

RECEIVED

AUG 10 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV



James Unit 2H
Doddridge County WV
Northing: 14248460.26
Easting: 1679287.21
As Drilled



Antero Resources

Precision 523: GL 900' + KB 19' @ 1000.0surf
GI: 990.0

WELL DETAILS James Unit 2H			
Ground Level:	990.0	Latitude	Longitude
+N/S	+E/W	0.0	0.0
0.0	0.0	14248460.26	1679287.21
		39° 14' 15.198 N	80° 51' 45.792 W

Genie Lightfoot
10:49, March 11 2015

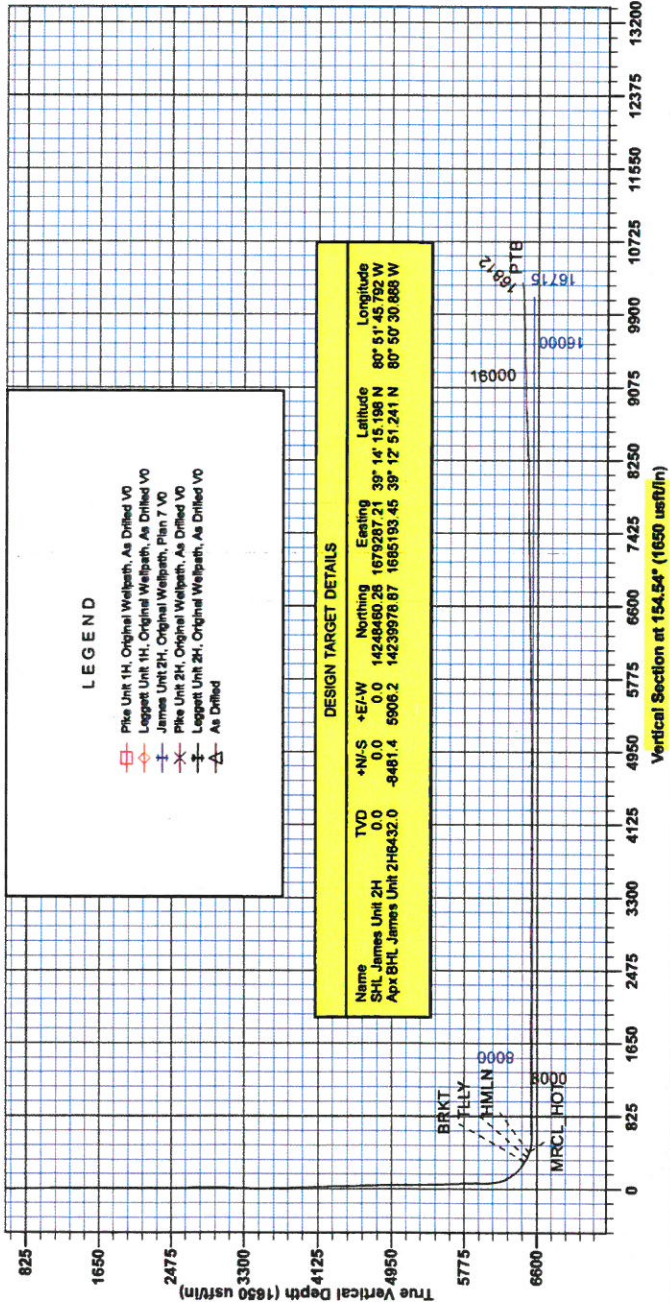
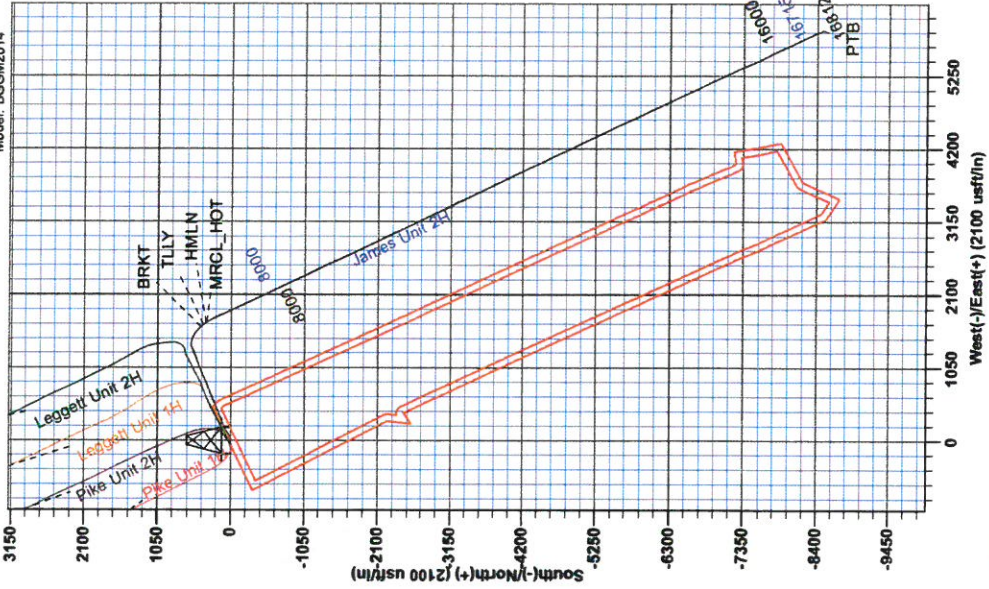
Scientific Drilling
11220 N.W. 10th Street
Yukon, OK 73099

PROJECT DETAILS Doddridge County WV
Geoid: 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:
Robert Williams, 2380 Pkwy, P.O. Box 2380, Yukon, OK 73099
Site Centre Northing: 1679287.21
Easting: 1679287.21
Positional Uncertainty: 0.0
Local North: GHD

Azimuths to Grid North
True North: -0.09°
Magnetic North: -8.50°
Magnetic Field
Strength: 52194.3nT
Dip Angle: 66.81°
Date: 11/03/2014
Model: BCGM2014

To convert Magnetic North to Grid, Subtract 8.50°
To convert True North to Grid, Subtract 0.09°



LEGEND

- Pike Unit 1H, Original Wellpath, As Drilled VO
- Leggett Unit 1H, Original Wellpath, As Drilled VO
- James Unit 2H, Original Wellpath, Plan 7 VO
- Pike Unit 2H, Original Wellpath, As Drilled VO
- Leggett Unit 2H, Original Wellpath, As Drilled VO
- As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude
SHL James Unit 2H	0.0	0.0	0.0	14248460.26	1679287.21	39° 14' 15.198 N	80° 51' 45.792 W
Apr-BHL James Unit 2H-6432.0	-8481.4	5906.2	14239978.67	16685193.45	39° 12' 51.241 N	80° 50' 30.888 W	



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Antero

Doddridge County WV

Robert Williams Pad: Leggett/ Pike Pad/James/McGee

James Unit 2H

Original Wellpath

Design: As Drilled

EOW Completion Report

11 March, 2015



AUG 10 2015



WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well James Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Site:	Robert Williams Pad: Leggett/ Pike Pad/James/M	MD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Well:	James 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	Robert Williams Pad: Leggett/ Pike Pad/James/McGee				
Site Position:		Northing:	14,248,467.61 usft	Latitude:	39° 14' 15.272 N
From:	Map	Easting:	1,679,248.10 usft	Longitude:	80° 51' 46.289 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.09 °

Well	James Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,248,460.26 usft	Latitude:	39° 14' 15.199 N
	+E/-W	0.0 usft	Easting:	1,679,287.21 usft	Longitude:	80° 51' 45.792 W
Position Uncertainty	2.0 usft		Wellhead Elevation:	1,009.0 usft	Ground Level:	990.0 usft

Wellbore	Original Wellpath				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	11/3/2014	-8.42	66.81	52,194

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	154.54

Survey Program		Date 3/11/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
106.0	6,006.0	Survey #5 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,036.0	16,812.0	Survey #2 SDI MWD (Original Wellpath)	MWD SDI	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
106.0	0.43	315.80	106.0	0.3	-0.3	-0.4	0.41
131.0	0.39	336.82	131.0	0.4	-0.4	-0.6	0.62
156.0	0.27	303.34	156.0	0.5	-0.5	-0.7	0.89
181.0	0.26	320.77	181.0	0.6	-0.5	-0.8	0.32
206.0	0.27	305.13	206.0	0.7	-0.6	-0.9	0.29
231.0	0.20	302.64	231.0	0.8	-0.7	-1.0	0.28
256.0	0.33	328.25	256.0	0.8	-0.8	-1.1	0.69
281.0	0.21	317.90	281.0	0.9	-0.9	-1.2	0.52
306.0	0.15	335.58	306.0	1.0	-0.9	-1.3	0.32
331.0	0.14	357.94	331.0	1.1	-0.9	-1.3	0.23

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MORGANTOWN, WV

EOW Completion Report



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Well:	James 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)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
356.0	0.08	50.86	356.0	1.1	-0.9	-1.4	0.45
381.0	0.07	83.20	381.0	1.1	-0.9	-1.4	0.17
406.0	0.12	84.33	406.0	1.1	-0.8	-1.4	0.20
431.0	0.24	97.00	431.0	1.1	-0.8	-1.3	0.50
456.0	0.39	82.95	456.0	1.1	-0.6	-1.3	0.67
481.0	0.36	92.14	481.0	1.1	-0.5	-1.2	0.27
506.0	1.27	81.25	506.0	1.2	-0.1	-1.1	3.68
531.0	1.73	77.67	531.0	1.3	0.5	-0.9	1.88
556.0	2.66	75.26	556.0	1.5	1.5	-0.7	3.74
581.0	3.44	72.63	580.9	1.9	2.7	-0.5	3.17
606.0	3.68	72.72	605.9	2.3	4.2	-0.3	0.96
631.0	3.79	72.48	630.8	2.8	5.8	-0.1	0.44
656.0	4.07	74.44	655.8	3.3	7.4	0.2	1.24
681.0	4.15	73.80	680.7	3.8	9.1	0.5	0.37
706.0	4.56	69.96	705.6	4.4	11.0	0.7	2.01
731.0	4.60	68.74	730.6	5.1	12.8	0.9	0.42
756.0	4.71	68.51	755.5	5.8	14.7	1.0	0.45
781.0	4.74	69.16	780.4	6.6	16.6	1.2	0.25
806.0	4.76	68.85	805.3	7.3	18.6	1.4	0.13
831.0	4.80	69.21	830.2	8.1	20.5	1.5	0.20
856.0	4.76	69.20	855.1	8.8	22.5	1.7	0.16
881.0	4.81	69.17	880.0	9.6	24.4	1.9	0.20
906.0	4.72	68.64	905.0	10.3	26.3	2.0	0.40
931.0	4.31	67.37	929.9	11.0	28.2	2.1	1.69
956.0	4.11	67.68	954.8	11.7	29.9	2.2	0.81
981.0	3.97	68.98	979.7	12.4	31.5	2.3	0.67
1,006.0	3.90	68.99	1,004.7	13.0	33.1	2.5	0.28
1,031.0	3.68	68.98	1,029.6	13.6	34.6	2.6	0.88
1,056.0	3.38	69.68	1,054.6	14.1	36.1	2.7	1.21
1,081.0	3.27	69.14	1,079.5	14.7	37.4	2.9	0.46
1,106.0	3.13	70.28	1,104.5	15.1	38.7	3.0	0.62
1,131.0	2.91	71.89	1,129.5	15.6	40.0	3.1	0.94
1,156.0	2.75	69.77	1,154.4	16.0	41.2	3.3	0.76
1,181.0	2.52	70.26	1,179.4	16.4	42.2	3.4	0.92
1,206.0	2.33	71.91	1,204.4	16.7	43.2	3.5	0.81
1,231.0	2.20	71.49	1,229.4	17.0	44.2	3.6	0.52
1,256.0	2.05	74.79	1,254.4	17.3	45.1	3.8	0.77
1,281.0	1.84	73.71	1,279.3	17.5	45.9	3.9	0.85
1,306.0	1.67	73.37	1,304.3	17.7	46.6	4.0	0.68
1,331.0	1.56	75.33	1,329.3	17.9	47.3	4.1	0.49
1,356.0	1.40	75.96	1,354.3	18.1	47.9	4.3	0.64
1,381.0	1.24	74.02	1,379.3	18.2	48.5	4.4	0.66
1,406.0	1.24	74.86	1,404.3	18.4	49.0	4.5	0.07
1,431.0	1.03	74.20	1,429.3	18.5	49.5	4.6	0.84

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MORGANTOWN, WV

EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well James Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Site:	Robert Williams Pad: Leggett/ Pike Pad/James/M	MD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Well:	James 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)
1,456.0	0.95	79.33	1,454.3	18.6	49.9	4.6	0.48
1,481.0	0.85	76.33	1,479.3	18.7	50.3	4.7	0.44
1,506.0	0.66	72.24	1,504.3	18.8	50.6	4.8	0.79
1,531.0	0.52	72.27	1,529.3	18.9	50.8	4.8	0.56
1,556.0	0.50	73.96	1,554.3	18.9	51.1	4.9	0.10
1,581.0	0.56	79.19	1,579.3	19.0	51.3	4.9	0.31
1,606.0	0.43	69.27	1,604.3	19.0	51.5	4.9	0.62
1,631.0	0.48	74.78	1,629.3	19.1	51.7	5.0	0.27
1,656.0	0.49	75.47	1,654.3	19.1	51.9	5.0	0.05
1,681.0	0.49	75.13	1,679.3	19.2	52.1	5.1	0.01
1,706.0	0.48	82.64	1,704.3	19.2	52.3	5.1	0.26
1,731.0	0.44	83.03	1,729.3	19.3	52.5	5.2	0.16
1,756.0	0.39	77.35	1,754.3	19.3	52.7	5.2	0.26
1,781.0	0.41	79.27	1,779.3	19.3	52.8	5.3	0.10
1,806.0	0.42	76.74	1,804.3	19.4	53.0	5.3	0.08
1,831.0	0.41	76.73	1,829.3	19.4	53.2	5.3	0.04
1,856.0	0.29	78.87	1,854.3	19.4	53.3	5.4	0.48
1,881.0	0.40	80.90	1,879.3	19.5	53.5	5.4	0.44
1,906.0	0.38	81.25	1,904.3	19.5	53.7	5.5	0.08
1,931.0	0.37	89.90	1,929.3	19.5	53.8	5.5	0.23
1,956.0	0.32	94.79	1,954.3	19.5	54.0	5.6	0.23
1,981.0	0.36	92.44	1,979.3	19.5	54.1	5.7	0.17
2,006.0	0.13	86.82	2,004.3	19.5	54.2	5.7	0.92
2,031.0	0.15	114.73	2,029.3	19.5	54.3	5.7	0.28
2,056.0	0.18	125.39	2,054.3	19.4	54.3	5.8	0.17
2,081.0	0.07	80.12	2,079.3	19.4	54.4	5.8	0.56
2,106.0	0.05	110.25	2,104.3	19.4	54.4	5.9	0.15
2,131.0	0.23	126.25	2,129.3	19.4	54.5	5.9	0.73
2,156.0	0.11	124.02	2,154.3	19.3	54.5	6.0	0.48
2,181.0	0.08	106.37	2,179.3	19.3	54.6	6.0	0.17
2,206.0	0.11	151.60	2,204.3	19.3	54.6	6.0	0.31
2,231.0	0.09	134.90	2,229.3	19.3	54.6	6.1	0.14
2,256.0	0.03	85.63	2,254.3	19.3	54.6	6.1	0.30
2,281.0	0.08	122.18	2,279.3	19.2	54.7	6.1	0.23
2,306.0	0.12	356.39	2,304.3	19.3	54.7	6.1	0.72
2,331.0	0.10	171.28	2,329.3	19.3	54.7	6.1	0.88
2,356.0	0.11	129.41	2,354.3	19.2	54.7	6.2	0.30
2,381.0	0.22	161.28	2,379.3	19.2	54.7	6.2	0.56
2,406.0	0.36	129.50	2,404.3	19.1	54.8	6.3	0.83
2,431.0	0.17	176.12	2,429.3	19.0	54.9	6.4	1.09
2,456.0	0.17	162.19	2,454.3	18.9	54.9	6.5	0.16
2,481.0	0.19	135.61	2,479.3	18.9	54.9	6.6	0.34
2,506.0	0.14	138.49	2,504.3	18.8	55.0	6.7	0.20
2,531.0	0.15	171.50	2,529.3	18.7	55.0	6.7	0.33
2,556.0	0.16	186.24	2,554.3	18.7	55.0	6.8	0.16

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LOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well James Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Site:	Robert Williams Pad: Leggett/ Pike Pad/James/M	MD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Well:	James 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)
2,581.0	0.14	198.17	2,579.3	18.6	55.0	6.8	0.15
2,606.0	0.25	116.08	2,604.3	18.6	55.0	6.9	1.08
2,631.0	0.75	118.76	2,629.3	18.5	55.2	7.1	2.00
2,656.0	1.42	114.24	2,654.3	18.3	55.6	7.4	2.70
2,681.0	2.29	113.35	2,679.2	17.9	56.4	8.1	3.48
2,706.0	3.63	109.39	2,704.2	17.5	57.6	9.0	5.42
2,731.0	4.80	104.76	2,729.1	16.9	59.4	10.2	4.87
2,756.0	5.64	101.25	2,754.0	16.4	61.6	11.6	3.59
2,781.0	6.23	95.30	2,778.9	16.1	64.1	13.1	3.41
2,806.0	6.47	84.71	2,803.8	16.1	66.9	14.2	4.78
2,831.0	6.87	74.40	2,828.6	16.6	69.7	15.0	5.04
2,856.0	7.21	67.86	2,853.4	17.6	72.6	15.3	3.48
2,881.0	7.45	63.21	2,878.2	18.9	75.5	15.4	2.56
2,906.0	7.74	59.21	2,903.0	20.5	78.4	15.2	2.41
2,931.0	7.88	57.43	2,927.7	22.3	81.3	14.8	1.12
2,956.0	7.97	57.04	2,952.5	24.2	84.2	14.4	0.42
2,981.0	8.29	56.31	2,977.3	26.1	87.1	13.9	1.34
3,006.0	8.75	55.99	3,002.0	28.2	90.2	13.4	1.85
3,031.0	9.35	55.88	3,026.7	30.4	93.5	12.8	2.40
3,056.0	9.92	55.92	3,051.3	32.7	96.9	12.1	2.28
3,081.0	10.56	55.73	3,075.9	35.2	100.6	11.5	2.56
3,106.0	11.18	55.29	3,100.5	37.9	104.5	10.7	2.50
3,131.0	11.51	54.92	3,125.0	40.7	108.5	9.9	1.35
3,156.0	12.00	54.34	3,149.5	43.6	112.7	9.0	2.02
3,181.0	12.51	54.56	3,173.9	46.7	117.0	8.1	2.05
3,206.0	13.17	55.75	3,198.3	49.9	121.6	7.2	2.84
3,231.0	13.49	56.52	3,222.6	53.1	126.4	6.4	1.46
3,256.0	14.09	57.38	3,246.9	56.4	131.4	5.6	2.54
3,281.0	14.57	57.92	3,271.1	59.7	136.6	4.8	1.99
3,306.0	15.05	58.62	3,295.3	63.0	142.0	4.1	2.05
3,331.0	15.58	59.02	3,319.4	66.4	147.7	3.5	2.16
3,356.0	16.25	59.69	3,343.4	69.9	153.6	2.9	2.78
3,381.0	16.80	60.49	3,367.4	73.5	159.7	2.3	2.38
3,406.0	17.11	61.46	3,391.3	77.0	166.1	1.9	1.68
3,431.0	17.41	63.49	3,415.2	80.5	172.7	1.6	2.69
3,456.0	17.91	64.65	3,439.0	83.8	179.5	1.5	2.45
3,481.0	18.22	65.54	3,462.8	87.0	186.5	1.6	1.66
3,506.0	18.63	66.14	3,486.5	90.3	193.7	1.8	1.81
3,531.0	19.16	66.43	3,510.1	93.5	201.2	2.0	2.15
3,556.0	19.31	66.61	3,533.7	96.8	208.7	2.3	0.65
3,581.0	19.79	66.77	3,557.3	100.1	216.4	2.6	1.93
3,606.0	20.19	66.78	3,580.8	103.5	224.2	3.0	1.60
3,631.0	20.66	67.31	3,604.2	106.9	232.3	3.3	2.02
3,656.0	21.06	67.52	3,627.6	110.3	240.5	3.8	1.63

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



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Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
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Well:	James 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)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
3,681.0	21.46	67.67	3,650.9	113.8	248.9	4.3	1.61
3,706.0	22.07	68.14	3,674.1	117.2	257.5	4.8	2.54
3,731.0	22.52	68.57	3,697.2	120.7	266.3	5.5	1.91
3,756.0	22.60	68.44	3,720.3	124.3	275.2	6.1	0.38
3,781.0	22.78	68.45	3,743.4	127.8	284.2	6.8	0.72
3,806.0	22.98	68.49	3,766.4	131.4	293.2	7.4	0.80
3,831.0	23.09	68.44	3,789.4	135.0	302.3	8.1	0.45
3,856.0	23.27	68.55	3,812.4	138.6	311.5	8.8	0.74
3,881.0	23.70	68.69	3,835.3	142.2	320.8	9.5	1.73
3,906.0	24.11	68.73	3,858.2	145.9	330.2	10.2	1.64
3,931.0	24.65	68.70	3,880.9	149.6	339.8	11.0	2.16
3,956.0	25.23	68.67	3,903.6	153.5	349.6	11.7	2.32
3,981.0	25.88	68.57	3,926.2	157.4	359.7	12.5	2.61
4,006.0	26.76	68.68	3,948.6	161.4	370.0	13.3	3.53
4,031.0	27.11	68.77	3,970.9	165.5	380.5	14.1	1.41
4,056.0	27.25	68.73	3,993.1	169.7	391.2	15.0	0.56
4,081.0	27.42	68.71	4,015.3	173.8	401.9	15.8	0.68
4,106.0	27.55	68.75	4,037.5	178.0	412.6	16.6	0.53
4,131.0	27.59	69.00	4,059.7	182.2	423.4	17.5	0.49
4,156.0	27.47	68.94	4,081.8	186.3	434.2	18.4	0.49
4,181.0	27.73	68.92	4,104.0	190.5	445.0	19.3	1.04
4,206.0	27.93	68.99	4,126.1	194.7	455.9	20.2	0.81
4,231.0	28.02	68.85	4,148.2	198.9	466.9	21.1	0.45
4,256.0	28.27	68.91	4,170.2	203.2	477.9	22.0	1.01
4,281.0	28.24	68.43	4,192.2	207.5	488.9	22.8	0.92
4,306.0	27.91	67.75	4,214.3	211.9	499.8	23.6	1.84
4,331.0	27.91	67.07	4,236.4	216.4	510.6	24.2	1.27
4,356.0	27.55	66.51	4,258.5	220.9	521.3	24.6	1.78
4,381.0	27.38	66.33	4,280.7	225.5	531.9	25.0	0.76
4,406.0	27.16	66.21	4,302.9	230.2	542.3	25.3	0.91
4,431.0	26.86	66.18	4,325.2	234.7	552.7	25.7	1.20
4,456.0	26.97	66.12	4,347.5	239.3	563.1	26.0	0.45
4,481.0	26.61	66.07	4,369.8	243.9	573.4	26.3	1.44
4,506.0	26.39	66.05	4,392.2	248.4	583.6	26.6	0.88
4,531.0	25.97	66.14	4,414.6	252.9	593.7	26.9	1.69
4,556.0	25.98	66.12	4,437.1	257.3	603.7	27.2	0.05
4,581.0	26.16	66.28	4,459.5	261.7	613.7	27.5	0.77
4,606.0	26.30	66.96	4,482.0	266.1	623.9	27.9	1.33
4,631.0	26.37	67.34	4,504.4	270.4	634.1	28.4	0.73
4,656.0	26.66	67.67	4,526.7	274.7	644.4	29.0	1.30
4,681.0	26.89	68.18	4,549.1	278.9	654.8	29.7	1.30
4,706.0	27.23	68.42	4,571.3	283.1	665.4	30.4	1.43
4,731.0	27.24	68.63	4,593.5	287.3	676.1	31.2	0.39
4,756.0	27.66	68.65	4,615.7	291.5	686.8	32.0	1.68

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GEOLOGICAL SURVEY EOW Completion Report



Company: Antero
 Project: Doddridge County WV
 Site: Robert Williams Pad: Leggett/ Pike Pad/James/M
 Well: James Unit 2H
 Wellbore: Original Wellpath
 Design: As Drilled

Local Co-ordinate Reference: Well James Unit 2H
 TVD Reference: Precision 523: GL 990' + KB 19' @ 1009.0usft
 MD Reference: Precision 523: GL 990' + KB 19' @ 1009.0usft
 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)
4,781.0	27.65	68.62	4,637.9	295.8	697.6	32.8	0.07
4,806.0	27.71	68.50	4,660.0	300.0	708.4	33.7	0.33
4,831.0	27.85	68.56	4,682.1	304.3	719.2	34.5	0.57
4,856.0	27.37	68.40	4,704.3	308.5	730.0	35.3	1.94
4,881.0	27.28	68.32	4,726.5	312.7	740.7	36.0	0.39
4,906.0	26.70	67.99	4,748.8	317.0	751.2	36.8	2.40
4,931.0	26.44	67.69	4,771.1	321.2	761.6	37.4	1.17
4,956.0	26.30	67.41	4,793.5	325.4	771.8	38.0	0.75
4,981.0	26.21	67.22	4,816.0	329.7	782.0	38.5	0.49
5,006.0	26.32	67.06	4,838.4	334.0	792.2	39.0	0.52
5,031.0	26.66	67.09	4,860.7	338.3	802.5	39.5	1.36
5,056.0	26.73	67.18	4,883.1	342.7	812.9	40.0	0.32
5,081.0	26.87	67.08	4,905.4	347.1	823.2	40.5	0.59
5,106.0	26.93	67.11	4,927.7	351.5	833.7	41.0	0.25
5,131.0	27.28	67.18	4,949.9	355.9	844.2	41.5	1.41
5,156.0	27.40	67.31	4,972.2	360.3	854.8	42.1	0.54
5,181.0	27.35	66.98	4,994.4	364.8	865.3	42.6	0.64
5,206.0	27.28	66.39	5,016.6	369.4	875.9	43.0	1.12
5,231.0	26.81	65.85	5,038.8	374.0	886.3	43.4	2.12
5,256.0	26.18	65.11	5,061.2	378.6	896.4	43.5	2.84
5,281.0	25.71	64.44	5,083.7	383.2	906.3	43.6	2.22
5,306.0	25.93	64.44	5,106.2	387.9	916.1	43.6	0.88
5,331.0	25.74	64.35	5,128.7	392.6	926.0	43.5	0.78
5,356.0	25.96	64.47	5,151.2	397.4	935.8	43.5	0.90
5,381.0	26.12	64.53	5,173.7	402.1	945.7	43.5	0.65
5,406.0	26.29	64.71	5,196.1	406.8	955.7	43.5	0.75
5,431.0	26.13	65.09	5,218.5	411.5	965.7	43.6	0.93
5,456.0	26.14	65.26	5,241.0	416.1	975.7	43.7	0.30
5,481.0	26.13	65.50	5,263.4	420.7	985.7	43.9	0.42
5,506.0	26.23	66.03	5,285.8	425.2	995.7	44.1	1.02
5,531.0	26.37	66.40	5,308.2	429.7	1,005.9	44.4	0.86
5,556.0	26.51	66.69	5,330.6	434.1	1,016.1	44.8	0.76
5,581.0	26.58	67.17	5,353.0	438.5	1,026.4	45.3	0.90
5,606.0	26.46	67.66	5,375.4	442.8	1,036.7	45.8	1.00
5,631.0	26.54	68.09	5,397.7	447.0	1,047.0	46.5	0.83
5,656.0	26.24	68.49	5,420.1	451.1	1,057.3	47.2	1.39
5,681.0	25.80	68.60	5,442.6	455.1	1,067.5	48.0	1.77
5,706.0	25.68	68.63	5,465.1	459.1	1,077.6	48.8	0.48
5,731.0	25.46	68.68	5,487.7	463.0	1,087.7	49.5	0.88
5,756.0	25.34	68.80	5,510.3	466.9	1,097.7	50.3	0.52
5,781.0	25.05	68.86	5,532.9	470.7	1,107.6	51.1	1.16
5,806.0	25.11	69.41	5,555.5	474.5	1,117.5	52.0	0.96
5,831.0	24.87	69.72	5,578.2	478.2	1,127.4	52.9	1.09
5,856.0	24.78	70.27	5,600.9	481.8	1,137.3	53.9	0.99

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EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well James Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Site:	Robert Williams Pad: Leggett/ Pike Pad/James/M	MD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Well:	James 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)
5,881.0	25.01	70.25	5,623.5	485.3	1,147.2	54.9	0.92
5,906.0	24.85	69.93	5,646.2	488.9	1,157.1	56.0	0.84
5,931.0	24.61	70.08	5,668.9	492.5	1,166.9	57.0	0.99
5,956.0	25.08	70.34	5,691.6	496.1	1,176.8	58.0	1.93
5,981.0	25.03	70.70	5,714.3	499.6	1,186.8	59.1	0.64
6,006.0	25.13	71.05	5,736.9	503.1	1,196.8	60.3	0.72
6,036.0	25.11	68.32	5,764.1	507.5	1,208.7	61.4	3.86
6,066.0	25.65	67.82	5,791.2	512.3	1,220.7	62.2	1.94
6,096.0	26.11	67.22	5,818.2	517.3	1,232.8	62.9	1.76
6,126.0	25.84	67.18	5,845.1	522.4	1,244.9	63.5	0.90
6,156.0	25.94	66.30	5,872.1	527.6	1,256.9	64.0	1.32
6,186.0	25.71	66.27	5,899.1	532.8	1,268.9	64.4	0.77
6,216.0	25.87	66.04	5,926.1	538.1	1,280.8	64.8	0.63
6,246.0	25.34	65.73	5,953.2	543.4	1,292.6	65.1	1.82
6,276.0	24.92	65.41	5,980.3	548.7	1,304.2	65.3	1.47
6,305.0	24.68	64.93	6,006.7	553.8	1,315.3	65.4	1.08
6,335.0	24.53	63.18	6,034.0	559.2	1,326.5	65.3	2.48
6,365.0	24.56	65.00	6,061.2	564.7	1,337.7	65.2	2.52
6,395.0	26.04	72.51	6,088.4	569.3	1,349.7	66.2	11.77
6,425.0	28.82	79.99	6,115.0	572.5	1,363.1	69.0	14.74
6,455.0	31.12	84.06	6,141.0	574.6	1,377.9	73.5	10.23
6,484.0	32.37	87.03	6,165.7	575.8	1,393.1	79.0	6.90
6,514.0	33.00	94.49	6,190.9	575.5	1,409.3	86.2	13.58
6,544.0	33.94	101.00	6,215.9	573.3	1,425.6	95.2	12.37
6,574.0	35.39	104.32	6,240.6	569.6	1,442.3	105.8	7.93
6,604.0	37.43	107.24	6,264.8	564.7	1,459.4	117.5	8.92
6,634.0	39.31	111.20	6,288.3	558.6	1,477.0	130.6	10.31
6,664.0	40.32	115.31	6,311.3	551.0	1,494.6	145.0	9.39
6,694.0	42.13	119.84	6,333.9	541.8	1,512.1	160.8	11.63
6,724.0	44.68	123.80	6,355.7	530.9	1,529.6	178.2	12.43
6,753.0	46.73	127.15	6,376.0	518.9	1,546.5	196.3	10.88
6,783.0	49.67	129.55	6,396.0	505.0	1,564.1	216.4	11.47
6,813.0	52.02	132.09	6,414.9	489.8	1,581.6	237.7	10.22
6,843.0	54.25	134.27	6,432.9	473.4	1,599.1	260.0	9.44
6,873.0	56.85	137.73	6,449.9	455.6	1,616.3	283.5	12.87
6,903.0	59.64	138.29	6,465.7	436.6	1,633.4	307.9	9.43
6,906.0	59.89	138.39	6,467.2	434.7	1,635.1	310.4	8.90
BRKT							
6,932.0	62.08	139.25	6,479.8	417.6	1,650.1	332.3	8.90
6,962.0	64.28	141.08	6,493.3	397.0	1,667.2	358.2	9.13
6,963.0	64.36	141.19	6,493.7	396.3	1,667.8	359.1	13.02
TLLY							
6,992.0	66.84	144.32	6,505.7	375.3	1,683.8	385.0	13.02
7,019.0	69.99	146.35	6,515.7	354.6	1,698.0	409.8	13.60
HMLN							

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WV GEOLOGICAL SURVEY EOW Completion Report
MORGANTOWN, WV



Company:	Antero	Local Co-ordinate Reference:	Well James Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Site:	Robert Williams Pad: Leggett/ Pike Pad/James/M	MD Reference:	Precision 523: GL 990' + KB 19' @ 1009.0usft
Well:	James 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)
7,022.0	70.34	146.57	6,516.7	352.3	1,699.6	412.5	13.60
7,033.0	71.92	146.86	6,520.2	343.6	1,705.3	422.9	14.54
MRCL_HOT							
7,052.0	74.64	147.34	6,525.7	328.3	1,715.2	440.9	14.54
7,082.0	78.42	149.60	6,532.7	303.4	1,730.4	469.9	14.57
7,112.0	81.30	151.83	6,538.0	277.7	1,744.9	499.4	12.07
7,135.0	84.15	153.03	6,540.9	257.5	1,755.4	522.2	13.43
7,166.0	89.16	154.24	6,542.7	229.7	1,769.2	553.1	16.62
7,195.0	91.98	154.77	6,542.4	203.6	1,781.6	582.1	9.89
7,243.0	92.69	154.36	6,540.4	160.3	1,802.2	630.0	1.71
7,333.0	91.08	155.39	6,537.5	78.8	1,840.4	720.0	2.12
7,422.0	90.44	155.52	6,536.3	-2.1	1,877.4	809.0	0.73
7,512.0	90.20	154.55	6,535.8	-83.7	1,915.4	899.0	1.11
7,601.0	90.13	154.66	6,535.5	-164.1	1,953.6	988.0	0.15
7,691.0	90.04	154.17	6,535.4	-245.3	1,992.4	1,078.0	0.55
7,781.0	90.70	154.67	6,534.8	-326.5	2,031.3	1,168.0	0.92
7,870.0	89.70	154.65	6,534.5	-406.9	2,069.4	1,257.0	1.12
7,960.0	90.13	154.01	6,534.7	-488.0	2,108.4	1,347.0	0.86
8,049.0	90.07	155.79	6,534.5	-568.6	2,146.1	1,436.0	2.00
8,139.0	90.40	155.79	6,534.1	-650.7	2,183.0	1,525.9	0.37
8,229.0	90.84	154.53	6,533.2	-732.4	2,220.8	1,615.9	1.48
8,318.0	89.70	155.70	6,532.7	-813.1	2,258.3	1,704.9	1.84
8,408.0	90.67	154.57	6,532.4	-894.7	2,296.1	1,794.9	1.65
8,497.0	88.96	153.76	6,532.7	-974.8	2,334.9	1,883.9	2.13
8,587.0	89.16	154.00	6,534.2	-1,055.6	2,374.5	1,973.9	0.35
8,676.0	89.46	153.78	6,535.3	-1,135.6	2,413.7	2,062.9	0.42
8,766.0	89.46	153.32	6,536.1	-1,216.1	2,453.8	2,152.8	0.51
8,855.0	89.76	153.10	6,536.7	-1,295.6	2,493.9	2,241.8	0.42
8,945.0	90.03	155.93	6,536.9	-1,376.8	2,532.6	2,331.8	3.16
9,034.0	90.30	155.77	6,536.6	-1,458.0	2,569.0	2,420.8	0.35
9,124.0	90.47	155.63	6,536.0	-1,540.0	2,606.0	2,510.8	0.24
9,213.0	90.81	154.60	6,535.0	-1,620.8	2,643.5	2,599.8	1.22
9,303.0	90.50	154.52	6,534.0	-1,702.0	2,682.1	2,689.8	0.36
9,392.0	90.67	155.41	6,533.1	-1,782.7	2,719.8	2,778.7	1.02
9,482.0	90.17	153.24	6,532.4	-1,863.8	2,758.8	2,868.7	2.47
9,572.0	88.82	152.98	6,533.2	-1,944.0	2,799.5	2,958.7	1.53
9,661.0	88.56	154.86	6,535.3	-2,024.0	2,838.6	3,047.7	2.13
9,751.0	89.63	155.21	6,536.7	-2,105.5	2,876.6	3,137.7	1.25
9,840.0	90.13	154.49	6,536.9	-2,186.1	2,914.4	3,226.7	0.98
9,930.0	90.47	153.65	6,536.4	-2,267.0	2,953.8	3,316.6	1.01
10,019.0	90.67	153.24	6,535.5	-2,346.6	2,993.6	3,405.6	0.51
10,109.0	89.60	154.88	6,535.3	-2,427.6	3,032.9	3,495.6	2.18
10,198.0	89.87	154.68	6,535.7	-2,508.1	3,070.8	3,584.6	0.38
10,288.0	89.87	155.32	6,535.9	-2,589.7	3,108.9	3,674.6	0.71

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EOW Completion Report



Reservoir GEOLOGICAL SURVEY MORGANTOWN, WV

Company: Antero
Project: Doddridge County WV
Site: Robert Williams Pad: Leggett/ Pike Pad/James/M
Well: James Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

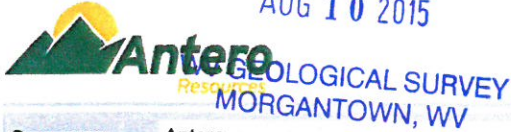
Local Co-ordinate Reference: Well James Unit 2H
TVD Reference: Precision 523: GL 990' + KB 19' @ 1009.0usft
MD Reference: Precision 523: GL 990' + KB 19' @ 1009.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
10,382.0	89.73	155.79	6,536.3	-2,675.2	3,147.8	3,768.6	0.52
10,476.0	89.73	155.62	6,536.7	-2,760.9	3,186.5	3,862.6	0.18
10,570.0	90.47	155.35	6,536.5	-2,846.4	3,225.5	3,956.6	0.84
10,664.0	90.34	154.93	6,535.9	-2,931.7	3,265.0	4,050.6	0.47
10,758.0	90.37	153.10	6,535.3	-3,016.2	3,306.2	4,144.5	1.95
10,851.0	89.70	153.25	6,535.2	-3,099.2	3,348.1	4,237.5	0.74
10,945.0	89.40	154.76	6,536.0	-3,183.7	3,389.3	4,331.5	1.64
11,039.0	90.00	154.26	6,536.5	-3,268.5	3,429.8	4,425.5	0.83
11,133.0	90.24	154.35	6,536.3	-3,353.2	3,470.5	4,519.5	0.27
11,227.0	90.71	154.15	6,535.5	-3,437.9	3,511.4	4,613.5	0.54
11,321.0	89.16	155.55	6,535.6	-3,523.0	3,551.3	4,707.5	2.22
11,415.0	88.39	154.77	6,537.6	-3,608.3	3,590.8	4,801.5	1.17
11,504.0	90.64	155.22	6,538.4	-3,688.9	3,628.4	4,890.5	2.58
11,593.0	90.67	154.20	6,537.3	-3,769.4	3,666.4	4,979.4	1.15
11,683.0	90.77	153.10	6,536.2	-3,850.0	3,706.4	5,069.4	1.23
11,772.0	90.60	154.69	6,535.1	-3,929.9	3,745.5	5,158.4	1.80
11,862.0	90.84	153.55	6,534.0	-4,010.9	3,784.8	5,248.4	1.29
11,951.0	90.47	154.76	6,533.0	-4,091.0	3,823.6	5,337.4	1.42
12,041.0	90.44	154.47	6,532.3	-4,172.3	3,862.2	5,427.4	0.32
12,130.0	91.21	155.00	6,531.0	-4,252.8	3,900.2	5,516.4	1.05
12,220.0	91.31	154.23	6,529.0	-4,334.1	3,938.7	5,606.4	0.86
12,309.0	90.54	155.76	6,527.6	-4,414.7	3,976.4	5,695.3	1.92
12,399.0	90.81	155.20	6,526.5	-4,496.6	4,013.7	5,785.3	0.69
12,488.0	90.50	155.12	6,525.5	-4,577.3	4,051.1	5,874.3	0.36
12,578.0	90.81	155.84	6,524.5	-4,659.2	4,088.4	5,964.3	0.87
12,667.0	90.97	154.23	6,523.1	-4,739.9	4,126.0	6,053.3	1.82
12,757.0	91.04	153.68	6,521.5	-4,820.7	4,165.5	6,143.3	0.62
12,847.0	90.97	153.61	6,519.9	-4,901.4	4,205.5	6,233.2	0.11
12,936.0	90.84	154.07	6,518.5	-4,981.3	4,244.7	6,322.2	0.54
13,026.0	90.57	153.99	6,517.4	-5,062.2	4,284.1	6,412.2	0.31
13,115.0	91.41	155.08	6,515.9	-5,142.5	4,322.4	6,501.2	1.55
13,204.0	91.58	155.72	6,513.6	-5,223.4	4,359.4	6,590.1	0.74
13,294.0	91.04	154.05	6,511.5	-5,304.9	4,397.6	6,680.1	1.95
13,383.0	90.94	153.28	6,510.0	-5,384.6	4,437.1	6,769.1	0.87
13,472.0	90.30	153.66	6,509.0	-5,464.2	4,476.8	6,858.1	0.84
13,562.0	90.50	154.88	6,508.4	-5,545.3	4,515.9	6,948.1	1.37
13,652.0	90.67	154.87	6,507.5	-5,626.8	4,554.1	7,038.1	0.19
13,741.0	90.74	154.52	6,506.4	-5,707.2	4,592.1	7,127.0	0.40
13,831.0	90.57	154.36	6,505.3	-5,788.4	4,631.0	7,217.0	0.26
13,920.0	91.78	154.28	6,503.5	-5,868.6	4,669.5	7,306.0	1.36
14,009.0	90.87	154.37	6,501.5	-5,948.8	4,708.1	7,395.0	1.03
14,099.0	90.70	155.93	6,500.2	-6,030.5	4,745.9	7,485.0	1.74
14,188.0	90.60	154.72	6,499.2	-6,111.3	4,783.0	7,574.0	1.36
14,278.0	91.75	154.96	6,497.4	-6,192.8	4,821.3	7,663.9	1.31

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EOW Completion Report



Company: Antero
Project: Doddridge County WV
Site: Robert Williams Pad: Leggett/ Pike Pad/James/M
Well: James Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well James Unit 2H
TVD Reference: Precision 523: GL 990' + KB 19' @ 1009.0usft
MD Reference: Precision 523: GL 990' + KB 19' @ 1009.0usft
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)
14,367.0	90.81	155.12	6,495.4	-6,273.4	4,858.8	7,752.9	1.07
14,457.0	90.54	154.42	6,494.3	-6,354.8	4,897.2	7,842.9	0.83
14,546.0	90.57	154.17	6,493.5	-6,435.0	4,935.8	7,931.9	0.28
14,636.0	89.56	154.65	6,493.4	-6,516.2	4,974.7	8,021.9	1.24
14,726.0	90.64	154.22	6,493.2	-6,597.4	5,013.5	8,111.9	1.29
14,815.0	91.85	154.37	6,491.3	-6,677.6	5,052.1	8,200.9	1.37
14,905.0	92.01	155.03	6,488.2	-6,758.9	5,090.5	8,290.8	0.75
14,994.0	91.98	154.74	6,485.1	-6,839.4	5,128.3	8,379.8	0.33
15,084.0	92.55	155.49	6,481.6	-6,921.0	5,166.1	8,469.7	1.05
15,174.0	92.28	153.72	6,477.8	-7,002.2	5,204.7	8,559.6	1.99
15,264.0	91.68	153.27	6,474.7	-7,082.7	5,244.8	8,649.5	0.83
15,353.0	92.96	153.50	6,471.1	-7,162.2	5,284.7	8,738.4	1.46
15,443.0	92.38	154.27	6,466.9	-7,242.9	5,324.2	8,828.3	1.07
15,532.0	91.48	154.62	6,463.9	-7,323.2	5,362.6	8,917.3	1.08
15,622.0	90.84	154.85	6,462.1	-7,404.6	5,401.0	9,007.3	0.76
15,711.0	90.20	154.83	6,461.3	-7,485.1	5,438.9	9,096.3	0.72
15,801.0	90.10	154.75	6,461.0	-7,566.5	5,477.2	9,186.3	0.14
15,890.0	93.29	155.38	6,458.4	-7,647.2	5,514.7	9,275.2	3.65
15,980.0	93.19	154.32	6,453.3	-7,728.5	5,552.9	9,365.1	1.18
16,070.0	91.34	154.65	6,449.7	-7,809.7	5,591.6	9,455.0	2.09
16,159.0	90.44	154.39	6,448.4	-7,890.0	5,629.9	9,544.0	1.05
16,249.0	91.34	154.46	6,447.0	-7,971.2	5,668.7	9,634.0	1.00
16,338.0	92.18	154.41	6,444.2	-8,051.4	5,707.1	9,722.9	0.95
16,428.0	91.08	153.90	6,441.7	-8,132.4	5,746.3	9,812.9	1.35
16,517.0	90.94	155.75	6,440.1	-8,212.9	5,784.2	9,901.9	2.08
16,607.0	91.28	155.88	6,438.4	-8,295.0	5,821.1	9,991.8	0.40
16,696.0	91.81	155.02	6,436.0	-8,376.0	5,858.0	10,080.8	1.13
16,753.0	91.97	155.56	6,434.1	-8,427.7	5,881.8	10,137.7	0.99
16,812.0	91.97	155.56	6,432.0	-8,481.4	5,906.2	10,196.7	0.00

PTB

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
6,906.0	6,467.2	434.7	1,635.1	BRKT
6,963.0	6,493.7	396.3	1,667.8	TLLY
7,019.0	6,515.7	354.6	1,698.0	HMLN
7,033.0	6,520.2	343.6	1,705.3	MRCL_HOT
16,812.0	6,432.0	-8,481.4	5,906.2	PTB

Checked By: _____ Approved By: _____ Date: _____