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WV GEOLOGICAL SURVEY
MORGANTOWN, WV



Carole Unit 1H
Doddridge County WV
Northing: 14242041.55
Easting: 1747814.24
As Drilled



Carole 1H 1331 GL + 25 KB @ 1356.0usft
Gr: 1331.0

WELL DETAILS: Carole Unit 1H			
Ground Level:	1331.0	Latitude	Longitude
+N/-S	0.0	+E/-W	0.0
Northing	14242041.55	Easting	1747814.24
Latitude	39° 13' 9.801 N	Longitude	78° 37' 14.860 W

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

LEGEND
 Carole Unit 1H, Original Wellpath, Plan 5 V0
 As Drilled

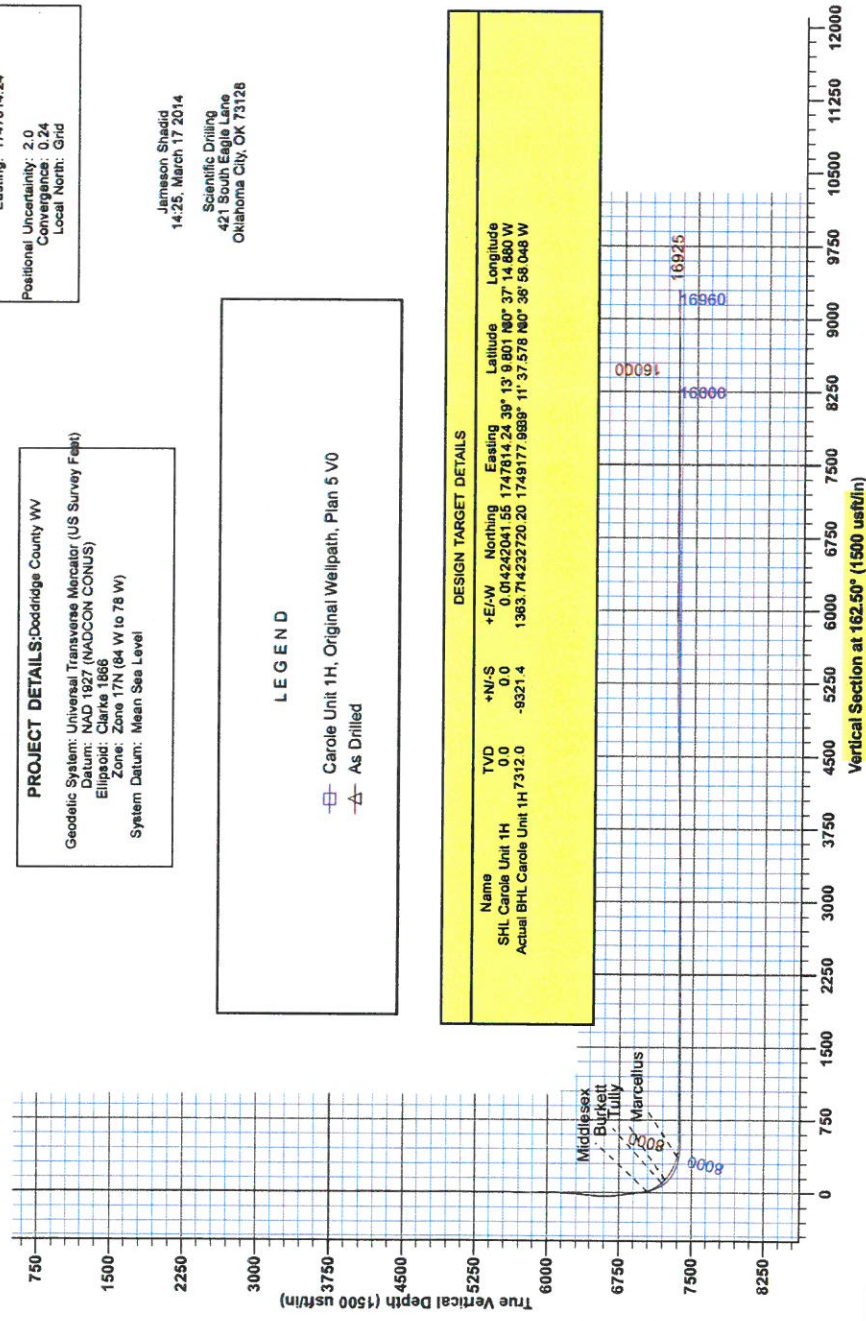
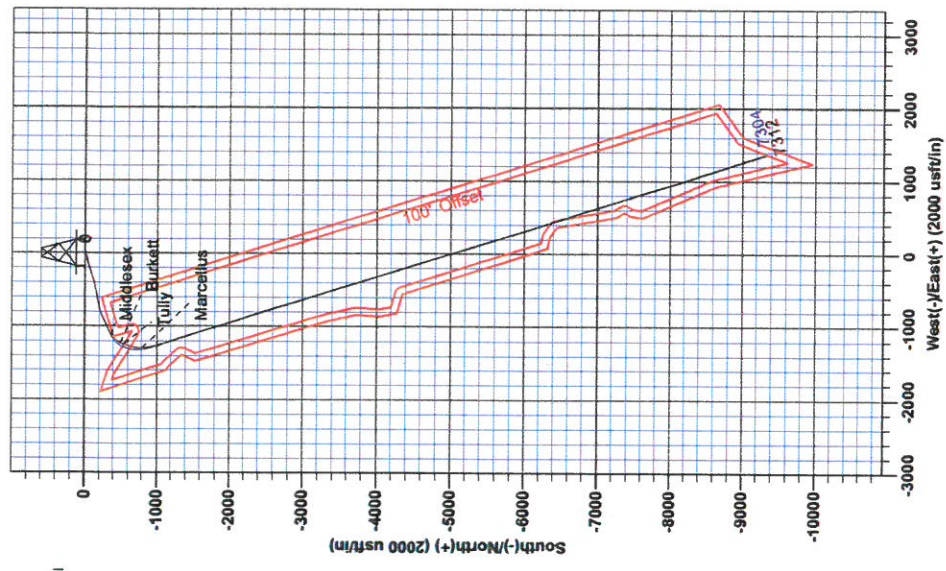
SITE DETAILS: Hughes Pad
Carole/Belton/McClain/Richard/Earlewine/Hughes/Bul
Site Centre Northing: 14242041.55
Easting: 1747814.24
Positional Uncertainty: 2.0
Convergence: 0.24
Local North: Grid

Jameison Shaidid
14/25, March 17 2014
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK 73128

Azimuths to Grid North
True North: -0.24°
Magnetic North: -8.79°
Magnetic Field
Strength: 52305 nT
Dip Angle: 66.79°
Date: 11/26/2013
Model: IGRF2010



To convert Magnetic North to Grid, Subtract 8.79°
To convert True North to Grid, Subtract 0.24°



DESIGN TARGET DETAILS			
Name	+N/-S	TVD	+E/-W
SHL Carole Unit 1H	0.0	0.0	0.0
Actual BHL Carole Unit 1H 7312.0	-8321.4	1363.714232720 20	1749177.8889° 11° 37' 57.8 N 80° 38' 58.048 W
		Latitude	Longitude
		0.014242041 55	1747814.24 39° 13' 9.801 N 80° 37' 14.860 W



Antero Resources

Doddridge County WV
Hughes Pad
Carole Unit 1H
Original Wellpath

Design: As Drilled

EOW Completion Report

17 March, 2014

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EOW Completion Report



Company: Antero Resources	Local Co-ordinate Reference: Well Carole Unit 1H
Project: Doddridge County WV	TVD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
Site: Hughes Pad	MD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
Well: Carole 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	Hughes Pad				
Site Position:		Northing:	14,242,041.55 usft	Latitude:	39° 13' 9.801 N
From:	Map	Easting:	1,747,814.24 usft	Longitude:	80° 37' 14.880 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.24 °

Well	Carole Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,242,041.55 usft	Latitude:	39° 13' 9.801 N
	+E/-W	0.0 usft	Easting:	1,747,814.24 usft	Longitude:	80° 37' 14.880 W
Position Uncertainty	2.0 usft		Wellhead Elevation:	1,356.0 usft	Ground Level:	1,331.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/26/2013	-8.55	66.79	52,305

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	162.50	

Survey Program	Date 3/17/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
102.5	6,537.5	Survey #1 Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
6,639.0	16,925.0	Survey #2 MWD (Original Wellpath)	MWD SDI	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	0.0	0.00
102.5	0.42	165.49	102.5	-0.4	0.1	0.4	0.41	
202.5	0.18	179.83	202.5	-0.9	0.2	0.9	0.25	
302.5	0.08	195.58	302.5	-1.1	0.2	1.1	0.11	
402.5	0.27	108.32	402.5	-1.2	0.4	1.3	0.28	
502.5	0.30	102.41	502.5	-1.4	0.9	1.6	0.04	
602.5	0.22	113.75	602.5	-1.5	1.3	1.8	0.09	
702.5	0.23	103.86	702.5	-1.6	1.7	2.1	0.04	
802.5	0.27	113.57	802.5	-1.8	2.1	2.3	0.06	
902.5	0.24	136.44	902.5	-2.0	2.4	2.7	0.11	
1,002.5	0.20	170.55	1,002.5	-2.3	2.6	3.0	0.13	

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EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Hughes Pad
Well: Carole Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Carole Unit 1H
TVD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
MD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,102.5	0.13	115.45	1,102.5	-2.6	2.7	3.3	0.16
1,202.5	0.15	178.29	1,202.5	-2.7	2.8	3.5	0.15
1,302.5	0.13	159.81	1,302.5	-3.0	2.9	3.7	0.05
1,402.5	0.09	175.32	1,402.5	-3.2	2.9	3.9	0.05
1,502.5	0.18	149.36	1,502.5	-3.4	3.0	4.1	0.11
1,602.5	0.11	192.57	1,602.5	-3.6	3.1	4.4	0.13
1,702.5	0.11	263.47	1,702.5	-3.7	3.0	4.4	0.13
1,802.5	0.17	232.42	1,802.5	-3.8	2.7	4.5	0.09
1,902.5	0.02	308.84	1,902.5	-3.9	2.6	4.5	0.17
2,002.5	0.09	355.63	2,002.5	-3.8	2.6	4.4	0.08
2,102.5	0.04	16.20	2,102.5	-3.7	2.6	4.3	0.05
2,202.5	0.12	205.71	2,202.5	-3.8	2.6	4.3	0.16
2,302.5	0.19	249.82	2,302.5	-3.9	2.4	4.4	0.13
2,402.5	0.23	244.97	2,402.5	-4.0	2.0	4.5	0.04
2,502.5	0.28	227.53	2,502.5	-4.3	1.7	4.6	0.09
2,602.5	0.24	212.30	2,602.5	-4.6	1.4	4.8	0.08
2,702.5	0.31	228.59	2,702.5	-5.0	1.1	5.1	0.10
2,802.5	0.31	233.39	2,802.5	-5.3	0.6	5.3	0.03
2,902.5	0.33	231.05	2,902.5	-5.7	0.2	5.5	0.02
3,002.5	0.35	238.18	3,002.5	-6.0	-0.3	5.7	0.05
3,102.5	0.21	236.42	3,102.5	-6.3	-0.7	5.8	0.14
3,202.5	0.23	239.08	3,202.5	-6.5	-1.0	5.9	0.02
3,302.5	0.22	249.26	3,302.5	-6.7	-1.4	5.9	0.04
3,402.5	0.26	234.53	3,402.5	-6.9	-1.7	6.0	0.07
3,502.5	0.27	258.56	3,502.5	-7.0	-2.2	6.1	0.11
3,602.5	0.24	209.91	3,602.5	-7.3	-2.5	6.2	0.21
3,702.5	0.35	206.16	3,702.5	-7.7	-2.7	6.5	0.11
3,802.5	0.29	243.35	3,802.5	-8.1	-3.1	6.8	0.21
3,902.5	0.23	247.82	3,902.5	-8.3	-3.5	6.9	0.06
4,002.5	0.22	237.88	4,002.5	-8.5	-3.9	6.9	0.04
4,102.5	0.32	222.74	4,102.5	-8.8	-4.2	7.1	0.12
4,202.5	0.31	249.20	4,202.5	-9.1	-4.7	7.3	0.14
4,302.5	0.33	235.00	4,302.5	-9.3	-5.1	7.4	0.08
4,402.5	0.30	285.28	4,402.5	-9.4	-5.6	7.3	0.27
4,502.5	0.18	297.03	4,502.5	-9.3	-6.0	7.1	0.13
4,602.5	0.25	343.92	4,602.5	-9.0	-6.2	6.7	0.18
4,702.5	0.32	340.33	4,702.5	-8.5	-6.4	6.2	0.07
4,802.5	0.38	312.81	4,802.5	-8.1	-6.7	5.7	0.18
4,847.5	0.40	347.01	4,847.5	-7.8	-6.9	5.4	0.51
4,902.5	1.31	249.45	4,902.5	-7.8	-7.5	5.2	2.58
5,002.5	4.31	246.22	5,002.3	-9.8	-12.0	5.7	3.00
5,102.5	7.02	249.45	5,101.8	-13.4	-21.2	6.4	2.73
5,202.5	10.01	253.78	5,200.7	-18.0	-35.2	6.6	3.06
5,302.5	12.34	260.81	5,298.8	-22.1	-54.1	4.8	2.70

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Site: Hughes Pad	MD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
Well: Carole Unit 1H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
5,402.5	14.43	258.07	5,396.1	-26.4	-76.9	2.1	2.18
5,502.5	16.40	254.52	5,492.5	-32.8	-102.7	0.4	2.18
5,602.5	18.53	253.43	5,587.9	-41.1	-131.5	-0.4	2.15
5,702.5	19.81	253.51	5,682.3	-50.4	-163.0	-1.0	1.28
5,802.5	23.07	252.13	5,775.4	-61.2	-197.9	-1.1	3.30
5,902.5	26.23	251.30	5,866.3	-74.3	-237.5	-0.5	3.18
6,002.5	29.99	252.25	5,954.5	-89.0	-282.2	0.0	3.79
6,102.5	33.29	252.84	6,039.6	-104.7	-332.3	0.0	3.31
6,202.5	36.25	254.97	6,121.7	-120.5	-387.1	-1.5	3.20
6,302.5	38.53	257.55	6,201.2	-134.9	-446.0	-5.5	2.77
6,402.5	41.41	258.42	6,277.8	-148.3	-508.9	-11.6	2.93
6,502.5	40.75	258.08	6,353.2	-161.6	-573.2	-18.2	0.70
6,537.5	40.52	257.60	6,379.7	-166.4	-595.5	-20.3	1.11
6,639.0	39.20	259.30	6,457.7	-179.5	-659.2	-27.1	1.69
6,736.0	39.21	258.14	6,532.8	-191.5	-719.3	-33.7	0.76
6,832.0	39.31	252.29	6,607.2	-207.0	-778.0	-36.6	3.86
6,929.0	40.25	246.14	6,681.8	-229.0	-836.0	-33.0	4.17
7,025.0	40.34	243.29	6,755.0	-255.5	-892.1	-24.6	1.92
7,121.0	41.94	244.87	6,827.3	-283.1	-948.9	-15.3	1.99
7,218.0	42.76	244.25	6,899.0	-311.2	-1,007.9	-6.3	0.95
7,314.0	42.01	245.29	6,969.9	-338.8	-1,066.4	2.4	1.07
7,372.0	40.95	243.10	7,013.3	-355.5	-1,101.0	7.9	3.10
7,405.0	41.76	237.46	7,038.1	-366.3	-1,119.9	12.6	11.55
7,419.0	42.39	236.04	7,048.5	-371.4	-1,127.8	15.1	8.15
Middlesex							
7,437.0	43.23	234.27	7,061.7	-378.4	-1,137.8	18.7	8.15
7,469.0	44.69	225.15	7,084.8	-392.8	-1,154.7	27.4	20.29
7,501.0	46.97	220.59	7,107.1	-409.6	-1,170.3	38.7	12.46
7,533.0	47.89	217.24	7,128.7	-427.9	-1,185.1	51.7	8.23
7,565.0	49.58	214.10	7,149.8	-447.5	-1,199.1	66.2	9.07
7,598.0	51.04	211.39	7,170.9	-468.8	-1,212.9	82.4	7.71
7,630.0	52.47	208.95	7,190.7	-490.5	-1,225.5	99.3	7.47
7,640.0	52.82	208.23	7,196.8	-497.5	-1,229.3	104.8	6.74
Burkett							
7,662.0	53.61	206.66	7,210.0	-513.2	-1,237.4	117.3	6.74
7,693.0	56.05	203.20	7,227.8	-536.1	-1,248.1	136.0	12.05
Tully							
7,694.0	56.13	203.09	7,228.4	-536.9	-1,248.4	136.7	12.05
7,726.0	58.05	199.60	7,245.8	-561.9	-1,258.2	157.6	10.95
7,758.0	59.81	197.79	7,262.3	-587.9	-1,266.9	179.7	7.33
7,790.0	61.42	196.26	7,278.0	-614.5	-1,275.1	202.7	6.53
7,823.0	63.64	192.50	7,293.2	-642.9	-1,282.4	227.5	12.14
7,855.0	66.99	188.30	7,306.6	-671.5	-1,287.6	253.2	15.87
7,887.0	69.10	186.35	7,318.5	-700.9	-1,291.4	280.2	8.68
7,919.0	70.90	185.24	7,329.5	-730.8	-1,294.4	307.8	6.50



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EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Hughes Pad
Well: Carole Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Carole Unit 1H
TVD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
MD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,951.0	72.88	182.91	7,339.4	-761.2	-1,296.6	336.1	9.28
7,983.0	75.77	180.10	7,348.1	-792.0	-1,297.4	365.2	12.37
7,991.0	76.33	179.47	7,350.0	-799.7	-1,297.3	372.6	10.34
Marcellus							
8,015.0	78.02	177.61	7,355.3	-823.1	-1,296.7	395.1	10.34
8,048.0	80.42	174.03	7,361.5	-855.4	-1,294.4	426.6	12.90
8,080.0	83.78	170.91	7,365.9	-886.9	-1,290.2	457.8	14.26
8,106.0	86.68	168.08	7,368.1	-912.3	-1,285.5	483.5	15.56
8,171.0	90.74	164.92	7,369.5	-975.5	-1,270.3	548.3	7.91
8,268.0	89.66	164.58	7,369.2	-1,069.1	-1,244.8	645.3	1.17
8,364.0	89.83	161.10	7,369.6	-1,160.8	-1,216.5	741.3	3.63
8,460.0	89.83	160.41	7,369.9	-1,251.4	-1,184.9	837.2	0.72
8,556.0	90.71	162.92	7,369.5	-1,342.5	-1,154.7	933.2	2.77
8,653.0	90.75	161.98	7,368.2	-1,435.0	-1,125.4	1,030.2	0.97
8,749.0	90.13	163.62	7,367.5	-1,526.7	-1,097.0	1,126.2	1.83
8,846.0	90.50	162.65	7,366.9	-1,619.5	-1,068.9	1,223.2	1.07
8,942.0	89.09	162.69	7,367.3	-1,711.2	-1,040.3	1,319.2	1.47
9,038.0	89.06	162.13	7,368.8	-1,802.7	-1,011.3	1,415.1	0.58
9,135.0	89.73	163.74	7,369.9	-1,895.4	-982.8	1,512.1	1.80
9,231.0	89.90	162.64	7,370.2	-1,987.3	-955.1	1,608.1	1.16
9,328.0	89.63	163.11	7,370.6	-2,080.0	-926.5	1,705.1	0.56
9,424.0	89.33	161.04	7,371.4	-2,171.3	-897.0	1,801.1	2.18
9,521.0	89.87	159.37	7,372.1	-2,262.6	-864.1	1,898.0	1.81
9,617.0	91.18	161.61	7,371.2	-2,353.1	-832.1	1,994.0	2.70
9,714.0	90.37	160.88	7,369.9	-2,444.9	-800.9	2,090.9	1.12
9,811.0	91.18	162.71	7,368.6	-2,537.0	-770.6	2,187.9	2.06
9,907.0	91.07	163.80	7,366.7	-2,628.9	-742.9	2,283.9	1.14
10,003.0	89.87	165.32	7,365.9	-2,721.5	-717.4	2,379.8	2.02
10,099.0	90.20	164.73	7,365.9	-2,814.2	-692.6	2,475.7	0.70
10,196.0	90.10	163.82	7,365.6	-2,907.6	-666.3	2,572.7	0.94
10,292.0	90.27	162.37	7,365.3	-2,999.4	-638.3	2,668.6	1.52
10,388.0	90.37	161.12	7,364.8	-3,090.6	-608.3	2,764.6	1.31
10,485.0	90.87	159.88	7,363.7	-3,182.0	-575.9	2,861.6	1.38
10,581.0	90.60	163.66	7,362.5	-3,273.2	-545.9	2,957.5	3.95
10,678.0	90.57	162.78	7,361.5	-3,366.0	-517.9	3,054.5	0.91
10,774.0	90.54	161.59	7,360.6	-3,457.4	-488.5	3,150.5	1.24
10,871.0	91.68	162.30	7,358.7	-3,549.6	-458.4	3,247.5	1.38
10,967.0	90.77	161.80	7,356.6	-3,640.9	-428.9	3,343.5	1.08
11,063.0	90.74	163.72	7,355.4	-3,732.6	-400.4	3,439.5	2.00
11,155.0	90.94	162.44	7,354.0	-3,820.6	-373.6	3,531.4	1.41
11,248.0	91.14	163.97	7,352.3	-3,909.6	-346.8	3,624.4	1.66
11,339.0	91.65	163.74	7,350.1	-3,997.0	-321.5	3,715.4	0.61
11,430.0	90.97	162.93	7,348.1	-4,084.2	-295.4	3,806.3	1.16
11,521.0	91.01	162.35	7,346.5	-4,171.0	-268.2	3,897.3	0.64



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Site: Hughes Pad
Well: Carole Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Carole Unit 1H
TVD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
MD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,611.0	90.74	161.94	7,345.1	-4,256.7	-240.7	3,987.3	0.55
11,701.0	90.84	161.62	7,343.9	-4,342.2	-212.5	4,077.3	0.37
11,792.0	90.57	161.07	7,342.7	-4,428.4	-183.4	4,168.3	0.67
11,883.0	91.48	163.36	7,341.1	-4,515.0	-155.6	4,259.2	2.71
11,973.0	91.98	162.59	7,338.4	-4,601.0	-129.3	4,349.2	1.02
12,064.0	92.08	162.74	7,335.2	-4,687.8	-102.2	4,440.1	0.20
12,155.0	90.60	162.91	7,333.0	-4,774.7	-75.3	4,531.1	1.64
12,251.0	91.61	162.51	7,331.2	-4,866.4	-46.8	4,627.1	1.13
12,347.0	90.67	162.34	7,329.3	-4,957.9	-17.8	4,723.1	1.00
12,444.0	90.94	161.34	7,327.9	-5,050.0	12.4	4,820.0	1.07
12,540.0	91.65	160.68	7,325.8	-5,140.8	43.6	4,916.0	1.01
12,637.0	91.75	164.02	7,322.9	-5,233.2	73.0	5,012.9	3.44
12,733.0	90.48	163.39	7,321.0	-5,325.3	100.0	5,108.9	1.48
12,829.0	91.08	163.07	7,319.7	-5,417.2	127.7	5,204.9	0.71
12,926.0	90.30	160.88	7,318.5	-5,509.4	157.7	5,301.9	2.40
13,022.0	90.57	162.33	7,317.8	-5,600.5	188.0	5,397.8	1.54
13,119.0	89.87	163.48	7,317.4	-5,693.2	216.5	5,494.8	1.39
13,215.0	91.91	163.86	7,315.9	-5,785.3	243.5	5,590.8	2.16
13,311.0	90.44	164.52	7,314.0	-5,877.7	269.6	5,686.7	1.68
13,408.0	89.80	162.95	7,313.8	-5,970.8	296.8	5,783.7	1.75
13,504.0	90.70	163.21	7,313.3	-6,062.6	324.7	5,879.7	0.98
13,601.0	89.77	161.35	7,313.0	-6,155.0	354.2	5,976.7	2.14
13,697.0	90.64	161.49	7,312.6	-6,246.0	384.8	6,072.7	0.92
13,794.0	90.03	162.19	7,312.0	-6,338.2	415.1	6,169.7	0.96
13,890.0	90.44	161.72	7,311.6	-6,429.5	444.8	6,265.7	0.65
13,986.0	88.72	161.87	7,312.4	-6,520.7	474.8	6,361.6	1.80
14,083.0	89.56	161.68	7,313.8	-6,612.8	505.1	6,458.6	0.89
14,179.0	90.24	162.07	7,314.0	-6,704.0	535.0	6,554.6	0.82
14,276.0	90.34	162.13	7,313.5	-6,796.3	564.8	6,651.6	0.12
14,372.0	90.74	161.07	7,312.6	-6,887.4	595.1	6,747.6	1.18
14,468.0	90.66	164.00	7,311.4	-6,979.0	623.9	6,843.6	3.05
14,565.0	89.97	163.93	7,310.9	-7,072.2	650.7	6,940.5	0.71
14,661.0	90.50	163.59	7,310.5	-7,164.4	677.5	7,036.5	0.66
14,758.0	88.22	161.29	7,311.6	-7,256.8	706.8	7,133.5	3.34
14,854.0	89.46	162.62	7,313.5	-7,348.1	736.5	7,229.5	1.89
14,950.0	89.83	162.43	7,314.1	-7,439.6	765.4	7,325.5	0.43
15,046.0	90.54	161.91	7,313.8	-7,531.0	794.8	7,421.5	0.92
15,142.0	91.17	161.24	7,312.4	-7,622.1	825.1	7,517.4	0.96
15,237.0	91.24	162.89	7,310.4	-7,712.5	854.3	7,612.4	1.74
15,333.0	89.43	164.09	7,309.8	-7,804.5	881.6	7,708.4	2.26
15,429.0	90.44	164.27	7,309.9	-7,896.9	907.8	7,804.3	1.07
15,524.0	89.40	163.95	7,310.0	-7,988.2	933.8	7,899.3	1.15
15,621.0	90.17	164.08	7,310.4	-8,081.5	960.5	7,996.3	0.81
15,717.0	89.97	162.14	7,310.3	-8,173.3	988.4	8,092.3	2.03
15,813.0	90.40	161.32	7,310.0	-8,264.5	1,018.5	8,188.3	0.96



Company: Antero Resources
Project: Doddridge County WV
Site: Hughes Pad
Well: Carole Unit 1H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Carole Unit 1H
TVD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
MD Reference: Carole 1H 1331 GL + 25 KB @ 1356.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
15,909.0	91.11	160.82	7,308.7	-8,355.3	1,049.6	8,284.2	0.90
16,005.0	89.70	161.31	7,308.0	-8,446.1	1,080.8	8,380.2	1.55
16,101.0	90.30	161.50	7,308.0	-8,537.1	1,111.4	8,476.2	0.66
16,197.0	91.01	161.57	7,306.9	-8,628.1	1,141.8	8,572.1	0.74
16,294.0	89.63	161.15	7,306.4	-8,720.0	1,172.8	8,669.1	1.49
16,390.0	89.76	161.15	7,306.9	-8,810.9	1,203.8	8,765.1	0.14
16,486.0	90.07	162.83	7,307.0	-8,902.2	1,233.5	8,861.1	1.78
16,583.0	90.47	162.32	7,306.6	-8,994.7	1,262.5	8,958.1	0.67
16,679.0	88.76	163.11	7,307.2	-9,086.4	1,291.1	9,054.1	1.96
16,775.0	88.93	162.91	7,309.2	-9,178.2	1,319.1	9,150.0	0.27
16,870.0	88.92	162.58	7,311.0	-9,268.9	1,347.3	9,245.0	0.35
16,925.0	88.92	162.58	7,312.0	-9,321.4	1,363.8	9,300.0	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
7,419.0	7,048.5	-371.4	-1,127.8	Middlesex
7,640.0	7,196.8	-497.5	-1,229.3	Burkett
7,693.0	7,227.8	-536.1	-1,248.1	Tully
7,991.0	7,350.0	-799.7	-1,297.3	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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