

JUL 27 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV



Precision S23: GI 1055' ± KB 1' @ 1074.0usft
GT: 1055.0

Leason Run Unit 2H
Doddridge County WV
Northing: 14261486.57
Eastings: 1673607.05
As Drilled



Scientific Drilling

Genie Lightfoot
10:47, December 10 2014
Scientific Drilling
11220 N.W. 10th Street
Yukon, OK 73099

Azimuths to Grid North
True North: -0.07°
Magnetic North: -8.48°
Magnetic Field
Strength: 52233.2nT
Dip Angle: 66.85°
Date: 9/9/2014
Model: BGGM2014

To convert Magnetic North to Grid, Subtract 8.48°
To convert True North to Grid, Subtract 0.07°

WELL DETAILS Leason Run Unit 2H
Ground Level: 1055.0
Northing: 14261486.57
Eastings: 1673607.059° 15' 24.078 N0° 52' 57.786 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

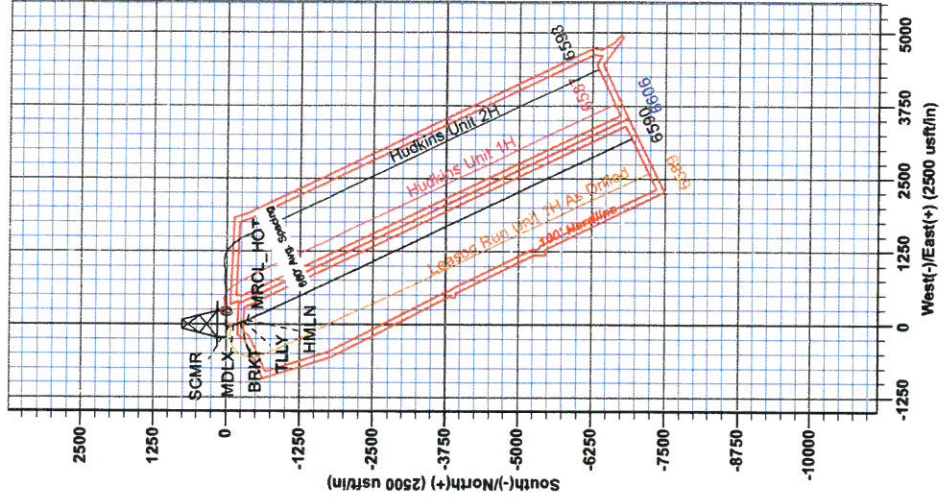
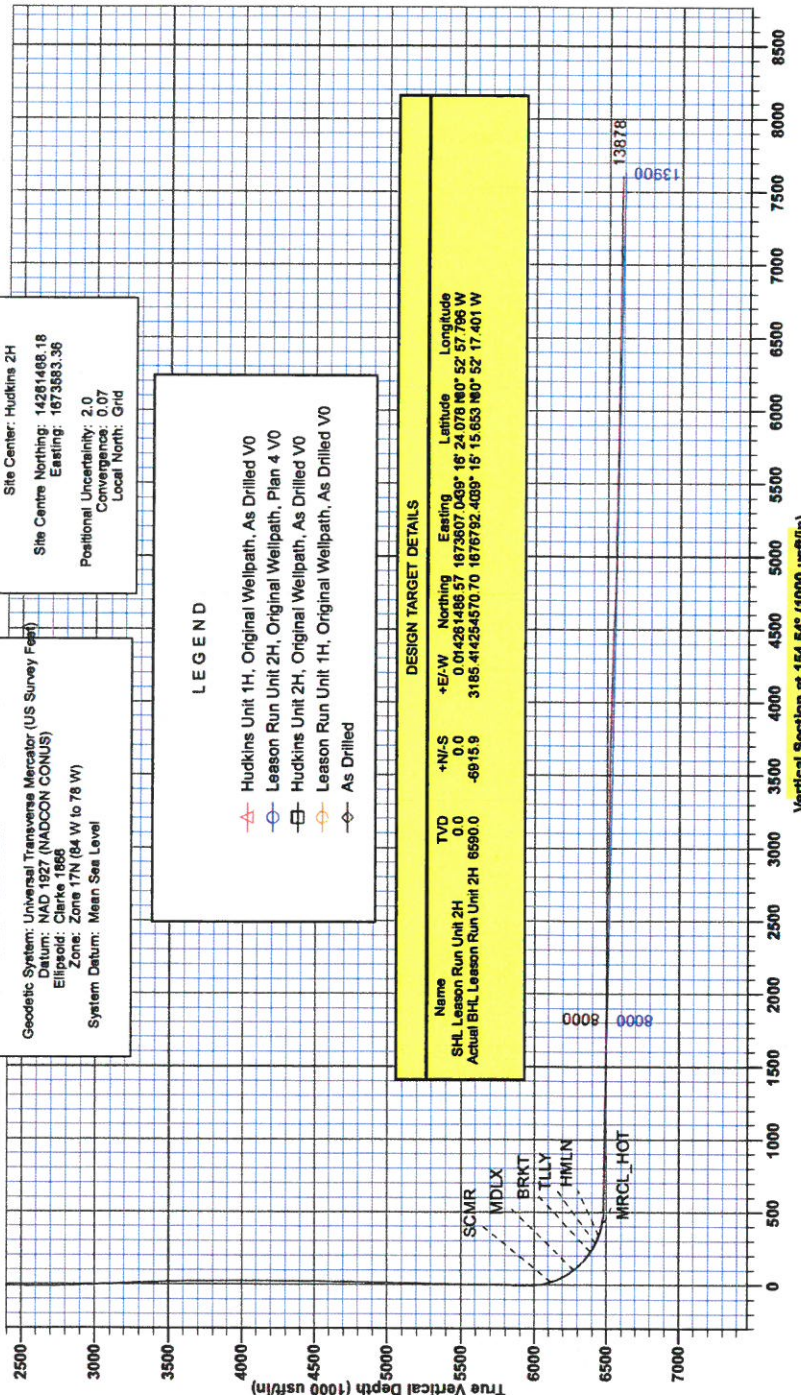
SITE DETAILS: Hudkims/Leason/Pad
Site Center: Hudkims 2H
Site Centre Northing: 14261486.18
Eastings: 1673583.36
Positional Uncertainty: 2.0
Convergence: 0.07
Local North: Grid

DESIGN TARGET DETAILS

Name	TVD	+N/S	Northing	Eastings	Latitude	Longitude
SHL Leason Run Unit 2H	0.0	0.0	0.0	14261486.57	1673607.069°	15° 24' 07.8 N0° 52' 57.786 W
Actual BHL Leason Run Unit 2H	6590.0	-89.15.9	3185.414254570.70	1676792.4099°	15° 15' 6.53 N0° 52' 17.401 W	

LEGEND

- ▲ Hudkims Unit 1H, Original Wellpath, As Drilled V0
- Leason Run Unit 2H, Original Wellpath, Plan 4 V0
- Hudkims Unit 2H, Original Wellpath, As Drilled V0
- ◇ Leason Run Unit 1H, Original Wellpath, As Drilled V0
- ◇ As Drilled





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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Antero Resources

Doddridge County WV
Hudkins/Leason/Pad
Leason Run Unit 2H
Original Wellpath

Design: As Drilled

EOW Completion Report

10 December, 2014



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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Leason Run Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 1055' + KB 19' @ 1074.0usft
Site:	Hudkins/Leason/Pad	MD Reference:	Precision 523: GL 1055' + KB 19' @ 1074.0usft
Well:	Leason Run 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 Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Hudkins/Leason/Pad				
Site Position:		Northing:	14,261,468.18 usft	Latitude:	39° 16' 23.897 N
From:	Map	Easting:	1,673,583.36 usft	Longitude:	80° 52' 58.098 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.07 °

Well	Leason Run Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,261,486.57 usft	Latitude:	39° 16' 24.078 N
	+E/-W	0.0 usft	Easting:	1,673,607.05 usft	Longitude:	80° 52' 57.796 W
Position Uncertainty	2.0 usft		Wellhead Elevation:	1,074.0 usft	Ground Level:	1,055.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	9/9/2014	-8.41	66.85	52,233

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	154.54	

Survey Program	Date 12/10/2014				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
106.0	5,736.0	Survey #6 Final Gyro (Original Wellpath)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,768.0	13,878.0	Survey #7 MWD SDI (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	
106.0	0.49	326.08	106.0	0.4	-0.3	-0.4	0.46		
131.0	0.48	332.45	131.0	0.6	-0.4	-0.7	0.22		
156.0	0.33	338.92	156.0	0.7	-0.4	-0.8	0.63		
181.0	0.26	329.35	181.0	0.8	-0.5	-1.0	0.34		
206.0	0.30	323.55	206.0	0.9	-0.6	-1.1	0.20		
231.0	0.22	336.77	231.0	1.0	-0.6	-1.2	0.40		
256.0	0.13	335.34	256.0	1.1	-0.6	-1.3	0.36		
281.0	0.05	287.13	281.0	1.1	-0.7	-1.3	0.41		
306.0	0.14	288.19	306.0	1.1	-0.7	-1.3	0.36		
331.0	0.13	313.03	331.0	1.2	-0.8	-1.4	0.24		

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MORGANTOWN, WV

EOW Completion Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Leason Run Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 1055' + KB 19' @ 1074.0usft
Site:	Hudkins/Leason/Pad	MD Reference:	Precision 523: GL 1055' + KB 19' @ 1074.0usft
Well:	Leason Run Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
356.0	0.16	308.18	356.0	1.2	-0.8	-1.4	0.13
381.0	0.07	290.21	381.0	1.2	-0.8	-1.5	0.38
406.0	0.04	322.13	406.0	1.3	-0.9	-1.5	0.17
431.0	0.07	104.82	431.0	1.3	-0.9	-1.5	0.42
456.0	0.03	29.14	456.0	1.3	-0.8	-1.5	0.28
481.0	0.06	36.57	481.0	1.3	-0.8	-1.5	0.12
506.0	0.07	107.49	506.0	1.3	-0.8	-1.5	0.30
531.0	0.18	119.81	531.0	1.3	-0.8	-1.5	0.45
556.0	0.15	96.88	556.0	1.2	-0.7	-1.4	0.29
581.0	0.11	125.67	581.0	1.2	-0.6	-1.4	0.30
606.0	0.08	101.46	606.0	1.2	-0.6	-1.3	0.20
631.0	0.11	89.96	631.0	1.2	-0.6	-1.3	0.14
656.0	0.06	97.30	656.0	1.2	-0.5	-1.3	0.20
681.0	0.08	119.54	681.0	1.2	-0.5	-1.3	0.13
706.0	0.06	140.68	706.0	1.2	-0.5	-1.3	0.13
731.0	0.04	169.50	731.0	1.1	-0.5	-1.2	0.13
756.0	0.09	164.64	756.0	1.1	-0.5	-1.2	0.20
781.0	0.04	104.54	781.0	1.1	-0.4	-1.2	0.31
806.0	0.04	55.80	806.0	1.1	-0.4	-1.2	0.13
831.0	0.11	11.00	831.0	1.1	-0.4	-1.2	0.35
856.0	0.06	327.51	856.0	1.2	-0.4	-1.2	0.31
881.0	0.02	-0.86	881.0	1.2	-0.4	-1.2	0.18
906.0	0.10	318.25	906.0	1.2	-0.4	-1.3	0.35
931.0	0.03	326.25	931.0	1.2	-0.5	-1.3	0.28
956.0	0.11	285.57	956.0	1.2	-0.5	-1.3	0.36
981.0	0.08	284.18	981.0	1.2	-0.5	-1.3	0.12
1,006.0	0.08	286.61	1,006.0	1.3	-0.6	-1.4	0.01
1,031.0	0.11	325.93	1,031.0	1.3	-0.6	-1.4	0.28
1,056.0	0.05	125.78	1,056.0	1.3	-0.6	-1.4	0.63
1,081.0	0.14	297.57	1,081.0	1.3	-0.6	-1.4	0.76
1,106.0	0.08	326.63	1,106.0	1.3	-0.6	-1.5	0.32
1,131.0	0.07	287.35	1,131.0	1.3	-0.7	-1.5	0.21
1,156.0	0.34	317.98	1,156.0	1.4	-0.7	-1.6	1.13
1,181.0	0.07	351.68	1,181.0	1.5	-0.8	-1.7	1.14
1,206.0	0.19	310.26	1,206.0	1.5	-0.8	-1.7	0.58
1,231.0	0.20	308.30	1,231.0	1.6	-0.9	-1.8	0.05
1,256.0	0.41	315.95	1,256.0	1.7	-1.0	-1.9	0.85
1,281.0	0.36	307.35	1,281.0	1.8	-1.1	-2.1	0.31
1,306.0	0.27	296.63	1,306.0	1.8	-1.2	-2.2	0.43
1,331.0	0.30	306.83	1,331.0	1.9	-1.3	-2.3	0.24
1,356.0	0.34	306.54	1,356.0	2.0	-1.4	-2.4	0.16
1,381.0	0.30	300.60	1,381.0	2.1	-1.6	-2.5	0.21
1,406.0	0.34	291.66	1,406.0	2.1	-1.7	-2.7	0.26
1,431.0	0.24	292.44	1,431.0	2.2	-1.8	-2.7	0.40

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GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



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

Local Co-ordinate Reference: Well Leason Run Unit 2H
TVD Reference: Precision 523: GL 1055' + KB 19' @ 1074.0usft
MD Reference: Precision 523: GL 1055' + KB 19' @ 1074.0usft
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)
1,456.0	0.32	289.14	1,456.0	2.2	-1.9	-2.8	0.33
1,481.0	0.34	291.73	1,481.0	2.3	-2.0	-2.9	0.10
1,506.0	0.41	288.35	1,506.0	2.3	-2.2	-3.1	0.29
1,531.0	0.41	287.82	1,531.0	2.4	-2.4	-3.2	0.02
1,556.0	0.53	295.16	1,556.0	2.5	-2.6	-3.3	0.54
1,581.0	0.55	300.17	1,581.0	2.6	-2.8	-3.5	0.21
1,606.0	0.68	301.93	1,606.0	2.7	-3.0	-3.7	0.53
1,631.0	0.56	300.12	1,631.0	2.9	-3.2	-4.0	0.49
1,656.0	0.57	301.53	1,656.0	3.0	-3.4	-4.2	0.07
1,681.0	0.48	308.43	1,681.0	3.1	-3.6	-4.4	0.44
1,706.0	0.60	310.52	1,706.0	3.3	-3.8	-4.6	0.49
1,731.0	0.55	317.20	1,731.0	3.4	-4.0	-4.8	0.33
1,756.0	0.37	304.56	1,756.0	3.6	-4.1	-5.0	0.82
1,781.0	0.43	317.69	1,781.0	3.7	-4.3	-5.2	0.44
1,806.0	0.28	320.29	1,806.0	3.8	-4.4	-5.3	0.60
1,831.0	0.32	318.93	1,831.0	3.9	-4.5	-5.4	0.16
1,856.0	0.35	309.23	1,856.0	4.0	-4.6	-5.6	0.26
1,881.0	0.27	328.61	1,881.0	4.1	-4.7	-5.7	0.52
1,906.0	0.22	304.12	1,906.0	4.2	-4.7	-5.8	0.46
1,931.0	0.17	335.39	1,931.0	4.2	-4.8	-5.9	0.46
1,956.0	0.21	315.01	1,956.0	4.3	-4.8	-6.0	0.31
1,981.0	0.16	327.27	1,981.0	4.4	-4.9	-6.0	0.25
2,006.0	0.15	312.81	2,006.0	4.4	-4.9	-6.1	0.16
2,031.0	0.20	327.00	2,031.0	4.5	-5.0	-6.2	0.26
2,056.0	0.26	313.12	2,056.0	4.5	-5.0	-6.3	0.33
2,081.0	0.20	308.58	2,081.0	4.6	-5.1	-6.4	0.25
2,106.0	0.33	320.91	2,106.0	4.7	-5.2	-6.5	0.56
2,131.0	0.24	315.23	2,131.0	4.8	-5.3	-6.6	0.38
2,156.0	0.22	320.23	2,156.0	4.9	-5.3	-6.7	0.11
2,181.0	0.16	329.55	2,181.0	4.9	-5.4	-6.8	0.27
2,206.0	0.28	322.09	2,206.0	5.0	-5.4	-6.9	0.49
2,231.0	0.13	267.35	2,231.0	5.1	-5.5	-6.9	0.92
2,256.0	0.25	319.91	2,256.0	5.1	-5.6	-7.0	0.80
2,281.0	0.37	307.19	2,281.0	5.2	-5.7	-7.1	0.55
2,306.0	0.37	295.24	2,306.0	5.3	-5.8	-7.3	0.31
2,331.0	0.40	276.16	2,331.0	5.3	-6.0	-7.4	0.52
2,356.0	0.41	290.10	2,356.0	5.4	-6.1	-7.5	0.40
2,381.0	0.44	293.44	2,381.0	5.4	-6.3	-7.6	0.16
2,406.0	0.42	296.16	2,406.0	5.5	-6.5	-7.8	0.11
2,431.0	0.51	303.36	2,431.0	5.6	-6.7	-7.9	0.43
2,456.0	0.31	304.63	2,456.0	5.7	-6.8	-8.1	0.80
2,481.0	0.49	294.74	2,481.0	5.8	-7.0	-8.2	0.77
2,506.0	0.44	295.67	2,506.0	5.9	-7.1	-8.4	0.20
2,531.0	0.49	301.54	2,531.0	6.0	-7.3	-8.5	0.28
2,556.0	0.65	313.35	2,556.0	6.1	-7.5	-8.8	0.79

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EOW Completion Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Leason Run Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523: GL 1055' + KB 19' @ 1074.0usft
Site:	Hudkins/Leason/Pad	MD Reference:	Precision 523: GL 1055' + KB 19' @ 1074.0usft
Well:	Leason Run 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)
2,581.0	0.56	323.38	2,581.0	6.3	-7.7	-9.0	0.55
2,606.0	0.48	336.15	2,606.0	6.5	-7.8	-9.2	0.56
2,631.0	0.38	350.06	2,631.0	6.7	-7.9	-9.4	0.58
2,656.0	0.41	334.52	2,656.0	6.9	-7.9	-9.6	0.44
2,681.0	0.39	335.48	2,681.0	7.0	-8.0	-9.8	0.08
2,706.0	0.42	52.45	2,706.0	7.1	-8.0	-9.9	2.02
2,731.0	0.97	76.96	2,731.0	7.2	-7.7	-9.8	2.45
2,756.0	1.51	84.98	2,756.0	7.3	-7.1	-9.7	2.26
2,781.0	1.88	87.93	2,780.9	7.4	-6.4	-9.4	1.52
2,806.0	2.47	90.35	2,805.9	7.4	-5.5	-9.0	2.39
2,831.0	2.81	91.41	2,830.9	7.4	-4.3	-8.5	1.37
2,856.0	2.86	93.57	2,855.9	7.3	-3.1	-7.9	0.47
2,881.0	3.06	103.39	2,880.8	7.1	-1.8	-7.2	2.18
2,906.0	2.91	111.76	2,905.8	6.7	-0.6	-6.3	1.84
2,931.0	2.79	120.91	2,930.8	6.2	0.6	-5.3	1.88
2,956.0	2.83	130.81	2,955.7	5.5	1.5	-4.3	1.95
2,981.0	2.67	148.15	2,980.7	4.6	2.3	-3.1	3.37
3,006.0	3.01	161.00	3,005.7	3.4	2.8	-1.9	2.88
3,031.0	3.32	174.91	3,030.6	2.1	3.1	-0.6	3.30
3,056.0	3.68	179.13	3,055.6	0.6	3.2	0.8	1.77
3,081.0	3.96	190.92	3,080.5	-1.1	3.0	2.3	3.33
3,106.0	4.22	197.68	3,105.5	-2.8	2.6	3.6	2.19
3,131.0	4.34	203.78	3,130.4	-4.5	1.9	4.9	1.88
3,156.0	4.48	215.43	3,155.3	-6.2	1.0	6.0	3.62
3,181.0	4.46	215.93	3,180.3	-7.8	-0.1	7.0	0.18
3,206.0	4.40	213.44	3,205.2	-9.4	-1.2	7.9	0.81
3,231.0	4.50	212.33	3,230.1	-11.0	-2.3	8.9	0.53
3,256.0	4.58	216.65	3,255.0	-12.6	-3.4	9.9	1.40
3,281.0	4.40	212.78	3,280.0	-14.2	-4.5	10.9	1.41
3,306.0	4.46	215.28	3,304.9	-15.8	-5.6	11.9	0.81
3,331.0	4.47	217.68	3,329.8	-17.4	-6.8	12.8	0.75
3,356.0	4.38	216.02	3,354.7	-18.9	-7.9	13.7	0.63
3,381.0	4.41	217.33	3,379.7	-20.5	-9.1	14.6	0.42
3,406.0	4.31	217.35	3,404.6	-22.0	-10.2	15.5	0.40
3,431.0	4.20	217.52	3,429.5	-23.5	-11.3	16.3	0.44
3,456.0	4.17	217.40	3,454.4	-24.9	-12.5	17.1	0.13
3,481.0	4.13	217.82	3,479.4	-26.3	-13.6	18.0	0.20
3,506.0	3.89	216.66	3,504.3	-27.7	-14.6	18.8	1.01
3,531.0	3.88	217.99	3,529.3	-29.1	-15.6	19.5	0.36
3,556.0	3.73	219.51	3,554.2	-30.4	-16.7	20.3	0.72
3,581.0	3.73	219.67	3,579.2	-31.6	-17.7	20.9	0.04
3,606.0	3.67	220.48	3,604.1	-32.9	-18.8	21.6	0.32
3,631.0	3.51	220.97	3,629.1	-34.0	-19.8	22.2	0.65
3,656.0	3.50	219.13	3,654.0	-35.2	-20.8	22.9	0.45

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EOW Completion Report



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

Local Co-ordinate Reference: Well Leason Run Unit 2H
TVD Reference: Precision 523: GL 1055' + KB 19' @ 1074.0usft
MD Reference: Precision 523: GL 1055' + KB 19' @ 1074.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,681.0	3.59	225.41	3,679.0	-36.4	-21.8	23.5	1.59
3,706.0	3.60	228.21	3,703.9	-37.4	-22.9	23.9	0.70
3,731.0	3.62	228.54	3,728.9	-38.5	-24.1	24.4	0.12
3,756.0	3.20	228.39	3,753.8	-39.5	-25.2	24.8	1.68
3,781.0	2.94	229.10	3,778.8	-40.3	-26.2	25.1	1.05
3,806.0	2.73	229.34	3,803.7	-41.2	-27.2	25.5	0.84
3,831.0	2.41	231.00	3,828.7	-41.9	-28.0	25.8	1.31
3,856.0	1.98	231.61	3,853.7	-42.5	-28.8	26.0	1.72
3,881.0	1.62	228.30	3,878.7	-43.0	-29.4	26.2	1.50
3,906.0	1.34	229.01	3,903.7	-43.4	-29.9	26.3	1.12
3,931.0	1.35	241.23	3,928.7	-43.7	-30.4	26.4	1.15
3,956.0	1.29	240.63	3,953.7	-44.0	-30.9	26.5	0.25
3,981.0	1.24	240.03	3,978.7	-44.3	-31.3	26.5	0.21
4,006.0	1.09	243.92	4,003.7	-44.5	-31.8	26.5	0.68
4,031.0	0.83	244.78	4,028.7	-44.7	-32.2	26.5	1.04
4,056.0	0.68	253.64	4,053.7	-44.8	-32.5	26.5	0.76
4,081.0	0.81	266.77	4,078.7	-44.9	-32.8	26.4	0.86
4,106.0	0.61	263.12	4,103.7	-44.9	-33.1	26.3	0.82
4,131.0	0.54	276.86	4,128.6	-44.9	-33.3	26.2	0.62
4,156.0	0.78	276.20	4,153.6	-44.9	-33.6	26.1	0.96
4,181.0	0.82	279.29	4,178.6	-44.8	-34.0	25.9	0.24
4,206.0	0.65	281.61	4,203.6	-44.8	-34.3	25.7	0.69
4,231.0	0.75	278.26	4,228.6	-44.7	-34.6	25.5	0.43
4,256.0	0.71	285.12	4,253.6	-44.7	-34.9	25.3	0.38
4,281.0	0.70	295.22	4,278.6	-44.5	-35.2	25.1	0.50
4,306.0	0.77	301.23	4,303.6	-44.4	-35.5	24.8	0.42
4,331.0	0.85	302.16	4,328.6	-44.2	-35.8	24.5	0.32
4,356.0	0.96	301.72	4,353.6	-44.0	-36.1	24.2	0.44
4,381.0	0.84	302.97	4,378.6	-43.8	-36.4	23.9	0.49
4,406.0	0.89	298.55	4,403.6	-43.6	-36.8	23.6	0.33
4,431.0	0.97	295.36	4,428.6	-43.4	-37.1	23.2	0.38
4,456.0	0.82	295.25	4,453.6	-43.3	-37.5	22.9	0.60
4,481.0	0.75	299.69	4,478.6	-43.1	-37.8	22.7	0.37
4,506.0	0.80	300.13	4,503.6	-42.9	-38.1	22.4	0.20
4,531.0	0.89	298.68	4,528.6	-42.7	-38.4	22.1	0.37
4,556.0	0.93	302.03	4,553.6	-42.5	-38.7	21.8	0.27
4,581.0	0.88	304.24	4,578.6	-42.3	-39.1	21.4	0.24
4,606.0	1.06	304.82	4,603.6	-42.1	-39.4	21.1	0.72
4,631.0	1.00	309.92	4,628.6	-41.8	-39.8	20.7	0.44
4,656.0	1.12	308.14	4,653.6	-41.5	-40.1	20.2	0.50
4,681.0	1.05	311.51	4,678.6	-41.2	-40.5	19.8	0.38
4,706.0	1.09	309.13	4,703.6	-40.9	-40.9	19.4	0.24
4,731.0	1.11	309.01	4,728.6	-40.6	-41.2	18.9	0.08
4,756.0	1.20	309.93	4,753.6	-40.3	-41.6	18.5	0.37

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GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



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

Local Co-ordinate Reference: Well Leason Run Unit 2H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
4,781.0	1.29	309.21	4,778.6	-40.0	-42.0	18.0	0.37
4,806.0	1.14	311.71	4,803.6	-39.6	-42.4	17.5	0.64
4,831.0	1.18	311.09	4,828.6	-39.3	-42.8	17.1	0.17
4,856.0	1.15	312.10	4,853.6	-38.9	-43.2	16.6	0.15
4,881.0	1.21	312.73	4,878.5	-38.6	-43.6	16.1	0.25
4,906.0	1.13	307.78	4,903.5	-38.3	-44.0	15.6	0.52
4,931.0	1.20	313.39	4,928.5	-37.9	-44.4	15.2	0.53
4,956.0	1.07	313.11	4,953.5	-37.6	-44.7	14.7	0.52
4,981.0	1.21	314.48	4,978.5	-37.2	-45.1	14.3	0.57
5,006.0	1.26	315.22	5,003.5	-36.9	-45.5	13.7	0.21
5,031.0	1.23	311.66	5,028.5	-36.5	-45.8	13.2	0.33
5,056.0	1.20	317.87	5,053.5	-36.1	-46.2	12.7	0.54
5,081.0	1.16	317.01	5,078.5	-35.7	-46.6	12.2	0.17
5,106.0	1.14	318.17	5,103.5	-35.4	-46.9	11.8	0.12
5,131.0	1.18	319.66	5,128.5	-35.0	-47.2	11.3	0.20
5,156.0	1.14	321.92	5,153.5	-34.6	-47.6	10.8	0.24
5,181.0	1.14	319.88	5,178.5	-34.2	-47.9	10.3	0.16
5,206.0	1.16	323.22	5,203.5	-33.8	-48.2	9.8	0.28
5,231.0	1.21	321.48	5,228.5	-33.4	-48.5	9.3	0.25
5,256.0	1.27	318.36	5,253.5	-33.0	-48.9	8.8	0.36
5,281.0	1.15	319.96	5,278.5	-32.6	-49.2	8.3	0.50
5,306.0	1.21	318.42	5,303.5	-32.2	-49.5	7.8	0.27
5,331.0	1.18	323.53	5,328.5	-31.8	-49.9	7.3	0.44
5,356.0	1.22	322.89	5,353.4	-31.4	-50.2	6.8	0.17
5,381.0	1.28	321.17	5,378.4	-31.0	-50.5	6.2	0.28
5,406.0	1.22	321.22	5,403.4	-30.5	-50.9	5.7	0.24
5,431.0	1.32	325.72	5,428.4	-30.1	-51.2	5.2	0.56
5,456.0	1.22	318.80	5,453.4	-29.6	-51.5	4.6	0.73
5,481.0	1.12	315.81	5,478.4	-29.3	-51.9	4.1	0.47
5,506.0	1.08	320.28	5,503.4	-28.9	-52.2	3.7	0.38
5,531.0	1.05	326.76	5,528.4	-28.5	-52.5	3.2	0.50
5,556.0	1.07	322.31	5,553.4	-28.2	-52.7	2.8	0.34
5,581.0	0.95	316.70	5,578.4	-27.8	-53.0	2.3	0.62
5,606.0	0.92	323.09	5,603.4	-27.5	-53.3	1.9	0.43
5,631.0	0.90	327.90	5,628.4	-27.2	-53.5	1.5	0.32
5,656.0	0.83	314.84	5,653.4	-26.9	-53.7	1.2	0.83
5,681.0	0.90	329.18	5,678.4	-26.6	-54.0	0.8	0.91
5,706.0	0.79	322.83	5,703.4	-26.3	-54.2	0.5	0.58
5,731.0	0.76	323.71	5,728.4	-26.0	-54.4	0.1	0.13
5,736.0	0.75	323.90	5,733.4	-26.0	-54.4	0.1	0.21
5,768.0	0.64	315.59	5,765.4	-25.7	-54.7	-0.3	0.47
5,858.0	0.95	337.13	5,855.4	-24.6	-55.3	-1.5	0.47
5,948.0	0.93	358.01	5,945.4	-23.2	-55.6	-3.0	0.38
5,978.0	0.60	117.66	5,975.4	-23.0	-55.5	-3.1	4.44

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EOW Completion Report



Company: Antero Resources	Local Co-ordinate Reference: Well Leason Run Unit 2H
Project: Doddridge County WV	TVD Reference: Precision 523: GL 1055' + KB 19' @ 1074.0usft
Site: Hudkins/Leason/Pad	MD Reference: Precision 523: GL 1055' + KB 19' @ 1074.0usft
Well: Leason Run Unit 2H	North Reference: Grid
Wellbore: Original Wellpath	Survey Calculation Method: Minimum Curvature
Design: As Drilled	Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
6,008.0	4.34	150.24	6,005.3	-24.1	-54.8	-1.8	12.83
6,037.0	8.02	151.52	6,034.2	-26.8	-53.3	1.3	12.70
6,067.0	11.86	149.40	6,063.7	-31.3	-50.7	6.5	12.86
6,097.0	15.52	149.23	6,092.8	-37.4	-47.1	13.6	12.20
6,122.0	18.26	152.08	6,116.8	-43.8	-43.5	20.8	11.44
SCMR							
6,127.0	18.81	152.55	6,121.5	-45.2	-42.8	22.4	11.44
6,157.0	21.57	156.46	6,149.7	-54.5	-38.4	32.7	10.24
6,187.0	25.00	159.21	6,177.2	-65.5	-33.9	44.6	11.99
6,217.0	27.92	156.75	6,204.1	-77.9	-28.9	57.9	10.39
6,247.0	31.74	156.96	6,230.1	-91.6	-23.0	72.8	12.74
6,277.0	35.20	157.48	6,255.1	-106.9	-16.6	89.3	11.57
6,303.0	38.01	159.07	6,276.0	-121.3	-10.9	104.8	11.42
MDLX							
6,306.0	38.34	159.24	6,278.3	-123.0	-10.2	106.7	11.42
6,336.0	41.53	160.55	6,301.3	-141.1	-3.6	125.8	11.00
6,366.0	45.43	162.36	6,323.1	-160.6	2.9	146.3	13.65
6,396.0	48.73	163.04	6,343.5	-181.6	9.5	168.1	11.12
6,426.0	51.79	161.85	6,362.7	-203.6	16.4	190.9	10.65
6,456.0	55.96	160.92	6,380.4	-226.6	24.2	215.0	14.12
6,472.0	57.68	160.84	6,389.1	-239.2	28.5	228.3	10.77
BRKT							
6,485.0	59.08	160.77	6,396.0	-249.7	32.2	239.3	10.77
6,515.0	61.72	160.91	6,410.8	-274.3	40.7	265.2	8.81
6,541.0	64.25	160.54	6,422.6	-296.2	48.4	288.2	9.82
TLLY							
6,545.0	64.64	160.48	6,424.3	-299.6	49.6	291.8	9.82
6,575.0	67.75	159.60	6,436.4	-325.4	59.0	319.1	10.71
6,599.0	69.80	158.73	6,445.1	-346.3	66.9	341.4	9.17
HMLN							
6,605.0	70.31	158.52	6,447.1	-351.5	69.0	347.0	9.17
6,619.0	71.36	157.99	6,451.7	-363.8	73.9	360.2	8.32
MRCL_HOT							
6,635.0	72.57	157.40	6,456.7	-377.9	79.7	375.4	8.32
6,665.0	74.73	156.55	6,465.1	-404.4	90.9	404.2	7.70
6,695.0	78.05	155.72	6,472.2	-431.0	102.7	433.3	11.39
6,710.0	80.37	155.55	6,475.0	-444.5	108.8	448.1	15.51
6,769.0	87.72	154.72	6,481.1	-497.7	133.5	506.7	12.54
6,791.0	87.38	154.81	6,482.1	-517.5	142.8	528.7	1.60
6,881.0	90.87	157.35	6,483.4	-599.8	179.3	618.6	4.80
6,970.0	89.33	156.20	6,483.3	-681.6	214.4	707.5	2.16
7,060.0	88.52	153.60	6,485.0	-763.1	252.6	797.5	3.03
7,150.0	89.53	154.14	6,486.5	-843.8	292.2	887.5	1.27
7,239.0	89.16	154.70	6,487.5	-924.1	330.6	976.5	0.75
7,329.0	89.16	153.47	6,488.8	-1,005.1	369.9	1,066.5	1.37

JUL 27 2015



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,419.0	89.60	154.85	6,489.8	-1,086.0	409.2	1,156.5	1.61
7,508.0	89.16	153.89	6,490.8	-1,166.3	447.7	1,245.5	1.19
7,598.0	88.49	153.65	6,492.6	-1,247.0	487.4	1,335.4	0.79
7,688.0	89.40	154.01	6,494.3	-1,327.8	527.1	1,425.4	1.09
7,777.0	89.60	153.34	6,495.1	-1,407.5	566.6	1,514.4	0.79
7,867.0	89.09	154.06	6,496.1	-1,488.2	606.5	1,604.4	0.98
7,956.0	89.16	155.31	6,497.4	-1,568.6	644.5	1,693.4	1.41
8,051.0	88.45	155.70	6,499.4	-1,655.1	683.9	1,788.3	0.85
8,146.0	88.55	154.70	6,501.9	-1,741.3	723.7	1,883.3	1.06
8,241.0	89.50	155.91	6,503.5	-1,827.6	763.4	1,978.3	1.62
8,335.0	88.93	154.97	6,504.8	-1,913.1	802.5	2,072.2	1.17
8,430.0	89.70	155.32	6,506.0	-1,999.3	842.4	2,167.2	0.89
8,525.0	89.39	156.35	6,506.7	-2,085.9	881.3	2,262.2	1.13
8,620.0	89.16	154.23	6,507.9	-2,172.2	921.0	2,357.2	2.24
8,715.0	89.70	154.92	6,508.9	-2,258.0	961.8	2,452.2	0.92
8,809.0	89.36	153.15	6,509.6	-2,342.5	1,002.9	2,546.2	1.92
8,904.0	89.16	153.39	6,510.9	-2,427.4	1,045.7	2,641.1	0.33
8,994.0	88.66	151.77	6,512.6	-2,507.2	1,087.1	2,731.1	1.88
9,083.0	88.72	153.76	6,514.6	-2,586.3	1,127.8	2,820.0	2.24
9,173.0	91.01	156.12	6,514.8	-2,667.9	1,165.9	2,910.0	3.65
9,262.0	90.30	155.92	6,513.8	-2,749.2	1,202.1	2,998.9	0.83
9,352.0	89.23	155.53	6,514.2	-2,831.2	1,239.1	3,088.9	1.27
9,441.0	88.29	153.66	6,516.1	-2,911.6	1,277.3	3,177.9	2.35
9,531.0	89.83	154.36	6,517.6	-2,992.5	1,316.7	3,267.9	1.88
9,620.0	89.97	154.58	6,517.7	-3,072.8	1,355.1	3,356.9	0.29
9,710.0	90.13	155.81	6,517.6	-3,154.5	1,392.8	3,446.9	1.38
9,800.0	88.82	154.74	6,518.5	-3,236.2	1,430.5	3,536.9	1.88
9,889.0	88.76	153.74	6,520.4	-3,316.3	1,469.1	3,625.8	1.13
9,979.0	88.32	153.61	6,522.6	-3,397.0	1,509.0	3,715.8	0.51
10,069.0	88.69	154.10	6,525.0	-3,477.8	1,548.7	3,805.8	0.68
10,158.0	89.36	153.94	6,526.5	-3,557.7	1,587.6	3,894.7	0.77
10,248.0	88.39	154.77	6,528.3	-3,638.9	1,626.6	3,984.7	1.42
10,337.0	88.12	154.93	6,531.0	-3,719.4	1,664.4	4,073.7	0.35
10,427.0	89.36	154.47	6,533.0	-3,800.7	1,702.8	4,163.7	1.47
10,516.0	87.95	154.99	6,535.1	-3,881.2	1,740.8	4,252.6	1.69
10,606.0	89.23	155.59	6,537.3	-3,962.9	1,778.4	4,342.6	1.57
10,695.0	87.61	155.26	6,539.7	-4,043.8	1,815.4	4,431.5	1.86
10,785.0	87.82	154.62	6,543.3	-4,125.3	1,853.5	4,521.5	0.75
10,875.0	87.11	153.64	6,547.3	-4,206.2	1,892.8	4,611.4	1.34
10,964.0	87.89	153.71	6,551.2	-4,285.9	1,932.2	4,700.3	0.88
11,054.0	88.56	154.88	6,554.0	-4,366.9	1,971.2	4,790.2	1.50
11,143.0	87.58	152.57	6,557.0	-4,446.7	2,010.6	4,879.2	2.82
11,233.0	90.03	155.69	6,558.8	-4,527.6	2,049.8	4,969.1	4.41
11,322.0	90.71	156.63	6,558.3	-4,609.0	2,085.8	5,058.1	1.30

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



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11,412.0	88.89	155.15	6,558.6	-4,691.2	2,122.6	5,148.1	2.61
11,501.0	88.29	154.82	6,560.8	-4,771.8	2,160.2	5,237.0	0.77
11,591.0	89.53	153.35	6,562.5	-4,852.7	2,199.5	5,327.0	2.14
11,681.0	88.76	153.25	6,563.8	-4,933.1	2,239.9	5,417.0	0.86
11,770.0	89.09	153.80	6,565.5	-5,012.8	2,279.6	5,505.9	0.72
11,860.0	89.43	152.57	6,566.7	-5,093.1	2,320.2	5,595.9	1.42
11,949.0	88.93	154.21	6,567.9	-5,172.7	2,360.1	5,684.9	1.93
12,039.0	89.19	154.93	6,569.4	-5,253.9	2,398.7	5,774.9	0.85
12,129.0	89.43	153.91	6,570.5	-5,335.1	2,437.6	5,864.9	1.16
12,218.0	89.39	154.58	6,571.4	-5,415.3	2,476.2	5,953.8	0.75
12,308.0	90.07	155.83	6,571.8	-5,497.0	2,514.0	6,043.8	1.58
12,397.0	89.26	154.71	6,572.3	-5,577.8	2,551.2	6,132.8	1.55
12,487.0	88.89	155.14	6,573.8	-5,659.3	2,589.3	6,222.8	0.63
12,577.0	89.46	155.53	6,575.1	-5,741.1	2,626.9	6,312.8	0.77
12,666.0	88.79	155.20	6,576.5	-5,822.0	2,664.0	6,401.8	0.84
12,756.0	88.39	153.96	6,578.7	-5,903.2	2,702.6	6,491.7	1.45
12,845.0	89.93	154.17	6,580.0	-5,983.3	2,741.5	6,580.7	1.75
12,935.0	89.13	154.43	6,580.7	-6,064.3	2,780.6	6,670.7	0.93
13,024.0	89.26	155.71	6,582.0	-6,145.0	2,818.1	6,759.7	1.45
13,114.0	90.37	155.01	6,582.3	-6,226.8	2,855.6	6,849.7	1.46
13,203.0	91.01	154.27	6,581.2	-6,307.3	2,893.7	6,938.7	1.10
13,293.0	88.89	154.96	6,581.3	-6,388.6	2,932.3	7,028.7	2.48
13,382.0	88.69	154.77	6,583.1	-6,469.1	2,970.1	7,117.7	0.31
13,472.0	90.24	154.19	6,584.0	-6,550.3	3,008.9	7,207.7	1.84
13,562.0	90.37	153.56	6,583.5	-6,631.1	3,048.5	7,297.6	0.71
13,651.0	88.29	154.40	6,584.5	-6,711.1	3,087.5	7,386.6	2.52
13,741.0	88.89	154.68	6,586.8	-6,792.3	3,126.2	7,476.6	0.74
13,819.0	88.55	154.30	6,588.5	-6,862.7	3,159.8	7,554.6	0.65
13,878.0	88.55	154.30	6,590.0	-6,915.9	3,185.4	7,613.6	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,122.0	6,116.8	-43.8	-43.5	SCMR
6,303.0	6,276.0	-121.3	-10.9	MDLX
6,472.0	6,389.1	-239.2	28.5	BRKT
6,541.0	6,422.6	-296.2	48.4	TLLY
6,599.0	6,445.1	-346.3	66.9	HMLN
6,619.0	6,451.7	-363.8	73.9	MRCL_HOT

Checked By: _____ Approved By: _____ Date: _____