

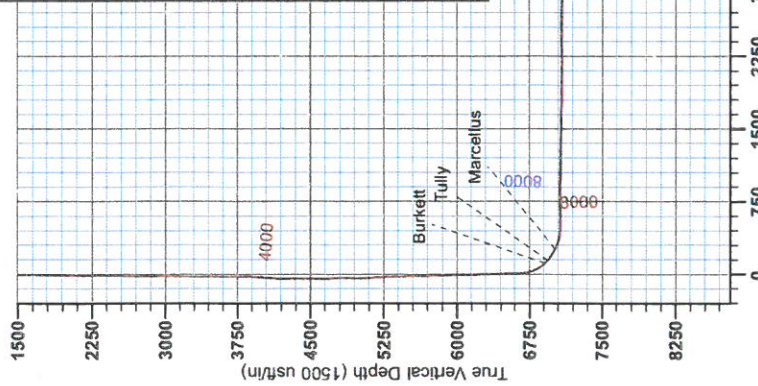
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JUN 01 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV



Antero Resources
Heflin Unit 2H
Doddridge County WV
Northing: 14277819.32
Easting: 1725221.47
As Drilled



Vertical Section at 341.55° (1500 usf/m)

WELL DETAILS: Heflin Unit 2H
Ground Level: 1237.0
Easting: 1725221.47
Northing: 14277819.32
Longitude: 80° 42' 0.544 W
Latitude: 39° 19' 4.394 N

REFERENCE INFORMATION
Geographic (NAD) Reference: West Heflin Unit 2H GCS North
Vertical (VD) Reference: Mean Sea Level
Horizontal Datum Reference: Mean Sea Level
Coordinate System: UTM
Datum: Mean Sea Level

PROJECT DETAILS: Doddridge County WV
Coordinate System: Universal Transverse Mercator (US Survey Foot)
Datum: NAD83 (NAD83 CONUS)
Zone: Zone 17N (84 W to 78 W)

Genie Lightfoot
14:04, December 10 2013
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK



LEGEND

- Moore Unit 2H, Original Wellpath, As Drilled V0
- Gavin Unit 1H, Original Wellpath, As Drilled V0
- Gavin Unit 2H, Original Wellpath, As Drilled V0
- Moore Unit 1H, Original Wellpath, As Drilled V0
- Emily Unit 2H, Original Wellpath, As Drilled V0
- Emily Unit 1H, Original Wellpath, As Drilled V0
- Heflin Unit 2H, Original Wellpath, Plan 3 Rev V0
- As Drilled

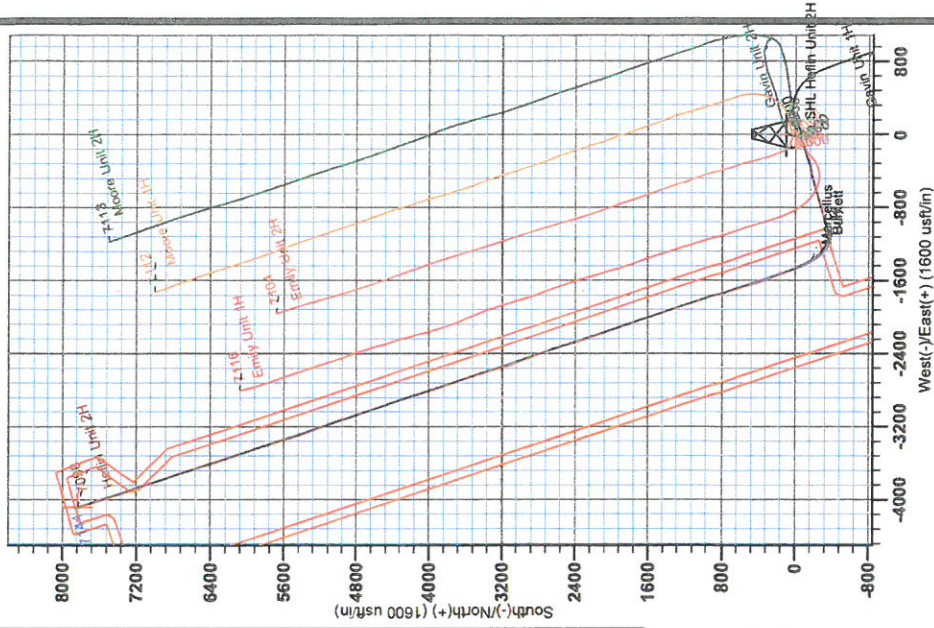
DESIGN TARGET DETAILS

Name	+N/S	+E/W	Northing	Easting	Latitude	Longitude
SHL Heflin Unit 2H	0.0	0.0	14277819.32	1725221.47	39° 19' 4.394 N	80° 42' 0.544 W
Actual BHL Heflin Unit 2H	7834.2				20 21 995 160° 42' 52.175 W	



To convert Magnetic North to Grid, Subtract 8.70°
To convert True North to Grid, Subtract 0.19°

Magnetic Field
Strength: 52387.4nT
Dip Angle: 66.89°
Date: 9/23/2013
Model: IGRF2010





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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Antero Resources

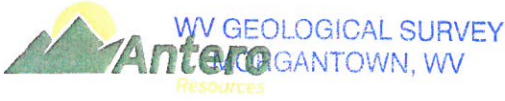
Doddridge County WV
Moore/Emily/Gavin/Heflin Pad
Heflin Unit 2H
Original Wellpath

Design: As Drilled

EOW Completion Report

10 December, 2013





EOW Completion Report



Company: Antero Resources	Local Co-ordinate Reference: Well Heflin Unit 2H
Project: Doddridge County WV	TVD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
Site: Moore/Emily/Gavin/Heflin Pad	MD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
Well: Heflin 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	Moore/Emily/Gavin/Heflin Pad				
Site Position:		Northing:	14,277,823.32 usft	Latitude:	39° 19' 4.431 N
From:	Map	Easting:	1,725,282.39 usft	Longitude:	80° 41' 59.768 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.19 °

Well	Heflin Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,277,819.32 usft	Latitude:	39° 19' 4.394 N
	+E/-W	0.0 usft	Easting:	1,725,221.47 usft	Longitude:	80° 42' 0.544 W
Position Uncertainty	2.0 usft		Wellhead Elevation:	1,262.0 usft	Ground Level:	1,237.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/23/2013	-8.51	66.89	52,387

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	341.55	

Survey Program	Date 12/10/2013				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
114.0	3,717.3	Survey #2 Def Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
3,774.0	5,377.0	Survey #3 Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
5,472.0	15,874.0	Survey #4 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. 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	0.0	0.00
114.0	0.83	231.91	114.0	-0.5	-0.6	-0.3	-0.73		
214.0	0.58	227.46	214.0	-1.3	-1.6	-0.7	0.26		
314.0	0.29	190.44	314.0	-1.9	-2.0	-1.2	0.39		
414.0	0.25	184.82	414.0	-2.4	-2.1	-1.6	0.05		
514.0	0.37	187.31	514.0	-2.9	-2.1	-2.1	0.12		
614.0	0.37	199.36	614.0	-3.5	-2.3	-2.6	0.08		
714.0	0.43	204.21	714.0	-4.2	-2.5	-3.1	0.07		
814.0	0.34	200.32	814.0	-4.8	-2.8	-3.7	0.09		
914.0	0.42	209.77	914.0	-5.4	-3.1	-4.1	0.10		

JUN 01 2015



WV GEOLOGICAL SURVEY
Resource MORGANTOWN, WV

EOW Completion Report



Scientific Drilling

Company: Antero Resources
Project: Doddridge County WV
Site: Moore/Emily/Gavin/Heflin Pad
Well: Heflin Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Heflin Unit 2H
TVD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
MD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
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)
1,014.0	0.36	220.85	1,014.0	-5.9	-3.5	-4.5	0.10
1,114.0	0.28	224.26	1,114.0	-6.4	-3.8	-4.8	0.08
1,214.0	0.33	220.73	1,214.0	-6.7	-4.2	-5.1	0.05
1,314.0	0.56	233.81	1,314.0	-7.3	-4.8	-5.4	0.25
1,414.0	0.75	226.60	1,414.0	-8.0	-5.7	-5.8	0.21
1,514.0	0.71	227.03	1,514.0	-8.9	-6.6	-6.3	0.04
1,614.0	0.82	222.42	1,613.9	-9.8	-7.5	-6.9	0.13
1,714.0	0.87	225.85	1,713.9	-10.9	-8.6	-7.6	0.07
1,814.0	0.61	195.07	1,813.9	-11.9	-9.2	-8.4	0.47
1,914.0	0.80	211.62	1,913.9	-13.0	-9.7	-9.3	0.28
2,014.0	0.83	210.75	2,013.9	-14.2	-10.5	-10.2	0.03
2,114.0	0.82	209.76	2,113.9	-15.5	-11.2	-11.1	0.02
2,214.0	0.97	212.68	2,213.9	-16.8	-12.0	-12.1	0.16
2,314.0	1.00	215.53	2,313.9	-18.2	-13.0	-13.2	0.06
2,414.0	1.02	212.87	2,413.9	-19.7	-14.0	-14.3	0.05
2,514.0	1.13	214.89	2,513.8	-21.3	-15.0	-15.4	0.12
2,614.0	0.92	215.71	2,613.8	-22.7	-16.0	-16.5	0.21
2,714.0	0.76	210.25	2,713.8	-23.9	-16.9	-17.4	0.18
2,814.0	0.75	206.69	2,813.8	-25.1	-17.5	-18.3	0.05
2,914.0	0.77	207.18	2,913.8	-26.3	-18.1	-19.2	0.02
3,014.0	0.76	221.22	3,013.8	-27.4	-18.8	-20.0	0.19
3,114.0	0.62	219.72	3,113.8	-28.3	-19.6	-20.6	0.14
3,214.0	0.60	224.39	3,213.8	-29.1	-20.3	-21.2	0.05
3,314.0	0.48	222.82	3,313.8	-29.8	-21.0	-21.6	0.12
3,414.0	0.44	221.14	3,413.8	-30.4	-21.5	-22.0	0.04
3,514.0	0.46	230.83	3,513.8	-30.9	-22.1	-22.3	0.08
3,614.0	0.54	223.98	3,613.8	-31.5	-22.7	-22.7	0.10
3,714.0	0.77	243.69	3,713.7	-32.1	-23.6	-23.0	0.32
3,717.3	0.81	244.96	3,717.1	-32.1	-23.7	-23.0	1.31
3,774.0	1.51	223.68	3,773.7	-32.9	-24.6	-23.4	1.43
3,837.0	3.80	220.12	3,836.7	-35.1	-26.5	-24.9	3.64
3,933.0	6.78	226.70	3,932.2	-41.4	-32.7	-28.9	3.16
3,997.0	8.60	225.41	3,995.7	-47.3	-38.8	-32.6	2.86
4,028.0	9.48	226.12	4,026.3	-50.7	-42.3	-34.7	2.86
4,093.0	10.76	233.16	4,090.3	-58.1	-51.0	-38.9	2.74
4,152.0	11.85	243.30	4,148.1	-64.1	-60.8	-41.5	3.84
4,247.0	14.07	244.08	4,240.7	-73.5	-79.9	-44.4	2.34
4,343.0	15.90	247.25	4,333.4	-83.7	-102.6	-47.0	2.09
4,439.0	18.09	252.86	4,425.2	-93.2	-128.9	-47.6	2.85
4,535.0	20.69	255.58	4,515.8	-101.8	-159.6	-46.1	2.87
4,630.0	22.26	253.58	4,604.2	-111.1	-193.1	-44.2	1.82
4,726.0	23.34	254.27	4,692.7	-121.4	-228.9	-42.7	1.16
4,821.0	20.56	256.24	4,780.8	-130.4	-263.2	-40.4	3.03
4,916.0	20.66	250.02	4,869.7	-140.1	-295.2	-39.5	2.31
5,012.0	21.12	245.86	4,959.4	-153.0	-326.9	-41.7	1.62

JUN 01 2015



WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Moore/Emily/Gavin/Heflin Pad
Well: Heflin Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Heflin Unit 2H
TVD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
MD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
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)
5,107.0	21.48	259.28	5,048.0	-163.2	-359.6	-41.1	5.14
5,202.0	23.52	261.88	5,135.8	-169.2	-395.4	-35.3	2.39
5,298.0	25.96	257.39	5,222.9	-176.5	-434.9	-29.7	3.21
5,377.0	27.15	256.80	5,293.6	-184.3	-469.3	-26.3	1.54
5,472.0	26.56	256.20	5,378.4	-194.4	-511.1	-22.6	0.68
5,569.0	26.17	253.30	5,465.3	-205.7	-552.6	-20.2	1.39
5,665.0	25.65	251.04	5,551.6	-218.5	-592.6	-19.8	1.16
5,762.0	25.22	255.53	5,639.2	-230.5	-632.4	-18.5	2.04
5,858.0	26.56	255.96	5,725.6	-240.8	-673.1	-15.4	1.41
5,954.0	25.31	254.46	5,811.9	-251.5	-713.6	-12.7	1.47
6,051.0	26.63	256.45	5,899.1	-262.2	-754.8	-9.8	1.63
6,147.0	26.97	254.79	5,984.8	-272.9	-796.7	-6.8	0.86
6,244.0	27.09	253.91	6,071.2	-284.8	-839.1	-4.6	0.43
6,340.0	27.17	254.91	6,156.7	-296.6	-881.3	-2.4	0.48
6,437.0	27.29	254.72	6,242.9	-308.2	-924.1	0.1	0.15
6,533.0	27.99	254.10	6,328.0	-320.2	-967.0	2.3	0.79
6,630.0	26.51	253.26	6,414.2	-332.6	-1,009.6	4.0	1.58
6,725.0	27.51	254.46	6,498.8	-344.6	-1,051.1	5.7	1.20
6,822.0	26.26	254.06	6,585.3	-356.5	-1,093.3	7.8	1.30
6,854.0	25.94	252.51	6,614.1	-360.6	-1,106.8	8.2	2.35
6,886.0	24.91	255.85	6,643.0	-364.3	-1,120.0	8.9	5.52
6,918.0	22.21	263.28	6,672.3	-366.7	-1,132.5	10.6	12.53
6,951.0	21.92	274.48	6,702.9	-366.9	-1,144.9	14.3	12.76
6,983.0	23.48	284.11	6,732.5	-364.9	-1,157.0	20.0	12.58
7,015.0	25.97	291.13	6,761.5	-360.8	-1,169.8	27.9	12.02
7,047.0	28.67	296.90	6,790.0	-354.8	-1,183.1	37.8	11.81
7,079.0	32.14	300.10	6,817.6	-347.1	-1,197.4	49.7	11.96
7,111.0	35.73	303.18	6,844.1	-337.7	-1,212.5	63.4	12.44
7,143.0	40.10	304.72	6,869.3	-326.7	-1,228.8	79.0	13.97
7,175.0	44.35	306.90	6,893.0	-314.1	-1,246.3	96.4	14.05
7,202.0	47.70	309.33	6,911.8	-302.1	-1,261.5	112.7	13.99
Burkett							
7,208.0	48.45	309.83	6,915.8	-299.3	-1,265.0	116.4	13.99
7,240.0	51.01	313.34	6,936.5	-283.1	-1,283.2	137.6	11.58
7,246.0	51.58	313.98	6,940.2	-279.8	-1,286.6	141.7	12.60
Tully							
7,272.0	54.07	316.65	6,955.9	-265.1	-1,301.2	160.3	12.60
7,304.0	57.39	319.82	6,974.0	-245.4	-1,318.8	184.6	13.21
7,336.0	60.31	322.74	6,990.5	-224.0	-1,335.9	210.3	12.01
7,368.0	62.50	324.85	7,005.8	-201.3	-1,352.5	237.0	8.96
7,395.0	64.41	326.55	7,017.9	-181.4	-1,366.1	260.3	9.05
Marcellus							
7,400.0	64.77	326.86	7,020.0	-177.6	-1,368.6	264.6	9.05
7,432.0	68.14	329.12	7,032.8	-152.7	-1,384.1	293.2	12.36
7,465.0	71.65	331.39	7,044.2	-125.8	-1,399.5	323.5	12.44

JUN 01 2015



ANTERO GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Scientific Drilling

Company: Antero Resources
Project: Doddridge County WV
Site: Moore/Emily/Gavin/Heflin Pad
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Wellbore: Original Wellpath
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Local Co-ordinate Reference: Well Heflin Unit 2H
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Database: Oklahoma District

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7,497.0	74.56	332.66	7,053.5	-98.8	-1,413.8	353.7	9.85
7,529.0	77.77	333.61	7,061.1	-71.1	-1,427.9	384.5	10.44
7,561.0	81.25	333.99	7,066.9	-42.8	-1,441.8	415.6	10.94
7,593.0	85.67	335.37	7,070.6	-14.1	-1,455.3	447.2	14.46
7,657.0	91.14	336.10	7,072.4	44.2	-1,481.6	510.8	8.62
7,689.0	91.68	336.97	7,071.6	73.5	-1,494.4	542.7	3.20
7,786.0	90.84	337.40	7,069.4	162.9	-1,532.0	639.4	0.97
7,882.0	90.64	339.38	7,068.2	252.2	-1,567.3	735.2	2.07
7,979.0	92.51	341.81	7,065.5	343.6	-1,599.5	832.2	3.16
8,075.0	87.34	343.12	7,065.7	435.1	-1,628.4	928.1	5.56
8,172.0	89.19	342.13	7,068.6	527.6	-1,657.4	1,025.0	2.16
8,268.0	88.06	344.37	7,070.9	619.5	-1,685.1	1,121.0	2.61
8,365.0	89.43	343.70	7,073.0	712.8	-1,711.7	1,217.8	1.57
8,461.0	88.83	344.57	7,074.5	805.1	-1,738.0	1,313.7	1.10
8,558.0	89.60	341.04	7,075.8	897.7	-1,766.6	1,410.7	3.72
8,654.0	88.69	341.01	7,077.2	988.5	-1,797.8	1,506.7	0.95
8,750.0	87.42	340.40	7,080.5	1,079.1	-1,829.6	1,602.6	1.47
8,847.0	88.76	342.25	7,083.7	1,170.9	-1,860.6	1,699.5	2.35
8,943.0	90.00	343.30	7,084.8	1,262.6	-1,889.0	1,795.5	1.69
9,040.0	89.66	340.13	7,085.1	1,354.7	-1,919.4	1,892.5	3.29
9,136.0	89.13	340.39	7,086.1	1,445.0	-1,951.9	1,988.5	0.61
9,227.0	89.26	342.64	7,087.4	1,531.3	-1,980.7	2,079.5	2.48
9,287.0	90.25	341.50	7,087.6	1,588.4	-1,999.2	2,139.5	2.52
9,318.0	91.91	343.51	7,087.0	1,618.0	-2,008.5	2,170.4	8.41
9,408.0	92.01	341.17	7,084.0	1,703.7	-2,035.8	2,260.4	2.60
9,499.0	90.44	340.45	7,082.0	1,789.6	-2,065.7	2,351.3	1.90
9,588.0	91.35	339.67	7,080.6	1,873.2	-2,096.0	2,440.3	1.35
9,678.0	90.94	342.85	7,078.8	1,958.4	-2,124.9	2,530.3	3.56
9,769.0	89.13	341.02	7,078.8	2,044.9	-2,153.2	2,621.3	2.83
9,859.0	87.66	341.08	7,081.3	2,130.0	-2,182.4	2,711.2	1.63
9,950.0	88.52	339.92	7,084.3	2,215.8	-2,212.7	2,802.1	1.59
10,040.0	88.39	341.20	7,086.7	2,300.6	-2,242.7	2,892.1	1.43
10,132.0	89.03	343.29	7,088.8	2,388.2	-2,270.7	2,984.1	2.38
10,222.0	90.61	343.65	7,089.1	2,474.5	-2,296.3	3,074.0	1.80
10,319.0	90.03	344.11	7,088.6	2,567.6	-2,323.3	3,170.9	0.76
10,415.0	89.43	340.91	7,089.0	2,659.2	-2,352.1	3,266.9	3.39
10,511.0	88.89	339.75	7,090.4	2,749.6	-2,384.4	3,362.9	1.33
10,608.0	89.83	339.95	7,091.5	2,840.6	-2,417.8	3,459.8	0.99
10,704.0	88.96	338.17	7,092.5	2,930.3	-2,452.1	3,555.7	2.06
10,801.0	90.17	337.73	7,093.2	3,020.2	-2,488.5	3,652.5	1.33
10,897.0	90.17	340.69	7,093.0	3,109.9	-2,522.6	3,748.4	3.08
10,993.0	90.70	344.87	7,092.2	3,201.6	-2,551.0	3,844.4	4.39
11,090.0	90.13	343.93	7,091.5	3,295.0	-2,577.1	3,941.3	1.13
11,186.0	89.63	342.68	7,091.7	3,387.0	-2,604.7	4,037.2	1.40

JUN 01 2015



WV GEOLOGICAL SURVEY
MORGANTOWN, WV

EOW Completion Report



Company: Antero Resources
Project: Doddridge County WV
Site: Moore/Emily/Gavin/Heflin Pad
Well: Heflin Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Heflin Unit 2H
TVD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
MD Reference: Heflin 2H 1237 GL + 25 KB @ 1262.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,283.0	89.73	342.69	7,092.3	3,479.6	-2,633.6	4,134.2	0.10
11,379.0	89.36	342.31	7,093.0	3,571.1	-2,662.4	4,230.2	0.55
11,475.0	89.60	339.96	7,093.9	3,662.0	-2,693.5	4,326.2	2.46
11,572.0	89.20	340.73	7,094.9	3,753.3	-2,726.1	4,423.1	0.89
11,668.0	88.42	340.71	7,096.9	3,843.9	-2,757.8	4,519.1	0.81
11,765.0	88.93	343.39	7,099.2	3,936.1	-2,787.7	4,616.1	2.81
11,861.0	90.10	343.05	7,100.0	4,028.1	-2,815.4	4,712.0	1.27
11,958.0	89.93	342.99	7,099.9	4,120.8	-2,843.7	4,809.0	0.19
12,054.0	89.50	341.67	7,100.4	4,212.3	-2,872.8	4,905.0	1.45
12,150.0	88.99	341.93	7,101.7	4,303.5	-2,902.8	5,001.0	0.60
12,247.0	90.03	341.36	7,102.5	4,395.5	-2,933.4	5,098.0	1.22
12,343.0	89.20	341.27	7,103.2	4,486.5	-2,964.1	5,194.0	0.87
12,440.0	88.86	342.68	7,104.8	4,578.7	-2,994.1	5,290.9	1.50
12,536.0	90.47	340.15	7,105.4	4,669.7	-3,024.7	5,386.9	3.12
12,633.0	92.12	341.20	7,103.2	4,761.2	-3,056.8	5,483.9	2.02
12,728.0	92.86	340.82	7,099.0	4,850.9	-3,087.7	5,578.8	0.88
12,825.0	91.68	342.43	7,095.2	4,942.9	-3,118.3	5,675.7	2.06
12,921.0	88.86	341.80	7,094.8	5,034.3	-3,147.7	5,771.7	3.01
13,018.0	90.37	339.33	7,095.4	5,125.7	-3,180.0	5,868.7	2.98
13,114.0	91.17	337.19	7,094.1	5,214.9	-3,215.6	5,964.5	2.38
13,210.0	91.61	340.03	7,091.8	5,304.2	-3,250.6	6,060.3	2.99
13,307.0	90.77	342.54	7,089.8	5,396.1	-3,281.7	6,157.3	2.73
13,403.0	89.09	341.49	7,089.9	5,487.4	-3,311.3	6,253.3	2.06
13,500.0	89.30	342.67	7,091.3	5,579.7	-3,341.1	6,350.3	1.24
13,596.0	89.26	343.87	7,092.5	5,671.6	-3,368.8	6,446.2	1.25
13,693.0	87.99	343.95	7,094.8	5,764.8	-3,395.7	6,543.1	1.31
13,789.0	89.33	344.06	7,097.0	5,857.0	-3,422.1	6,639.0	1.40
13,885.0	88.06	341.32	7,099.2	5,948.6	-3,450.7	6,734.9	3.15
13,982.0	89.23	339.96	7,101.5	6,040.1	-3,482.8	6,831.9	1.85
14,078.0	89.13	339.97	7,102.9	6,130.3	-3,515.7	6,927.8	0.10
14,175.0	91.24	341.77	7,102.6	6,221.9	-3,547.5	7,024.8	2.86
14,270.0	89.23	340.74	7,102.2	6,311.9	-3,578.0	7,119.8	2.38
14,367.0	88.76	342.94	7,103.9	6,404.0	-3,608.2	7,216.8	2.32
14,463.0	87.78	341.80	7,106.8	6,495.5	-3,637.3	7,312.7	1.57
14,559.0	90.40	341.87	7,108.3	6,586.7	-3,667.2	7,408.7	2.73
14,655.0	89.70	341.83	7,108.2	6,677.9	-3,697.1	7,504.7	0.73
14,751.0	91.01	342.25	7,107.6	6,769.2	-3,726.7	7,600.7	1.43
14,848.0	89.53	341.08	7,107.2	6,861.3	-3,757.2	7,697.7	1.94
14,944.0	90.23	341.12	7,107.4	6,952.1	-3,788.3	7,793.7	0.73
15,040.0	90.90	340.28	7,106.4	7,042.7	-3,820.0	7,889.7	1.12
15,137.0	90.50	341.41	7,105.2	7,134.3	-3,851.9	7,986.7	1.24
15,233.0	90.23	338.29	7,104.6	7,224.4	-3,884.9	8,082.6	3.26
15,330.0	89.09	338.63	7,105.2	7,314.7	-3,920.5	8,179.5	1.23
15,426.0	92.82	345.11	7,103.6	7,405.8	-3,950.4	8,275.4	7.79



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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)
15,523.0	91.41	343.47	7,100.0	7,499.1	-3,976.6	8,372.2	2.23
15,619.0	90.77	342.30	7,098.2	7,590.9	-4,004.9	8,468.2	1.39
15,715.0	90.10	343.74	7,097.5	7,682.7	-4,032.9	8,564.1	1.65
15,819.0	89.73	341.73	7,097.6	7,782.0	-4,063.8	8,668.1	1.97
15,874.0	89.73	341.73	7,097.9	7,834.2	-4,081.0	8,723.1	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,202.0	6,911.8	-302.1	-1,261.5	Burkett
7,246.0	6,940.2	-279.8	-1,286.6	Tully
7,395.0	7,017.9	-181.4	-1,366.1	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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 MORGANTOWN, WV