



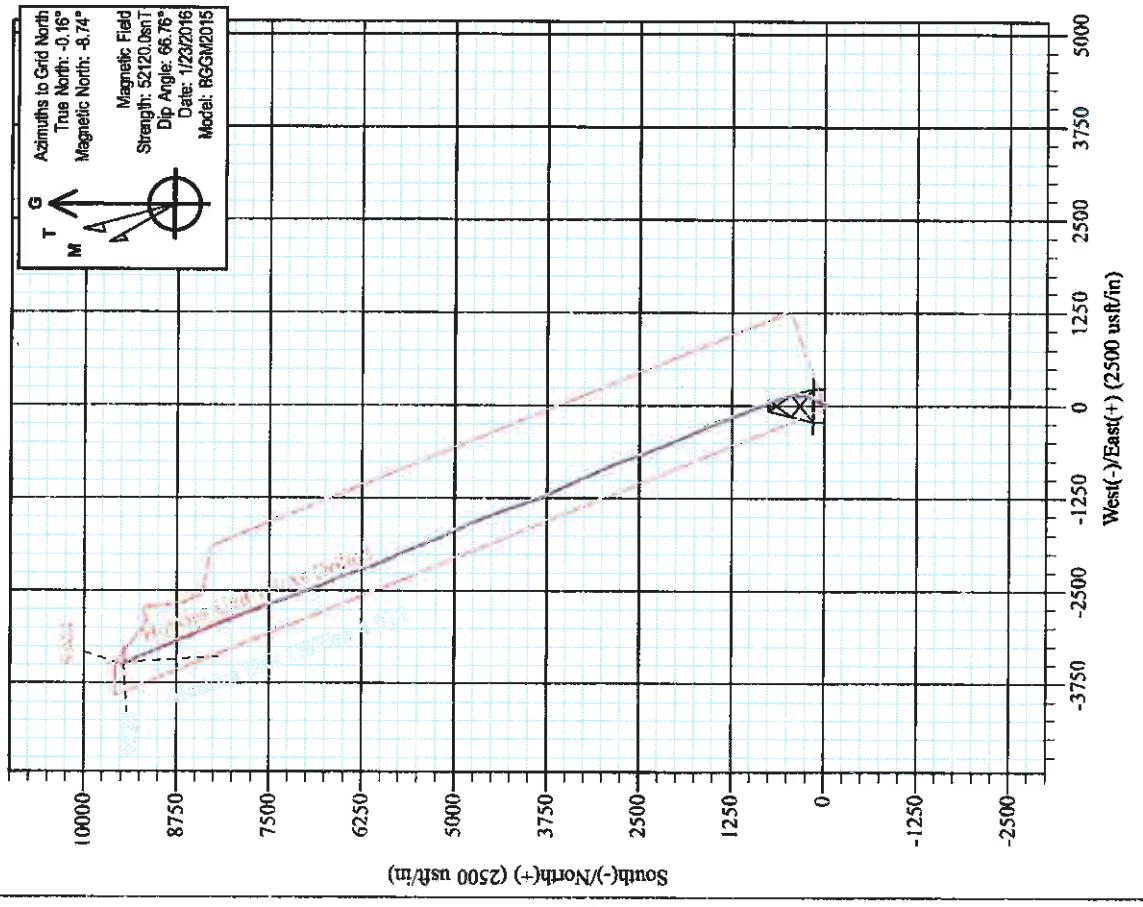
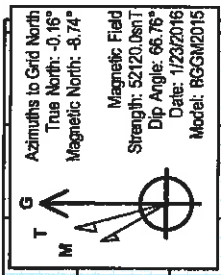
Hamilton Pad: Costlow/Caskins/Hoskins/Knight
 Hoskins Unit 1H
 Plan 4 ST1
 Precision 525: 1159' GL + 19' KB @ 1178.0usft
 Doddridge County WV

PROJECT DETAILS:
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: 17N (84 W to 78 W)
 System Datum: Mean Sea Level



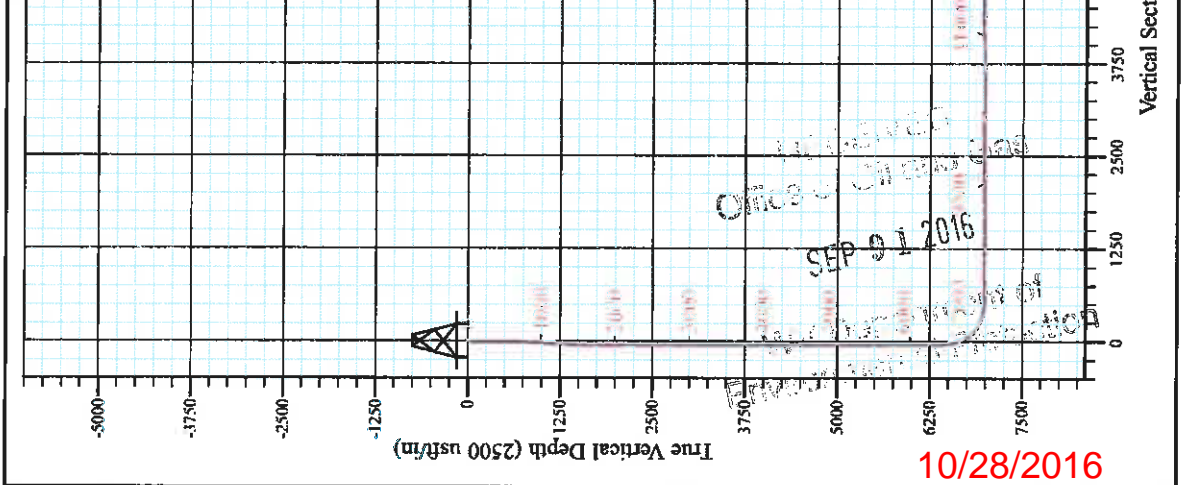
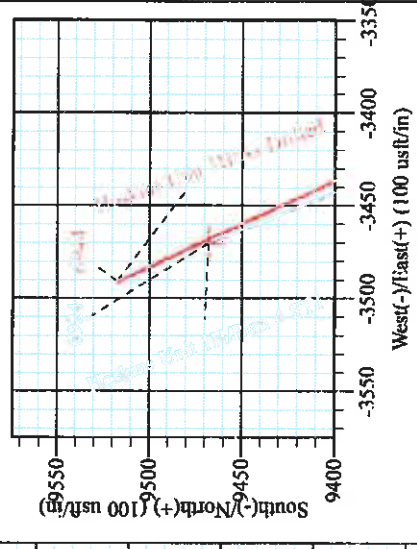
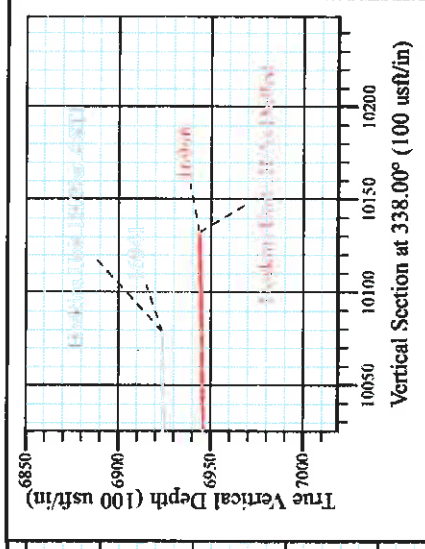
WELL DETAILS: Hoskins Unit 1H SHL

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14295902.92	1712834.34	39° 22' 3.572 N	80° 44' 37.562 W



Shane Rhodes
 14:33, February 03 2016
 Scientific Drilling International
 124 Vista Drive
 Chantleroi, PA 15022

Hoskins Unit 1H
Approx. BHL
39° 23' 37.771 N 80° 45' 21.699 W



10/28/2016



Antero Resources

Doddridge County WV

Hamilton Pad: Costlow/Gaskins/Hoskins/Knight

Hoskins Unit 1H

ST1

Design: As Drilled

Standard Survey Report

03 February, 2016



www.scientificdrilling.com

10/28/2016



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hoskins Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Site:	Hamilton Pad: Costlow/Gaskins/Hoskins/Knight	MD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Well:	Hoskins Unit 1H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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:	Hamilton Pad: Costlow/Gaskins/Hoskins/Knight, Site Center: Hoskins 2H				
Site Position:		Northing:	14,295,911.01 usft	Latitude:	39° 22' 3.652 N
From:	Map	Easting:	1,712,840.20 usft	Longitude:	80° 44' 37.487 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.16 °

Well:	Hoskins Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,295,902.92 usft	Latitude:	39° 22' 3.572 N
	+E/-W	0.0 usft	Easting:	1,712,834.34 usft	Longitude:	80° 44' 37.562 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,178.0 usft	Ground Level:	1,159.0 usft

Wellbore	ST1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	1/23/2016	-8.58	66.76	52.120

Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	13,008.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0		338.00

Survey Program	Date	2/3/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
108.0	6,197.8	Survey #4 Final Gyro (Original Wellpath)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
6,259.0	13,008.0	Survey #5 - SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	
13,098.0	16,996.2	ST Survey #1 - SDI MWD (ST1)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buid Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
108.0	0.33	57.82	108.0	0.2	0.3	0.1	0.31	0.31	0.00
133.0	0.32	58.63	133.0	0.2	0.4	0.1	0.04	-0.04	3.24
158.0	0.23	49.89	158.0	0.3	0.5	0.1	0.40	-0.36	-34.96
183.0	0.18	25.97	183.0	0.4	0.5	0.1	0.39	-0.20	-95.68
208.0	0.16	20.82	208.0	0.4	0.6	0.2	0.10	-0.08	-20.60
233.0	0.16	11.30	233.0	0.5	0.6	0.3	0.11	0.00	-38.08
258.0	0.05	329.00	258.0	0.6	0.6	0.3	0.51	-0.44	-169.20
283.0	0.09	26.27	283.0	0.6	0.6	0.3	0.30	0.16	229.08



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hoskins Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Site:	Hamilton Pad: Costlow/Gaskins/Hoskins/Knight	MD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Well:	Hoskins Unit 1H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
308.0	0.08	34.41	308.0	0.6	0.6	0.3	0.06	-0.04	32.56
333.0	0.09	25.39	333.0	0.6	0.6	0.4	0.07	0.04	-36.08
358.0	0.11	51.00	358.0	0.7	0.7	0.4	0.19	0.08	102.44
383.0	0.05	26.17	383.0	0.7	0.7	0.4	0.27	-0.24	-99.32
408.0	0.06	26.51	408.0	0.7	0.7	0.4	0.04	0.04	1.36
433.0	0.07	341.77	433.0	0.8	0.7	0.4	0.20	0.04	-178.96
458.0	0.08	23.70	458.0	0.8	0.7	0.5	0.22	0.04	167.72
483.0	0.12	17.33	483.0	0.8	0.7	0.5	0.17	0.16	-25.48
508.0	0.11	17.98	508.0	0.9	0.7	0.5	0.04	-0.04	2.60
533.0	0.07	0.90	533.0	0.9	0.7	0.6	0.19	-0.16	-68.32
558.0	0.06	2.05	558.0	0.9	0.7	0.6	0.04	-0.04	4.60
583.0	0.16	47.39	583.0	1.0	0.8	0.6	0.50	0.40	181.36
608.0	0.07	12.43	608.0	1.0	0.8	0.6	0.44	-0.36	-139.84
633.0	0.09	51.15	633.0	1.0	0.8	0.7	0.23	0.08	154.88
658.0	0.66	78.93	658.0	1.1	1.0	0.6	2.33	2.28	111.12
683.0	1.41	87.44	683.0	1.1	1.4	0.5	3.05	3.00	34.04
708.0	2.56	90.37	708.0	1.1	2.3	0.2	4.62	4.60	11.72
733.0	3.58	98.22	732.9	1.0	3.6	-0.4	4.40	4.08	31.40
758.0	4.19	103.90	757.9	0.7	5.3	-1.3	2.88	2.44	22.72
783.0	4.33	104.04	782.8	0.2	7.1	-2.4	0.56	0.56	0.56
808.0	4.45	103.42	807.7	-0.2	8.9	-3.5	0.52	0.48	-2.48
833.0	5.20	97.99	832.7	-0.6	11.0	-4.7	3.51	3.00	-21.72
858.0	5.98	94.08	857.5	-0.9	13.4	-5.8	3.47	3.12	-15.64
883.0	6.21	92.86	882.4	-1.0	16.1	-6.9	1.10	0.92	-5.68
908.0	6.38	92.18	907.2	-1.1	18.8	-8.1	0.71	0.68	-1.92
933.0	6.33	92.25	932.1	-1.2	21.6	-9.2	0.20	-0.20	0.28
958.0	6.42	92.24	956.9	-1.3	24.3	-10.4	0.36	0.36	-0.04
983.0	6.47	92.05	981.8	-1.4	27.1	-11.5	0.22	0.20	-0.76
1,008.0	6.58	92.07	1,006.6	-1.5	30.0	-12.7	0.44	0.44	0.08
1,033.0	6.63	92.38	1,031.4	-1.7	32.9	-13.8	0.25	0.20	1.24
1,058.0	6.64	92.64	1,056.3	-1.8	35.7	-15.0	0.13	0.04	1.04
1,083.0	6.59	92.71	1,081.1	-1.9	38.6	-16.2	0.20	-0.20	0.28
1,108.0	6.26	94.60	1,106.0	-2.1	41.4	-17.5	1.57	-1.32	7.56
1,133.0	5.28	100.92	1,130.8	-2.4	43.9	-18.7	4.67	-3.92	25.28
1,158.0	4.54	109.52	1,155.7	-3.0	46.0	-20.0	4.17	-2.96	34.40
1,183.0	3.68	127.18	1,180.7	-3.8	47.5	-21.3	6.08	-3.44	70.64
1,208.0	3.45	152.40	1,205.6	-4.9	48.5	-22.8	6.29	-0.92	100.88
1,233.0	3.74	167.23	1,230.6	-6.4	49.0	-24.3	3.88	1.16	59.32
1,258.0	3.94	177.95	1,255.5	-8.1	49.3	-25.9	2.98	0.80	42.88
1,283.0	4.12	181.11	1,280.5	-9.8	49.3	-27.6	1.14	0.72	12.64
1,308.0	4.35	191.76	1,305.4	-11.6	49.1	-29.2	3.27	0.92	42.60
1,333.0	4.82	204.74	1,330.3	-13.5	48.4	-30.7	4.54	1.88	51.92
1,358.0	5.06	211.66	1,355.2	-15.4	47.4	-32.0	2.57	0.96	27.68



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hoskins Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Site:	Hamilton Pad. Costlow/Gaskins/Hoskins/Knight	MD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Well:	Hoskins Unit 1H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,383.0	5.06	212.52	1,380.1	-17.3	46.2	-33.3	0.30	0.00	3.44
1,408.0	4.23	216.14	1,405.0	-19.0	45.1	-34.5	3.52	-3.32	14.48
1,433.0	3.05	222.33	1,430.0	-20.2	44.1	-35.2	4.97	-4.72	24.76
1,458.0	2.04	227.76	1,455.0	-21.0	43.3	-35.7	4.15	-4.04	21.72
1,483.0	1.74	227.92	1,480.0	-21.5	42.7	-36.0	1.20	-1.20	0.64
1,508.0	1.66	227.96	1,504.9	-22.0	42.2	-36.2	0.32	-0.32	0.16
1,533.0	1.44	229.46	1,529.9	-22.5	41.7	-36.4	0.89	-0.88	6.00
1,558.0	1.26	228.05	1,554.9	-22.9	41.2	-36.6	0.73	-0.72	-5.64
1,583.0	1.13	227.61	1,579.9	-23.2	40.8	-36.8	0.52	-0.52	-1.76
1,608.0	1.16	229.16	1,604.9	-23.5	40.5	-37.0	0.17	0.12	6.20
1,633.0	1.11	226.76	1,629.9	-23.9	40.1	-37.2	0.28	-0.20	-9.60
1,658.0	0.93	228.40	1,654.9	-24.2	39.8	-37.3	0.73	-0.72	6.56
1,683.0	0.94	234.38	1,679.9	-24.4	39.4	-37.4	0.39	0.04	23.92
1,708.0	0.82	237.44	1,704.9	-24.6	39.1	-37.5	0.52	-0.48	12.24
1,733.0	0.77	233.14	1,729.9	-24.8	38.8	-37.6	0.31	-0.20	-17.20
1,758.0	0.59	237.54	1,754.9	-25.0	38.6	-37.7	0.75	-0.72	17.60
1,783.0	0.52	238.36	1,779.9	-25.1	38.4	-37.7	0.28	-0.28	3.28
1,808.0	0.45	226.96	1,804.9	-25.3	38.2	-37.7	0.48	-0.28	-45.60
1,833.0	0.49	227.51	1,829.9	-25.4	38.1	-37.8	0.16	0.16	2.20
1,858.0	0.35	223.20	1,854.9	-25.5	37.9	-37.9	0.57	-0.56	-17.24
1,883.0	0.34	223.27	1,879.9	-25.6	37.8	-38.0	0.04	-0.04	0.28
1,908.0	0.37	226.85	1,904.9	-25.8	37.7	-38.0	0.15	0.12	14.32
1,933.0	0.36	220.82	1,929.9	-25.9	37.6	-38.1	0.16	-0.04	-24.12
1,958.0	0.39	213.88	1,954.9	-26.0	37.5	-38.2	0.22	0.12	-28.56
1,983.0	0.31	236.00	1,979.9	-26.1	37.4	-38.2	0.63	-0.32	89.28
2,008.0	0.23	228.20	2,004.9	-26.2	37.3	-38.3	0.35	-0.32	-31.20
2,033.0	0.23	245.10	2,029.9	-26.2	37.2	-38.3	0.27	0.00	67.60
2,058.0	0.12	224.84	2,054.9	-26.3	37.2	-38.3	0.50	-0.44	-81.04
2,083.0	0.20	250.81	2,079.9	-26.3	37.1	-38.3	0.42	0.32	103.88
2,108.0	0.16	240.26	2,104.9	-26.3	37.1	-38.3	0.21	-0.16	-42.20
2,133.0	0.22	243.88	2,129.9	-26.4	37.0	-38.3	0.24	0.24	14.48
2,158.0	0.26	258.09	2,154.9	-26.4	36.9	-38.3	0.26	0.16	48.84
2,183.0	0.17	277.38	2,179.9	-26.4	36.8	-38.3	0.48	-0.36	85.16
2,208.0	0.09	251.40	2,204.9	-26.4	36.7	-38.3	0.39	-0.32	-103.92
2,233.0	0.19	265.41	2,229.9	-26.4	36.7	-38.2	0.42	0.40	56.04
2,258.0	0.20	242.73	2,254.9	-26.5	36.6	-38.2	0.31	0.04	-90.72
2,283.0	0.21	249.02	2,279.9	-26.5	36.5	-38.2	0.00	0.04	25.16
2,308.0	0.19	253.67	2,304.9	-26.5	36.4	-38.2	0.10	-0.08	18.60
2,333.0	0.29	237.96	2,329.9	-26.6	36.3	-38.2	0.48	0.40	62.84
2,358.0	0.12	297.44	2,354.9	-26.6	36.3	-38.2	1.01	-0.68	237.92
2,383.0	0.17	208.39	2,379.9	-26.6	36.2	-38.2	0.83	0.20	356.20
2,408.0	0.13	264.72	2,404.9	-26.6	36.2	-38.3	0.58	-0.16	225.32
2,433.0	0.15	292.80	2,429.9	-26.6	36.1	-38.2	0.28	0.08	112.32

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SEP 1 2016
WV DEPARTMENT OF ENVIRONMENTAL PROTECTION



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hoskins Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Site:	Hamilton Pad. Costlow/Gaskins/Hoskins/Knight	MD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Well:	Hoskins Unit 1H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
2,458.0	0.23	264.09	2,454.9	-26.6	36.0	-38.2	0.49	0.32	-114.84	
2,483.0	0.32	267.04	2,479.9	-26.6	35.9	-38.1	0.36	0.36	11.80	
2,508.0	0.17	324.80	2,504.9	-26.6	35.8	-38.1	1.08	-0.60	231.04	
2,533.0	0.13	302.86	2,529.9	-26.6	35.8	-38.0	0.28	-0.16	-87.76	
2,558.0	0.13	274.61	2,554.9	-26.5	35.7	-38.0	0.25	0.00	-113.00	
2,583.0	0.21	280.52	2,579.9	-26.5	35.7	-38.0	0.33	0.32	23.64	
2,608.0	0.26	287.19	2,604.9	-26.5	35.6	-37.9	0.23	0.20	26.68	
2,633.0	0.23	300.31	2,629.9	-26.5	35.5	-37.8	0.25	-0.12	52.48	
2,658.0	0.21	305.70	2,654.9	-26.4	35.4	-37.7	0.12	-0.08	21.56	
2,683.0	0.17	291.27	2,679.9	-26.4	35.3	-37.7	0.25	-0.16	-57.72	
2,708.0	0.15	295.75	2,704.9	-26.3	35.2	-37.6	0.09	-0.08	17.92	
2,733.0	0.12	255.59	2,729.9	-26.3	35.2	-37.6	0.39	-0.12	-160.64	
2,758.0	0.21	260.30	2,754.9	-26.4	35.1	-37.6	0.36	0.36	18.84	
2,783.0	0.23	259.42	2,779.9	-26.4	35.0	-37.6	0.08	0.08	-3.52	
2,808.0	0.28	258.16	2,804.9	-26.4	34.9	-37.5	0.20	0.20	-5.04	
2,833.0	0.38	268.78	2,829.9	-26.4	34.8	-37.5	0.47	0.40	42.48	
2,858.0	0.38	272.68	2,854.9	-26.4	34.6	-37.4	0.10	0.00	15.60	
2,883.0	0.35	281.94	2,879.9	-26.4	34.4	-37.4	0.26	-0.12	37.04	
2,908.0	0.30	281.34	2,904.9	-26.4	34.3	-37.3	0.20	-0.20	-2.40	
2,933.0	0.27	285.20	2,929.9	-26.3	34.2	-37.2	0.14	-0.12	15.44	
2,958.0	0.25	288.03	2,954.9	-26.3	34.1	-37.1	0.10	-0.08	11.32	
2,983.0	0.23	265.40	2,979.9	-26.3	34.0	-37.1	0.38	-0.08	-90.52	
3,008.0	0.23	251.02	3,004.9	-26.3	33.9	-37.1	0.23	0.00	-57.52	
3,033.0	0.24	259.25	3,029.9	-26.3	33.8	-37.1	0.14	0.04	32.92	
3,058.0	0.39	256.31	3,054.9	-26.4	33.6	-37.0	0.60	0.60	-11.76	
3,083.0	0.36	252.87	3,079.9	-26.4	33.5	-37.0	0.15	-0.12	-13.76	
3,108.0	0.40	265.75	3,104.9	-26.4	33.3	-37.0	0.38	0.16	51.52	
3,133.0	0.41	279.42	3,129.9	-26.4	33.1	-36.9	0.39	0.04	54.68	
3,158.0	0.40	288.91	3,154.9	-26.4	33.0	-36.8	0.27	-0.04	37.96	
3,183.0	0.33	275.23	3,179.9	-26.3	32.8	-36.7	0.45	-0.28	-54.72	
3,208.0	0.32	281.77	3,204.9	-26.3	32.7	-36.6	0.15	-0.04	26.16	
3,233.0	0.27	262.85	3,229.9	-26.3	32.6	-36.6	0.44	-0.20	-75.68	
3,258.0	0.29	271.30	3,254.9	-26.3	32.4	-36.6	0.18	0.08	33.80	
3,283.0	0.34	252.64	3,279.9	-26.3	32.3	-36.5	0.45	0.20	-74.64	
3,308.0	0.33	254.68	3,304.9	-26.4	32.2	-36.5	0.06	-0.04	8.16	
3,333.0	0.36	270.45	3,329.9	-26.4	32.0	-36.5	0.40	0.12	63.08	
3,358.0	0.38	278.61	3,354.9	-26.4	31.9	-36.4	0.23	0.08	32.64	
3,383.0	0.34	278.78	3,379.9	-26.4	31.7	-36.3	0.16	-0.16	0.68	
3,408.0	0.35	287.48	3,404.9	-26.3	31.5	-36.2	0.21	0.04	34.80	
3,433.0	0.34	292.88	3,429.9	-26.3	31.4	-36.1	0.14	-0.04	21.60	
3,458.0	0.24	282.22	3,454.9	-26.2	31.3	-36.0	0.45	-0.40	-42.64	
3,483.0	0.24	275.30	3,479.9	-26.2	31.2	-36.0	0.12	0.00	-27.68	
3,508.0	0.29	269.36	3,504.9	-26.2	31.1	-35.9	0.23	0.20	-23.76	
3,533.0	0.31	262.51	3,529.9	-26.2	30.9	-35.9	0.16	0.08	-27.40	



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hoskins Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Site:	Hamilton Pad. Costlow/Gaskins/Hoskins/Knight	MD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Well:	Hoskins Unit 1H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,558.0	0.33	274.22	3,554.9	-26.2	30.8	-35.9	0.27	0.08	46.84	
3,583.0	0.39	274.58	3,579.9	-26.2	30.6	-35.8	0.24	0.24	1.44	
3,608.0	0.46	275.11	3,604.9	-26.2	30.5	-35.7	0.28	0.28	2.12	
3,633.0	0.46	284.42	3,629.9	-26.2	30.3	-35.6	0.30	0.00	37.24	
3,658.0	0.40	283.07	3,654.9	-26.1	30.1	-35.5	0.24	-0.24	-5.40	
3,683.0	0.37	296.07	3,679.9	-26.1	29.9	-35.4	0.37	-0.12	52.00	
3,708.0	0.37	262.15	3,704.9	-26.0	29.8	-35.3	0.86	0.00	-135.68	
3,733.0	0.39	275.35	3,729.9	-26.0	29.6	-35.2	0.36	0.08	52.80	
3,758.0	0.43	264.43	3,754.9	-26.1	29.4	-35.2	0.35	0.16	-43.68	
3,783.0	0.53	278.35	3,779.9	-26.0	29.2	-35.1	0.61	0.40	55.68	
3,808.0	0.54	275.59	3,804.9	-26.0	29.0	-35.0	0.11	0.04	-11.04	
3,833.0	0.50	290.26	3,829.9	-26.0	28.8	-34.9	0.55	-0.16	58.68	
3,858.0	0.48	295.43	3,854.9	-25.9	28.6	-34.7	0.19	-0.08	20.68	
3,883.0	0.35	286.04	3,879.9	-25.8	28.4	-34.6	0.59	-0.52	-37.56	
3,908.0	0.39	264.41	3,904.9	-25.8	28.2	-34.5	0.58	0.16	-86.52	
3,933.0	0.43	268.65	3,929.9	-25.8	28.1	-34.4	0.20	0.16	16.96	
3,958.0	0.53	273.84	3,954.9	-25.8	27.9	-34.4	0.44	0.40	20.76	
3,983.0	0.53	281.35	3,979.9	-25.8	27.6	-34.3	0.28	0.00	30.04	
4,008.0	0.45	291.39	4,004.9	-25.7	27.4	-34.1	0.47	-0.32	40.16	
4,033.0	0.40	296.06	4,029.9	-25.6	27.3	-34.0	0.24	-0.20	18.68	
4,058.0	0.38	290.57	4,054.9	-25.6	27.1	-33.9	0.17	-0.08	-21.96	
4,083.0	0.39	280.04	4,079.9	-25.5	26.9	-33.8	0.29	0.04	-42.12	
4,108.0	0.39	273.16	4,104.9	-25.5	26.8	-33.7	0.19	0.00	-27.52	
4,133.0	0.41	293.06	4,129.9	-25.5	26.6	-33.6	0.56	0.08	79.60	
4,158.0	0.36	297.89	4,154.9	-25.4	26.4	-33.5	0.24	-0.20	19.32	
4,183.0	0.30	308.24	4,179.9	-25.3	26.3	-33.3	0.34	-0.24	41.40	
4,208.0	0.26	290.72	4,204.9	-25.3	26.2	-33.2	0.38	-0.16	-70.08	
4,233.0	0.25	279.15	4,229.9	-25.2	26.1	-33.2	0.21	-0.04	-46.28	
4,258.0	0.36	273.51	4,254.9	-25.2	26.0	-33.1	0.46	0.44	-22.56	
4,283.0	0.37	289.34	4,279.9	-25.2	25.8	-33.0	0.40	0.04	63.32	
4,308.0	0.38	296.81	4,304.9	-25.1	25.7	-32.9	0.20	0.04	29.88	
4,333.0	0.34	303.42	4,329.9	-25.0	25.5	-32.8	0.23	-0.16	26.44	
4,358.0	0.27	298.07	4,354.9	-25.0	25.4	-32.7	0.30	-0.28	-21.40	
4,383.0	0.25	298.54	4,379.9	-24.9	25.3	-32.6	0.08	-0.08	1.88	
4,408.0	0.25	273.05	4,404.9	-24.9	25.2	-32.5	0.44	0.00	-101.96	
4,433.0	0.32	270.32	4,429.9	-24.9	25.1	-32.5	0.29	0.28	-10.92	
4,458.0	0.41	279.12	4,454.9	-24.9	24.9	-32.4	0.42	0.36	35.20	
4,483.0	0.42	300.94	4,479.9	-24.8	24.8	-32.3	0.63	0.04	87.28	
4,508.0	0.37	303.83	4,504.9	-24.7	24.6	-32.2	0.22	-0.20	11.56	
4,533.0	0.26	293.42	4,529.8	-24.7	24.5	-32.0	0.49	-0.44	-41.64	
4,558.0	0.27	285.97	4,554.8	-24.6	24.4	-32.0	0.14	0.04	-29.80	
4,583.0	0.27	268.62	4,579.8	-24.6	24.3	-31.9	0.33	0.00	-69.40	
4,608.0	0.33	269.99	4,604.8	-24.6	24.2	-31.9	0.24	0.24	5.48	



Company: Antero Resources
Project: Doddridge County WV
Site: Hamilton Pad: Costlow/Gaskins/Hoskins/Knight
Well: Hoskins Unit 1H
Wellbore: ST1
Design: As Drilled

Local Co-ordinate Reference: Well Hoskins Unit 1H
TVD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
MD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,633.0	0.37	261.69	4,629.8	-24.6	24.0	-31.8	0.26	0.16	-33.20
4,658.0	0.32	282.96	4,654.8	-24.6	23.9	-31.8	0.55	-0.20	85.08
4,683.0	0.40	275.37	4,679.8	-24.6	23.7	-31.7	0.37	0.32	-30.36
4,708.0	0.34	283.90	4,704.8	-24.6	23.5	-31.6	0.33	-0.24	34.12
4,733.0	0.32	280.70	4,729.8	-24.5	23.4	-31.5	0.11	-0.08	-12.80
4,758.0	0.26	310.77	4,754.8	-24.5	23.3	-31.4	0.84	-0.24	120.28
4,783.0	0.22	272.81	4,779.8	-24.4	23.2	-31.4	0.64	-0.16	-151.84
4,808.0	0.28	310.95	4,804.8	-24.4	23.1	-31.3	0.69	0.24	152.56
4,833.0	0.20	281.83	4,829.8	-24.4	23.0	-31.2	0.57	-0.32	-116.48
4,858.0	0.20	283.69	4,854.8	-24.3	22.9	-31.2	0.03	0.00	7.44
4,883.0	0.20	283.00	4,879.8	-24.3	22.8	-31.1	0.01	0.00	-2.76
4,908.0	0.22	288.50	4,904.8	-24.3	22.8	-31.0	0.11	0.08	22.00
4,933.0	0.22	273.95	4,929.8	-24.3	22.7	-31.0	0.22	0.00	-58.20
4,958.0	0.24	308.88	4,954.8	-24.2	22.6	-30.9	0.56	0.08	139.72
4,983.0	0.22	282.74	4,979.8	-24.2	22.5	-30.9	0.42	-0.08	-104.56
5,008.0	0.24	283.54	5,004.8	-24.2	22.4	-30.8	0.08	0.08	3.20
5,033.0	0.17	273.09	5,029.8	-24.2	22.3	-30.8	0.32	-0.28	-41.80
5,058.0	0.12	260.16	5,054.8	-24.2	22.2	-30.7	0.24	-0.20	-51.72
5,083.0	0.12	250.28	5,079.8	-24.2	22.2	-30.7	0.08	0.00	-39.52
5,108.0	0.09	278.53	5,104.8	-24.2	22.1	-30.7	0.24	-0.12	113.00
5,133.0	0.22	256.46	5,129.8	-24.2	22.1	-30.7	0.56	0.52	-88.28
5,158.0	0.09	314.21	5,154.8	-24.2	22.0	-30.7	0.75	-0.52	231.00
5,183.0	0.10	268.17	5,179.8	-24.2	22.0	-30.6	0.30	0.04	-184.16
5,208.0	0.14	292.30	5,204.8	-24.2	21.9	-30.6	0.25	0.16	96.52
5,233.0	0.17	283.04	5,229.8	-24.1	21.9	-30.6	0.16	0.12	-37.04
5,258.0	0.10	290.70	5,254.8	-24.1	21.8	-30.5	0.29	-0.28	30.64
5,283.0	0.17	276.90	5,279.8	-24.1	21.8	-30.5	0.31	0.28	-55.20
5,308.0	0.23	268.96	5,304.8	-24.1	21.7	-30.5	0.29	0.24	48.32
5,333.0	0.22	279.68	5,329.8	-24.1	21.6	-30.4	0.15	-0.04	-37.20
5,358.0	0.27	279.53	5,354.8	-24.0	21.5	-30.3	0.20	0.20	-0.60
5,383.0	0.27	265.73	5,379.8	-24.0	21.4	-30.3	0.26	0.00	-55.20
5,408.0	0.27	249.36	5,404.8	-24.1	21.2	-30.3	0.31	0.00	-65.48
5,433.0	0.23	261.85	5,429.8	-24.1	21.1	-30.3	0.27	-0.16	49.16
5,458.0	0.20	242.46	5,454.8	-24.1	21.0	-30.3	0.31	-0.12	-76.76
5,483.0	0.22	232.25	5,479.8	-24.2	21.0	-30.3	0.17	0.08	-40.84
5,508.0	0.20	238.76	5,504.8	-24.2	20.9	-30.3	0.12	-0.08	26.04
5,533.0	0.11	9.08	5,529.8	-24.2	20.9	-30.3	1.14	-0.36	521.28
5,558.0	0.13	4.38	5,554.8	-24.2	20.9	-30.2	0.09	0.08	-18.80
5,583.0	0.14	287.56	5,579.8	-24.1	20.8	-30.2	0.67	0.04	-307.28
5,608.0	0.20	263.85	5,604.8	-24.1	20.8	-30.2	0.37	0.24	-94.84
5,633.0	0.17	308.63	5,629.8	-24.1	20.7	-30.1	0.57	-0.12	179.12
5,658.0	0.21	280.68	5,654.8	-24.1	20.6	-30.1	0.40	0.16	-111.80
5,683.0	0.26	279.75	5,679.8	-24.1	20.5	-30.0	0.20	0.20	-3.72



Company: Antero Resources
Project: Doddridge County WV
Site: Hamilton Pad: Costlow/Gaskins/Hoskins/Knight
Well: Hoskins Unit 1H
Wellbore: ST1
Design: As Drilled

Local Co-ordinate Reference: Well Hoskins Unit 1H
TVD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
MD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,708.0	0.25	330.05	5,704.8	-24.0	20.4	-29.9	0.87	-0.04	201.20
5,733.0	0.34	266.33	5,729.8	-24.0	20.3	-29.8	1.28	0.36	-254.88
5,758.0	0.20	276.86	5,754.8	-24.0	20.2	-29.8	0.59	-0.56	42.12
5,783.0	0.28	242.08	5,779.8	-24.0	20.1	-29.8	0.65	0.32	-139.12
5,808.0	0.18	249.50	5,804.8	-24.0	20.0	-29.8	0.42	-0.40	29.68
5,833.0	0.08	248.87	5,829.8	-24.0	20.0	-29.8	0.40	-0.40	-2.52
5,858.0	0.14	256.66	5,854.8	-24.1	19.9	-29.8	0.25	0.24	31.16
5,883.0	0.28	255.68	5,879.8	-24.1	19.8	-29.8	0.56	0.56	-3.92
5,908.0	0.22	320.13	5,904.8	-24.1	19.8	-29.7	1.09	-0.24	257.80
5,933.0	0.19	331.29	5,929.8	-24.0	19.7	-29.6	0.20	-0.12	44.64
5,958.0	0.17	272.60	5,954.8	-23.9	19.6	-29.6	0.71	-0.08	-234.76
5,983.0	0.13	243.91	5,979.8	-24.0	19.6	-29.6	0.34	-0.16	-114.76
6,008.0	0.07	329.92	6,004.8	-24.0	19.6	-29.5	0.57	-0.24	344.04
6,033.0	0.10	206.59	6,029.8	-24.0	19.5	-29.5	0.60	0.12	-493.32
6,058.0	0.19	263.87	6,054.8	-24.0	19.5	-29.5	0.64	0.36	229.12
6,083.0	0.17	258.73	6,079.8	-24.0	19.4	-29.5	0.10	-0.08	-20.56
6,108.0	0.28	219.72	6,104.8	-24.1	19.3	-29.5	0.73	0.44	-156.04
6,133.0	0.08	199.87	6,129.8	-24.1	19.3	-29.6	0.83	-0.80	-80.20
6,158.0	0.14	357.21	6,154.8	-24.1	19.3	-29.6	0.86	0.24	630.16
6,183.0	0.33	303.69	6,179.8	-24.0	19.2	-29.5	1.08	0.76	-214.08
6,197.8	0.18	310.10	6,194.6	-24.0	19.2	-29.4	1.03	-1.01	43.37
6,259.0	0.20	240.74	6,255.8	-24.0	19.0	-29.4	0.35	0.03	-113.30
6,348.0	0.51	215.90	6,344.8	-24.4	18.6	-29.6	0.38	0.35	-27.91
6,393.0	0.24	242.27	6,389.8	-24.6	18.4	-29.7	0.70	-0.60	58.60
6,438.0	3.99	23.20	6,434.8	-23.2	19.0	-28.6	9.29	8.33	313.18
6,483.0	9.89	22.23	6,479.5	-18.2	21.0	-24.7	13.11	13.11	-2.16
6,528.0	14.68	22.78	6,523.4	-9.3	24.7	-17.9	10.85	10.84	1.22
6,572.0	19.28	23.46	6,565.5	2.5	29.8	-8.9	10.46	10.45	1.55
6,617.0	23.96	26.68	6,607.3	17.5	36.8	2.4	10.73	10.40	7.16
6,662.0	28.48	30.96	6,647.7	34.8	46.5	14.9	10.88	10.04	9.51
6,707.0	33.16	32.08	6,686.3	54.5	58.5	28.8	10.48	10.40	2.49
6,751.0	39.48	31.16	6,721.7	76.7	72.2	44.1	14.42	14.36	-2.09
6,770.0	42.00	30.85	6,736.1	87.3	78.6	51.5	13.33	13.29	-1.61
Middlesex @ 6770									
6,796.0	45.46	30.48	6,754.9	102.8	87.7	62.4	13.33	13.29	-1.44
6,841.0	48.73	27.52	6,785.5	131.6	103.7	83.2	8.72	7.27	-6.58
6,886.0	51.41	22.46	6,814.4	162.9	118.2	108.7	10.48	5.96	-11.24
6,931.0	55.05	17.04	6,841.4	196.8	130.3	133.6	12.59	8.09	-12.04
6,976.0	58.00	13.16	6,866.2	233.0	140.1	163.5	9.73	6.56	-8.62
6,985.0	58.61	12.23	6,870.9	240.5	141.8	169.8	11.06	6.75	-10.30
Burket @ 8985									
7,020.0	61.03	8.74	6,888.5	270.2	147.3	195.4	11.06	6.92	-9.98
7,044.0	62.80	6.27	6,899.8	291.2	150.0	213.8	11.68	7.37	-10.28
Tully @ 7044									



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hoskins Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Site:	Hamilton Pad: Costlow/Gaskins/Hoskins/Knight	MD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Well:	Hoskins Unit 1H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
7,065.0	64.38	4.18	6,909.2	309.9	151.7	230.5	11.68	7.53	-9.97	
7,110.0	67.45	0.58	6,927.5	351.0	153.4	267.9	9.99	6.82	-8.00	
7,155.0	70.24	356.86	6,943.8	392.9	152.5	307.2	9.89	6.20	-8.27	
7,190.0	72.24	354.32	6,955.0	425.9	149.9	338.8	8.95	5.72	-7.27	
Marcellus @ 7190										
7,200.0	72.82	353.60	6,958.0	435.4	148.9	347.9	8.95	5.78	-7.16	
7,245.0	75.49	350.15	6,970.3	478.3	142.8	389.9	9.47	5.93	-7.67	
7,289.0	78.97	346.93	6,980.1	520.3	134.3	432.1	10.65	7.91	-7.32	
7,334.0	84.40	343.58	6,986.6	563.3	122.9	476.3	14.14	12.07	-7.44	
7,361.0	86.14	340.91	6,988.8	589.0	114.7	503.1	11.77	6.44	-9.89	
7,406.0	87.25	337.01	6,991.4	630.9	98.6	548.0	9.00	2.47	-8.67	
7,451.0	87.08	336.87	6,993.6	672.2	81.0	593.0	0.49	-0.38	-0.31	
7,495.0	90.41	338.39	6,994.6	712.9	64.3	636.9	8.32	7.57	3.45	
7,540.0	91.15	338.63	6,994.0	754.8	47.8	681.9	1.73	1.64	0.53	
7,630.0	90.04	338.70	6,993.0	836.6	15.0	771.9	1.24	-1.23	0.08	
7,719.0	90.21	340.42	6,992.8	922.0	-16.0	860.9	1.94	0.19	1.93	
7,809.0	90.11	338.06	6,992.6	1,006.2	-47.9	950.9	2.62	-0.11	-2.62	
7,899.0	90.31	336.89	6,992.3	1,089.3	-82.4	1,040.8	1.32	0.22	-1.30	
7,989.0	90.55	337.64	6,991.6	1,172.3	-117.2	1,130.8	0.87	0.27	0.83	
8,078.0	89.78	339.00	6,991.3	1,255.0	-150.1	1,219.8	1.76	-0.87	1.53	
8,168.0	89.48	338.41	6,991.9	1,338.8	-182.8	1,309.8	0.74	-0.33	-0.66	
8,258.0	89.68	337.24	6,992.6	1,422.2	-216.7	1,399.8	1.32	0.22	-1.30	
8,347.0	90.92	338.31	6,992.1	1,504.6	-250.4	1,488.8	1.84	1.39	1.20	
8,437.0	89.88	337.38	6,991.5	1,587.9	-284.3	1,578.8	1.55	-1.16	-1.03	
8,527.0	90.92	338.00	6,990.8	1,671.2	-318.5	1,668.8	1.35	1.16	0.69	
8,616.0	90.89	337.27	6,989.4	1,753.5	-352.4	1,757.8	0.82	-0.03	-0.82	
8,706.0	90.22	335.43	6,988.6	1,835.9	-388.5	1,847.7	2.18	-0.74	-2.04	
8,795.0	89.51	336.78	6,988.8	1,917.3	-424.5	1,936.7	1.71	-0.80	1.52	
8,885.0	90.55	338.77	6,988.7	2,000.6	-458.5	2,026.7	2.49	1.16	2.21	
8,974.0	90.28	336.58	6,988.1	2,082.9	-492.3	2,115.7	2.48	-0.30	-2.46	
9,064.0	90.85	339.52	6,987.2	2,166.4	-526.0	2,205.7	3.33	0.63	3.27	
9,154.0	91.15	340.17	6,985.6	2,250.8	-557.0	2,295.6	0.80	0.33	0.72	
9,244.0	90.41	339.02	6,984.4	2,335.2	-588.4	2,385.6	1.52	-0.82	-1.28	
9,333.0	90.18	338.43	6,983.9	2,418.1	-620.7	2,474.5	0.71	-0.26	-0.66	
9,423.0	90.68	339.29	6,983.3	2,502.1	-653.1	2,564.5	1.11	0.56	0.96	
9,512.0	90.21	339.69	6,982.6	2,585.4	-684.3	2,653.5	0.69	-0.53	0.45	
9,602.0	90.78	339.91	6,981.8	2,669.9	-715.4	2,743.4	0.68	0.63	0.24	
9,692.0	90.31	340.89	6,980.9	2,754.7	-745.6	2,833.4	1.21	-0.52	1.09	
9,781.0	90.95	338.56	6,980.0	2,838.1	-776.4	2,922.3	2.71	0.72	-2.62	
9,871.0	90.11	336.45	6,979.1	2,921.3	-810.8	3,012.3	2.52	-0.93	-2.34	
9,960.0	89.30	333.98	6,979.6	3,002.1	-848.1	3,101.2	2.92	-0.91	-2.78	
10,050.0	88.90	336.06	6,981.0	3,083.6	-886.1	3,191.0	2.35	-0.44	2.31	
10,140.0	90.68	336.72	6,981.3	3,166.1	-922.2	3,281.0	2.11	1.98	0.73	
10,230.0	90.71	336.92	6,980.2	3,248.8	-957.6	3,371.0	0.22	0.03	0.22	



Scientific Drilling International
Survey Report



Company: Antero Resources
Project: Doddridge County WV
Site: Hamilton Pad. Costlow/Gaskins/Hoskins/Knight
Well: Hoskins Unit 1H
Wellbore: ST1
Design: As Drilled

Local Co-ordinate Reference: Well Hoskins Unit 1H
TVD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
MD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,319.0	89.30	333.17	6,980.2	3,329.5	-995.1	3,459.8	4.50	-1.58	-4.21
10,409.0	90.78	335.76	6,980.2	3,410.7	-1,033.9	3,549.7	3.31	1.64	2.88
10,498.0	91.01	337.42	6,978.8	3,492.4	-1,069.3	3,638.6	1.88	0.26	1.87
10,588.0	90.51	335.12	6,977.6	3,574.7	-1,105.5	3,728.6	2.62	-0.56	-2.56
10,678.0	90.61	334.05	6,976.7	3,656.0	-1,144.1	3,818.4	1.19	0.11	-1.19
10,767.0	90.70	332.80	6,975.7	3,735.6	-1,183.9	3,907.1	1.41	0.10	-1.40
10,857.0	92.15	338.86	6,973.4	3,817.7	-1,220.8	3,997.0	6.92	1.61	6.73
10,947.0	91.64	340.50	6,970.5	3,902.0	-1,252.0	4,086.9	1.91	-0.57	1.82
11,036.0	90.80	341.75	6,968.6	3,986.2	-1,280.8	4,175.7	1.69	-0.94	1.40
11,126.0	90.57	339.23	6,967.5	4,071.0	-1,310.8	4,265.6	2.81	-0.26	-2.60
11,215.0	90.30	343.57	6,966.8	4,155.3	-1,339.2	4,354.4	4.89	-0.30	4.88
11,305.0	90.33	340.44	6,966.3	4,240.9	-1,367.0	4,444.2	3.48	0.03	-3.48
11,394.0	89.86	339.23	6,966.2	4,324.5	-1,397.7	4,533.2	1.46	-0.53	-1.36
11,484.0	90.77	340.11	6,965.7	4,408.9	-1,429.0	4,623.1	1.41	1.01	0.98
11,574.0	90.80	339.57	6,964.5	4,493.3	-1,460.0	4,713.1	0.60	0.03	-0.60
11,664.0	90.70	339.92	6,963.3	4,577.8	-1,491.1	4,803.0	0.40	-0.11	0.39
11,753.0	89.73	336.95	6,962.9	4,660.5	-1,523.8	4,892.0	3.51	-1.09	-3.34
11,843.0	89.66	337.36	6,963.4	4,743.5	-1,558.8	4,982.0	0.46	-0.08	0.46
11,932.0	90.57	336.55	6,963.2	4,825.4	-1,593.6	5,071.0	1.37	1.02	-0.91
12,022.0	90.00	335.17	6,962.8	4,907.5	-1,630.4	5,160.9	1.66	-0.63	-1.53
12,112.0	90.47	337.09	6,962.4	4,989.8	-1,666.8	5,250.9	2.20	0.52	2.13
12,201.0	90.64	336.44	6,961.6	5,071.6	-1,701.9	5,339.8	0.75	0.19	-0.73
12,291.0	90.60	334.42	6,960.6	5,153.4	-1,739.4	5,429.7	2.24	-0.04	-2.24
12,381.0	90.54	338.78	6,959.7	5,236.0	-1,775.1	5,519.7	4.84	-0.07	4.84
12,470.0	90.07	337.65	6,959.2	5,318.6	-1,808.1	5,608.7	1.38	-0.53	-1.27
12,560.0	90.37	338.21	6,958.9	5,402.0	-1,841.9	5,698.7	0.71	0.33	0.62
12,650.0	90.77	340.16	6,958.0	5,486.1	-1,873.9	5,788.6	2.21	0.44	2.17
12,739.0	89.70	338.58	6,957.6	5,569.4	-1,905.3	5,877.6	2.14	-1.20	-1.78
12,829.0	90.37	337.42	6,957.6	5,652.9	-1,939.0	5,967.6	1.49	0.74	-1.29
12,918.0	90.17	332.63	6,957.1	5,733.5	-1,976.6	6,056.5	5.39	-0.22	-5.38
13,008.0	90.20	335.59	6,956.9	5,814.5	-2,015.9	6,146.3	3.29	0.03	3.29
13,098.0	87.33	336.36	6,956.8	5,896.7	-2,052.5	6,236.2	3.30	-3.19	0.66
First ST MWD @ 13098									
13,143.0	88.10	334.15	6,960.6	5,937.5	-2,071.3	6,281.1	5.20	1.71	-4.91
13,232.0	90.30	337.66	6,961.8	6,018.7	-2,107.6	6,370.0	4.65	2.47	3.94
13,277.0	90.60	339.12	6,961.5	6,060.6	-2,124.2	6,415.0	3.31	0.67	3.24
13,367.0	91.66	338.60	6,959.7	6,144.5	-2,156.6	6,505.0	1.31	1.18	-0.58
13,456.0	92.19	342.45	6,956.7	6,228.3	-2,186.3	6,593.8	4.36	0.60	4.33
13,546.0	90.41	341.74	6,954.7	6,313.9	-2,214.0	6,683.5	2.13	-1.98	-0.79
13,636.0	89.26	339.90	6,954.9	6,398.9	-2,243.5	6,773.4	2.41	-1.28	-2.04
13,725.0	90.60	339.89	6,955.0	6,482.5	-2,274.1	6,862.4	1.51	1.51	-0.01
13,815.0	90.33	337.80	6,954.3	6,566.4	-2,306.6	6,952.4	2.34	-0.30	-2.32
13,904.0	89.43	336.64	6,954.5	6,648.5	-2,341.1	7,041.3	1.65	-1.01	-1.30



Company: Antero Resources
 Project: Doddridge County WV
 Site: Hamilton Pad Costlow/Gaskins/Hoskins/Knight
 Well: Hoskins Unit 1H
 Wellbore: ST1
 Design: As Drilled

Local Co-ordinate Reference: Well Hoskins Unit 1H
 TVD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
 MD Reference: Precision 525: 1159' GL + 19' KB @ 1178.0usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,994.0	91.17	337.31	6,954.0	6,731.3	-2,376.3	7,131.3	2.07	1.93	0.74
14,083.0	90.90	339.80	6,952.4	6,814.1	-2,408.8	7,220.3	2.81	-0.30	2.80
14,173.0	89.56	339.38	6,952.1	6,898.5	-2,440.2	7,310.3	1.56	-1.49	-0.47
14,263.0	89.76	338.80	6,952.6	6,982.6	-2,472.3	7,400.2	0.68	0.22	-0.64
14,352.0	90.64	341.05	6,952.3	7,066.1	-2,502.8	7,489.2	2.71	0.99	2.53
14,442.0	90.10	339.42	6,951.7	7,150.8	-2,533.3	7,579.1	1.91	-0.60	-1.61
14,531.0	90.31	339.07	6,951.4	7,234.1	-2,564.8	7,668.1	0.46	0.24	-0.39
14,621.0	90.30	337.83	6,950.9	7,317.8	-2,597.9	7,758.1	1.38	-0.01	-1.38
14,711.0	90.71	340.53	6,950.1	7,401.9	-2,629.9	7,848.1	3.03	0.46	3.00
14,800.0	88.76	340.03	6,950.5	7,485.6	-2,659.9	7,937.0	2.26	-2.19	-0.56
14,890.0	89.43	340.58	6,951.9	7,570.4	-2,690.2	8,026.9	0.96	0.74	0.61
14,979.0	90.24	339.65	6,952.2	7,654.1	-2,720.5	8,115.8	1.39	0.91	-1.04
15,069.0	90.74	340.09	6,951.4	7,738.6	-2,751.5	8,205.8	0.74	0.56	0.49
15,158.0	90.23	339.86	6,950.7	7,822.2	-2,781.9	8,294.7	0.63	-0.57	-0.26
15,248.0	90.67	340.21	6,950.0	7,906.8	-2,812.7	8,384.7	0.62	0.49	0.39
15,338.0	89.06	337.19	6,950.2	7,990.6	-2,845.3	8,474.6	3.80	-1.79	-3.36
15,428.0	89.69	336.56	6,951.2	8,073.4	-2,880.7	8,564.6	0.99	0.70	-0.70
15,517.0	90.97	337.09	6,950.6	8,155.2	-2,915.7	8,653.6	1.56	1.44	0.60
15,607.0	91.10	338.51	6,949.0	8,238.5	-2,949.7	8,743.6	1.58	0.14	1.58
15,697.0	90.03	338.27	6,948.1	8,322.2	-2,982.9	8,833.6	1.22	-1.19	-0.27
15,786.0	91.04	337.16	6,947.3	8,404.5	-3,016.6	8,922.6	1.69	1.13	-1.25
15,876.0	90.93	337.84	6,945.8	8,487.6	-3,051.0	9,012.5	0.77	-0.12	0.76
15,966.0	89.86	338.78	6,945.1	8,571.3	-3,084.3	9,102.5	1.58	-1.19	1.04
16,055.0	88.55	336.56	6,946.4	8,653.6	-3,118.1	9,191.5	2.90	-1.47	-2.49
16,145.0	89.66	336.79	6,947.8	8,736.2	-3,153.7	9,281.5	1.26	1.23	0.26
16,234.0	90.49	336.35	6,947.7	8,817.9	-3,189.1	9,370.5	1.06	0.93	-0.49
16,324.0	90.70	336.57	6,946.7	8,900.4	-3,225.1	9,460.4	0.34	0.23	0.24
16,414.0	91.27	337.66	6,945.2	8,983.3	-3,260.1	9,550.4	1.37	0.63	1.21
16,503.0	89.42	336.84	6,944.6	9,065.3	-3,294.5	9,639.4	2.27	-2.08	-0.92
16,593.0	89.79	337.14	6,945.3	9,148.2	-3,329.6	9,729.3	0.53	0.41	0.33
16,683.0	90.02	337.70	6,945.4	9,231.3	-3,364.2	9,819.3	0.67	0.26	0.62
16,772.0	89.25	337.05	6,946.0	9,313.4	-3,398.4	9,908.3	1.13	-0.87	-0.73
16,862.0	90.46	335.60	6,946.2	9,395.8	-3,434.6	9,998.3	2.10	1.34	-1.61
16,935.0	91.30	335.06	6,945.1	9,462.2	-3,465.1	10,071.2	1.37	1.15	-0.74
Last ST MWD @ 16935									
16,996.0	91.30	335.06	6,943.7	9,517.5	-3,490.6	10,132.1	0.00	0.00	0.00
Projection To Bit @ 16996 MD / 6943 TVD									
16,996.2	91.30	335.06	6,943.7	9,517.6	-3,490.6	10,132.3	0.00	0.00	0.00



Company:	Antero Resources	Local Co-ordinate Reference:	Well Hoskins Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Site:	Hamilton Pad: Costlow/Gaskins/Hoskins/Knight	MD Reference:	Precision 525: 1159' GL + 19' KB @ 1178.0usft
Well:	Hoskins Unit 1H	North Reference:	Grid
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,770.0	6,736.1	Middlesex @ 6770		0.00		
6,985.0	6,870.9	Burket @ 6985		0.00		
7,044.0	6,899.8	Tully @ 7044		0.00		
7,190.0	6,955.0	Marcellus @ 7190		0.00		

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
13,098.0	6,958.8	5,896.7	-2,052.5	First ST MWD @ 13098	
16,935.0	6,945.1	9,462.2	-3,465.1	Last ST MWD @ 16935	
16,996.0	6,943.7	9,517.5	-3,490.8	Projection To Bit @ 16996 MD / 6943 TVD	

Checked By: _____ Approved By: _____ Date: _____