



Swiger Unit 1H
Doddridge County WV
Northing: 14230767.72
Easting: 1736291.66
As Drilled



Genie Lightfoot
 13:50, November 18, 2014
 Scientific Drilling Inter.
 11220 NW 10th Street
 Yukon, OK 73099

WELL DETAILS Swiger Unit 1H			
Ground Level:	1332.0	Latitude	Longitude
+N/-S	+E/-W	Northing	Easting
0.0	0.0	14230767.72	1736291.6688° 11' 18.780 180° 39' 41.875 W

PROJECT DETAILS: Doddridge County WV

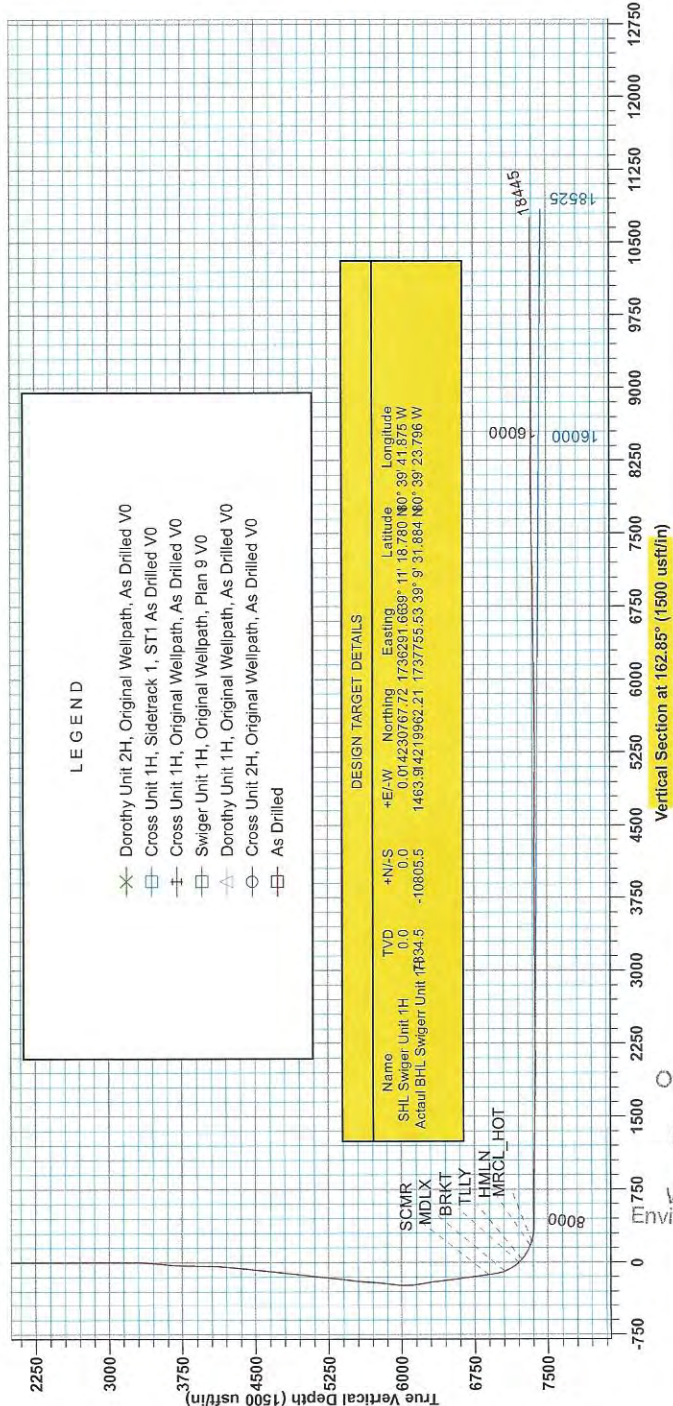
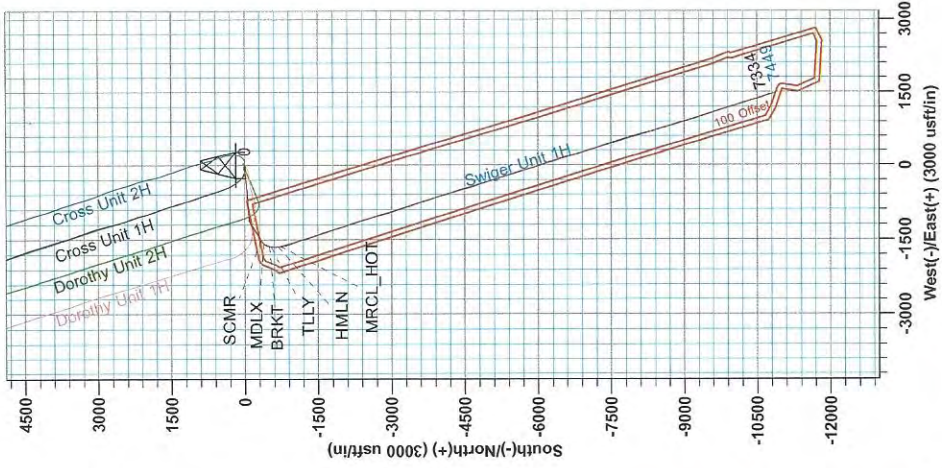
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD 1982 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: 17N (84 W to 78 W)
 System Datum: Mean Sea Level

Pellerson 347, GL 1332, * KB 25' @ 1357.0, uft
 Gr. 1332.0

Azimuths to Grid North
 True North: -0.21°
 Magnetic North: -8.76°

Magnetic Field
 Strength: 52170.7 nT
 Dip Angle: 66.76°
 Date: 8/15/2014
 Model: BGM2014

To convert Magnetic North to Grid, Subtract 8.75°
 To convert True North to Grid, Subtract 0.21°



LEGEND

- ✕ Dorothy Unit 2H, Original Wellpath, As Drilled V0
- Cross Unit 1H, Sidetrack 1, ST1 As Drilled V0
- ⊥ Cross Unit 1H, Original Wellpath, As Drilled V0
- Swiger Unit 1H, Original Wellpath, Plan 9 V0
- △ Dorothy Unit 1H, Original Wellpath, As Drilled V0
- Cross Unit 2H, Original Wellpath, As Drilled V0
- As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Swiger Unit 1H	0.0	0.0	0.0	0.01423076772	1736291.6639	11 18 780 N0° 39 41 875 W	
Actual BHL Swiger Unit 1H	0.0	0.0	-10805.5	1463.91421896221	1737755.5339	9 31 884 N0° 39 23 796 W	

11/09/2018

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 WV Department of
 Environmental Protection



Company: Antero Resources	Local Co-ordinate Reference: Well Swiger Unit 1H
Project: Doddridge County WV	TVD Reference: Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Site: Stewart Pad	MD Reference: Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Well: Swiger 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 Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Stewart Pad				
Site Position:		Northing:	14,230,768.62 usft	Latitude:	39° 11' 18.788 N
From:	Map	Easting:	1,736,331.61 usft	Longitude:	80° 39' 41.367 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.21 °

Well	Swiger Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,230,767.72 usft	Latitude:	39° 11' 18.780 N
	+E/-W	0.0 usft	Easting:	1,736,291.66 usft	Longitude:	80° 39' 41.875 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	1,357.0 usft	Ground Level:	1,332.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	8/15/2014	-8.54	66.76	52,171

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	162.85	

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Survey Program	Date	11/18/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
114.7	6,034.2	Survey #5 Final Gyro to KOP (Original We	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,177.0	18,445.0	Survey #6 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

Survey	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
	114.7	0.11	283.25	114.7	0.0	-0.1	-0.1	0.10
	140.2	0.14	99.89	140.2	0.0	-0.1	-0.1	0.98
	164.5	0.06	111.50	164.5	0.0	-0.1	0.0	0.34
	190.4	0.12	107.26	190.4	0.0	0.0	0.0	0.23
	214.2	0.13	130.99	214.2	0.0	0.0	0.0	0.22
	239.1	0.21	118.31	239.1	-0.1	0.1	0.1	0.35
	264.9	0.09	116.09	264.8	-0.1	0.1	0.1	0.47
	289.3	0.20	117.29	289.3	-0.1	0.2	0.2	0.45
	314.7	0.14	123.23	314.7	-0.2	0.3	0.2	0.25
	339.0	0.09	144.54	339.0	-0.2	0.3	0.3	0.27



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Well:	Swiger 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)
365.0	0.16	132.96	365.0	-0.2	0.3	0.3	0.28
389.5	0.13	179.97	389.5	-0.3	0.4	0.4	0.49
414.8	0.10	153.12	414.8	-0.3	0.4	0.4	0.24
440.1	0.19	146.12	440.1	-0.4	0.4	0.5	0.36
464.6	0.13	149.20	464.6	-0.4	0.4	0.6	0.25
489.8	0.17	160.09	489.8	-0.5	0.5	0.6	0.19
514.0	0.18	171.46	514.0	-0.6	0.5	0.7	0.15
539.4	0.10	153.78	539.4	-0.6	0.5	0.8	0.35
565.2	0.19	202.02	565.2	-0.7	0.5	0.8	0.56
589.9	0.14	144.51	589.9	-0.8	0.5	0.9	0.67
615.3	0.14	165.53	615.3	-0.8	0.5	0.9	0.20
640.0	0.18	156.45	640.0	-0.9	0.6	1.0	0.19
665.3	0.17	166.63	665.3	-0.9	0.6	1.1	0.13
690.2	0.17	180.97	690.2	-1.0	0.6	1.1	0.17
714.5	0.18	171.76	714.5	-1.1	0.6	1.2	0.12
740.8	0.18	167.32	740.8	-1.2	0.6	1.3	0.05
765.3	0.28	169.23	765.3	-1.3	0.6	1.4	0.41
790.1	0.17	173.83	790.1	-1.4	0.6	1.5	0.45
815.4	0.26	191.14	815.4	-1.5	0.6	1.6	0.43
839.4	0.23	204.36	839.4	-1.6	0.6	1.7	0.27
864.7	0.22	213.15	864.7	-1.6	0.6	1.7	0.14
889.0	0.19	189.60	889.0	-1.7	0.5	1.8	0.36
915.0	0.19	188.63	915.0	-1.8	0.5	1.9	0.01
939.1	0.22	148.77	939.1	-1.9	0.5	2.0	0.59
964.4	0.17	163.74	964.4	-2.0	0.6	2.0	0.28
989.9	0.16	169.70	989.9	-2.0	0.6	2.1	0.08
1,015.3	0.17	157.28	1,015.3	-2.1	0.6	2.2	0.15
1,039.6	0.14	159.47	1,039.6	-2.2	0.6	2.3	0.13
1,065.3	0.17	146.99	1,065.3	-2.2	0.7	2.3	0.18
1,089.5	0.15	163.00	1,089.5	-2.3	0.7	2.4	0.20
1,115.3	0.12	146.46	1,115.3	-2.3	0.7	2.5	0.19
1,139.7	0.17	125.04	1,139.7	-2.4	0.8	2.5	0.30
1,164.3	0.12	169.67	1,164.3	-2.4	0.8	2.6	0.49
1,190.1	0.19	147.11	1,190.1	-2.5	0.8	2.6	0.36
1,215.3	0.20	130.82	1,215.3	-2.6	0.9	2.7	0.22
1,240.0	0.10	155.72	1,240.0	-2.6	0.9	2.8	0.47
1,264.5	0.19	146.90	1,264.5	-2.7	0.9	2.8	0.38
1,289.5	0.16	114.45	1,289.5	-2.7	1.0	2.9	0.41
1,314.9	0.06	107.49	1,314.9	-2.7	1.0	2.9	0.40
1,339.7	0.16	105.14	1,339.7	-2.7	1.1	2.9	0.40
1,364.1	0.02	61.29	1,364.1	-2.8	1.1	3.0	0.60
1,390.1	0.12	116.56	1,390.1	-2.8	1.2	3.0	0.42
1,415.1	0.08	237.59	1,415.1	-2.8	1.2	3.0	0.70
1,439.5	0.06	98.47	1,439.5	-2.8	1.2	3.0	0.54

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Company:	Antero Resources	Local Co-ordinate Reference:	Well Swiger Unit 1H
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Well:	Swiger 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)
1,465.3	0.07	122.09	1,465.3	-2.8	1.2	3.0	0.11
1,490.2	0.10	73.75	1,490.1	-2.8	1.2	3.0	0.30
1,515.2	0.04	39.81	1,515.1	-2.8	1.2	3.0	0.28
1,540.1	0.11	89.94	1,540.1	-2.8	1.3	3.0	0.36
1,565.1	0.15	88.99	1,565.1	-2.8	1.3	3.1	0.16
1,590.1	0.06	81.53	1,590.1	-2.8	1.4	3.1	0.36
1,614.2	0.06	100.71	1,614.2	-2.8	1.4	3.1	0.08
1,640.0	0.15	84.96	1,640.0	-2.8	1.5	3.1	0.36
1,665.3	0.21	101.67	1,665.3	-2.8	1.5	3.1	0.31
1,690.2	0.10	99.07	1,690.2	-2.8	1.6	3.1	0.44
1,714.6	0.17	105.33	1,714.6	-2.8	1.7	3.2	0.29
1,739.8	0.15	88.15	1,739.8	-2.8	1.7	3.2	0.21
1,764.6	0.17	96.32	1,764.6	-2.8	1.8	3.2	0.12
1,790.4	0.20	87.49	1,790.4	-2.8	1.9	3.3	0.16
1,814.3	0.17	99.53	1,814.3	-2.8	1.9	3.3	0.20
1,839.6	0.23	108.05	1,839.6	-2.9	2.0	3.3	0.26
1,864.8	0.21	98.63	1,864.8	-2.9	2.1	3.4	0.16
1,889.7	0.14	77.17	1,889.7	-2.9	2.2	3.4	0.38
1,915.3	0.23	97.60	1,915.3	-2.9	2.3	3.4	0.43
1,940.2	0.21	102.72	1,940.2	-2.9	2.4	3.5	0.11
1,964.1	0.20	92.45	1,964.1	-2.9	2.5	3.5	0.16
1,990.4	0.30	99.85	1,990.4	-2.9	2.6	3.5	0.40
2,015.6	0.31	98.75	2,015.6	-2.9	2.7	3.6	0.05
2,040.0	0.29	94.19	2,040.0	-3.0	2.8	3.7	0.13
2,064.0	0.25	112.38	2,064.0	-3.0	2.9	3.7	0.39
2,090.2	0.32	99.48	2,090.2	-3.0	3.1	3.8	0.36
2,114.2	0.37	106.87	2,114.2	-3.0	3.2	3.9	0.28
2,139.6	0.34	118.83	2,139.6	-3.1	3.4	4.0	0.31
2,164.6	0.26	120.21	2,164.6	-3.2	3.5	4.1	0.32
2,189.6	0.41	133.51	2,189.6	-3.3	3.6	4.2	0.67
2,215.2	0.41	125.40	2,215.2	-3.4	3.7	4.3	0.23
2,239.1	0.47	109.81	2,239.1	-3.5	3.9	4.5	0.56
2,264.3	0.37	126.60	2,264.3	-3.5	4.0	4.6	0.63
2,289.2	0.52	125.92	2,289.1	-3.7	4.2	4.7	0.60
2,315.1	0.31	132.86	2,315.1	-3.8	4.4	4.9	0.83
2,339.0	0.35	123.09	2,339.0	-3.9	4.5	5.0	0.29
2,364.1	0.30	109.99	2,364.1	-3.9	4.6	5.1	0.36
2,389.3	0.14	124.81	2,389.3	-4.0	4.7	5.2	0.67
2,415.3	0.19	99.27	2,415.3	-4.0	4.7	5.2	0.34
2,439.8	0.31	139.78	2,439.7	-4.0	4.8	5.3	0.85
2,464.5	0.26	144.96	2,464.5	-4.1	4.9	5.4	0.23
2,489.4	0.09	124.57	2,489.4	-4.2	4.9	5.5	0.72
2,515.2	0.10	224.07	2,515.2	-4.2	4.9	5.5	0.56
2,540.1	0.05	265.00	2,540.0	-4.2	4.9	5.5	0.28
2,564.6	0.07	327.88	2,564.5	-4.2	4.9	5.5	0.26



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Well:	Swiger 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)
2,589.4	0.07	324.38	2,589.3	-4.2	4.9	5.5	0.02
2,614.0	0.08	190.82	2,614.0	-4.2	4.9	5.5	0.56
2,640.2	0.04	282.40	2,640.2	-4.2	4.9	5.5	0.35
2,664.8	0.06	290.06	2,664.8	-4.2	4.8	5.5	0.09
2,690.2	0.06	321.15	2,690.2	-4.2	4.8	5.4	0.13
2,714.7	0.09	189.61	2,714.7	-4.2	4.8	5.4	0.56
2,740.2	0.22	233.13	2,740.2	-4.3	4.8	5.5	0.66
2,764.3	0.12	260.77	2,764.2	-4.3	4.7	5.5	0.53
2,790.2	0.14	292.79	2,790.2	-4.3	4.7	5.5	0.29
2,814.1	0.13	249.51	2,814.1	-4.3	4.6	5.5	0.42
2,839.9	0.13	329.03	2,839.9	-4.3	4.6	5.4	0.65
2,865.0	0.20	261.53	2,865.0	-4.3	4.5	5.4	0.77
2,889.3	0.12	280.45	2,889.3	-4.3	4.4	5.4	0.39
2,914.0	0.09	280.39	2,914.0	-4.2	4.4	5.4	0.12
2,939.2	0.16	309.27	2,939.2	-4.2	4.3	5.3	0.37
2,964.8	0.10	227.90	2,964.8	-4.2	4.3	5.3	0.68
2,989.7	0.08	301.89	2,989.7	-4.2	4.3	5.3	0.44
3,014.8	0.18	286.16	3,014.8	-4.2	4.2	5.3	0.42
3,039.2	0.17	265.69	3,039.2	-4.2	4.1	5.2	0.26
3,064.5	0.23	269.86	3,064.5	-4.2	4.0	5.2	0.24
3,089.1	0.16	338.35	3,089.0	-4.2	4.0	5.2	0.92
3,114.3	0.26	342.07	3,114.3	-4.1	4.0	5.1	0.40
3,139.0	0.23	325.96	3,139.0	-4.0	3.9	5.0	0.30
3,164.9	0.25	325.97	3,164.9	-3.9	3.9	4.9	0.08
3,189.4	0.27	277.35	3,189.4	-3.8	3.8	4.8	0.88
3,204.1	0.21	276.82	3,204.1	-3.8	3.7	4.8	0.41
3,214.0	0.46	290.08	3,214.0	-3.8	3.6	4.7	2.64
3,239.0	1.09	296.54	3,239.0	-3.7	3.3	4.5	2.54
3,264.0	1.74	298.24	3,264.0	-3.4	2.8	4.1	2.61
3,289.0	2.38	299.02	3,289.0	-3.0	2.0	3.4	2.56
3,314.0	3.02	299.47	3,313.9	-2.4	1.0	2.6	2.56
3,339.0	3.74	298.32	3,338.9	-1.7	-0.3	1.5	2.89
3,364.0	4.77	297.19	3,363.8	-0.8	-2.0	0.2	4.13
3,389.0	5.58	296.17	3,388.7	0.2	-4.0	-1.4	3.26
3,414.0	6.13	294.73	3,413.6	1.3	-6.3	-3.1	2.28
3,439.0	6.99	293.00	3,438.4	2.4	-8.9	-5.0	3.53
3,464.0	7.61	292.59	3,463.2	3.7	-11.8	-7.0	2.49
3,489.0	8.16	290.52	3,488.0	4.9	-15.0	-9.1	2.48
3,514.0	8.77	289.42	3,512.7	6.2	-18.5	-11.4	2.52
3,539.0	9.38	289.67	3,537.4	7.5	-22.2	-13.7	2.45
3,564.0	9.55	289.20	3,562.1	8.9	-26.1	-16.2	0.75
3,589.0	10.18	287.46	3,586.7	10.2	-30.1	-18.7	2.79
3,614.0	10.96	284.22	3,611.3	11.5	-34.5	-21.1	3.92
3,639.0	11.53	281.06	3,635.8	12.5	-39.3	-23.6	3.36

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EOW Completion Report

11/09/2018
Scientific Drilling

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,664.0	12.10	276.48	3,660.3	13.3	-44.3	-25.8	4.39
3,689.0	12.69	272.17	3,684.7	13.7	-49.7	-27.8	4.39
3,714.0	13.18	268.03	3,709.0	13.7	-55.3	-29.4	4.19
3,739.0	13.53	265.33	3,733.4	13.4	-61.0	-30.8	2.86
3,764.0	14.02	261.09	3,757.6	12.7	-67.0	-31.9	4.49
3,789.0	14.41	258.45	3,781.9	11.6	-73.0	-32.6	3.03
3,814.0	15.04	255.61	3,806.1	10.2	-79.2	-33.0	3.83
3,839.0	15.90	254.96	3,830.1	8.5	-85.6	-33.3	3.51
3,864.0	16.64	255.12	3,854.1	6.6	-92.4	-33.6	2.97
3,889.0	17.14	255.81	3,878.1	4.8	-99.4	-33.9	2.15
3,914.0	17.64	256.04	3,901.9	3.0	-106.7	-34.3	2.02
3,939.0	18.04	256.22	3,925.7	1.2	-114.1	-34.8	1.62
3,964.0	18.78	256.46	3,949.4	-0.7	-121.8	-35.3	2.98
3,989.0	19.46	256.20	3,973.1	-2.6	-129.7	-35.7	2.74
4,014.0	20.39	256.20	3,996.6	-4.7	-138.0	-36.2	3.72
4,039.0	21.03	256.13	4,020.0	-6.8	-146.6	-36.8	2.56
4,064.0	21.89	256.17	4,043.2	-9.0	-155.5	-37.3	3.44
4,089.0	22.52	256.70	4,066.4	-11.2	-164.7	-37.9	2.64
4,114.0	23.28	258.06	4,089.4	-13.3	-174.2	-38.6	3.70
4,139.0	23.46	259.19	4,112.3	-15.3	-183.9	-39.6	1.93
4,164.0	23.75	260.53	4,135.3	-17.0	-193.7	-40.9	2.44
4,189.0	23.75	261.94	4,158.1	-18.6	-203.7	-42.3	2.27
4,214.0	24.06	263.06	4,181.0	-19.9	-213.7	-44.0	2.20
4,239.0	24.67	264.35	4,203.8	-21.0	-224.0	-46.0	3.24
4,264.0	25.19	264.92	4,226.4	-22.0	-234.5	-48.1	2.29
4,289.0	25.46	265.12	4,249.0	-22.9	-245.1	-50.4	1.13
4,314.0	25.49	264.91	4,271.6	-23.9	-255.8	-52.7	0.38
4,339.0	25.53	265.16	4,294.2	-24.8	-266.6	-54.9	0.46
4,364.0	25.92	265.13	4,316.7	-25.7	-277.4	-57.2	1.56
4,389.0	26.06	265.26	4,339.2	-26.6	-288.3	-59.6	0.60
4,414.0	26.35	265.25	4,361.6	-27.5	-299.3	-61.9	1.16
4,439.0	26.75	265.34	4,384.0	-28.4	-310.4	-64.4	1.61
4,464.0	26.86	265.34	4,406.3	-29.4	-321.7	-66.8	0.44
4,489.0	26.94	265.25	4,428.6	-30.3	-332.9	-69.2	0.36
4,514.0	27.01	265.16	4,450.8	-31.2	-344.2	-71.7	0.32
4,539.0	27.19	265.27	4,473.1	-32.2	-355.6	-74.1	0.75
4,564.0	26.98	265.00	4,495.4	-33.2	-366.9	-76.5	0.97
4,589.0	26.58	264.74	4,517.7	-34.2	-378.2	-78.9	1.67
4,614.0	26.50	264.58	4,540.0	-35.2	-389.3	-81.2	0.43
4,639.0	26.24	264.35	4,562.4	-36.3	-400.3	-83.4	1.12
4,664.0	26.20	264.44	4,584.9	-37.4	-411.3	-85.6	0.23
4,689.0	25.98	264.94	4,607.3	-38.4	-422.3	-87.9	1.24
4,714.0	26.11	265.21	4,629.8	-39.3	-433.2	-90.2	0.70
4,739.0	25.87	265.03	4,652.2	-40.2	-444.1	-92.5	1.01

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Company: Antero Resources	Local Co-ordinate Reference: Well Swiger Unit 1H
Project: Doddridge County WV	TVD Reference: Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Site: Stewart Pad	MD Reference: Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Well: Swiger 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)
4,764.0	25.51	264.79	4,674.8	-41.2	-454.9	-94.8	1.50
4,789.0	25.83	264.72	4,697.3	-42.2	-465.7	-97.0	1.29
4,814.0	26.05	264.73	4,719.8	-43.2	-476.6	-99.3	0.88
4,839.0	26.23	264.87	4,742.2	-44.2	-487.6	-101.5	0.76
4,864.0	26.39	264.86	4,764.6	-45.2	-498.6	-103.8	0.64
4,889.0	26.29	264.69	4,787.0	-46.2	-509.6	-106.1	0.50
4,914.0	26.74	264.71	4,809.4	-47.2	-520.8	-108.4	1.80
4,939.0	27.14	265.67	4,831.7	-48.2	-532.0	-110.8	2.36
4,964.0	27.67	266.51	4,853.9	-49.0	-543.5	-113.5	2.62
4,989.0	28.37	266.95	4,876.0	-49.6	-555.2	-116.3	2.92
5,014.0	28.52	266.85	4,898.0	-50.3	-567.1	-119.2	0.63
5,039.0	28.00	266.42	4,920.0	-51.0	-578.9	-122.0	2.23
5,064.0	27.54	266.22	4,942.1	-51.7	-590.6	-124.7	1.88
5,089.0	27.24	265.89	4,964.3	-52.5	-602.0	-127.4	1.34
5,114.0	26.49	265.68	4,986.6	-53.3	-613.3	-129.9	3.02
5,139.0	26.44	265.79	5,009.0	-54.2	-624.4	-132.4	0.28
5,164.0	26.50	265.96	5,031.4	-55.0	-635.5	-134.9	0.39
5,189.0	26.52	266.22	5,053.7	-55.7	-646.7	-137.4	0.47
5,214.0	26.25	266.10	5,076.1	-56.5	-657.8	-140.0	1.10
5,239.0	25.82	265.25	5,098.6	-57.3	-668.7	-142.4	2.28
5,264.0	26.34	265.05	5,121.0	-58.2	-679.6	-144.8	2.11
5,289.0	26.98	265.87	5,143.4	-59.1	-690.8	-147.2	2.95
5,314.0	27.82	266.42	5,165.6	-59.9	-702.3	-149.9	3.51
5,339.0	28.00	266.48	5,187.7	-60.6	-714.0	-152.6	0.73
5,364.0	27.49	266.38	5,209.8	-61.3	-725.6	-155.3	2.05
5,389.0	26.91	265.84	5,232.0	-62.1	-737.0	-158.0	2.52
5,414.0	26.63	265.48	5,254.3	-63.0	-748.2	-160.5	1.29
5,439.0	26.14	264.99	5,276.7	-63.9	-759.3	-162.9	2.14
5,464.0	25.27	264.16	5,299.3	-64.9	-770.1	-165.1	3.77
5,489.0	24.61	264.16	5,321.9	-66.0	-780.6	-167.1	2.64
5,514.0	25.00	264.67	5,344.6	-67.0	-791.0	-169.2	1.78
5,539.0	25.76	266.20	5,367.2	-67.9	-801.7	-171.6	4.02
5,564.0	26.31	267.54	5,389.7	-68.5	-812.7	-174.2	3.22
5,589.0	26.58	268.38	5,412.1	-68.9	-823.8	-177.1	1.85
5,614.0	26.95	268.24	5,434.4	-69.2	-835.0	-180.1	1.50
5,639.0	28.00	268.01	5,456.6	-69.6	-846.6	-183.2	4.22
5,664.0	28.05	267.44	5,478.6	-70.0	-858.3	-186.2	1.09
5,689.0	28.10	265.86	5,500.7	-70.7	-870.1	-189.0	2.98
5,714.0	27.99	264.36	5,522.8	-71.7	-881.8	-191.5	2.86
5,739.0	27.72	263.06	5,544.9	-73.0	-893.4	-193.7	2.66
5,764.0	27.69	262.43	5,567.0	-74.5	-904.9	-195.7	1.18
5,789.0	28.40	262.16	5,589.1	-76.0	-916.5	-197.6	2.89
5,814.0	28.34	262.46	5,611.1	-77.6	-928.3	-199.6	0.62
5,839.0	28.41	262.03	5,633.1	-79.2	-940.1	-201.5	0.86



Company:	Antero Resources	Local Co-ordinate Reference:	Well Swiger Unit 1H
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Well:	Swiger 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)
5,864.0	27.85	261.81	5,655.1	-80.9	-951.8	-203.4	2.28
5,889.0	27.73	261.48	5,677.2	-82.6	-963.3	-205.1	0.78
5,914.0	27.02	261.15	5,699.4	-84.3	-974.7	-206.8	2.90
5,939.0	26.77	260.63	5,721.7	-86.1	-985.8	-208.4	1.37
5,964.0	26.09	261.90	5,744.1	-87.8	-996.8	-210.0	3.54
5,989.0	26.04	263.75	5,766.6	-89.2	-1,007.7	-211.9	3.26
6,014.0	25.78	264.26	5,789.0	-90.3	-1,018.6	-214.1	1.37
6,034.2	25.65	264.58	5,807.2	-91.2	-1,027.3	-215.8	0.94
6,177.0	25.93	267.28	5,935.8	-95.6	-1,089.3	-229.9	0.85
6,235.0	25.08	263.47	5,988.2	-97.6	-1,114.2	-235.3	3.18
6,329.0	24.59	245.26	6,073.6	-108.0	-1,151.8	-236.4	8.12
6,424.0	27.14	238.86	6,159.1	-127.5	-1,188.3	-228.5	3.98
6,518.0	27.46	235.79	6,242.6	-150.8	-1,224.5	-217.0	1.54
6,612.0	28.09	235.64	6,325.8	-175.5	-1,260.7	-204.1	0.67
6,706.0	26.06	241.92	6,409.5	-197.7	-1,297.2	-193.6	3.73
6,801.0	27.77	235.89	6,494.3	-219.9	-1,334.0	-183.2	3.39
6,895.0	28.58	236.86	6,577.1	-244.5	-1,370.9	-170.6	0.99
6,989.0	26.42	236.31	6,660.5	-268.4	-1,407.2	-158.5	2.31
7,083.0	27.50	238.28	6,744.3	-291.4	-1,443.0	-147.1	1.49
7,177.0	27.36	238.30	6,827.7	-314.2	-1,479.9	-136.2	0.15
7,252.0	29.12	236.62	6,893.8	-333.3	-1,509.8	-126.8	2.57
SCMR							
7,272.0	29.59	236.20	6,911.2	-338.7	-1,517.9	-124.0	2.57
7,303.0	29.34	236.66	6,938.2	-347.1	-1,530.6	-119.7	1.09
7,333.0	29.13	235.74	6,964.4	-355.3	-1,542.8	-115.5	1.65
7,363.0	29.30	232.35	6,990.6	-363.9	-1,554.7	-110.8	5.54
7,393.0	30.30	225.27	7,016.6	-373.7	-1,565.9	-104.7	12.19
7,423.0	32.33	220.84	7,042.2	-385.1	-1,576.5	-96.9	10.23
7,440.0	33.35	218.50	7,056.5	-392.2	-1,582.4	-91.9	9.57
MDLX							
7,453.0	34.15	216.79	7,067.3	-397.9	-1,586.8	-87.7	9.57
7,483.0	36.83	212.27	7,091.7	-412.2	-1,596.6	-76.9	12.50
7,513.0	39.28	209.88	7,115.4	-428.1	-1,606.2	-64.6	9.53
7,543.0	41.35	204.79	7,138.2	-445.3	-1,615.0	-50.7	12.96
7,573.0	42.85	200.48	7,160.5	-463.9	-1,622.8	-35.3	10.85
7,603.0	44.16	196.13	7,182.3	-483.5	-1,629.2	-18.4	10.89
7,630.0	46.39	193.05	7,201.3	-502.0	-1,634.1	-2.1	11.57
BRKT							
7,633.0	46.64	192.72	7,203.3	-504.2	-1,634.6	-0.2	11.57
7,663.0	49.60	189.57	7,223.4	-526.1	-1,638.9	19.4	12.59
7,676.0	50.82	188.36	7,231.7	-535.9	-1,640.4	28.4	11.77
TLLY							
7,693.0	52.43	186.85	7,242.2	-549.1	-1,642.2	40.5	11.77
7,723.0	55.61	183.73	7,259.9	-573.3	-1,644.4	62.9	13.53
7,753.0	58.77	181.36	7,276.1	-598.5	-1,645.5	86.7	12.45



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Well:	Swiger 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)
7,783.0	62.18	178.76	7,290.9	-624.6	-1,645.5	111.6	13.64
7,813.0	65.92	176.93	7,304.0	-651.5	-1,644.5	137.6	13.62
7,843.0	68.68	174.50	7,315.6	-679.1	-1,642.4	164.6	11.85
7,850.0	69.39	174.03	7,318.1	-685.6	-1,641.8	171.0	11.86
HMLN							
7,873.0	71.71	172.52	7,325.8	-707.2	-1,639.2	192.4	11.86
7,897.0	74.06	171.11	7,332.8	-729.9	-1,636.0	215.0	11.29
MRCL_HOT							
7,903.0	74.65	170.76	7,334.5	-735.6	-1,635.1	220.7	11.29
7,933.0	77.16	169.47	7,341.8	-764.2	-1,630.1	249.6	9.35
7,963.0	79.38	168.24	7,347.9	-793.1	-1,624.4	278.8	8.42
7,998.0	82.97	165.93	7,353.2	-826.8	-1,616.7	313.3	12.15
8,055.0	89.16	162.02	7,357.1	-881.4	-1,601.0	370.1	12.83
8,172.0	91.54	161.79	7,356.4	-992.6	-1,564.6	487.1	2.04
8,266.0	90.87	163.90	7,354.5	-1,082.4	-1,536.9	581.0	2.35
8,360.0	89.66	164.34	7,354.0	-1,172.8	-1,511.2	675.0	1.37
8,454.0	89.13	165.70	7,355.0	-1,263.6	-1,486.9	768.9	1.55
8,548.0	88.89	161.67	7,356.6	-1,353.8	-1,460.5	862.9	4.29
8,643.0	88.86	162.82	7,358.5	-1,444.2	-1,431.5	957.9	1.21
8,736.0	88.12	161.74	7,361.0	-1,532.8	-1,403.2	1,050.8	1.41
8,830.0	89.09	161.75	7,363.2	-1,622.0	-1,373.8	1,144.8	1.03
8,925.0	88.86	161.87	7,364.9	-1,712.3	-1,344.1	1,239.8	0.27
9,019.0	89.03	162.23	7,366.7	-1,801.7	-1,315.2	1,333.7	0.42
9,113.0	88.93	163.58	7,368.3	-1,891.5	-1,287.6	1,427.7	1.44
9,208.0	88.55	163.57	7,370.4	-1,982.6	-1,260.7	1,522.7	0.40
9,302.0	89.69	161.67	7,371.9	-2,072.3	-1,232.6	1,616.7	2.36
9,396.0	88.59	161.28	7,373.3	-2,161.4	-1,202.8	1,710.6	1.24
9,490.0	88.99	162.74	7,375.3	-2,250.8	-1,173.7	1,804.6	1.61
9,584.0	89.87	162.36	7,376.2	-2,340.5	-1,145.6	1,898.6	1.02
9,678.0	89.50	163.38	7,376.7	-2,430.3	-1,117.9	1,992.6	1.15
9,773.0	89.90	162.97	7,377.2	-2,521.2	-1,090.4	2,087.6	0.60
9,867.0	91.14	167.65	7,376.4	-2,612.1	-1,066.5	2,181.5	5.15
9,961.0	90.84	166.24	7,374.7	-2,703.7	-1,045.3	2,275.2	1.53
10,056.0	90.10	162.45	7,374.0	-2,795.1	-1,019.7	2,370.2	4.06
10,150.0	90.61	160.99	7,373.4	-2,884.4	-990.2	2,464.1	1.65
10,244.0	89.90	162.29	7,373.0	-2,973.6	-960.6	2,558.1	1.58
10,339.0	90.47	163.50	7,372.7	-3,064.4	-932.6	2,653.1	1.41
10,432.0	91.48	163.16	7,371.1	-3,153.5	-906.0	2,746.1	1.15
10,526.0	91.01	163.85	7,369.0	-3,243.6	-879.3	2,840.1	0.89
10,621.0	89.09	162.47	7,368.9	-3,334.5	-851.8	2,935.1	2.49
10,715.0	89.80	162.67	7,369.9	-3,424.2	-823.6	3,029.0	0.78
10,809.0	90.84	162.73	7,369.3	-3,513.9	-795.7	3,123.0	1.11
10,903.0	90.47	163.45	7,368.3	-3,603.8	-768.3	3,217.0	0.86
10,997.0	90.44	160.96	7,367.5	-3,693.3	-739.6	3,311.0	2.65

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Survey

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11,092.0	90.03	160.45	7,367.1	-3,783.0	-708.2	3,406.0	0.69
11,186.0	89.96	161.32	7,367.1	-3,871.8	-677.4	3,499.9	0.93
11,278.0	90.64	163.05	7,366.6	-3,959.4	-649.3	3,591.9	2.02
11,371.0	89.87	163.21	7,366.2	-4,048.4	-622.3	3,684.9	0.85
11,461.0	90.50	163.90	7,365.9	-4,134.7	-596.8	3,774.9	1.04
11,553.0	89.73	164.18	7,365.8	-4,223.2	-571.5	3,866.9	0.89
11,645.0	90.64	163.48	7,365.5	-4,311.5	-545.9	3,958.8	1.25
11,737.0	90.13	163.94	7,364.8	-4,399.8	-520.1	4,050.8	0.75
11,828.0	89.53	164.89	7,365.1	-4,487.5	-495.6	4,141.8	1.23
11,919.0	90.40	163.31	7,365.2	-4,575.0	-470.7	4,232.8	1.98
12,012.0	90.10	162.55	7,364.8	-4,663.9	-443.4	4,325.8	0.88
12,104.0	89.23	161.97	7,365.3	-4,751.5	-415.4	4,417.8	1.14
12,196.0	89.10	161.99	7,366.6	-4,839.0	-386.9	4,509.7	0.14
12,287.0	89.46	161.19	7,367.8	-4,925.3	-358.2	4,600.7	0.96
12,381.0	88.62	161.54	7,369.4	-5,014.4	-328.2	4,694.7	0.97
12,476.0	88.42	162.44	7,371.8	-5,104.7	-298.8	4,789.6	0.97
12,570.0	89.50	162.09	7,373.5	-5,194.2	-270.2	4,883.6	1.21
12,664.0	89.77	161.76	7,374.1	-5,283.6	-241.0	4,977.6	0.45
12,758.0	90.60	165.30	7,373.8	-5,373.7	-214.4	5,071.6	3.87
12,853.0	90.97	166.36	7,372.5	-5,465.8	-191.1	5,166.4	1.18
12,947.0	88.89	163.05	7,372.6	-5,556.5	-166.3	5,260.3	4.16
13,041.0	90.07	162.25	7,373.5	-5,646.2	-138.3	5,354.3	1.52
13,135.0	89.93	160.90	7,373.5	-5,735.3	-108.6	5,448.3	1.44
13,229.0	90.87	162.53	7,372.8	-5,824.6	-79.1	5,542.3	2.00
13,323.0	90.34	163.45	7,371.8	-5,914.5	-51.6	5,636.3	1.13
13,417.0	90.91	161.40	7,370.8	-6,004.1	-23.2	5,730.3	2.26
13,511.0	90.77	161.53	7,369.4	-6,093.2	6.7	5,824.2	0.20
13,605.0	91.47	161.75	7,367.6	-6,182.4	36.3	5,918.2	0.78
13,699.0	91.61	161.76	7,365.1	-6,271.6	65.7	6,012.1	0.15
13,794.0	91.18	162.73	7,362.8	-6,362.1	94.7	6,107.1	1.12
13,888.0	90.77	162.86	7,361.2	-6,451.9	122.5	6,201.1	0.46
13,981.0	90.30	162.62	7,360.3	-6,540.7	150.0	6,294.1	0.57
14,075.0	91.11	163.13	7,359.1	-6,630.5	177.7	6,388.1	1.02
14,170.0	90.30	162.93	7,358.0	-6,721.3	205.4	6,483.1	0.88
14,264.0	90.64	163.11	7,357.2	-6,811.2	232.9	6,577.1	0.41
14,358.0	90.40	164.92	7,356.3	-6,901.6	258.8	6,671.0	1.94
14,453.0	90.71	164.52	7,355.4	-6,993.2	283.8	6,766.0	0.53
14,547.0	90.84	163.96	7,354.1	-7,083.7	309.3	6,859.9	0.61
14,641.0	91.58	162.61	7,352.2	-7,173.7	336.4	6,953.9	1.64
14,735.0	90.64	160.00	7,350.3	-7,262.7	366.5	7,047.9	2.95
14,829.0	89.46	157.95	7,350.3	-7,350.5	400.2	7,141.6	2.52
14,924.0	90.84	162.49	7,350.0	-7,439.8	432.4	7,236.5	4.99
15,018.0	90.67	162.96	7,348.8	-7,529.6	460.3	7,330.5	0.53
15,112.0	91.68	163.49	7,346.8	-7,619.6	487.4	7,424.5	1.21
15,206.0	91.34	161.65	7,344.4	-7,709.2	515.7	7,518.4	1.99

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Company:	Antero Resources	Local Co-ordinate Reference:	Well Swiger Unit 1H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Site:	Stewart Pad	MD Reference:	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Well:	Swiger 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)
15,301.0	91.38	163.07	7,342.1	-7,799.7	544.3	7,613.4	1.49
15,395.0	90.80	163.94	7,340.3	-7,889.8	571.0	7,707.4	1.11
15,489.0	90.64	163.49	7,339.1	-7,980.0	597.4	7,801.4	0.51
15,583.0	90.67	163.56	7,338.1	-8,070.2	624.0	7,895.4	0.08
15,677.0	90.33	164.88	7,337.2	-8,160.6	649.6	7,989.3	1.45
15,772.0	89.90	165.56	7,337.1	-8,252.5	673.8	8,084.2	0.85
15,866.0	89.66	165.16	7,337.4	-8,343.4	697.6	8,178.1	0.50
15,960.0	88.76	163.36	7,338.7	-8,433.9	723.1	8,272.1	2.14
16,054.0	89.13	162.26	7,340.4	-8,523.7	750.8	8,366.1	1.23
16,148.0	90.47	164.43	7,340.8	-8,613.7	777.8	8,460.1	2.71
16,242.0	89.03	162.08	7,341.2	-8,703.7	804.9	8,554.1	2.93
16,336.0	89.43	162.46	7,342.4	-8,793.3	833.5	8,648.0	0.59
16,431.0	89.13	163.04	7,343.6	-8,884.0	861.7	8,743.0	0.69
16,525.0	89.63	162.40	7,344.7	-8,973.7	889.6	8,837.0	0.86
16,619.0	90.31	163.25	7,344.7	-9,063.5	917.3	8,931.0	1.16
16,713.0	89.70	161.65	7,344.7	-9,153.2	945.7	9,025.0	1.82
16,808.0	90.70	162.53	7,344.4	-9,243.6	974.9	9,120.0	1.40
16,901.0	90.74	162.51	7,343.2	-9,332.3	1,002.8	9,213.0	0.05
16,995.0	90.61	162.31	7,342.1	-9,421.8	1,031.2	9,307.0	0.25
17,090.0	90.24	162.30	7,341.4	-9,512.4	1,060.1	9,402.0	0.39
17,183.0	90.00	161.83	7,341.2	-9,600.8	1,088.7	9,495.0	0.57
17,277.0	90.54	161.10	7,340.7	-9,690.0	1,118.6	9,589.0	0.97
17,371.0	90.27	163.16	7,340.1	-9,779.4	1,147.5	9,682.9	2.21
17,466.0	89.78	162.99	7,340.0	-9,870.3	1,175.1	9,777.9	0.55
17,560.0	90.57	162.20	7,339.8	-9,960.0	1,203.2	9,871.9	1.19
17,654.0	90.84	161.93	7,338.6	-10,049.4	1,232.2	9,965.9	0.41
17,748.0	90.40	161.32	7,337.6	-10,138.6	1,261.8	10,059.9	0.80
17,842.0	90.47	163.72	7,336.9	-10,228.3	1,290.0	10,153.9	2.55
17,899.0	90.50	163.72	7,336.4	-10,283.0	1,306.0	10,210.9	0.05
17,936.0	90.24	164.01	7,336.1	-10,318.5	1,316.3	10,247.9	1.05
18,031.0	90.22	165.27	7,335.8	-10,410.1	1,341.5	10,342.8	1.33
18,124.0	90.20	163.52	7,335.4	-10,499.7	1,366.5	10,435.8	1.88
18,219.0	89.87	163.60	7,335.4	-10,590.8	1,393.4	10,530.8	0.36
18,313.0	90.34	161.04	7,335.2	-10,680.4	1,421.9	10,624.8	2.77
18,391.0	90.30	161.54	7,334.8	-10,754.2	1,446.9	10,702.7	0.64
18,445.0	90.27	161.89	7,334.5	-10,805.5	1,463.9	10,756.7	0.65

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Company:	Antero Resources	Local Co-ordinate Reference:	Well Swiger Unit 1H
Project:	Doddridge County WV	TVD Reference:	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Site:	Stewart Pad	MD Reference:	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
Well:	Swiger 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)	
7,252.0	6,893.8	-333.3	-1,509.8	SCMR
7,440.0	7,056.5	-392.2	-1,582.4	MDLX
7,630.0	7,201.3	-502.0	-1,634.1	BRKT
7,676.0	7,231.7	-535.9	-1,640.4	TLLY
7,850.0	7,318.1	-685.6	-1,641.8	HMLN
7,897.0	7,332.8	-729.9	-1,636.0	MRCL_HOT

Checked By: _____ Approved By: _____ Date: _____

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