



Scardina Unit 2H
Tyler County WV
Northing: 14331684.38
Easting: 1681967.40
As Drilled



Genie Lightfoot
 8/16, April 20 2015
 Scientific Drilling
 11220 NW 10th Street
 Yukon OK 73089

WELL DETAILS: Scardina Unit 2H	
Ground Level:	814.0
Northing	14331684.38
Easting	1681967.40
Latitude	39° 27' 58.040 N
Longitude	80° 51' 9.992 W
+N/-S	0.0
+E/-W	0.0

PROJECT DETAILS: Tyler 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

SITE DETAILS: Weigle East Pad: Dean/Goodfellow/Hawkeye/Scardina
 Site Centre Northing: 14331712.20
 Easting: 1681956.94
 Positional Uncertainty: 0.0
 Convergence: 0.09
 Local North: Grid

LEGEND

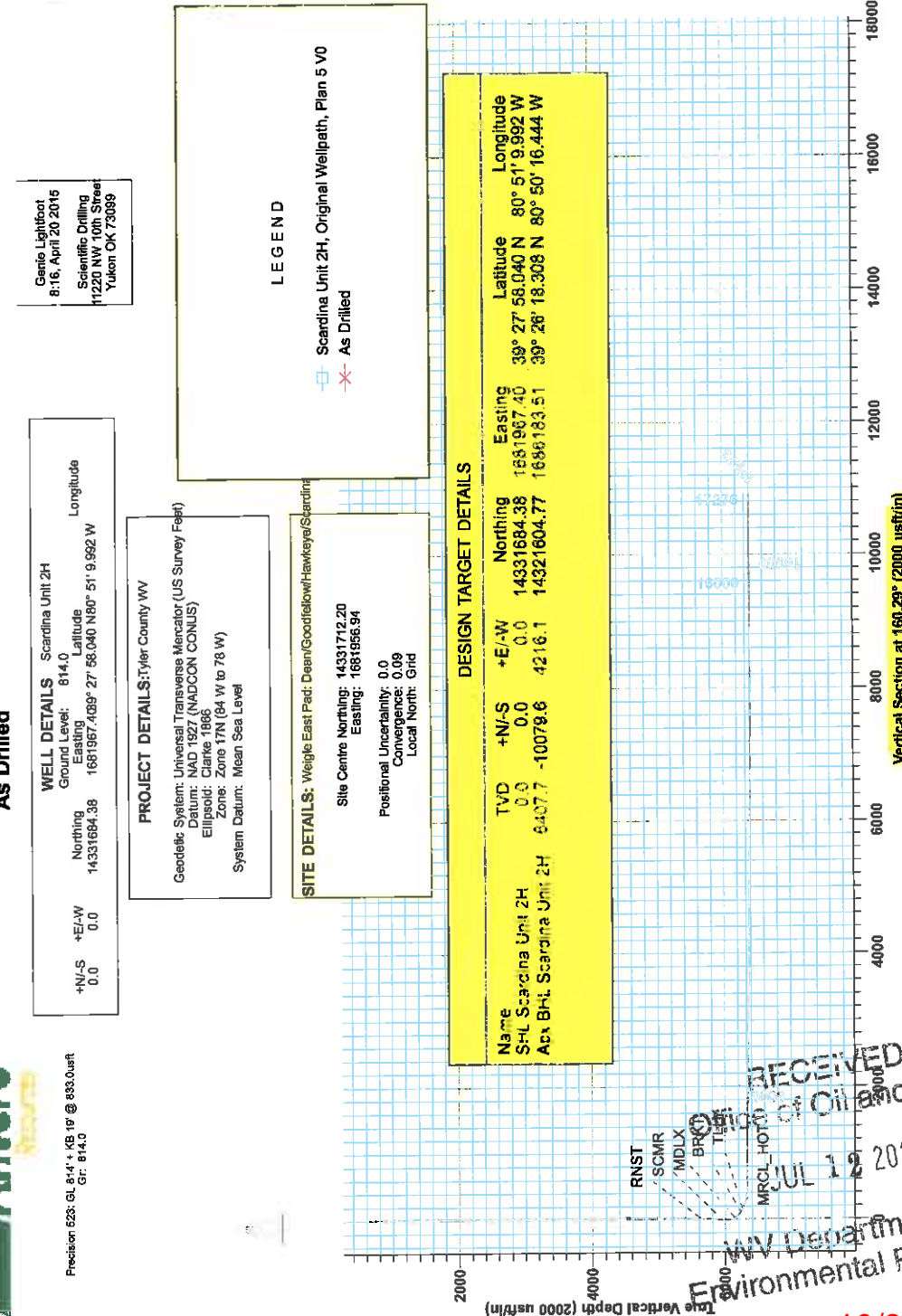
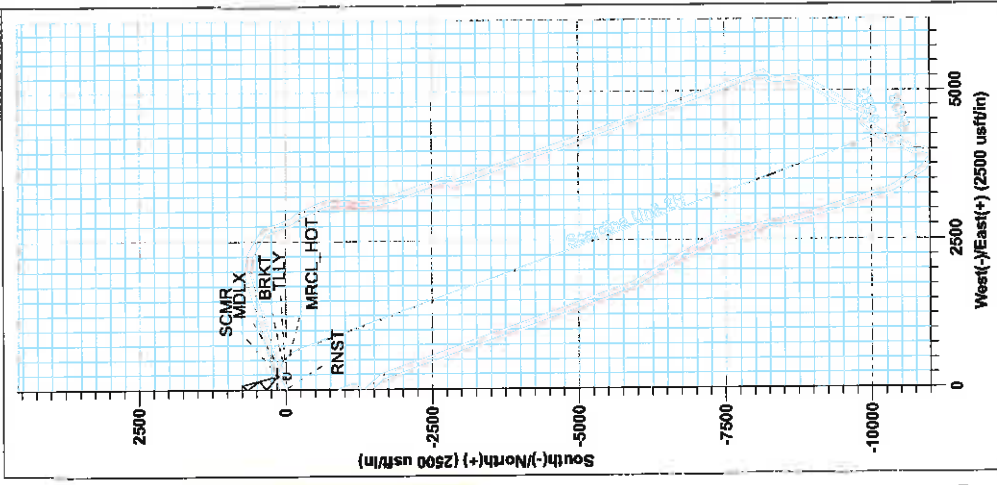
- Scardina Unit 2H, Original Wellpath, Plan 5 V0
- As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Scardina Unit 2H	0.0	0.0	0.0	14331684.38	1681967.40	39° 27' 58.040 N	80° 51' 9.992 W
Acx BHL Scardina Unit 2H	6407.7	-10079.6	4216.1	14321604.77	1686183.51	39° 26' 18.308 N	80° 50' 16.444 W

Admirals to Grid North
 True North: -0.09°
 Magnetic North: -8.56°
 Magnetic Field
 Strength: 52251.0sn
 Dip Angle: 68.94°
 Date: 4/15/2015
 Model: BG332313

To convert Magnetic North to Grid, Subtract 8.59°
 To convert True North to Grid, Subtract 0.09°



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 Office of Oil and Gas
 JUL 19 2016
 WV Department of
 Environmental Protection

10/28/2016



Antero

Tyler County WV

Weigle East Pad: Dean/Goodfellow/Hawkeye/Scardina

Scardina Unit 2H

Original Wellpath

Design: As Drilled

EOW Completion Report

20 April, 2015



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Office of Oil and Gas

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WV Department of
Environmental Protection

10/28/2016



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523 GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad: Dean/Goodfellow/Hawkeye/Scardina	MD Reference:	Precision 523 GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Project	Tyler County WV, Tyler Co West Virginia		
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	Weigle East Pad: Dean/Goodfellow/Hawkeye/Scardina		
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Site Position:		Northing:	14,331,712.20 usft	Latitude:	39° 27' 58.315 N
From:	Map	Easting:	1,681,956.94 usft	Longitude:	80° 51' 10.125 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.09 °

Well	Scardina Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,331,684.38 usft	Latitude:	39° 27' 58.040 N
	+E/-W	0.0 usft	Easting:	1,681,967.40 usft	Longitude:	80° 51' 9.992 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	833.0 usft	Ground Level:	814.0 usft

Wellbore	Original Wellpath				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	4/15/2015	-8.47	66.94	52,251

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	160.29

Survey Program	Date 4/20/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
105.7	5,496.0	Survey #6 Def KOP Gyro (Original Wellpa	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,512.0	17,275.0	Survey #7 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. 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
105.7	0.22	26.53	105.7	0.2	0.1	-0.1	0.21
106.0	0.22	26.67	106.0	0.2	0.1	-0.1	0.17
131.0	0.26	36.60	131.0	0.3	0.1	-0.2	0.23
156.0	0.23	68.60	156.0	0.3	0.2	-0.2	0.55
181.0	0.27	41.29	181.0	0.4	0.3	-0.3	0.50
206.0	0.26	80.64	206.0	0.5	0.4	-0.3	0.71
231.0	0.14	84.24	231.0	0.5	0.5	-0.3	0.48
256.0	0.17	66.75	256.0	0.5	0.6	-0.3	0.22
281.0	0.17	40.73	281.0	0.5	0.6	-0.3	0.31
306.0	0.14	62.54	306.0	0.6	0.7	-0.3	0.26



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523 GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad Dean/Goodfellow/Hawkeye/Sc	MD Reference:	Precision 523 GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	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)	
331.0	0.13	94.41	331.0	0.6	0.7	-0.3	0.30	
356.0	0.20	87.42	356.0	0.6	0.8	-0.3	0.29	
381.0	0.12	63.23	381.0	0.6	0.9	-0.3	0.41	
406.0	0.11	71.61	406.0	0.6	0.9	-0.3	0.08	
431.0	0.10	67.04	431.0	0.6	1.0	-0.3	0.05	
456.0	0.12	44.64	456.0	0.7	1.0	-0.3	0.19	
481.0	0.10	335.55	481.0	0.7	1.0	-0.3	0.50	
506.0	0.13	64.92	506.0	0.7	1.0	-0.3	0.65	
531.0	0.49	109.06	531.0	0.7	1.1	-0.3	1.63	
556.0	1.54	119.77	556.0	0.5	1.5	0.0	4.25	
581.0	2.37	121.04	581.0	0.1	2.3	0.7	3.32	
606.0	3.13	120.33	605.9	-0.5	3.3	1.6	3.04	
631.0	4.00	119.85	630.9	-1.3	4.6	2.8	3.48	
656.0	4.67	119.09	655.8	-2.3	6.3	4.2	2.69	
681.0	5.28	118.19	680.7	-3.3	8.2	5.9	2.46	
706.0	5.39	117.94	705.6	-4.4	10.2	7.6	0.45	
731.0	5.48	117.47	730.5	-5.5	12.3	9.3	0.40	
756.0	5.60	118.35	755.4	-6.6	14.5	11.1	0.59	
781.0	5.61	118.84	780.3	-7.8	16.6	12.9	0.20	
806.0	5.23	118.25	805.2	-8.9	18.7	14.7	1.54	
831.0	5.07	117.69	830.1	-10.0	20.7	16.4	0.67	
856.0	4.52	116.08	855.0	-10.9	22.5	17.9	2.26	
881.0	3.99	112.55	879.9	-11.7	24.2	19.2	2.36	
906.0	3.86	111.15	904.9	-12.3	25.8	20.3	0.65	
931.0	3.73	112.07	929.8	-12.9	27.4	21.4	0.57	
956.0	2.89	111.04	954.8	-13.5	28.7	22.3	3.37	
981.0	2.47	113.77	979.7	-13.9	29.8	23.1	1.76	
1,006.0	2.31	114.06	1,004.7	-14.3	30.7	23.8	0.64	
1,031.0	2.05	114.19	1,029.7	-14.7	31.6	24.5	1.04	
1,056.0	1.79	116.55	1,054.7	-15.1	32.4	25.1	1.09	
1,081.0	1.68	115.20	1,079.7	-15.4	33.0	25.6	0.47	
1,106.0	1.58	114.21	1,104.7	-15.7	33.7	26.1	0.42	
1,131.0	1.42	118.91	1,129.6	-16.0	34.3	26.6	0.81	
1,156.0	1.27	120.50	1,154.6	-16.3	34.8	27.1	0.62	
1,181.0	0.97	127.04	1,179.6	-16.5	35.2	27.4	1.30	
1,206.0	0.84	123.56	1,204.6	-16.8	35.5	27.8	0.56	
1,231.0	0.66	117.63	1,229.6	-16.9	35.8	28.0	0.78	
1,256.0	0.52	115.00	1,254.6	-17.1	36.0	28.2	0.57	
1,281.0	0.46	126.00	1,279.6	-17.2	36.2	28.4	0.45	
1,306.0	0.50	121.43	1,304.6	-17.3	36.4	28.5	0.22	
1,331.0	0.42	136.41	1,329.6	-17.4	36.5	28.7	0.58	
1,356.0	0.48	135.33	1,354.6	-17.5	36.7	28.9	0.24	
1,381.0	0.35	138.84	1,379.6	-17.7	36.8	29.0	0.53	
1,406.0	0.33	149.33	1,404.6	-17.8	36.9	29.2	0.26	



Company: Antero	Local Co-ordinate Reference: Well Scardina Unit 2H
Project: Tyler County WV	TVD Reference: Precision 523: GL 814' + KB 19' @ 833.0usft
Site: Weigle East Pad Dean/Goodfellow/Hawkeye/Scardina	MD Reference: Precision 523: GL 814' + KB 19' @ 833.0usft
Well: Scardina Unit 2H	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)	
1,431.0	0.33	134.82	1,429.6	-17.9	37.0	29.3	0.33	
1,456.0	0.35	123.81	1,454.6	-18.0	37.1	29.5	0.27	
1,481.0	0.31	131.34	1,479.6	-18.1	37.2	29.6	0.24	
1,506.0	0.32	126.99	1,504.6	-18.2	37.3	29.7	0.10	
1,531.0	0.36	128.08	1,529.6	-18.3	37.4	29.8	0.16	
1,556.0	0.36	132.90	1,554.6	-18.4	37.5	30.0	0.12	
1,581.0	0.34	143.46	1,579.6	-18.5	37.6	30.1	0.27	
1,606.0	0.24	156.53	1,604.6	-18.6	37.7	30.2	0.48	
1,631.0	0.09	224.31	1,629.6	-18.7	37.7	30.3	0.89	
1,656.0	0.13	250.84	1,654.6	-18.7	37.7	30.3	0.25	
1,681.0	0.12	258.97	1,679.6	-18.7	37.6	30.3	0.08	
1,706.0	0.11	264.25	1,704.6	-18.7	37.6	30.3	0.06	
1,731.0	0.09	300.96	1,729.6	-18.7	37.5	30.3	0.26	
1,756.0	0.16	318.56	1,754.6	-18.7	37.5	30.2	0.32	
1,781.0	0.07	20.37	1,779.6	-18.6	37.5	30.2	0.56	
1,806.0	0.05	106.34	1,804.6	-18.6	37.5	30.2	0.33	
1,831.0	0.04	161.30	1,829.6	-18.6	37.5	30.2	0.17	
1,856.0	0.10	164.84	1,854.6	-18.6	37.5	30.2	0.24	
1,881.0	0.03	124.60	1,879.6	-18.7	37.5	30.2	0.32	
1,906.0	0.06	265.74	1,904.6	-18.7	37.5	30.2	0.34	
1,931.0	0.17	274.84	1,929.6	-18.7	37.5	30.2	0.44	
1,956.0	0.12	349.39	1,954.6	-18.6	37.4	30.2	0.72	
1,981.0	0.17	331.84	1,979.6	-18.6	37.4	30.1	0.27	
2,006.0	0.19	303.94	2,004.6	-18.5	37.3	30.0	0.36	
2,031.0	0.20	296.57	2,029.6	-18.5	37.3	30.0	0.11	
2,056.0	0.17	16.99	2,054.6	-18.4	37.2	29.9	0.96	
2,081.0	0.08	357.25	2,079.6	-18.4	37.3	29.9	0.39	
2,106.0	0.16	344.44	2,104.6	-18.3	37.2	29.8	0.34	
2,131.0	0.08	135.90	2,129.6	-18.3	37.2	29.8	0.93	
2,156.0	0.08	330.00	2,154.6	-18.3	37.3	29.8	0.64	
2,181.0	0.27	298.24	2,179.6	-18.3	37.2	29.7	0.83	
2,206.0	0.21	301.84	2,204.6	-18.2	37.1	29.7	0.25	
2,231.0	0.19	268.40	2,229.6	-18.2	37.0	29.6	0.47	
2,256.0	0.33	320.02	2,254.6	-18.1	36.9	29.5	1.04	
2,281.0	0.22	304.83	2,279.6	-18.0	36.8	29.4	0.52	
2,306.0	0.08	2.61	2,304.6	-18.0	36.8	29.4	0.76	
2,331.0	0.04	333.04	2,329.6	-18.0	36.8	29.3	0.20	
2,356.0	0.03	199.17	2,354.6	-18.0	36.8	29.3	0.26	
2,381.0	0.16	292.23	2,379.6	-18.0	36.8	29.3	0.66	
2,406.0	0.06	258.45	2,404.6	-18.0	36.7	29.3	0.46	
2,431.0	0.08	214.96	2,429.6	-18.0	36.7	29.3	0.22	
2,456.0	0.19	173.45	2,454.6	-18.0	36.7	29.3	0.56	
2,481.0	0.20	252.58	2,479.6	-18.1	36.7	29.4	0.99	
2,506.0	0.05	230.03	2,504.6	-18.1	36.6	29.4	0.62	
2,531.0	0.09	238.30	2,529.6	-18.1	36.6	29.4	0.16	



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523: GL 8'14" + KB 19' @ 833.0usft
Site:	Weigle East Pad: Dean/Goodfellow/Hawkeye/Sc	MD Reference:	Precision 523: GL 8'14" + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	North Reference:	Grd
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)
2,556.0	0.03	219.01	2,554.6	-18.1	36.6	29.4	0.25
2,581.0	0.09	246.09	2,579.6	-18.1	36.5	29.4	0.26
2,606.0	0.09	255.91	2,604.6	-18.2	36.5	29.4	0.06
2,631.0	0.13	251.24	2,629.6	-18.2	36.5	29.4	0.16
2,656.0	0.14	268.14	2,654.6	-18.2	36.4	29.4	0.16
2,681.0	0.13	263.81	2,679.6	-18.2	36.3	29.4	0.06
2,706.0	0.21	290.14	2,704.6	-18.2	36.3	29.3	0.44
2,731.0	0.21	273.28	2,729.6	-18.2	36.2	29.3	0.25
2,756.0	0.26	269.84	2,754.6	-18.2	36.1	29.3	0.21
2,781.0	0.28	285.18	2,779.6	-18.1	36.0	29.2	0.30
2,806.0	0.26	286.71	2,804.6	-18.1	35.8	29.1	0.09
2,831.0	0.28	290.27	2,829.6	-18.1	35.7	29.1	0.10
2,856.0	0.29	296.22	2,854.6	-18.0	35.6	29.0	0.12
2,881.0	0.32	289.92	2,879.6	-18.0	35.5	28.9	0.18
2,906.0	0.34	294.04	2,904.6	-17.9	35.4	28.8	0.12
2,931.0	0.31	293.60	2,929.6	-17.9	35.2	28.7	0.12
2,956.0	0.33	289.54	2,954.6	-17.8	35.1	28.6	0.12
2,981.0	0.37	292.52	2,979.6	-17.8	35.0	28.5	0.18
3,006.0	0.36	293.71	3,004.6	-17.7	34.8	28.4	0.05
3,031.0	0.28	292.22	3,029.6	-17.6	34.7	28.3	0.32
3,056.0	0.35	292.91	3,054.6	-17.6	34.6	28.2	0.28
3,081.0	0.35	288.61	3,079.6	-17.5	34.4	28.1	0.11
3,106.0	0.29	295.78	3,104.6	-17.5	34.3	28.0	0.29
3,131.0	0.31	290.27	3,129.6	-17.4	34.2	27.9	0.14
3,156.0	0.32	291.74	3,154.6	-17.4	34.0	27.8	0.05
3,181.0	0.36	282.81	3,179.6	-17.3	33.9	27.7	0.27
3,206.0	0.32	288.52	3,204.6	-17.3	33.8	27.7	0.21
3,231.0	0.29	293.63	3,229.6	-17.2	33.6	27.6	0.16
3,256.0	0.30	288.92	3,254.6	-17.2	33.5	27.5	0.10
3,281.0	0.36	291.20	3,279.6	-17.1	33.4	27.4	0.25
3,306.0	0.36	280.79	3,304.6	-17.1	33.2	27.3	0.26
3,331.0	0.36	284.83	3,329.6	-17.1	33.1	27.2	0.10
3,356.0	0.33	292.17	3,354.6	-17.0	32.9	27.1	0.21
3,381.0	0.36	287.12	3,379.6	-17.0	32.8	27.0	0.17
3,406.0	0.37	287.10	3,404.6	-16.9	32.6	26.9	0.04
3,431.0	0.44	288.99	3,429.6	-16.9	32.5	26.8	0.29
3,456.0	0.39	287.06	3,454.6	-16.8	32.3	26.7	0.21
3,481.0	0.42	292.85	3,479.6	-16.8	32.1	26.6	0.20
3,506.0	0.40	289.92	3,504.6	-16.7	32.0	26.5	0.12
3,531.0	0.36	285.10	3,529.6	-16.6	31.8	26.4	0.20
3,556.0	0.46	291.97	3,554.6	-16.6	31.6	26.3	0.45
3,581.0	0.44	288.26	3,579.6	-16.5	31.5	26.2	0.14
3,606.0	0.42	288.92	3,604.6	-16.5	31.3	26.0	0.08
3,631.0	0.47	286.84	3,629.6	-16.4	31.1	25.9	0.21



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523: GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad: Dean/Goodfellow/Hawkeye/Sc	MD Reference:	Precision 523: GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	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)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
3,656.0	0.44	297.31	3,654.6	-16.3	30.9	25.8	0.35
3,681.0	0.47	290.11	3,679.6	-16.2	30.7	25.7	0.26
3,706.0	0.47	290.55	3,704.6	-16.2	30.5	25.5	0.01
3,731.0	0.37	292.31	3,729.6	-16.1	30.4	25.4	0.40
3,756.0	0.38	288.31	3,754.6	-16.0	30.2	25.3	0.11
3,781.0	0.42	284.36	3,779.6	-16.0	30.0	25.2	0.19
3,806.0	0.38	284.61	3,804.6	-16.0	29.9	25.1	0.16
3,831.0	0.37	280.35	3,829.6	-15.9	29.7	25.0	0.12
3,856.0	0.40	287.87	3,854.6	-15.9	29.5	24.9	0.23
3,881.0	0.33	301.54	3,879.6	-15.8	29.4	24.8	0.45
3,906.0	0.32	282.70	3,904.6	-15.8	29.3	24.7	0.43
3,931.0	0.32	290.58	3,929.6	-15.7	29.1	24.6	0.18
3,956.0	0.23	280.65	3,954.6	-15.7	29.0	24.6	0.41
3,981.0	0.22	280.12	3,979.6	-15.7	28.9	24.5	0.04
4,006.0	0.37	279.10	4,004.6	-15.6	28.8	24.4	0.60
4,031.0	0.29	293.59	4,029.6	-15.6	28.7	24.4	0.46
4,056.0	0.27	288.89	4,054.6	-15.6	28.6	24.3	0.12
4,081.0	0.25	293.43	4,079.6	-15.5	28.4	24.2	0.11
4,106.0	0.31	285.49	4,104.6	-15.5	28.3	24.1	0.29
4,131.0	0.25	285.67	4,129.6	-15.5	28.2	24.1	0.24
4,156.0	0.27	289.47	4,154.6	-15.4	28.1	24.0	0.11
4,181.0	0.25	289.43	4,179.6	-15.4	28.0	23.9	0.08
4,206.0	0.25	279.85	4,204.6	-15.4	27.9	23.9	0.17
4,231.0	0.31	272.99	4,229.6	-15.3	27.8	23.8	0.27
4,256.0	0.23	268.70	4,254.6	-15.3	27.7	23.8	0.33
4,281.0	0.26	279.97	4,279.6	-15.3	27.5	23.7	0.23
4,306.0	0.26	262.78	4,304.6	-15.3	27.4	23.7	0.31
4,331.0	0.21	278.63	4,329.6	-15.3	27.3	23.6	0.33
4,356.0	0.21	264.46	4,354.6	-15.3	27.2	23.6	0.21
4,381.0	0.19	257.38	4,379.6	-15.3	27.2	23.6	0.13
4,406.0	0.21	272.40	4,404.6	-15.3	27.1	23.6	0.22
4,431.0	0.26	268.03	4,429.6	-15.3	27.0	23.5	0.21
4,456.0	0.22	250.52	4,454.6	-15.4	26.9	23.5	0.33
4,481.0	0.31	257.18	4,479.6	-15.4	26.8	23.5	0.38
4,506.0	0.21	255.04	4,504.6	-15.4	26.6	23.5	0.40
4,531.0	0.22	263.65	4,529.6	-15.4	26.6	23.5	0.14
4,556.0	0.25	268.97	4,554.6	-15.4	26.5	23.5	0.15
4,581.0	0.31	261.02	4,579.6	-15.5	26.3	23.4	0.29
4,606.0	0.29	258.20	4,604.6	-15.5	26.2	23.4	0.10
4,631.0	0.23	258.77	4,629.6	-15.5	26.1	23.4	0.24
4,656.0	0.23	269.71	4,654.6	-15.5	26.0	23.4	0.18
4,681.0	0.26	266.14	4,679.6	-15.5	25.9	23.3	0.13
4,706.0	0.26	262.91	4,704.6	-15.5	25.8	23.3	0.06
4,731.0	0.21	275.15	4,729.6	-15.5	25.7	23.3	0.28



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523: GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad. Dean/Goodfellow/Hawkeye/Sc	MD Reference:	Precision 523: GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	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)
4,756.0	0.22	261.07	4,754.6	-15.5	25.6	23.2	0.21
4,781.0	0.25	268.35	4,779.6	-15.5	25.5	23.2	0.17
4,806.0	0.26	252.28	4,804.6	-15.6	25.4	23.2	0.29
4,831.0	0.13	276.90	4,829.6	-15.6	25.3	23.2	0.61
4,856.0	0.20	267.96	4,854.6	-15.6	25.2	23.2	0.30
4,881.0	0.22	261.09	4,879.6	-15.6	25.1	23.1	0.13
4,906.0	0.14	242.66	4,904.6	-15.6	25.0	23.1	0.39
4,931.0	0.23	275.03	4,929.6	-15.6	25.0	23.1	0.54
4,956.0	0.13	248.47	4,954.6	-15.6	24.9	23.1	0.51
4,981.0	0.18	239.85	4,979.6	-15.6	24.8	23.1	0.22
5,006.0	0.14	268.45	5,004.6	-15.7	24.8	23.1	0.35
5,031.0	0.25	224.73	5,029.6	-15.7	24.7	23.1	0.71
5,056.0	0.19	200.60	5,054.6	-15.8	24.6	23.2	0.44
5,081.0	0.18	238.82	5,079.6	-15.8	24.6	23.2	0.49
5,106.0	0.20	230.06	5,104.6	-15.9	24.5	23.2	0.14
5,131.0	0.38	217.34	5,129.6	-16.0	24.4	23.3	0.76
5,156.0	0.25	198.64	5,154.6	-16.1	24.4	23.4	0.66
5,181.0	0.34	227.78	5,179.6	-16.2	24.3	23.5	0.69
5,206.0	0.36	247.40	5,204.6	-16.3	24.2	23.5	0.48
5,231.0	0.30	223.38	5,229.6	-16.4	24.1	23.5	0.60
5,256.0	0.44	242.01	5,254.6	-16.5	23.9	23.6	0.73
5,281.0	0.24	249.87	5,279.6	-16.5	23.8	23.6	0.82
5,306.0	0.30	253.25	5,304.6	-16.6	23.7	23.6	0.25
5,331.0	0.26	242.98	5,329.6	-16.6	23.6	23.6	0.26
5,356.0	0.28	238.21	5,354.6	-16.7	23.5	23.6	0.12
5,381.0	0.38	248.70	5,379.6	-16.7	23.3	23.6	0.47
5,406.0	0.25	264.80	5,404.6	-16.8	23.2	23.6	0.62
5,431.0	0.29	254.82	5,429.6	-16.8	23.1	23.6	0.25
5,456.0	0.30	254.62	5,454.6	-16.8	23.0	23.6	0.04
5,481.0	0.27	230.62	5,479.6	-16.9	22.9	23.6	0.49
5,496.0	0.47	246.53	5,494.6	-16.9	22.8	23.6	1.49
5,512.0	0.52	254.15	5,510.6	-17.0	22.6	23.6	0.52
5,542.0	0.21	167.40	5,540.6	-17.1	22.5	23.6	1.83
5,571.0	0.29	110.13	5,569.6	-17.1	22.6	23.7	0.86
5,601.0	3.12	56.02	5,599.6	-16.7	23.4	23.6	9.86
5,621.0	5.73	54.67	5,619.5	-15.8	24.6	23.2	13.04
RNST							
5,631.0	7.03	54.37	5,629.4	-15.2	25.5	22.9	13.04
5,661.0	10.98	55.11	5,659.1	-12.5	29.4	21.6	13.17
5,691.0	14.84	53.97	5,688.3	-8.6	34.8	19.8	12.89
5,721.0	18.96	53.87	5,717.0	-3.4	41.9	17.4	13.73
5,750.0	22.30	57.31	5,744.1	2.3	50.3	14.8	12.25
5,780.0	25.16	59.09	5,771.6	8.7	60.6	12.3	9.83
5,810.0	27.40	59.06	5,798.5	15.5	72.0	9.7	7.47



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523: GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad. Dean/Goodfellow/Hawkeye/Sca	MD Reference:	Precision 523. GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	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)	
5,840.0	30.26	58.63	5,824.8	23.0	84.3	6.8	9.56	
5,870.0	33.92	58.43	5,850.2	31.3	97.9	3.6	12.21	
5,900.0	37.58	58.53	5,874.5	40.5	112.9	0.0	12.20	
5,930.0	40.20	58.73	5,897.9	50.3	128.9	-3.8	8.74	
5,960.0	43.06	58.35	5,920.3	60.7	145.9	-7.9	9.57	
5,990.0	43.64	58.41	5,942.1	71.5	163.5	-12.1	1.94	
6,019.0	42.99	60.82	5,963.2	81.5	180.6	-15.8	6.13	
6,021.0	42.91	61.30	5,964.7	82.2	181.8	-16.0	16.85	
SCMR								
6,049.0	42.03	68.17	5,985.3	90.3	198.9	-17.9	16.85	
6,079.0	43.53	74.64	6,007.4	96.7	218.2	-17.5	15.47	
6,109.0	45.08	77.54	6,028.8	101.8	238.5	-15.3	8.50	
6,139.0	46.37	81.11	6,049.8	105.7	259.6	-12.0	9.54	
6,169.0	47.04	86.31	6,070.4	108.1	281.3	-6.9	12.81	
6,199.0	47.44	91.09	6,090.7	108.6	303.3	0.1	11.77	
6,229.0	47.85	95.75	6,111.0	107.3	325.5	8.8	11.56	
6,259.0	48.75	99.52	6,130.9	104.3	347.6	19.1	9.85	
6,271.0	49.10	101.27	6,138.8	102.7	356.5	23.6	11.37	
MDLX								
6,288.0	49.63	103.72	6,149.9	99.9	369.1	30.5	11.37	
6,318.0	50.01	108.31	6,169.2	93.6	391.2	43.8	11.76	
6,348.0	51.88	112.73	6,188.1	85.4	413.0	58.9	13.03	
6,378.0	54.49	117.01	6,206.1	75.3	434.7	75.8	14.35	
6,408.0	57.20	120.47	6,223.0	63.3	456.5	94.3	13.14	
6,430.0	57.93	123.12	6,234.8	53.5	472.3	108.9	10.69	
BRKT								
6,438.0	58.21	124.07	6,239.0	49.8	477.9	114.3	10.69	
6,467.0	60.69	127.11	6,253.7	35.3	498.2	134.8	12.43	
6,486.0	62.84	128.99	6,262.7	24.9	511.4	149.0	14.29	
TLLY								
6,497.0	64.10	130.04	6,267.6	18.7	519.0	157.5	14.29	
6,527.0	67.86	132.94	6,279.9	0.5	539.5	181.5	15.33	
6,557.0	71.19	136.33	6,290.3	-19.2	559.5	206.8	15.34	
6,587.0	73.73	138.82	6,299.4	-40.3	578.8	233.2	11.59	
6,615.0	75.07	141.28	6,306.9	-61.0	596.1	258.5	9.71	
MRCL_HOT								
6,617.0	75.17	141.45	6,307.4	-62.5	597.3	260.3	9.71	
6,647.0	77.66	144.69	6,314.5	-85.8	614.8	288.2	13.38	
6,677.0	80.42	148.27	6,320.2	-110.4	631.1	316.8	14.90	
6,707.0	82.83	151.23	6,324.6	-136.0	646.0	345.9	12.64	
6,736.0	84.66	153.42	6,327.7	-161.5	659.4	374.5	9.81	
6,766.0	86.36	154.58	6,330.1	-188.4	672.5	404.2	6.85	
6,796.0	88.32	157.28	6,331.5	-215.8	684.7	434.1	11.11	
6,815.0	89.13	158.10	6,331.9	-233.4	691.9	453.1	6.07	
6,877.0	89.46	160.08	6,332.6	-291.3	714.1	515.0	3.24	



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523: GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad: Dean/Goodfellow/Hawkeye/Sca	MD Reference:	Precision 523: GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	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)
6,966.0	89.36	160.70	6,333.6	-375.1	743.9	604.0	0.71
7,056.0	89.33	161.28	6,334.6	-460.2	773.3	694.0	0.65
7,146.0	89.33	160.83	6,335.6	-545.3	802.5	784.0	0.50
7,235.0	89.43	161.38	6,336.6	-629.5	831.3	873.0	0.63
7,325.0	89.80	160.52	6,337.2	-714.6	860.7	963.0	1.04
7,414.0	89.03	158.84	6,338.1	-798.0	891.6	1,052.0	2.08
7,504.0	89.30	160.23	6,339.4	-882.3	923.0	1,141.9	1.57
7,593.0	89.03	159.24	6,340.7	-965.8	953.9	1,230.9	1.15
7,683.0	89.50	160.06	6,341.9	-1,050.2	985.1	1,320.9	1.05
7,773.0	89.29	160.61	6,342.8	-1,134.9	1,015.4	1,410.9	0.65
7,862.0	88.76	159.63	6,344.3	-1,218.6	1,045.7	1,499.9	1.25
7,952.0	89.29	160.88	6,345.9	-1,303.3	1,076.1	1,589.9	1.51
8,041.0	88.96	160.92	6,347.2	-1,387.4	1,105.2	1,678.9	0.37
8,131.0	88.62	159.53	6,349.1	-1,472.1	1,135.7	1,768.8	1.59
8,221.0	88.92	160.36	6,351.1	-1,556.6	1,166.5	1,858.8	0.98
8,310.0	89.53	160.04	6,352.3	-1,640.3	1,196.7	1,947.8	0.77
8,400.0	88.79	159.73	6,353.6	-1,724.8	1,227.6	2,037.8	0.89
8,489.0	89.43	160.92	6,355.0	-1,808.6	1,257.6	2,126.8	1.52
8,579.0	88.62	161.02	6,356.5	-1,893.7	1,286.9	2,216.8	0.91
8,668.0	87.85	158.89	6,359.2	-1,977.3	1,317.4	2,305.7	2.54
8,758.0	88.59	158.45	6,362.0	-2,061.0	1,350.1	2,395.6	0.96
8,847.0	89.26	159.74	6,363.7	-2,144.2	1,381.9	2,484.6	1.63
8,937.0	89.26	160.45	6,364.9	-2,228.8	1,412.5	2,574.6	0.79
9,027.0	89.66	161.24	6,365.7	-2,313.8	1,442.0	2,664.6	0.98
9,117.0	89.83	160.84	6,366.1	-2,398.9	1,471.3	2,754.6	0.48
9,206.0	90.20	160.91	6,366.1	-2,483.0	1,500.4	2,843.6	0.42
9,296.0	89.80	159.17	6,366.1	-2,567.6	1,531.2	2,933.6	1.98
9,386.0	89.13	157.70	6,366.9	-2,651.3	1,564.2	3,023.5	1.79
9,475.0	90.94	160.66	6,366.9	-2,734.5	1,595.9	3,112.5	3.90
9,565.0	90.13	160.61	6,366.0	-2,819.4	1,625.7	3,202.5	0.90
9,654.0	89.19	161.93	6,366.6	-2,903.6	1,654.3	3,291.4	1.82
9,744.0	89.53	162.21	6,367.6	-2,989.3	1,682.0	3,381.4	0.49
9,833.0	89.87	160.01	6,368.0	-3,073.5	1,710.8	3,470.4	2.50
9,923.0	90.10	160.58	6,368.1	-3,158.2	1,741.1	3,560.4	0.68
10,012.0	89.19	160.22	6,368.6	-3,242.0	1,771.0	3,649.4	1.10
10,102.0	88.76	160.12	6,370.2	-3,326.7	1,801.5	3,739.4	0.49
10,192.0	89.13	161.10	6,371.9	-3,411.6	1,831.4	3,829.3	1.16
10,281.0	89.73	161.71	6,372.8	-3,495.9	1,859.8	3,918.3	0.96
10,371.0	89.23	160.96	6,373.6	-3,581.2	1,888.6	4,008.3	1.00
10,460.0	89.23	160.10	6,374.8	-3,665.1	1,918.2	4,097.3	0.97
10,550.0	88.73	159.15	6,376.4	-3,749.4	1,949.6	4,187.3	1.19
10,640.0	88.83	159.14	6,378.3	-3,833.5	1,981.6	4,277.2	0.11
10,729.0	89.50	160.26	6,379.6	-3,917.0	2,012.5	4,366.2	1.47
10,819.0	89.50	160.45	6,380.4	-4,001.7	2,042.7	4,456.2	0.21



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523. GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad: Dean/Goodfellow/Hawkeye/Sca	MD Reference:	Precision 523. GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	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)
10,908.0	89.09	159.08	6,381.5	-4,085.2	2,073.5	4,545.2	1.61
10,998.0	89.97	160.51	6,382.2	-4,169.7	2,104.6	4,635.2	1.87
11,087.0	88.92	159.95	6,383.1	-4,253.4	2,134.7	4,724.2	1.34
11,177.0	89.43	159.99	6,384.4	-4,338.0	2,165.5	4,814.2	0.57
11,266.0	89.16	159.48	6,385.5	-4,421.5	2,196.3	4,903.2	0.65
11,356.0	88.83	159.42	6,387.1	-4,505.7	2,227.9	4,993.1	0.37
11,445.0	89.29	159.14	6,388.5	-4,589.0	2,259.4	5,082.1	0.61
11,535.0	87.72	160.59	6,390.9	-4,673.4	2,290.4	5,172.1	2.37
11,625.0	90.64	162.54	6,392.1	-4,758.8	2,318.8	5,262.0	3.90
11,714.0	89.33	160.47	6,392.2	-4,843.2	2,347.1	5,351.0	2.75
11,804.0	89.16	160.05	6,393.4	-4,927.9	2,377.5	5,441.0	0.50
11,893.0	89.83	160.96	6,394.1	-5,011.8	2,407.2	5,530.0	1.27
11,983.0	89.93	160.43	6,394.3	-5,096.7	2,436.9	5,620.0	0.60
12,072.0	89.53	160.74	6,394.8	-5,180.7	2,466.5	5,709.0	0.57
12,162.0	89.66	160.60	6,395.4	-5,265.6	2,496.3	5,799.0	0.21
12,251.0	89.30	158.60	6,396.2	-5,349.0	2,527.3	5,888.0	2.28
12,341.0	89.70	159.24	6,397.0	-5,433.0	2,559.7	5,977.9	0.84
12,430.0	89.36	159.79	6,397.7	-5,516.3	2,590.8	6,066.9	0.73
12,520.0	88.99	161.40	6,399.0	-5,601.2	2,620.7	6,156.9	1.84
12,610.0	88.96	161.21	6,400.6	-5,686.5	2,649.6	6,246.9	0.21
12,699.0	89.70	161.10	6,401.7	-5,770.7	2,678.3	6,335.9	0.84
12,789.0	89.03	159.19	6,402.7	-5,855.3	2,708.9	6,425.9	2.25
12,878.0	89.60	161.41	6,403.7	-5,939.1	2,738.9	6,514.8	2.58
12,968.0	89.56	160.57	6,404.4	-6,024.2	2,768.2	6,604.8	0.93
13,057.0	89.63	160.30	6,405.0	-6,108.0	2,798.0	6,693.8	0.31
13,147.0	89.63	159.43	6,405.6	-6,192.5	2,829.0	6,783.8	0.97
13,236.0	90.10	159.92	6,405.8	-6,276.0	2,859.9	6,872.8	0.76
13,326.0	89.46	160.48	6,406.1	-6,360.7	2,890.4	6,962.8	0.94
13,415.0	89.50	160.11	6,407.0	-6,444.5	2,920.4	7,051.8	0.42
13,505.0	89.90	160.35	6,407.4	-6,529.2	2,950.8	7,141.8	0.52
13,594.0	88.66	160.96	6,408.5	-6,613.1	2,980.3	7,230.8	1.55
13,684.0	89.09	162.23	6,410.3	-6,698.5	3,008.7	7,320.8	1.49
13,773.0	88.89	160.50	6,411.9	-6,782.8	3,037.1	7,409.7	1.96
13,863.0	88.59	159.37	6,413.9	-6,867.3	3,068.0	7,499.7	1.30
13,952.0	89.40	159.51	6,415.4	-6,950.7	3,099.3	7,588.7	0.92
14,042.0	89.90	160.69	6,416.0	-7,035.3	3,129.9	7,678.7	1.42
14,131.0	89.78	162.83	6,416.2	-7,119.8	3,157.7	7,767.6	2.41
14,221.0	90.44	161.84	6,416.0	-7,205.6	3,185.1	7,857.6	1.32
14,310.0	89.63	160.55	6,416.0	-7,289.8	3,213.7	7,946.6	1.71
14,400.0	90.81	161.08	6,415.6	-7,374.8	3,243.3	8,036.6	1.44
14,490.0	90.30	158.40	6,414.8	-7,459.2	3,274.5	8,126.5	3.03
14,579.0	88.96	156.65	6,415.3	-7,541.5	3,308.5	8,215.4	2.48
14,669.0	90.37	160.23	6,415.9	-7,625.1	3,341.6	8,305.4	4.28
14,758.0	90.71	160.67	6,415.0	-7,709.0	3,371.3	8,394.4	0.62
14,847.0	90.80	160.67	6,413.9	-7,793.0	3,400.8	8,483.4	0.10



Company:	Antero	Local Co-ordinate Reference:	Well Scardina Unit 2H
Project:	Tyler County WV	TVD Reference:	Precision 523 GL 814' + KB 19' @ 833.0usft
Site:	Weigle East Pad: Dean/Goodfellow/Hawkeye/Sc	MD Reference:	Precision 523 GL 814' + KB 19' @ 833.0usft
Well:	Scardina Unit 2H	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)
14,937.0	89.73	158.73	6,413.4	-7,877.4	3,432.0	8,573.3	2.46
15,027.0	89.66	161.11	6,413.9	-7,961.9	3,462.9	8,663.3	2.65
15,116.0	90.13	161.64	6,414.1	-8,046.2	3,491.3	8,752.3	0.80
15,206.0	90.17	161.15	6,413.9	-8,131.5	3,520.1	8,842.3	0.55
15,295.0	90.30	160.94	6,413.5	-8,215.7	3,549.0	8,931.3	0.28
15,385.0	90.40	159.97	6,412.9	-8,300.5	3,579.1	9,021.3	1.08
15,474.0	89.53	159.67	6,413.0	-8,384.1	3,609.8	9,110.3	1.03
15,564.0	89.46	159.01	6,413.8	-8,468.3	3,641.5	9,200.3	0.74
15,653.0	90.60	160.35	6,413.7	-8,551.7	3,672.4	9,289.3	1.98
15,743.0	90.94	160.33	6,412.5	-8,636.5	3,702.7	9,379.2	0.38
15,833.0	89.80	158.19	6,411.9	-8,720.6	3,734.6	9,469.2	2.69
15,922.0	89.46	159.63	6,412.5	-8,803.7	3,766.6	9,558.2	1.66
16,012.0	89.53	160.03	6,413.3	-8,888.1	3,797.6	9,648.2	0.45
16,101.0	90.61	160.29	6,413.2	-8,971.9	3,827.8	9,737.2	1.25
16,191.0	89.93	158.08	6,412.8	-9,056.0	3,859.8	9,827.2	2.57
16,280.0	90.34	159.76	6,412.6	-9,139.0	3,891.8	9,916.1	1.94
16,370.0	90.44	161.64	6,412.0	-9,224.0	3,921.6	10,006.1	2.09
16,459.0	90.60	161.19	6,411.2	-9,308.3	3,949.9	10,095.1	0.54
16,549.0	90.84	161.73	6,410.0	-9,393.6	3,978.6	10,185.1	0.66
16,638.0	90.00	160.98	6,409.4	-9,478.0	4,007.0	10,274.1	1.27
16,728.0	90.84	161.29	6,408.7	-9,563.1	4,036.1	10,364.0	0.99
16,817.0	90.27	159.76	6,407.8	-9,647.0	4,065.8	10,453.0	1.83
16,907.0	89.43	160.15	6,408.1	-9,731.6	4,096.6	10,543.0	1.03
16,996.0	89.53	161.23	6,408.9	-9,815.6	4,126.1	10,632.0	1.22
17,086.0	90.03	160.97	6,409.2	-9,900.7	4,155.2	10,722.0	0.63
17,176.0	90.50	161.15	6,408.8	-9,985.8	4,184.4	10,812.0	0.56
17,219.0	90.67	161.37	6,408.4	-10,026.5	4,198.2	10,855.0	0.65
17,275.0	90.67	161.37	6,407.7	-10,079.6	4,216.1	10,911.0	0.00

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
5,621.0	5,619.5	-15.8	24.6	RNST	
6,021.0	5,964.7	82.2	181.8	SCMR	
6,271.0	6,138.8	102.7	356.5	MDLX	
6,430.0	6,234.8	53.5	472.3	BRKT	
6,486.0	6,262.7	24.9	511.4	TLLY	
6,615.0	6,306.9	-61.0	596.1	MRCL_HOT	

Checked By: _____ Approved By: _____ Date: _____