.1	2.42
7,481.0	90.92	333.27	6,666.0	187.2	-1,476.7	729.7	1.51
7,574.0	92.07	333.62	6,663.5	270.4	-1,518.2	822.4	1.29
7,666.0	92.33	336.00	6,660.0	353.6	-1,557.4	914.2	2.60
7,759.0	89.52	336.09	6,658.5	438.6	-1,595.1	1,007.1	3.02
7,851.0	90.13	338.90	6,658.8	523.5	-1,630.3	1,099.1	3.13
7,944.0	90.31	338.72	6,658.4	610.3	-1,663.9	1,192.1	0.27
8,037.0	90.40	337.67	6,657.8	696.6	-1,698.5	1,285.1	1.13
8,129.0	90.40	337.14	6,657.2	781.5	-1,733.8	1,377.1	0.58
8,224.0	91.01	337.14	6,656.0	869.1	-1,770.7	1,472.1	0.64
8,319.0	90.92	338.19	6,654.4	956.9	-1,806.8	1,567.1	1.11
8,413.0	89.34	339.16	6,654.2	1,044.5	-1,841.0	1,661.1	1.97
8,508.0	89.43	338.46	6,655.2	1,133.1	-1,875.4	1,756.1	0.74
8,603.0	90.31	338.90	6,655.5	1,221.6	-1,909.9	1,851.0	1.04
8,698.0	91.28	339.51	6,654.1	1,310.4	-1,943.6	1,946.0	1.21
8,793.0	90.22	339.86	6,652.9	1,399.4	-1,976.6	2,040.9	1.18
8,887.0	91.10	340.13	6,651.8	1,487.8	-2,008.8	2,134.9	0.98
8,982.0	90.40	338.37	6,650.6	1,576.6	-2,042.4	2,229.8	1.99
9,077.0	90.04	336.96	6,650.2	1,664.5	-2,078.5	2,324.8	1.53
9,172.0	90.75	336.79	6,649.5	1,751.8	-2,115.8	2,419.8	0.77
9,267.0	90.31	336.09	6,648.7	1,838.9	-2,153.8	2,514.8	0.87
9,359.0	89.87	336.17	6,648.5	1,923.0	-2,191.0	2,606.7	0.49
9,452.0	90.48	338.19	6,648.2	2,008.7	-2,227.1	2,699.7	2.27
9,544.0	89.69	339.34	6,648.1	2,094.5	-2,260.4	2,791.7	1.52
9,637.0	89.96	339.07	6,648.4	2,181.4	-2,293.4	2,884.7	0.41
9,730.0	89.96	339.68	6,648.4	2,268.5	-2,326.2	2,977.7	0.66
9,822.0	90.48	343.03	6,648.1	2,355.6	-2,355.6	3,069.5	3.68
9,915.0	88.90	340.48	6,648.6	2,443.9	-2,384.7	3,162.2	3.23
10,008.0	89.43	339.69	6,650.0	2,531.4	-2,416.4	3,255.2	1.02
10,100.0	90.31	338.55	6,650.2	2,617.3	-2,449.2	3,347.1	1.57
10,193.0	90.31	338.55	6,649.7	2,703.9	-2,483.2	3,440.1	0.00
10,285.0	90.04	336.70	6,649.4	2,789.0	-2,518.2	3,532.1	2.03
10,378.0	90.48	335.29	6,649.0	2,873.9	-2,556.0	3,625.1	1.59
10,470.0	89.34	335.65	6,649.1	2,957.6	-2,594.2	3,717.0	1.30
10,563.0	89.78	338.28	6,649.8	3,043.2	-2,630.6	3,810.0	2.87
10,655.0	90.48	338.63	6,649.6	3,128.7	-2,664.4	3,902.0	0.85
10,748.0	89.52	337.14	6,649.6	3,214.9	-2,699.4	3,995.0	1.91
10,840.0	89.87	334.42	6,650.1	3,298.8	-2,737.1	4,086.9	2.98
10,933.0	90.92	337.49	6,649.5	3,383.7	-2,775.0	4,179.8	3.49
11,026.0	89.87	337.40	6,648.8	3,469.6	-2,810.7	4,272.8	1.13

5107/50/90



EOW Completion Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Shale Unit 1H
Project:	Doddridge County WV	TVD Reference:	Shale 1H 1146 GL + 19 KB @ 1165.0usft
Site:	Valentine/Dotson/Piggott/Shale Pad	MD Reference:	Shale 1H 1146 GL + 19 KB @ 1165.0usft
Well:	Shale Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,118.0	90.40	337.67	6,648.6	3,554.6	-2,845.9	4,364.8	0.65
11,211.0	90.13	336.88	6,648.2	3,640.4	-2,881.8	4,457.8	0.90
11,303.0	89.96	335.21	6,648.1	3,724.5	-2,919.1	4,549.8	1.82
11,396.0	89.96	336.96	6,648.2	3,809.5	-2,956.8	4,642.7	1.88
11,488.0	90.48	337.49	6,647.8	3,894.3	-2,992.4	4,734.7	0.81
11,581.0	89.78	339.43	6,647.6	3,980.8	-3,026.6	4,827.7	2.22
11,674.0	90.22	340.48	6,647.6	4,068.2	-3,058.5	4,920.6	1.22
11,766.0	89.78	338.81	6,647.6	4,154.4	-3,090.5	5,012.6	1.88
11,859.0	89.25	336.44	6,648.4	4,240.4	-3,125.9	5,105.6	2.61
11,951.0	90.40	337.58	6,648.7	4,325.1	-3,161.8	5,197.6	1.76
12,044.0	89.87	338.02	6,648.4	4,411.2	-3,196.9	5,290.5	0.74
12,136.0	90.75	338.46	6,647.9	4,496.6	-3,231.0	5,382.5	1.07
12,229.0	89.25	335.65	6,647.9	4,582.3	-3,267.3	5,475.5	3.42
12,321.0	89.63	335.64	6,648.8	4,666.1	-3,305.2	5,567.4	0.41
12,414.0	90.04	337.40	6,649.1	4,751.4	-3,342.3	5,660.4	1.94
12,507.0	90.84	337.49	6,648.4	4,837.3	-3,377.9	5,753.4	0.87
12,600.0	89.96	336.35	6,647.7	4,922.8	-3,414.4	5,846.4	1.55
12,692.0	89.69	335.47	6,648.0	5,006.8	-3,452.0	5,938.3	1.00
12,785.0	90.13	336.96	6,648.2	5,091.9	-3,489.5	6,031.3	1.67
12,877.0	90.13	338.19	6,648.0	5,176.9	-3,524.6	6,123.3	1.34
12,970.0	89.87	337.84	6,648.0	5,263.2	-3,559.4	6,216.3	0.47
13,062.0	90.57	338.63	6,647.6	5,348.6	-3,593.5	6,308.3	1.15
13,155.0	90.22	336.61	6,647.0	5,434.6	-3,628.9	6,401.3	2.20
13,248.0	90.22	336.96	6,646.6	5,520.1	-3,665.6	6,494.3	0.38
13,340.0	91.45	339.51	6,645.3	5,605.5	-3,699.7	6,586.2	3.08
13,433.0	89.43	336.44	6,644.6	5,691.7	-3,734.5	6,679.2	3.95
13,525.0	88.72	336.79	6,646.0	5,776.1	-3,771.0	6,771.2	0.86
13,618.0	89.16	337.67	6,647.8	5,861.9	-3,807.0	6,864.2	1.06
13,711.0	90.40	340.04	6,648.1	5,948.6	-3,840.6	6,957.1	2.88
13,803.0	90.92	339.95	6,647.1	6,035.0	-3,872.0	7,049.1	0.57
13,896.0	91.28	339.86	6,645.3	6,122.4	-3,904.0	7,142.0	0.40
13,989.0	89.34	337.93	6,644.8	6,209.1	-3,937.5	7,235.0	2.94
14,081.0	89.78	338.02	6,645.5	6,294.4	-3,972.0	7,327.0	0.49
14,174.0	90.66	340.57	6,645.1	6,381.4	-4,004.8	7,419.9	2.90
14,267.0	89.16	337.40	6,645.3	6,468.2	-4,038.2	7,512.9	3.77
14,359.0	88.90	336.61	6,646.8	6,552.9	-4,074.1	7,604.9	0.90
14,452.0	89.87	337.05	6,647.8	6,638.3	-4,110.7	7,697.9	1.15
14,517.0	90.75	337.58	6,647.5	6,698.3	-4,135.8	7,762.9	1.58
14,569.0	90.75	337.58	6,646.8	6,746.4	-4,155.6	7,814.8	0.00

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Site:	Valentine/Dotson/Piggott/Shale Pad	MD Reference:	Shale 1H 1146 GL + 19 KB @ 1165.0usft
Well:	Shale 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)	
6,726.0	6,454.8	-398.0	-1,111.6	Middlesex
6,908.0	6,574.7	-295.8	-1,201.0	Burkett
6,964.0	6,602.7	-255.6	-1,228.2	Tully
7,055.0	6,636.4	-183.7	-1,272.3	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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Environmental Protection