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WV GEOLOGICAL SURVEY
MORGANTOWN, WV



Antero Resources
Zimka Unit 2H
Doddridge County WV
Northing: 14265927.56
Easting: 1732882.20
As Drilled

WELL DETAILS: Zimka Unit 2H
Ground Level: 1141.0
Easting: 1732882.20
Northing: 14265927.56
Longitude: 80° 40' 23.581" W
Latitude: 39° 17' 8.551" N

REFERENCE INFORMATION

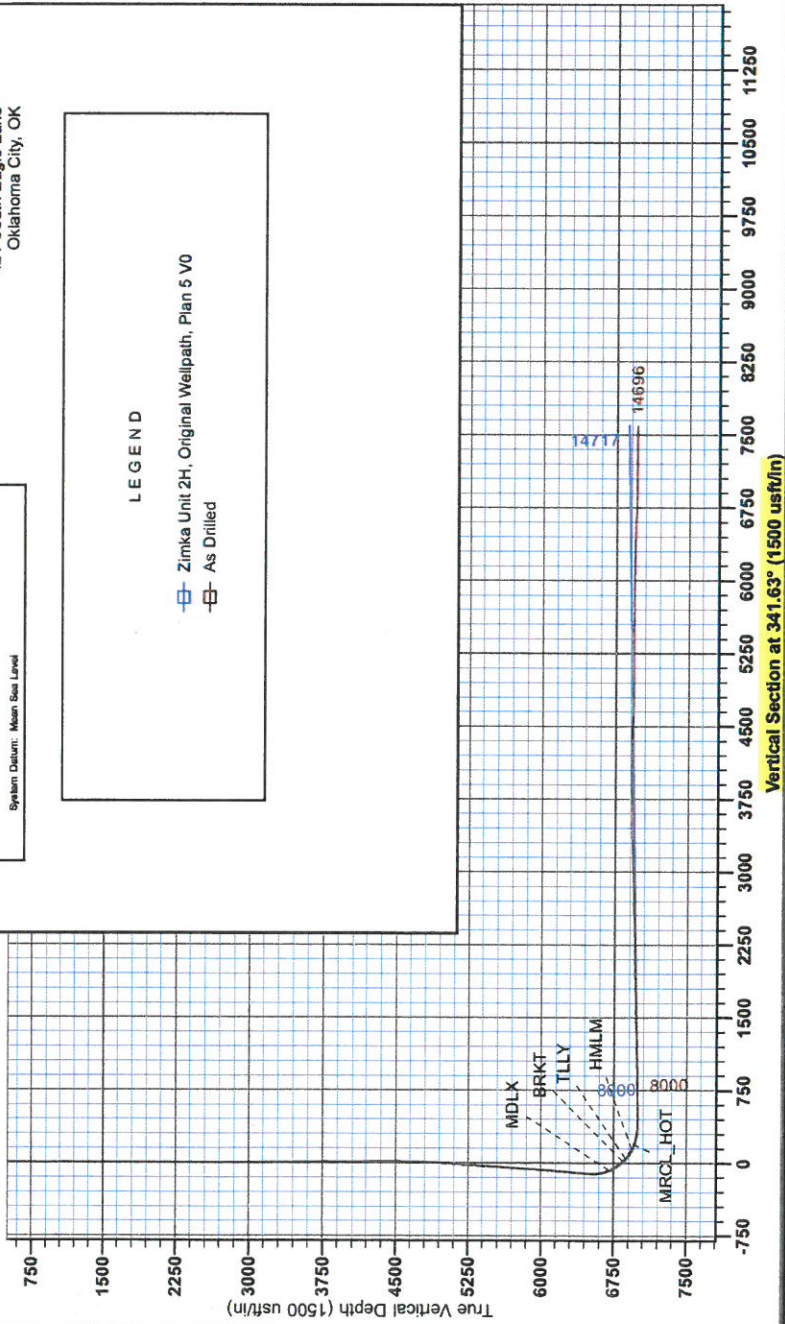
Coordinates (N/E) Reference: NAD Zimka Unit 2H, Grid North
Magnetic Field Reference: NAD 1983, 1141.0
Magnetic Dip Angle: 66.85°
Magnetic Declination: 8.76°
Magnetic North to Grid, Subtract 8.76°
True North to Grid, Subtract 0.21°
Magnetic North to True North, Subtract 0.21°

PROJECT DETAILS: Doddridge County WV

Geologic 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

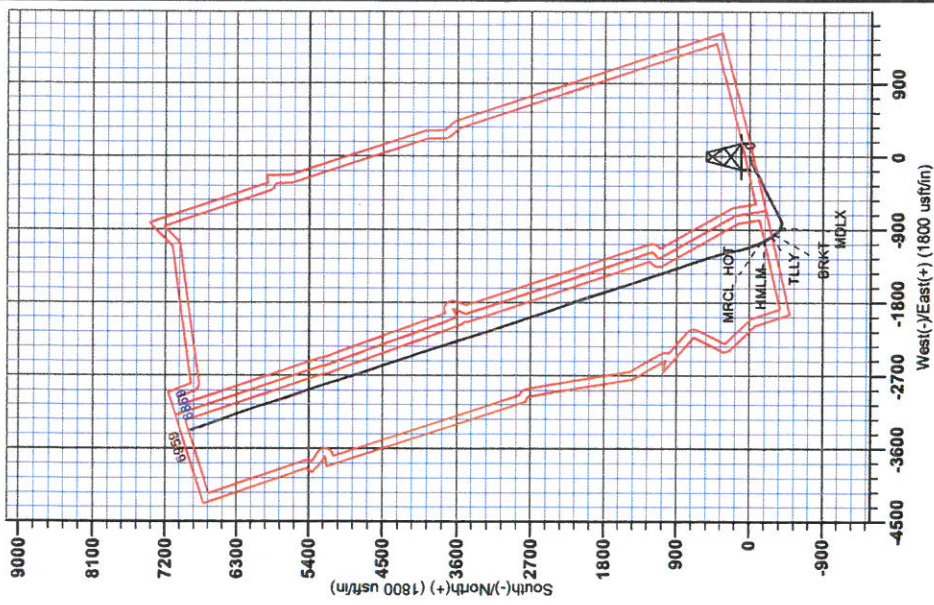
LEGEND

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



To convert Magnetic North to Grid, Subtract 8.76°
To convert True North to Grid, Subtract 0.21°

Magnetic Field
Strength: 52241.3nT
Dip Angle: 66.85°
Date: 5/20/2014
Model: BGGM2014





Antero Resources

Doddridge County WV
Zimka/Manser Pad
Zimka Unit 2H
Original Wellpath

Design: As Drilled

EOW Completion Report

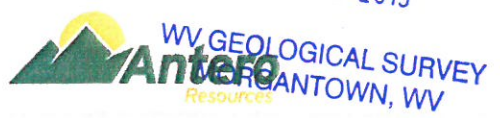
17 October, 2014

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EOW Completion Report



Company: Antero Resources	Local Co-ordinate Reference: Well Zimka Unit 2H
Project: Doddridge County WV	TVD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
Site: Zimka/Manser Pad	MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
Well: Zimka Unit 2H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Project	Doddridge County WV, McClellan District		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Zimka/Manser Pad		
Site Position:		Northing: 14,265,927.56 usft	Latitude: 39° 17' 6.551 N
From: Map		Easting: 1,732,882.20 usft	Longitude: 80° 40' 23.581 W
Position Uncertainty: 2.0 usft		Slot Radius: 13-3/16"	Grid Convergence: 0.21 °

Well	Zimka Unit 2H, Marcellus		
Well Position	+N/-S 0.0 usft	Northing: 14,265,927.56 usft	Latitude: 39° 17' 6.551 N
	+E/-W 0.0 usft	Easting: 1,732,882.20 usft	Longitude: 80° 40' 23.581 W
Position Uncertainty	0.0 usft	Wellhead Elevation: 1,165.0 usft	Ground Level: 1,141.0 usft

Wellbore	Original Wellpath		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	6/20/2014	-8.55	66.85	52,241

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	341.63

Survey Program	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	36.0	4,236.2	Survey #3 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
	4,261.0	14,696.0	Survey #2 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
36.0	0.10	240.79	36.0	0.0	0.0	0.0	0.28
61.0	0.20	240.79	61.0	0.0	-0.1	0.0	0.40
86.0	0.30	240.79	86.0	-0.1	-0.2	0.0	0.40
111.0	0.40	240.79	111.0	-0.2	-0.3	-0.1	0.40
136.0	0.32	255.62	136.0	-0.2	-0.5	-0.1	0.49
161.0	0.24	280.52	161.0	-0.2	-0.6	0.0	0.58
186.0	0.52	236.70	186.0	-0.3	-0.7	-0.1	1.54
211.0	0.49	239.72	211.0	-0.4	-0.9	-0.1	0.16
236.0	0.31	235.35	236.0	-0.5	-1.1	-0.1	0.73
261.0	0.74	222.93	261.0	-0.7	-1.2	-0.2	1.77

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Well: Zimka Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Zimka Unit 2H
TVD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
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)
286.0	0.16	313.31	286.0	-0.8	-1.4	-0.3	3.03
311.0	0.43	225.85	311.0	-0.8	-1.5	-0.3	1.81
336.0	0.38	227.35	336.0	-0.9	-1.6	-0.4	0.20
361.0	0.35	216.17	361.0	-1.0	-1.7	-0.5	0.31
386.0	0.50	216.44	386.0	-1.2	-1.8	-0.6	0.60
411.0	0.35	214.72	411.0	-1.3	-1.9	-0.7	0.60
436.0	0.03	62.24	436.0	-1.4	-1.9	-0.7	1.51
461.0	0.77	215.97	461.0	-1.5	-2.0	-0.8	3.19
486.0	0.05	299.72	486.0	-1.7	-2.1	-0.9	3.06
511.0	0.09	280.79	511.0	-1.6	-2.2	-0.9	0.18
536.0	0.19	220.99	536.0	-1.7	-2.2	-0.9	0.66
561.0	0.26	222.30	561.0	-1.8	-2.3	-0.9	0.28
586.0	0.37	212.23	586.0	-1.9	-2.4	-1.0	0.49
611.0	0.21	237.58	611.0	-2.0	-2.4	-1.1	0.81
636.0	0.13	239.58	636.0	-2.0	-2.5	-1.1	0.32
661.0	0.12	219.00	661.0	-2.0	-2.5	-1.1	0.18
686.0	0.05	332.03	686.0	-2.0	-2.6	-1.1	0.59
711.0	0.01	347.49	711.0	-2.0	-2.6	-1.1	0.16
736.0	0.03	47.01	736.0	-2.0	-2.6	-1.1	0.11
761.0	0.03	59.86	761.0	-2.0	-2.6	-1.1	0.03
786.0	0.13	204.68	786.0	-2.0	-2.6	-1.1	0.62
811.0	0.09	27.67	811.0	-2.0	-2.6	-1.1	0.88
836.0	0.04	350.08	836.0	-2.0	-2.6	-1.1	0.25
861.0	0.11	191.08	861.0	-2.0	-2.6	-1.1	0.59
886.0	0.15	132.16	886.0	-2.1	-2.5	-1.2	0.53
911.0	0.08	55.18	911.0	-2.1	-2.5	-1.2	0.61
936.0	0.02	280.23	936.0	-2.1	-2.5	-1.2	0.38
961.0	0.28	239.23	961.0	-2.1	-2.6	-1.2	1.06
986.0	0.14	306.10	986.0	-2.1	-2.6	-1.2	1.04
1,011.0	0.16	276.05	1,011.0	-2.1	-2.7	-1.1	0.32
1,036.0	0.21	261.53	1,036.0	-2.1	-2.8	-1.1	0.27
1,061.0	0.22	272.74	1,061.0	-2.1	-2.9	-1.1	0.17
1,086.0	0.28	274.09	1,086.0	-2.1	-3.0	-1.1	0.24
1,111.0	0.23	282.10	1,111.0	-2.1	-3.1	-1.0	0.25
1,136.0	0.27	291.84	1,136.0	-2.1	-3.2	-0.9	0.23
1,161.0	0.22	268.92	1,161.0	-2.0	-3.3	-0.9	0.44
1,186.0	0.18	271.81	1,186.0	-2.0	-3.4	-0.9	0.16
1,211.0	0.17	296.86	1,211.0	-2.0	-3.5	-0.8	0.31
1,236.0	0.13	310.92	1,236.0	-2.0	-3.5	-0.8	0.22
1,261.0	0.33	229.73	1,261.0	-2.0	-3.6	-0.8	1.34
1,286.0	0.07	304.14	1,286.0	-2.0	-3.7	-0.8	1.27
1,311.0	0.09	267.65	1,311.0	-2.0	-3.7	-0.8	0.21
1,336.0	0.18	293.86	1,336.0	-2.0	-3.7	-0.7	0.43
1,361.0	0.22	219.58	1,361.0	-2.0	-3.8	-0.7	0.97

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EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Zimka/Manser Pad
Well: Zimka Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

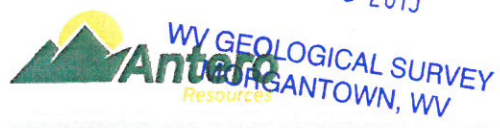
Local Co-ordinate Reference: Well Zimka Unit 2H
TVD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0usf
MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0usf
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,386.0	0.19	285.12	1,386.0	-2.1	-3.9	-0.7	0.89
1,411.0	0.24	334.23	1,411.0	-2.0	-3.9	-0.7	0.74
1,436.0	0.15	285.74	1,436.0	-2.0	-4.0	-0.6	0.72
1,461.0	0.13	181.13	1,461.0	-2.0	-4.0	-0.6	0.89
1,486.0	0.17	91.64	1,486.0	-2.0	-4.0	-0.6	0.85
1,511.0	0.10	139.07	1,511.0	-2.0	-3.9	-0.7	0.50
1,536.0	0.28	136.74	1,536.0	-2.1	-3.9	-0.8	0.72
1,561.0	0.40	126.67	1,561.0	-2.2	-3.8	-0.9	0.53
1,586.0	0.28	116.06	1,586.0	-2.3	-3.6	-1.0	0.54
1,611.0	0.42	151.44	1,611.0	-2.4	-3.5	-1.1	1.00
1,636.0	0.39	144.94	1,636.0	-2.5	-3.5	-1.3	0.22
1,661.0	0.36	141.18	1,661.0	-2.6	-3.4	-1.5	0.16
1,686.0	0.38	128.32	1,686.0	-2.8	-3.2	-1.6	0.34
1,711.0	0.43	109.27	1,711.0	-2.8	-3.1	-1.7	0.57
1,736.0	0.49	95.20	1,736.0	-2.9	-2.9	-1.8	0.51
1,761.0	0.43	107.65	1,761.0	-2.9	-2.7	-1.9	0.46
1,786.0	0.43	112.10	1,786.0	-3.0	-2.5	-2.0	0.13
1,811.0	0.38	103.77	1,811.0	-3.0	-2.4	-2.1	0.31
1,836.0	0.45	99.50	1,836.0	-3.1	-2.2	-2.2	0.31
1,861.0	0.37	90.31	1,861.0	-3.1	-2.0	-2.3	0.41
1,886.0	0.43	74.72	1,886.0	-3.1	-1.8	-2.3	0.49
1,911.0	0.38	94.42	1,911.0	-3.0	-1.7	-2.4	0.59
1,936.0	0.29	84.79	1,936.0	-3.1	-1.5	-2.4	0.42
1,961.0	0.29	85.04	1,961.0	-3.0	-1.4	-2.4	0.01
1,986.0	0.12	79.55	1,986.0	-3.0	-1.3	-2.5	0.68
2,011.0	0.10	33.79	2,011.0	-3.0	-1.3	-2.5	0.35
2,036.0	0.07	283.64	2,036.0	-3.0	-1.3	-2.4	0.56
2,061.0	0.04	278.65	2,061.0	-3.0	-1.3	-2.4	0.12
2,086.0	0.04	337.91	2,086.0	-3.0	-1.3	-2.4	0.16
2,111.0	0.14	236.02	2,111.0	-3.0	-1.3	-2.4	0.61
2,136.0	0.23	285.49	2,136.0	-3.0	-1.4	-2.4	0.70
2,161.0	0.42	250.30	2,161.0	-3.0	-1.5	-2.4	1.07
2,186.0	0.17	278.85	2,186.0	-3.0	-1.7	-2.3	1.13
2,211.0	0.26	292.62	2,211.0	-3.0	-1.7	-2.3	0.41
2,236.0	0.30	296.10	2,236.0	-2.9	-1.9	-2.2	0.17
2,261.0	0.32	294.85	2,261.0	-2.9	-2.0	-2.1	0.08
2,286.0	0.34	296.81	2,286.0	-2.8	-2.1	-2.0	0.09
2,311.0	0.38	301.84	2,311.0	-2.7	-2.2	-1.9	0.20
2,336.0	0.32	284.83	2,336.0	-2.7	-2.4	-1.8	0.48
2,361.0	0.35	286.64	2,361.0	-2.6	-2.5	-1.7	0.13
2,386.0	0.32	292.25	2,386.0	-2.6	-2.7	-1.6	0.18
2,411.0	0.33	258.92	2,411.0	-2.6	-2.8	-1.6	0.75
2,436.0	0.31	297.59	2,436.0	-2.6	-2.9	-1.5	0.85
2,461.0	0.32	274.51	2,461.0	-2.5	-3.1	-1.4	0.51
2,486.0	0.34	294.32	2,486.0	-2.5	-3.2	-1.4	0.46

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EOW Completion Report



Company: Antero Resources	Local Co-ordinate Reference: Well Zimka Unit 2H
Project: Doddridge County WV	TVD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
Site: Zimka/Manser Pad	MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
Well: Zimka 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)
2,511.0	0.33	288.04	2,511.0	-2.4	-3.3	-1.3	0.15
2,536.0	0.35	291.04	2,536.0	-2.4	-3.5	-1.2	0.11
2,561.0	0.32	284.55	2,561.0	-2.3	-3.6	-1.1	0.19
2,586.0	0.32	299.37	2,586.0	-2.3	-3.7	-1.0	0.33
2,611.0	0.34	275.60	2,611.0	-2.3	-3.9	-0.9	0.55
2,636.0	0.45	290.51	2,636.0	-2.2	-4.0	-0.8	0.60
2,661.0	0.34	274.05	2,661.0	-2.2	-4.2	-0.7	0.63
2,686.0	0.40	278.32	2,686.0	-2.2	-4.4	-0.7	0.26
2,711.0	0.40	276.49	2,711.0	-2.1	-4.5	-0.6	0.05
2,736.0	0.45	276.77	2,736.0	-2.1	-4.7	-0.5	0.20
2,761.0	0.47	280.15	2,761.0	-2.1	-4.9	-0.4	0.13
2,786.0	0.56	282.50	2,786.0	-2.0	-5.1	-0.3	0.37
2,811.0	0.56	289.80	2,811.0	-2.0	-5.4	-0.2	0.29
2,836.0	0.44	285.37	2,836.0	-1.9	-5.6	0.0	0.50
2,861.0	0.45	275.30	2,861.0	-1.9	-5.8	0.0	0.31
2,886.0	0.50	273.74	2,886.0	-1.9	-6.0	0.1	0.21
2,911.0	0.51	276.61	2,911.0	-1.8	-6.2	0.2	0.11
2,936.0	0.53	284.35	2,936.0	-1.8	-6.4	0.3	0.29
2,961.0	0.59	281.77	2,961.0	-1.7	-6.7	0.4	0.26
2,986.0	0.63	282.50	2,986.0	-1.7	-6.9	0.6	0.16
3,011.0	0.55	287.71	3,011.0	-1.6	-7.2	0.7	0.38
3,036.0	0.53	280.49	3,036.0	-1.6	-7.4	0.9	0.28
3,061.0	0.65	283.91	3,061.0	-1.5	-7.6	1.0	0.50
3,086.0	0.61	284.76	3,085.9	-1.4	-7.9	1.1	0.16
3,111.0	0.62	276.36	3,110.9	-1.4	-8.2	1.3	0.36
3,136.0	0.59	272.67	3,135.9	-1.4	-8.4	1.4	0.20
3,161.0	0.58	290.50	3,160.9	-1.3	-8.7	1.5	0.73
3,186.0	0.75	271.67	3,185.9	-1.3	-9.0	1.6	1.10
3,211.0	0.64	277.52	3,210.9	-1.2	-9.3	1.7	0.52
3,236.0	0.75	277.46	3,235.9	-1.2	-9.6	1.9	0.44
3,261.0	0.68	280.97	3,260.9	-1.2	-9.9	2.0	0.33
3,286.0	0.65	282.13	3,285.9	-1.1	-10.2	2.2	0.13
3,311.0	0.64	275.39	3,310.9	-1.1	-10.4	2.3	0.31
3,336.0	0.62	273.56	3,335.9	-1.0	-10.7	2.4	0.11
3,361.0	0.62	279.25	3,360.9	-1.0	-11.0	2.5	0.25
3,386.0	0.71	281.30	3,385.9	-0.9	-11.3	2.7	0.37
3,411.0	0.73	280.40	3,410.9	-0.9	-11.6	2.8	0.09
3,436.0	0.63	283.74	3,435.9	-0.8	-11.9	3.0	0.43
3,461.0	0.73	281.36	3,460.9	-0.8	-12.2	3.1	0.42
3,486.0	0.73	283.30	3,485.9	-0.7	-12.5	3.3	0.10
3,511.0	0.78	285.08	3,510.9	-0.6	-12.8	3.4	0.22
3,536.0	0.78	280.38	3,535.9	-0.5	-13.1	3.6	0.26
3,561.0	0.73	285.99	3,560.9	-0.5	-13.4	3.8	0.36
3,586.0	0.67	283.15	3,585.9	-0.4	-13.7	4.0	0.28

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

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,611.0	0.70	287.56	3,610.9	-0.3	-14.0	4.1	0.24
3,636.0	0.74	282.04	3,635.9	-0.2	-14.3	4.3	0.32
3,661.0	0.72	285.10	3,660.9	-0.2	-14.6	4.5	0.18
3,686.0	0.75	282.41	3,685.9	-0.1	-14.9	4.6	0.18
3,711.0	0.67	288.91	3,710.9	0.0	-15.2	4.8	0.45
3,736.0	0.63	288.44	3,735.9	0.1	-15.5	5.0	0.16
3,761.0	0.69	293.89	3,760.9	0.2	-15.8	5.2	0.35
3,786.0	0.67	292.54	3,785.9	0.3	-16.1	5.4	0.10
3,811.0	0.73	288.36	3,810.9	0.4	-16.3	5.6	0.32
3,836.0	0.70	292.86	3,835.9	0.5	-16.6	5.7	0.25
3,861.0	0.73	291.07	3,860.9	0.6	-16.9	5.9	0.15
3,886.0	0.80	292.87	3,885.9	0.8	-17.2	6.2	0.30
3,911.0	0.76	287.40	3,910.9	0.9	-17.5	6.4	0.34
3,936.0	0.80	290.98	3,935.9	1.0	-17.9	6.6	0.25
3,961.0	0.81	304.42	3,960.9	1.2	-18.2	6.8	0.75
3,986.0	0.79	291.18	3,985.9	1.3	-18.5	7.1	0.74
4,011.0	0.85	293.78	4,010.9	1.5	-18.8	7.3	0.28
4,036.0	0.80	293.57	4,035.9	1.6	-19.1	7.6	0.20
4,061.0	0.86	294.85	4,060.9	1.8	-19.5	7.8	0.25
4,086.0	0.87	294.58	4,085.9	1.9	-19.8	8.1	0.04
4,111.0	0.87	286.75	4,110.9	2.0	-20.2	8.3	0.48
4,136.0	0.93	289.19	4,135.9	2.2	-20.5	8.5	0.28
4,161.0	1.05	298.05	4,160.9	2.3	-20.9	8.8	0.78
4,186.0	0.94	299.14	4,185.9	2.6	-21.3	9.1	0.45
4,211.0	1.06	294.75	4,210.9	2.7	-21.7	9.5	0.57
4,236.0	1.07	295.55	4,235.8	2.9	-22.1	9.8	0.07
4,261.0	1.08	296.34	4,260.9	3.2	-22.6	10.1	0.07
4,286.0	1.18	291.98	4,285.9	3.4	-23.0	10.4	0.53
4,311.0	1.99	265.68	4,310.8	3.4	-23.7	10.7	4.27
4,336.0	2.52	259.54	4,335.8	3.3	-24.6	10.9	2.33
4,361.0	3.80	255.24	4,360.8	3.0	-26.0	11.0	5.20
4,386.0	5.19	253.74	4,385.7	2.4	-27.9	11.1	5.58
4,411.0	6.31	254.13	4,410.6	1.8	-30.3	11.2	4.48
4,436.0	6.90	254.38	4,435.4	1.0	-33.0	11.3	2.36
4,461.0	7.23	252.41	4,460.2	0.1	-36.0	11.4	1.64
4,486.0	7.68	252.84	4,485.0	-0.9	-39.1	11.5	1.81
4,511.0	7.61	252.56	4,509.8	-1.9	-42.3	11.6	0.32
4,536.0	7.53	249.32	4,534.6	-2.9	-45.4	11.5	1.74
4,561.0	7.61	241.93	4,559.4	-4.3	-48.4	11.2	3.90
4,586.0	7.67	236.36	4,584.1	-6.0	-51.2	10.4	2.97
4,611.0	7.78	235.07	4,608.9	-7.9	-54.0	9.5	0.82
4,636.0	8.63	235.53	4,633.7	-9.9	-56.9	8.5	3.41
4,661.0	9.75	236.64	4,658.3	-12.1	-60.2	7.5	4.54
4,686.0	10.46	239.72	4,682.9	-14.5	-64.0	6.4	3.57

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EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Zimka/Manser Pad
Well: Zimka Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Zimka Unit 2H
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MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
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)
4,711.0	11.39	241.55	4,707.5	-16.8	-68.1	5.5	3.97
4,736.0	12.10	243.10	4,732.0	-19.1	-72.6	4.7	3.11
4,761.0	12.78	242.68	4,756.4	-21.6	-77.4	3.9	2.74
4,786.0	13.70	243.74	4,780.7	-24.2	-82.5	3.1	3.81
4,811.0	14.74	244.39	4,804.9	-26.9	-88.0	2.3	4.21
4,836.0	15.88	245.11	4,829.1	-29.7	-94.0	1.5	4.62
4,861.0	16.58	245.70	4,853.1	-32.6	-100.4	0.7	2.88
4,886.0	17.58	246.20	4,877.0	-35.6	-107.1	0.0	4.04
4,911.0	18.80	246.13	4,900.7	-38.7	-114.2	-0.8	4.88
4,936.0	19.88	245.80	4,924.3	-42.1	-121.8	-1.6	4.34
4,961.0	20.69	245.95	4,947.7	-45.6	-129.7	-2.4	3.25
4,986.0	21.64	245.50	4,971.1	-49.3	-137.9	-3.4	3.86
5,011.0	22.48	244.91	4,994.2	-53.3	-146.4	-4.4	3.47
5,036.0	23.76	244.00	5,017.2	-57.5	-155.3	-5.7	5.32
5,061.0	24.60	243.96	5,040.0	-62.0	-164.5	-7.0	3.36
5,086.0	25.34	243.12	5,062.7	-66.7	-173.9	-8.5	3.28
5,111.0	25.82	242.65	5,085.2	-71.6	-183.5	-10.1	2.08
5,136.0	25.79	242.17	5,107.7	-76.7	-193.2	-11.9	0.84
5,161.0	25.57	241.45	5,130.3	-81.8	-202.7	-13.7	1.53
5,186.0	25.07	241.15	5,152.9	-86.9	-212.1	-15.7	2.06
5,211.0	24.52	240.84	5,175.6	-92.0	-221.3	-17.6	2.26
5,236.0	24.61	240.65	5,198.3	-97.1	-230.4	-19.5	0.48
5,261.0	25.01	240.51	5,221.0	-102.2	-239.5	-21.6	1.62
5,286.0	25.33	240.84	5,243.6	-107.5	-248.8	-23.6	1.40
5,311.0	25.23	241.89	5,266.2	-112.6	-258.1	-25.5	1.84
5,336.0	25.33	243.32	5,288.8	-117.5	-267.6	-27.2	2.48
5,361.0	25.57	244.74	5,311.4	-122.2	-277.3	-28.6	2.62
5,386.0	25.45	245.99	5,334.0	-126.7	-287.0	-29.8	2.21
5,411.0	25.46	246.06	5,356.6	-131.0	-296.9	-30.8	0.13
5,436.0	25.89	246.00	5,379.1	-135.4	-306.8	-31.9	1.72
5,461.0	26.24	245.99	5,401.5	-139.9	-316.8	-32.9	1.40
5,486.0	26.60	245.81	5,423.9	-144.4	-327.0	-34.0	1.48
5,511.0	26.76	245.55	5,446.3	-149.1	-337.2	-35.2	0.79
5,536.0	26.66	245.16	5,468.6	-153.8	-347.4	-36.4	0.81
5,561.0	26.04	244.69	5,491.0	-158.5	-357.4	-37.7	2.62
5,586.0	25.84	244.69	5,513.5	-163.1	-367.3	-39.1	0.80
5,611.0	25.56	244.14	5,536.0	-167.8	-377.1	-40.4	1.47
5,636.0	25.15	243.63	5,558.6	-172.5	-386.7	-41.9	1.86
5,661.0	24.58	243.33	5,581.3	-177.2	-396.1	-43.4	2.34
5,686.0	24.02	242.43	5,604.1	-181.9	-405.3	-44.9	2.69
5,711.0	24.26	241.96	5,626.9	-186.7	-414.3	-46.6	1.23
5,736.0	24.54	241.82	5,649.7	-191.5	-423.4	-48.3	1.14
5,761.0	24.95	242.03	5,672.4	-196.5	-432.7	-50.1	1.68
5,786.0	25.00	242.93	5,695.0	-201.3	-442.0	-51.8	1.53

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Design: As Drilled

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MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
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)
5,811.0	25.27	243.27	5,717.6	-206.2	-451.5	-53.4	1.22
5,836.0	25.22	243.20	5,740.3	-211.0	-461.0	-54.9	0.23
5,861.0	24.91	242.99	5,762.9	-215.7	-470.5	-56.5	1.29
5,886.0	24.40	242.35	5,785.6	-220.5	-479.7	-58.1	2.30
5,911.0	23.89	241.51	5,808.4	-225.3	-488.8	-59.8	2.46
5,936.0	23.63	242.14	5,831.3	-230.1	-497.6	-61.5	1.45
5,961.0	23.73	242.80	5,854.2	-234.7	-506.5	-63.1	1.13
5,986.0	24.13	243.34	5,877.1	-239.3	-515.6	-64.7	1.82
6,011.0	23.92	243.71	5,899.9	-243.9	-524.7	-66.1	1.03
6,036.0	24.04	243.76	5,922.7	-248.4	-533.8	-67.5	0.49
6,061.0	23.79	243.48	5,945.6	-252.9	-542.9	-68.9	1.10
6,086.0	23.73	243.35	5,968.5	-257.4	-551.9	-70.3	0.32
6,111.0	24.16	243.12	5,991.3	-261.9	-560.9	-71.8	1.76
6,136.0	24.04	243.44	6,014.1	-266.5	-570.1	-73.3	0.71
6,161.0	24.41	243.22	6,036.9	-271.1	-579.2	-74.8	1.52
6,186.0	25.13	243.46	6,059.6	-275.8	-588.6	-76.3	2.91
6,211.0	25.68	243.42	6,082.2	-280.6	-598.2	-77.8	2.20
6,236.0	25.85	243.52	6,104.7	-285.5	-607.9	-79.4	0.70
6,261.0	26.36	243.26	6,127.2	-290.4	-617.7	-80.9	2.09
6,286.0	26.60	243.14	6,149.6	-295.4	-627.7	-82.6	0.98
6,311.0	26.27	242.70	6,172.0	-300.5	-637.6	-84.3	1.54
6,336.0	25.96	241.84	6,194.4	-305.6	-647.3	-86.0	1.96
6,361.0	26.13	241.44	6,216.9	-310.8	-657.0	-87.9	0.98
6,386.0	26.25	240.88	6,239.3	-316.2	-666.7	-90.0	1.10
6,411.0	25.99	240.16	6,261.7	-321.6	-676.3	-92.1	1.64
6,436.0	25.83	240.02	6,284.2	-327.0	-685.7	-94.3	0.69
6,461.0	25.60	242.15	6,306.8	-332.3	-695.2	-96.2	3.81
6,486.0	25.19	243.57	6,329.3	-337.2	-704.8	-97.9	2.94
6,511.0	24.76	243.02	6,352.0	-341.9	-714.2	-99.4	1.95
6,536.0	24.47	242.94	6,374.7	-346.6	-723.5	-101.0	1.17
6,546.9	24.72	243.11	6,384.7	-348.7	-727.5	-101.7	2.37
6,698.0	23.04	245.60	6,522.8	-375.2	-782.6	-109.4	1.30
6,730.0	23.90	255.91	6,552.2	-379.4	-794.6	-109.6	13.09
6,761.0	25.34	264.62	6,580.4	-381.5	-807.3	-107.7	12.58
6,792.0	26.65	271.87	6,608.2	-381.9	-820.9	-103.8	11.08
6,824.0	28.05	281.41	6,636.7	-380.2	-835.4	-97.5	14.36
6,855.0	29.38	288.95	6,663.9	-376.3	-849.8	-89.3	12.44
6,886.0	30.62	294.61	6,690.7	-370.5	-864.1	-79.3	9.96
6,902.0	31.52	298.23	6,704.4	-366.8	-871.5	-73.5	12.95
MDLX							
6,918.0	32.52	301.65	6,718.0	-362.6	-878.9	-67.2	12.95
6,949.0	34.94	307.20	6,743.8	-352.9	-893.0	-53.4	12.63
6,981.0	37.37	310.99	6,769.6	-341.0	-907.7	-37.5	10.32
7,012.0	40.24	315.81	6,793.8	-327.6	-921.8	-20.4	13.44

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EOW Completion Report



Company: Antero Resources
 Project: Doddridge County WV
 Site: Zimka/Manser Pad
 Well: Zimka Unit 2H
 Wellbore: Original Wellpath
 Design: As Drilled

Local Co-ordinate Reference: Well Zimka Unit 2H
 TVD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
 MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
 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)
7,043.0	43.39	319.15	6,816.9	-312.4	-935.7	-1.6	12.44
7,075.0	45.70	320.59	6,839.7	-295.2	-950.2	19.3	7.88
7,081.0	46.42	321.22	6,843.8	-291.8	-952.9	23.3	14.28
BRKT							
7,106.0	49.48	323.71	6,860.6	-277.1	-964.2	40.9	14.28
7,120.0	51.24	324.32	6,869.5	-268.4	-970.5	51.1	13.01
TLLY							
7,137.0	53.38	325.02	6,879.9	-257.4	-978.3	64.0	13.01
7,169.0	55.71	325.67	6,898.5	-236.0	-993.1	89.0	7.47
7,200.0	58.87	327.08	6,915.2	-214.3	-1,007.6	114.2	10.89
7,231.0	62.96	328.71	6,930.3	-191.3	-1,022.0	140.5	13.97
7,238.0	63.79	328.97	6,933.4	-186.0	-1,025.2	146.6	12.33
HMLM							
7,262.0	66.64	329.85	6,943.5	-167.2	-1,036.3	167.9	12.33
7,291.0	70.29	332.04	6,954.1	-143.6	-1,049.4	194.4	14.41
MRCL_HOT							
7,294.0	70.67	332.26	6,955.1	-141.1	-1,050.7	197.2	14.41
7,325.0	72.61	336.00	6,964.9	-114.7	-1,063.5	226.4	13.05
7,357.0	73.97	338.06	6,974.1	-86.4	-1,075.5	256.9	7.49
7,388.0	77.16	339.45	6,981.8	-58.5	-1,086.3	286.9	11.17
7,419.0	81.47	339.82	6,987.6	-29.9	-1,096.9	317.3	13.95
7,451.0	85.27	339.83	6,991.3	-0.1	-1,107.9	349.1	11.88
7,518.0	91.11	341.63	6,993.4	63.1	-1,130.0	416.0	9.12
7,612.0	91.17	344.87	6,991.5	153.1	-1,157.1	509.9	3.45
7,706.0	90.54	348.28	6,990.1	244.5	-1,178.9	603.6	3.69
7,800.0	90.81	348.50	6,989.0	336.6	-1,197.8	696.9	0.37
7,894.0	90.34	343.00	6,988.1	427.6	-1,220.9	790.6	5.87
7,988.0	91.31	343.74	6,986.7	517.7	-1,247.8	884.6	1.30
8,082.0	91.14	342.68	6,984.7	607.7	-1,275.0	978.5	1.14
8,176.0	91.88	341.09	6,982.2	697.0	-1,304.2	1,072.5	1.87
8,270.0	92.31	341.15	6,978.8	785.9	-1,334.6	1,166.4	0.46
8,364.0	90.34	339.63	6,976.6	874.4	-1,366.1	1,260.4	2.65
8,458.0	91.77	341.38	6,974.9	963.0	-1,397.5	1,354.3	2.40
8,552.0	92.89	342.85	6,971.1	1,052.3	-1,426.3	1,448.2	1.96
8,646.0	90.77	340.92	6,968.0	1,141.6	-1,455.6	1,542.2	3.05
8,740.0	90.87	341.02	6,966.7	1,230.5	-1,486.2	1,636.2	0.15
8,835.0	91.27	341.03	6,964.9	1,320.3	-1,517.1	1,731.1	0.42
8,929.0	91.74	341.32	6,962.5	1,409.2	-1,547.4	1,825.1	0.59
9,023.0	92.25	341.53	6,959.2	1,498.3	-1,577.3	1,919.0	0.59
9,117.0	90.27	342.22	6,957.1	1,587.6	-1,606.6	2,013.0	2.23
9,211.0	92.14	344.12	6,955.1	1,677.5	-1,633.8	2,106.9	2.84
9,305.0	90.67	343.67	6,952.8	1,767.8	-1,659.8	2,200.8	1.64
9,399.0	90.17	341.32	6,952.2	1,857.5	-1,688.1	2,294.8	2.56
9,494.0	90.64	342.54	6,951.5	1,947.8	-1,717.6	2,389.8	1.38
9,588.0	93.11	343.49	6,948.4	2,037.6	-1,745.0	2,483.7	2.82

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GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



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9,682.0	91.64	340.28	6,944.5	2,126.9	-1,774.2	2,577.6	3.75
9,777.0	91.71	340.58	6,941.7	2,216.3	-1,806.0	2,672.6	0.32
9,871.0	91.00	339.41	6,939.5	2,304.6	-1,838.2	2,766.5	1.46
9,964.0	91.60	340.26	6,937.4	2,391.9	-1,870.2	2,859.4	1.12
10,059.0	91.34	339.12	6,935.0	2,481.0	-1,903.2	2,954.3	1.23
10,149.0	91.11	339.23	6,933.0	2,565.1	-1,935.2	3,044.2	0.28
10,240.0	92.72	342.03	6,930.0	2,650.9	-1,965.3	3,135.2	3.55
10,331.0	92.87	341.66	6,925.6	2,737.2	-1,993.7	3,226.1	0.44
10,421.0	92.31	341.45	6,921.5	2,822.5	-2,022.1	3,316.0	0.66
10,510.0	92.72	341.68	6,917.6	2,906.9	-2,050.2	3,404.9	0.53
10,602.0	90.27	342.05	6,915.2	2,994.3	-2,078.8	3,496.8	2.69
10,693.0	89.46	339.00	6,915.4	3,080.1	-2,109.2	3,587.8	3.47
10,784.0	90.94	342.66	6,915.1	3,166.0	-2,139.1	3,678.8	4.34
10,876.0	89.16	341.59	6,915.0	3,253.5	-2,167.3	3,770.8	2.26
10,966.0	88.76	341.42	6,916.6	3,338.9	-2,195.8	3,860.8	0.48
11,058.0	90.47	343.11	6,917.3	3,426.5	-2,223.9	3,952.7	2.61
11,148.0	91.14	344.23	6,916.0	3,512.9	-2,249.2	4,042.7	1.45
11,243.0	89.13	341.14	6,915.8	3,603.5	-2,277.4	4,137.6	3.88
11,337.0	89.29	341.11	6,917.1	3,692.5	-2,307.8	4,231.6	0.17
11,431.0	90.37	343.97	6,917.3	3,782.1	-2,336.0	4,325.6	3.25
11,525.0	89.66	343.85	6,917.3	3,872.5	-2,362.1	4,419.5	0.77
11,619.0	87.68	340.42	6,919.5	3,961.9	-2,390.9	4,513.5	4.21
11,713.0	88.29	340.21	6,922.8	4,050.3	-2,422.6	4,607.4	0.69
11,807.0	88.29	340.15	6,925.6	4,138.7	-2,454.4	4,701.3	0.06
11,901.0	88.93	341.78	6,927.9	4,227.6	-2,485.1	4,795.3	1.86
11,996.0	88.53	340.85	6,930.0	4,317.5	-2,515.5	4,890.3	1.07
12,090.0	90.91	341.32	6,930.5	4,406.4	-2,546.0	4,984.3	2.58
12,184.0	90.30	339.89	6,929.5	4,495.1	-2,577.2	5,078.2	1.65
12,278.0	90.64	341.28	6,928.7	4,583.7	-2,608.4	5,172.2	1.52
12,372.0	89.83	340.41	6,928.3	4,672.5	-2,639.3	5,266.2	1.26
12,466.0	89.43	340.65	6,928.9	4,761.2	-2,670.6	5,360.2	0.50
12,561.0	89.83	342.39	6,929.5	4,851.3	-2,700.7	5,455.2	1.88
12,655.0	89.70	341.65	6,929.9	4,940.7	-2,729.7	5,549.2	0.80
12,749.0	89.93	343.33	6,930.2	5,030.3	-2,758.0	5,643.2	1.80
12,843.0	89.97	343.72	6,930.3	5,120.4	-2,784.7	5,737.1	0.42
12,937.0	90.00	343.15	6,930.3	5,210.5	-2,811.5	5,831.1	0.61
13,031.0	89.10	340.40	6,931.1	5,299.8	-2,840.8	5,925.0	3.08
13,125.0	89.63	339.37	6,932.1	5,388.1	-2,873.2	6,019.0	1.23
13,219.0	88.09	338.95	6,934.0	5,475.9	-2,906.6	6,112.9	1.70
13,313.0	90.30	342.87	6,935.3	5,564.7	-2,937.3	6,206.8	4.79
13,408.0	90.10	340.97	6,935.0	5,655.0	-2,966.8	6,301.8	2.01
13,502.0	87.92	343.34	6,936.6	5,744.5	-2,995.6	6,395.8	3.43
13,596.0	87.61	342.84	6,940.3	5,834.3	-3,022.9	6,489.7	0.63
13,690.0	87.75	342.60	6,944.1	5,924.0	-3,050.8	6,583.6	0.30



Company: Antero Resources
Project: Doddridge County WV
Site: Zimka/Manser Pad
Well: Zimka Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Zimka Unit 2H
TVD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
MD Reference: Patt325: Zimka 2H 1141 GL + 24 KB @ 1165.0us
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)
13,784.0	88.22	342.79	6,947.4	6,013.7	-3,078.8	6,677.5	0.54
13,878.0	88.99	344.09	6,949.6	6,103.8	-3,105.6	6,771.5	1.61
13,971.0	88.33	340.08	6,951.8	6,192.2	-3,134.2	6,864.4	4.37
14,065.0	89.06	340.16	6,954.0	6,280.6	-3,166.1	6,958.4	0.78
14,159.0	89.53	339.83	6,955.1	6,368.9	-3,198.3	7,052.3	0.61
14,253.0	89.93	339.79	6,955.6	6,457.1	-3,230.7	7,146.3	0.43
14,347.0	90.24	340.03	6,955.4	6,545.4	-3,263.0	7,240.2	0.42
14,442.0	89.30	340.65	6,955.8	6,634.9	-3,295.0	7,335.2	1.19
14,536.0	89.19	341.34	6,957.0	6,723.7	-3,325.6	7,429.2	0.74
14,630.0	89.36	340.67	6,958.2	6,812.6	-3,356.2	7,523.2	0.74
14,644.0	89.43	339.90	6,958.4	6,825.8	-3,360.9	7,537.2	5.52
14,696.0	89.43	339.90	6,958.9	6,874.6	-3,378.8	7,589.1	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
6,902.0	6,704.4	-366.8	-871.5	MDLX
7,081.0	6,843.8	-291.8	-952.9	BRKT
7,120.0	6,869.5	-268.4	-970.5	TLLY
7,238.0	6,933.4	-186.0	-1,025.2	HMLM
7,291.0	6,954.1	-143.6	-1,049.4	MRCL_HOT

Checked By: _____ Approved By: _____ Date: _____

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 MORGANTOWN, WV