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AUG 24 2015



Antero Resources
 Hardin Unit 1H
 Doddridge County WV
 Northing: 14293325.86
 Easting: 1711360.64
 As Drilled

WELL DETAILS: Hardin Unit 1H
 Ground Level: 1001.0
 Easting: 1711360.64
 Northing: 14293325.86
 Longitude: 80° 44' 56.424 W

REFERENCE INFORMATION
 Coordinates: NAD 83
 Vertical (TVD) Reference: PWS2 North TN 1001 CL + 10.18 Quilt
 Horizontal (Easting) Reference: PWS2 North TN 1001 CL + 10.18 Quilt
 Calculation Method: Minimum Curvature

PROJECT DETAILS: Doddridge County WV
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD 1983 (NAD83 CONUS)
 Ellipsoid: Clarke, 1866
 Zone: Zone 17N (64 W to 78 W)
 System Datum: Mean Sea Level



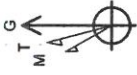
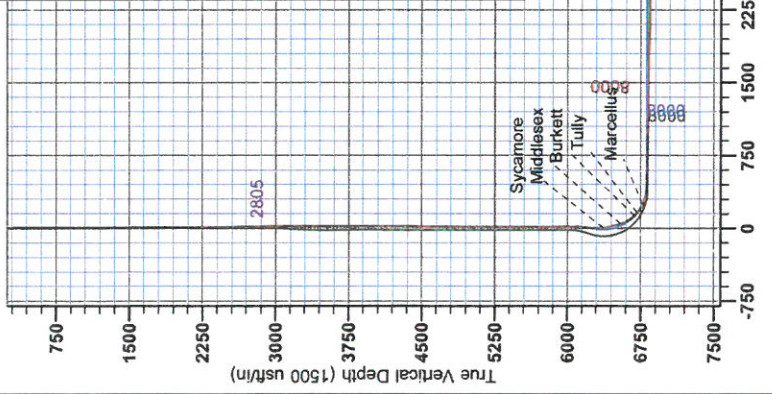
Genie Lightfoot
 14:46, October 06 2014
 Scientific Drilling
 421 South Eagle Lane
 Oklahoma City, OK

LEGEND

- ◊ Anne Unit 2H, Original Wellpath, As Drilled V0
- Hardin Unit 1H, Original Wellpath, As Drilled V0
- ◻ Hardin Unit 1H, Original Wellpath, Plan 2 V0
- ◻ Hardin Unit 1H, Sidetrack 1, ST 1 Plan 3 V0
- ⊗ Anne Unit 1H, Original Wellpath, As Drilled V0
- ◇ As Drilled

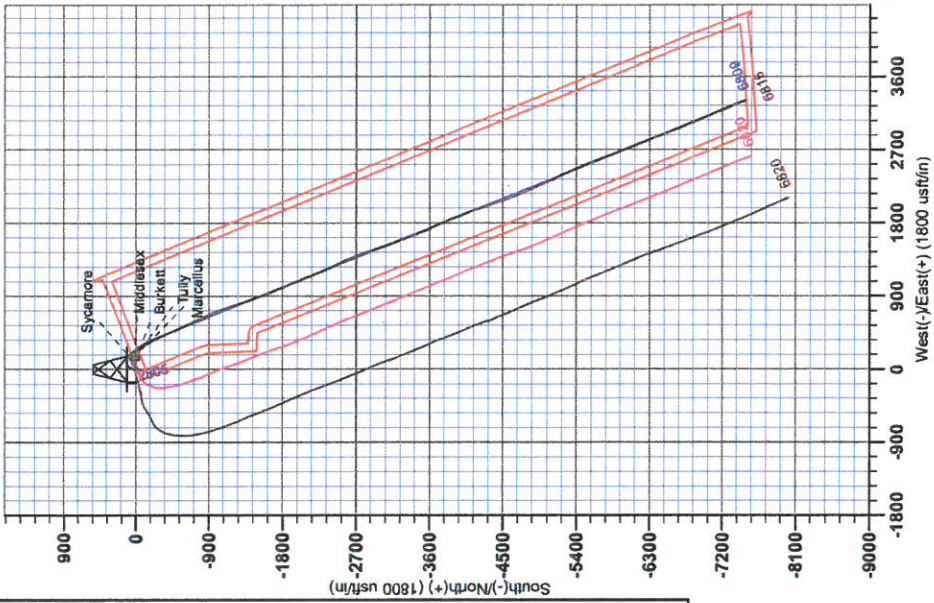
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Nothing	Easting	Latitude	Longitude
SHL Hardin Unit 1H	0.0	0.0	0.0	4293325.86	1711360.64	21° 38' 13.2" N	80° 44' 56.425 W
Actual BHL OH Hardin Unit 2805.0	-12.4	-12.4	-8.14293313.50	1711355.899	21° 38' 01.0" N	80° 44' 58.485 W	
Actual BHL ST Hardin Unit 8914.5	-7481.7	-7481.7	3302.414285864.16	17114683.029	20° 24' 26.2" N	80° 44' 14.640 W	



To convert Magnetic North to Grid, Subtract 6.67°
 To convert True North to Grid, Subtract 0.16°

Asimuths to Grid North
 True North: 0.16°
 Magnetic North: -8.87°
 Magnetic Field
 Strength: 52291.3anT
 Dip Angle: 66.92°
 Date: 07/4/2014
 Model: BOG062014



Vertical Section at 157.84° (1500 usft/in)



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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Antero Resources

**Doddridge County WV
Anne / Hardin Pad
Hardin Unit 1H
Sidetrack 1**

Design: As Drilled

EOW Completion Report

06 October, 2014





Company: Antero Resources	Local Co-ordinate Reference: Well Hardin Unit 1H
Project: Doddridge County WV	TVD Reference: Pr522: Hardin 1H 1001 GL + 18 KB @ 1019.0usft
Site: Anne / Hardin Pad	MD Reference: Pr522: Hardin 1H 1001 GL + 18 KB @ 1019.0usft
Well: Hardin Unit 1H	North Reference: Grid
Wellbore: Sidetrack 1	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	Anne / Hardin Pad				
Site Position:		Northing:	14,293,344.77 usft	Latitude:	39° 21' 38.319 N
From:	Map	Easting:	1,711,355.33 usft	Longitude:	80° 44' 56.491 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.16 °

Well	Hardin Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,293,325.86 usft	Latitude:	39° 21' 38.132 N
	+E/-W	0.0 usft	Easting:	1,711,360.64 usft	Longitude:	80° 44' 56.424 W
Position Uncertainty	2.0 usft		Wellhead Elevation:	1,019.0 usft	Ground Level:	1,001.0 usft

Wellbore	Sidetrack 1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	6/14/2014	-8.51	66.92	52,291

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	157.84

Survey Program	Date	10/6/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
105.0	5,959.0	Survey #2 Final Gyro (Sidetrack 1)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
5,986.0	14,819.0	Survey #3 SDI MWD (Sidetrack 1)	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
105.0	0.32	188.14	105.0	-0.3	0.0	0.3	0.30
130.0	0.27	152.79	130.0	-0.4	0.0	0.4	0.74
155.0	0.30	189.45	155.0	-0.5	0.0	0.5	0.73
180.0	0.32	174.56	180.0	-0.7	0.0	0.6	0.33
205.0	0.29	198.52	205.0	-0.8	0.0	0.7	0.52
230.0	0.23	192.57	230.0	-0.9	-0.1	0.8	0.26
255.0	0.28	213.32	255.0	-1.0	-0.1	0.9	0.42
280.0	0.23	198.04	280.0	-1.1	-0.2	1.0	0.34
305.0	0.23	205.14	305.0	-1.2	-0.2	1.0	0.11
330.0	0.17	206.25	330.0	-1.3	-0.2	1.1	0.24

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Wellbore: Sidetrack 1
Design: As Drilled

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MD Reference: Pr522: Hardin 1H 1001 GL + 18 KB @ 1019.0usft
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)		
355.0	0.16	213.63	355.0	-1.3	-0.3	1.1	0.09		
380.0	0.24	227.78	380.0	-1.4	-0.3	1.2	0.37		
405.0	0.22	217.77	405.0	-1.5	-0.4	1.2	0.18		
430.0	0.28	228.76	430.0	-1.5	-0.5	1.3	0.31		
455.0	0.20	219.77	455.0	-1.6	-0.5	1.3	0.35		
480.0	0.14	187.46	480.0	-1.7	-0.6	1.3	0.44		
505.0	0.21	211.28	505.0	-1.8	-0.6	1.4	0.40		
530.0	0.26	217.99	530.0	-1.8	-0.7	1.5	0.23		
555.0	0.15	208.94	555.0	-1.9	-0.7	1.5	0.46		
580.0	0.20	217.43	580.0	-2.0	-0.7	1.5	0.22		
605.0	0.13	204.05	605.0	-2.0	-0.8	1.6	0.32		
630.0	0.24	229.63	630.0	-2.1	-0.8	1.6	0.54		
655.0	0.24	228.71	655.0	-2.2	-0.9	1.7	0.02		
680.0	0.19	219.26	680.0	-2.2	-1.0	1.7	0.24		
705.0	0.20	211.41	705.0	-2.3	-1.0	1.7	0.11		
730.0	0.21	215.98	730.0	-2.4	-1.1	1.8	0.08		
755.0	0.22	221.01	755.0	-2.4	-1.1	1.8	0.09		
780.0	0.27	220.48	780.0	-2.5	-1.2	1.9	0.20		
805.0	0.20	206.71	805.0	-2.6	-1.3	1.9	0.36		
830.0	0.22	199.57	830.0	-2.7	-1.3	2.0	0.13		
855.0	0.24	211.48	855.0	-2.8	-1.3	2.1	0.21		
880.0	0.20	204.95	880.0	-2.9	-1.4	2.1	0.19		
905.0	0.16	191.05	905.0	-2.9	-1.4	2.2	0.24		
930.0	0.21	203.79	930.0	-3.0	-1.4	2.3	0.26		
955.0	0.12	223.43	955.0	-3.1	-1.5	2.3	0.42		
980.0	0.14	200.93	980.0	-3.1	-1.5	2.3	0.22		
1,005.0	0.22	211.43	1,005.0	-3.2	-1.5	2.4	0.34		
1,030.0	0.25	221.71	1,030.0	-3.3	-1.6	2.4	0.21		
1,055.0	0.28	216.62	1,055.0	-3.4	-1.7	2.5	0.15		
1,080.0	0.22	229.24	1,080.0	-3.5	-1.7	2.5	0.32		
1,105.0	0.33	226.96	1,105.0	-3.5	-1.8	2.6	0.44		
1,130.0	0.30	215.15	1,130.0	-3.6	-1.9	2.6	0.29		
1,155.0	0.24	206.68	1,155.0	-3.7	-2.0	2.7	0.29		
1,180.0	0.18	196.42	1,180.0	-3.8	-2.0	2.8	0.28		
1,205.0	0.19	211.23	1,205.0	-3.9	-2.1	2.8	0.19		
1,230.0	0.26	217.18	1,230.0	-4.0	-2.1	2.9	0.29		
1,255.0	0.20	217.29	1,255.0	-4.1	-2.2	2.9	0.24		
1,280.0	0.23	213.74	1,280.0	-4.1	-2.2	3.0	0.13		
1,305.0	0.19	207.83	1,305.0	-4.2	-2.3	3.0	0.18		
1,330.0	0.14	185.39	1,330.0	-4.3	-2.3	3.1	0.32		
1,355.0	0.24	218.27	1,355.0	-4.3	-2.3	3.1	0.58		
1,380.0	0.22	219.26	1,380.0	-4.4	-2.4	3.2	0.08		
1,405.0	0.23	209.59	1,405.0	-4.5	-2.5	3.2	0.16		
1,430.0	0.27	228.18	1,430.0	-4.6	-2.5	3.3	0.36		

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Wellbore: Sidetrack 1
Design: As Drilled

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
1,455.0	0.30	222.58	1,455.0	-4.7	-2.6	3.3	0.16
1,480.0	0.25	226.10	1,480.0	-4.8	-2.7	3.4	0.21
1,505.0	0.24	212.66	1,505.0	-4.8	-2.8	3.4	0.23
1,530.0	0.19	202.79	1,530.0	-4.9	-2.8	3.5	0.25
1,555.0	0.24	212.96	1,555.0	-5.0	-2.8	3.6	0.25
1,580.0	0.21	213.78	1,580.0	-5.1	-2.9	3.6	0.12
1,605.0	0.35	225.34	1,605.0	-5.2	-3.0	3.7	0.60
1,630.0	0.21	195.26	1,630.0	-5.3	-3.0	3.7	0.79
1,655.0	0.27	173.91	1,655.0	-5.4	-3.1	3.8	0.43
1,680.0	0.30	163.74	1,680.0	-5.5	-3.0	4.0	0.23
1,705.0	0.31	160.44	1,705.0	-5.6	-3.0	4.1	0.08
1,730.0	0.33	161.43	1,730.0	-5.8	-2.9	4.2	0.08
1,755.0	0.34	168.78	1,755.0	-5.9	-2.9	4.4	0.18
1,780.0	0.35	181.06	1,780.0	-6.1	-2.9	4.5	0.30
1,805.0	0.42	184.42	1,805.0	-6.2	-2.9	4.7	0.29
1,830.0	0.35	179.67	1,830.0	-6.4	-2.9	4.8	0.31
1,855.0	0.38	172.22	1,855.0	-6.5	-2.9	5.0	0.22
1,880.0	0.41	170.94	1,880.0	-6.7	-2.9	5.1	0.13
1,905.0	0.37	168.85	1,905.0	-6.9	-2.8	5.3	0.17
1,930.0	0.37	164.09	1,930.0	-7.0	-2.8	5.5	0.12
1,955.0	0.42	167.07	1,955.0	-7.2	-2.8	5.6	0.22
1,980.0	0.41	182.96	1,980.0	-7.4	-2.7	5.8	0.46
2,005.0	0.41	172.07	2,005.0	-7.6	-2.7	6.0	0.31
2,030.0	0.39	172.93	2,030.0	-7.7	-2.7	6.1	0.08
2,055.0	0.43	174.56	2,055.0	-7.9	-2.7	6.3	0.17
2,080.0	0.41	174.95	2,080.0	-8.1	-2.7	6.5	0.08
2,105.0	0.41	168.63	2,105.0	-8.3	-2.7	6.7	0.18
2,130.0	0.43	174.78	2,130.0	-8.5	-2.6	6.8	0.20
2,155.0	0.40	171.70	2,155.0	-8.6	-2.6	7.0	0.15
2,180.0	0.44	172.85	2,180.0	-8.8	-2.6	7.2	0.16
2,205.0	0.38	175.23	2,205.0	-9.0	-2.6	7.4	0.25
2,230.0	0.45	201.58	2,230.0	-9.2	-2.6	7.5	0.80
2,255.0	0.43	189.10	2,255.0	-9.4	-2.6	7.7	0.39
2,280.0	0.46	199.73	2,280.0	-9.5	-2.7	7.8	0.35
2,305.0	0.41	187.03	2,305.0	-9.7	-2.7	8.0	0.43
2,330.0	0.47	194.20	2,330.0	-9.9	-2.8	8.1	0.33
2,355.0	0.51	195.93	2,355.0	-10.1	-2.8	8.3	0.17
2,380.0	0.47	194.39	2,380.0	-10.3	-2.9	8.5	0.17
2,405.0	0.44	187.61	2,405.0	-10.5	-2.9	8.6	0.25
2,430.0	0.36	185.52	2,430.0	-10.7	-2.9	8.8	0.33
2,455.0	0.54	198.26	2,455.0	-10.9	-3.0	9.0	0.82
2,480.0	0.30	211.87	2,480.0	-11.1	-3.1	9.1	1.03
2,505.0	0.33	206.81	2,505.0	-11.2	-3.1	9.2	0.16
2,530.0	0.32	203.54	2,530.0	-11.3	-3.2	9.3	0.08
2,555.0	0.31	201.34	2,555.0	-11.4	-3.2	9.4	0.06

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Wellbore: Sidetrack 1
Design: As Drilled

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2,580.0	0.31	199.25	2,580.0	-11.6	-3.3	9.5	0.05
2,605.0	0.31	171.74	2,605.0	-11.7	-3.3	9.6	0.59
2,630.0	1.24	105.56	2,630.0	-11.8	-3.0	9.8	4.60
2,655.0	2.68	94.57	2,654.9	-11.9	-2.2	10.2	5.93
2,680.0	3.84	91.91	2,679.9	-12.0	-0.8	10.8	4.68
2,705.0	5.01	87.75	2,704.8	-12.0	1.2	11.6	4.85
2,730.0	6.13	83.92	2,729.7	-11.8	3.6	12.3	4.72
2,755.0	6.32	83.97	2,754.6	-11.5	6.3	13.0	0.76
2,780.0	6.27	84.38	2,779.4	-11.3	9.0	13.8	0.27
2,805.0	5.78	84.66	2,804.3	-11.0	11.6	14.6	1.96
2,830.0	5.56	83.78	2,829.2	-10.8	14.1	15.3	0.95
2,855.0	5.75	83.81	2,854.0	-10.5	16.5	15.9	0.76
2,880.0	5.54	83.99	2,878.9	-10.2	19.0	16.6	0.84
2,905.0	5.37	86.23	2,903.8	-10.0	21.3	17.3	1.09
2,930.0	5.06	92.38	2,928.7	-10.0	23.6	18.2	2.56
2,955.0	4.65	94.43	2,953.6	-10.1	25.7	19.1	1.78
2,980.0	3.18	95.56	2,978.5	-10.3	27.4	19.8	5.89
3,005.0	0.92	76.11	3,003.5	-10.3	28.3	20.2	9.33
3,030.0	0.59	58.50	3,028.5	-10.2	28.6	20.2	1.60
3,055.0	0.53	54.96	3,053.5	-10.0	28.8	20.2	0.28
3,080.0	0.69	59.92	3,078.5	-9.9	29.0	20.1	0.67
3,105.0	0.48	55.12	3,103.5	-9.8	29.3	20.1	0.86
3,130.0	0.35	49.24	3,128.5	-9.6	29.4	20.0	0.55
3,155.0	0.34	42.66	3,153.5	-9.5	29.5	20.0	0.16
3,180.0	0.26	41.97	3,178.5	-9.4	29.6	19.9	0.32
3,205.0	0.22	24.79	3,203.5	-9.4	29.6	19.8	0.33
3,230.0	0.20	31.05	3,228.5	-9.3	29.7	19.8	0.12
3,255.0	0.22	27.93	3,253.5	-9.2	29.7	19.7	0.09
3,280.0	0.16	330.64	3,278.5	-9.1	29.7	19.7	0.76
3,305.0	0.20	305.67	3,303.5	-9.1	29.7	19.6	0.35
3,330.0	0.16	337.96	3,328.5	-9.0	29.6	19.5	0.43
3,355.0	0.16	341.58	3,353.5	-8.9	29.6	19.5	0.04
3,380.0	0.13	310.05	3,378.5	-8.9	29.6	19.4	0.34
3,405.0	0.12	312.47	3,403.5	-8.9	29.5	19.3	0.05
3,430.0	0.12	335.55	3,428.5	-8.8	29.5	19.3	0.19
3,455.0	0.11	16.38	3,453.5	-8.8	29.5	19.3	0.32
3,480.0	0.23	313.07	3,478.5	-8.7	29.5	19.2	0.82
3,505.0	0.19	316.20	3,503.5	-8.6	29.4	19.1	0.17
3,530.0	0.17	329.66	3,528.5	-8.6	29.4	19.0	0.19
3,555.0	0.30	300.22	3,553.5	-8.5	29.3	18.9	0.69
3,580.0	0.31	312.37	3,578.5	-8.4	29.2	18.8	0.26
3,605.0	0.29	295.99	3,603.5	-8.4	29.1	18.7	0.35
3,630.0	0.27	287.02	3,628.5	-8.3	29.0	18.6	0.19
3,655.0	0.33	282.32	3,653.5	-8.3	28.8	18.6	0.26

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Wellbore: Sidetrack 1
Design: As Drilled

Local Co-ordinate Reference: Well Hardin Unit 1H
TVD Reference: Pr522: Hardin 1H 1001 GL + 18 KB @ 1019.0usft
MD Reference: Pr522: Hardin 1H 1001 GL + 18 KB @ 1019.0usft
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)
3,680.0	0.24	283.94	3,678.5	-8.3	28.7	18.5	0.36
3,705.0	0.29	270.63	3,703.5	-8.3	28.6	18.4	0.32
3,730.0	0.24	283.08	3,728.5	-8.2	28.5	18.4	0.30
3,755.0	0.32	271.78	3,753.5	-8.2	28.4	18.3	0.39
3,780.0	0.25	293.55	3,778.5	-8.2	28.2	18.2	0.51
3,805.0	0.34	276.35	3,803.5	-8.2	28.1	18.2	0.50
3,830.0	0.32	289.83	3,828.5	-8.1	28.0	18.1	0.32
3,855.0	0.45	274.18	3,853.5	-8.1	27.8	18.0	0.66
3,880.0	0.42	276.31	3,878.5	-8.1	27.6	17.9	0.14
3,905.0	0.49	270.68	3,903.5	-8.1	27.4	17.8	0.33
3,930.0	0.47	266.57	3,928.5	-8.1	27.2	17.8	0.16
3,955.0	0.38	265.02	3,953.5	-8.1	27.0	17.7	0.36
3,980.0	0.47	266.49	3,978.5	-8.1	26.9	17.6	0.36
4,005.0	0.42	270.86	4,003.5	-8.1	26.7	17.6	0.24
4,030.0	0.46	270.29	4,028.5	-8.1	26.5	17.5	0.16
4,055.0	0.46	269.70	4,053.5	-8.1	26.3	17.4	0.02
4,080.0	0.55	268.70	4,078.5	-8.1	26.0	17.3	0.36
4,105.0	0.53	269.51	4,103.5	-8.1	25.8	17.3	0.09
4,130.0	0.55	260.29	4,128.5	-8.1	25.6	17.2	0.36
4,155.0	0.45	260.03	4,153.5	-8.2	25.4	17.1	0.40
4,180.0	0.54	262.79	4,178.5	-8.2	25.2	17.1	0.37
4,205.0	0.51	264.03	4,203.5	-8.2	24.9	17.0	0.13
4,230.0	0.47	267.38	4,228.5	-8.3	24.7	17.0	0.20
4,255.0	0.52	270.99	4,253.5	-8.3	24.5	16.9	0.24
4,280.0	0.56	268.60	4,278.5	-8.3	24.3	16.8	0.18
4,305.0	0.49	268.26	4,303.5	-8.3	24.0	16.7	0.28
4,330.0	0.51	262.82	4,328.5	-8.3	23.8	16.7	0.21
4,355.0	0.49	269.29	4,353.5	-8.3	23.6	16.6	0.24
4,380.0	0.55	263.11	4,378.5	-8.3	23.4	16.5	0.33
4,405.0	0.44	261.23	4,403.5	-8.3	23.2	16.5	0.44
4,430.0	0.41	258.80	4,428.5	-8.4	23.0	16.4	0.14
4,455.0	0.46	252.78	4,453.5	-8.4	22.8	16.4	0.27
4,480.0	0.48	255.71	4,478.5	-8.5	22.6	16.4	0.13
4,505.0	0.39	257.20	4,503.5	-8.5	22.4	16.3	0.36
4,530.0	0.38	256.56	4,528.5	-8.6	22.2	16.3	0.04
4,555.0	0.40	261.72	4,553.5	-8.6	22.1	16.3	0.16
4,580.0	0.41	270.37	4,578.5	-8.6	21.9	16.2	0.25
4,605.0	0.40	264.56	4,603.5	-8.6	21.7	16.2	0.17
4,630.0	0.39	268.02	4,628.5	-8.6	21.6	16.1	0.10
4,655.0	0.52	268.33	4,653.5	-8.6	21.4	16.0	0.52
4,680.0	0.38	261.28	4,678.5	-8.6	21.2	16.0	0.60
4,705.0	0.40	266.74	4,703.5	-8.7	21.0	15.9	0.17
4,730.0	0.45	264.56	4,728.5	-8.7	20.8	15.9	0.21
4,755.0	0.45	263.15	4,753.5	-8.7	20.6	15.8	0.04

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WV GEOLOGICAL SURVEY
ORGANTOWN, WV

EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Anne / Hardin Pad
Well: Hardin Unit 1H
Wellbore: Sidetrack 1
Design: As Drilled

Local Co-ordinate Reference: Well Hardin Unit 1H
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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)
4,780.0	0.30	271.13	4,778.5	-8.7	20.4	15.8	0.63
4,805.0	0.35	271.79	4,803.5	-8.7	20.3	15.7	0.20
4,830.0	0.41	280.61	4,828.5	-8.7	20.1	15.6	0.33
4,855.0	0.47	272.93	4,853.5	-8.7	20.0	15.5	0.34
4,880.0	0.35	278.21	4,878.5	-8.6	19.8	15.5	0.50
4,905.0	0.44	278.97	4,903.5	-8.6	19.6	15.4	0.36
4,930.0	0.34	271.46	4,928.5	-8.6	19.4	15.3	0.45
4,955.0	0.44	265.52	4,953.5	-8.6	19.3	15.2	0.43
4,980.0	0.29	280.01	4,978.5	-8.6	19.1	15.2	0.70
5,005.0	0.22	286.34	5,003.5	-8.6	19.0	15.1	0.30
5,030.0	0.30	291.24	5,028.5	-8.5	18.9	15.0	0.33
5,055.0	0.36	280.25	5,053.5	-8.5	18.8	14.9	0.35
5,080.0	0.38	277.54	5,078.5	-8.5	18.6	14.9	0.11
5,105.0	0.31	281.09	5,103.5	-8.5	18.4	14.8	0.29
5,130.0	0.47	268.75	5,128.5	-8.4	18.3	14.7	0.72
5,155.0	0.43	275.47	5,153.5	-8.4	18.1	14.6	0.26
5,180.0	0.44	275.51	5,178.5	-8.4	17.9	14.5	0.04
5,205.0	0.36	274.25	5,203.5	-8.4	17.7	14.5	0.32
5,230.0	0.49	267.73	5,228.5	-8.4	17.5	14.4	0.55
5,255.0	0.35	268.50	5,253.5	-8.4	17.3	14.3	0.56
5,280.0	0.17	269.88	5,278.5	-8.4	17.2	14.3	0.72
5,305.0	0.39	272.34	5,303.5	-8.4	17.1	14.2	0.88
5,330.0	0.32	280.33	5,328.5	-8.4	17.0	14.2	0.34
5,355.0	0.47	275.59	5,353.5	-8.4	16.8	14.1	0.61
5,380.0	0.40	271.29	5,378.5	-8.4	16.6	14.0	0.31
5,405.0	0.47	269.61	5,403.5	-8.4	16.4	13.9	0.28
5,430.0	0.29	265.81	5,428.5	-8.4	16.2	13.9	0.73
5,455.0	0.39	265.96	5,453.5	-8.4	16.1	13.8	0.40
5,480.0	0.26	269.56	5,478.5	-8.4	16.0	13.8	0.53
5,505.0	0.24	284.78	5,503.5	-8.4	15.8	13.7	0.28
5,530.0	0.31	264.79	5,528.5	-8.4	15.7	13.7	0.47
5,555.0	0.22	273.05	5,553.5	-8.4	15.6	13.6	0.39
5,580.0	0.36	257.07	5,578.5	-8.4	15.5	13.6	0.64
5,605.0	0.23	231.72	5,603.5	-8.4	15.4	13.6	0.72
5,630.0	0.21	247.60	5,628.5	-8.5	15.3	13.6	0.26
5,655.0	0.19	220.58	5,653.5	-8.5	15.2	13.6	0.38
5,680.0	0.23	238.66	5,678.5	-8.6	15.2	13.7	0.31
5,705.0	0.27	244.98	5,703.5	-8.6	15.1	13.7	0.19
5,730.0	0.19	195.67	5,728.5	-8.7	15.0	13.7	0.82
5,755.0	0.28	229.19	5,753.5	-8.8	14.9	13.8	0.64
5,780.0	0.25	227.37	5,778.5	-8.9	14.8	13.8	0.12
5,805.0	0.16	200.10	5,803.5	-8.9	14.8	13.8	0.52
5,830.0	0.24	218.29	5,828.5	-9.0	14.8	13.9	0.40
5,855.0	0.32	228.28	5,853.5	-9.1	14.7	13.9	0.37

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company: Antero Resources
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Site: Anne / Hardin Pad
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Wellbore: Sidetrack 1
Design: As Drilled

Local Co-ordinate Reference: Well Hardin Unit 1H
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,880.0	0.27	260.82	5,878.5	-9.1	14.6	14.0	0.69
5,905.0	0.33	207.45	5,903.5	-9.2	14.5	14.0	1.10
5,930.0	0.23	215.72	5,928.5	-9.3	14.4	14.1	0.43
5,955.0	0.37	220.55	5,953.5	-9.4	14.3	14.1	0.57
5,959.0	0.39	220.99	5,957.5	-9.4	14.3	14.1	0.51
5,986.0	0.42	255.32	5,984.5	-9.5	14.1	14.2	0.89
6,017.0	0.48	232.48	6,015.5	-9.6	13.9	14.2	0.61
6,048.0	1.58	56.63	6,046.5	-9.5	14.2	14.1	6.64
6,079.0	4.57	51.34	6,077.4	-8.5	15.5	13.7	9.68
6,110.0	9.06	46.00	6,108.2	-6.0	18.2	12.4	14.61
6,141.0	12.67	43.62	6,138.6	-1.9	22.3	10.1	11.73
6,172.0	14.97	45.47	6,168.7	3.4	27.5	7.2	7.55
6,203.0	16.90	45.72	6,198.5	9.4	33.6	4.0	6.23
6,233.0	16.53	56.11	6,227.3	14.8	40.3	1.5	10.02
6,264.0	15.77	69.87	6,257.1	18.7	47.9	0.7	12.56
6,295.0	17.85	72.63	6,286.7	21.6	56.4	1.3	7.18
6,326.0	20.02	77.82	6,316.1	24.1	66.1	2.6	8.85
6,357.0	22.11	75.78	6,345.0	26.7	77.0	4.3	7.14
6,384.0	24.71	76.29	6,369.8	29.3	87.4	5.9	9.67
Sycamore							
6,388.0	25.10	76.36	6,373.4	29.6	89.0	6.1	9.67
6,419.0	24.45	85.90	6,401.5	31.7	101.8	9.1	13.05
6,449.0	22.40	95.09	6,429.1	31.6	113.7	13.6	13.95
6,480.0	20.40	107.51	6,458.0	29.4	124.7	19.8	15.94
6,511.0	21.19	112.36	6,486.9	25.7	135.1	27.2	6.11
6,542.0	23.62	112.47	6,515.6	21.2	146.0	35.4	7.84
6,573.0	26.14	116.66	6,543.7	15.7	157.8	45.0	9.92
6,580.0	26.84	117.62	6,550.0	14.3	160.6	47.3	11.71
Middlesex							
6,604.0	29.28	120.59	6,571.2	8.8	170.5	56.1	11.71
6,635.0	31.72	125.14	6,597.9	0.3	183.7	69.0	10.83
6,666.0	34.91	128.44	6,623.8	-9.9	197.3	83.6	11.83
6,696.0	38.95	130.64	6,647.8	-21.4	211.2	99.5	14.17
6,727.0	42.99	132.68	6,671.2	-34.9	226.3	117.7	13.73
6,750.0	45.77	135.03	6,687.6	-46.1	237.9	132.4	14.04
Burkett							
6,758.0	46.75	135.79	6,693.1	-50.2	242.0	137.8	14.04
6,789.0	50.39	139.07	6,713.6	-67.3	257.7	159.5	14.17
6,791.0	50.65	139.24	6,714.9	-68.5	258.7	161.0	14.40
Tully							
6,820.0	54.38	141.60	6,732.6	-86.2	273.3	183.0	14.40
6,851.0	58.82	142.73	6,749.6	-106.7	289.2	207.9	14.64
6,882.0	63.42	144.47	6,764.6	-128.5	305.3	234.2	15.63
6,898.0	65.81	145.65	6,771.4	-140.4	313.6	248.3	16.32
Marcellus							

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
6,912.0	67.90	146.64	6,777.0	-151.1	320.8	260.9	16.32
6,943.0	72.11	150.14	6,787.6	-175.9	336.0	289.6	17.23
6,974.0	75.53	153.05	6,796.2	-202.0	350.2	319.2	14.25
7,005.0	78.36	153.98	6,803.2	-229.1	363.6	349.3	9.59
7,036.0	81.34	154.72	6,808.7	-256.6	376.8	379.8	9.90
7,067.0	86.35	155.69	6,812.0	-284.6	389.7	410.5	16.46
7,098.0	89.52	156.56	6,813.1	-312.9	402.3	441.5	10.60
7,108.0	89.53	156.20	6,813.2	-322.0	406.3	451.5	3.60
7,200.0	90.13	157.62	6,813.5	-406.7	442.4	543.5	1.68
7,293.0	88.64	154.28	6,814.5	-491.6	480.3	636.4	3.93
7,385.0	89.25	154.98	6,816.1	-574.7	519.7	728.2	1.01
7,478.0	89.87	154.37	6,816.9	-658.7	559.5	821.1	0.94
7,570.0	89.60	154.98	6,817.3	-741.9	598.8	913.0	0.73
7,663.0	88.72	154.45	6,818.6	-826.0	638.5	1,005.8	1.10
7,756.0	88.81	156.74	6,820.7	-910.6	676.9	1,098.7	2.46
7,848.0	90.57	160.26	6,821.2	-996.2	710.6	1,190.7	4.28
7,941.0	89.08	159.99	6,821.4	-1,083.7	742.3	1,283.6	1.63
8,034.0	89.96	160.87	6,822.2	-1,171.3	773.4	1,376.5	1.34
8,126.0	88.64	160.87	6,823.3	-1,258.2	803.6	1,468.4	1.43
8,219.0	90.13	162.54	6,824.3	-1,346.5	832.8	1,561.1	2.41
8,312.0	88.29	160.43	6,825.6	-1,434.7	862.3	1,653.9	3.01
8,404.0	89.23	160.91	6,827.6	-1,521.5	892.7	1,745.8	1.15
8,497.0	88.64	159.38	6,829.3	-1,608.9	924.3	1,838.7	1.76
8,590.0	87.58	156.92	6,832.4	-1,695.2	958.9	1,931.7	2.88
8,682.0	87.05	155.60	6,836.7	-1,779.3	995.9	2,023.5	1.54
8,775.0	89.25	157.09	6,839.7	-1,864.4	1,033.2	2,116.4	2.86
8,867.0	91.19	157.88	6,839.4	-1,949.4	1,068.4	2,208.4	2.28
8,961.0	88.64	156.92	6,839.5	-2,036.2	1,104.5	2,302.4	2.90
9,056.0	89.43	157.53	6,841.1	-2,123.8	1,141.3	2,397.4	1.05
9,150.0	89.96	158.41	6,841.6	-2,210.9	1,176.6	2,491.4	1.09
9,245.0	88.90	155.51	6,842.5	-2,298.3	1,213.7	2,586.4	3.25
9,338.0	89.60	154.98	6,843.8	-2,382.8	1,252.7	2,679.3	0.94
9,433.0	89.69	155.60	6,844.4	-2,469.1	1,292.4	2,774.2	0.66
9,527.0	90.48	154.37	6,844.2	-2,554.2	1,332.1	2,868.0	1.56
9,622.0	91.36	158.67	6,842.7	-2,641.3	1,370.0	2,963.0	4.62
9,716.0	91.10	158.23	6,840.7	-2,728.8	1,404.5	3,056.9	0.54
9,810.0	90.48	161.22	6,839.4	-2,816.9	1,437.0	3,150.9	3.25
9,902.0	90.22	162.63	6,838.8	-2,904.4	1,465.6	3,242.6	1.56
9,995.0	89.25	160.78	6,839.2	-2,992.7	1,494.8	3,335.4	2.25
10,088.0	88.90	160.17	6,840.7	-3,080.3	1,525.9	3,428.3	0.76
10,180.0	88.64	160.34	6,842.7	-3,166.9	1,556.9	3,520.2	0.34
10,273.0	90.57	159.99	6,843.4	-3,254.3	1,588.5	3,613.1	2.11
10,366.0	89.25	158.15	6,843.5	-3,341.2	1,621.7	3,706.1	2.43
10,458.0	89.87	158.41	6,844.2	-3,426.7	1,655.8	3,798.1	0.73

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
10,551.0	90.04	157.36	6,844.3	-3,512.8	1,690.8	3,891.1	1.14
10,643.0	90.13	154.37	6,844.1	-3,596.8	1,728.4	3,983.0	3.25
10,736.0	89.96	155.33	6,844.1	-3,681.0	1,767.9	4,075.9	1.05
10,828.0	89.69	155.07	6,844.4	-3,764.5	1,806.5	4,167.8	0.41
10,921.0	89.43	158.32	6,845.1	-3,849.9	1,843.3	4,260.8	3.51
11,014.0	90.31	159.29	6,845.3	-3,936.6	1,876.9	4,353.8	1.41
11,106.0	90.92	160.08	6,844.3	-4,022.8	1,908.8	4,445.7	1.08
11,199.0	89.87	160.87	6,843.7	-4,110.5	1,939.9	4,538.6	1.41
11,292.0	90.75	160.87	6,843.2	-4,198.4	1,970.4	4,631.5	0.95
11,384.0	89.43	160.70	6,843.0	-4,285.2	2,000.7	4,723.3	1.45
11,477.0	89.78	159.99	6,843.6	-4,372.8	2,032.0	4,816.2	0.85
11,570.0	90.22	161.22	6,843.6	-4,460.5	2,062.8	4,909.1	1.40
11,662.0	89.78	159.73	6,843.6	-4,547.2	2,093.6	5,001.0	1.69
11,755.0	88.72	158.24	6,844.9	-4,634.0	2,126.9	5,094.0	1.97
11,847.0	89.34	158.15	6,846.4	-4,719.4	2,161.1	5,186.0	0.68
11,940.0	88.37	156.30	6,848.3	-4,805.2	2,197.1	5,279.0	2.25
12,033.0	88.72	155.69	6,850.6	-4,890.1	2,234.9	5,371.9	0.76
12,125.0	89.50	154.71	6,852.1	-4,973.6	2,273.5	5,463.8	1.36
12,218.0	91.01	156.04	6,851.7	-5,058.1	2,312.2	5,556.7	2.16
12,311.0	90.40	154.10	6,850.5	-5,142.5	2,351.4	5,649.6	2.19
12,403.0	89.87	153.22	6,850.3	-5,224.9	2,392.3	5,741.3	1.12
12,496.0	92.33	156.74	6,848.5	-5,309.1	2,431.6	5,834.2	4.62
12,588.0	90.84	156.04	6,846.0	-5,393.4	2,468.4	5,926.1	1.79
12,681.0	90.40	157.97	6,845.0	-5,479.0	2,504.7	6,019.1	2.13
12,774.0	90.92	157.18	6,843.9	-5,565.0	2,540.2	6,112.1	1.02
12,866.0	90.75	158.85	6,842.5	-5,650.3	2,574.6	6,204.0	1.82
12,959.0	91.68	159.14	6,840.6	-5,737.1	2,608.0	6,297.0	1.05
13,052.0	90.66	158.67	6,838.7	-5,823.8	2,641.4	6,390.0	1.21
13,144.0	89.78	158.50	6,838.3	-5,909.5	2,675.0	6,482.0	0.97
13,237.0	91.19	160.17	6,837.5	-5,996.5	2,707.8	6,574.9	2.35
13,329.0	89.78	158.59	6,836.8	-6,082.6	2,740.2	6,666.9	2.30
13,422.0	89.43	158.67	6,837.4	-6,169.2	2,774.1	6,759.9	0.39
13,514.0	91.80	159.46	6,836.4	-6,255.1	2,807.0	6,851.8	2.72
13,607.0	92.33	159.03	6,833.1	-6,342.0	2,839.9	6,944.7	0.73
13,700.0	90.22	157.18	6,831.0	-6,428.3	2,874.6	7,037.7	3.02
13,792.0	92.15	158.76	6,829.1	-6,513.5	2,909.1	7,129.7	2.71
13,885.0	91.80	158.32	6,825.9	-6,600.0	2,943.1	7,222.6	0.60
13,977.0	89.69	158.50	6,824.7	-6,685.6	2,977.0	7,314.6	2.30
14,070.0	89.69	158.32	6,825.2	-6,772.0	3,011.2	7,407.6	0.19
14,163.0	89.96	159.03	6,825.5	-6,858.7	3,045.0	7,500.6	0.82
14,255.0	88.02	156.56	6,827.1	-6,943.8	3,079.8	7,592.6	3.41
14,348.0	90.31	155.77	6,828.5	-7,028.9	3,117.3	7,685.5	2.60
14,440.0	92.59	157.44	6,826.1	-7,113.3	3,153.8	7,777.4	3.07
14,533.0	92.68	156.65	6,821.8	-7,198.8	3,190.1	7,870.3	0.85

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Anne / Hardin Pad
Well: Hardin Unit 1H
Wellbore: Sidetrack 1
Design: As Drilled

Local Co-ordinate Reference: Well Hardin Unit 1H
TVD Reference: Pr522: Hardin 1H 1001 GL + 18 KB @ 1019.0usft
MD Reference: Pr522: Hardin 1H 1001 GL + 18 KB @ 1019.0usft
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)
14,626.0	91.89	157.62	6,818.1	-7,284.4	3,226.2	7,963.3	1.34
14,718.0	90.92	157.00	6,815.9	-7,369.3	3,261.7	8,055.2	1.25
14,759.0	90.74	156.02	6,815.3	-7,406.9	3,278.0	8,096.2	2.43
14,819.0	90.74	156.02	6,814.5	-7,461.7	3,302.4	8,156.2	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,384.0	6,369.8	29.3	87.4	Sycamore
6,580.0	6,550.0	14.3	160.6	Middlesex
6,750.0	6,687.6	-46.1	237.9	Burkett
6,791.0	6,714.9	-68.5	258.7	Tully
6,898.0	6,771.4	-140.4	313.6	Marcellus

Checked By: _____ Approved By: _____ Date: _____