

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-017-06432 County Doddridge District Central  
Quad West Union 7.5' Pad Name Dotson-Holland Field/Pool Name ---  
Farm name Holland, Robert L., Jr. Well Number Amanda Unit 2H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop St. City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4347134m Easting 510967m  
Landing Point of Curve Northing 4346940.43m Easting 511076.10m  
Bottom Hole Northing 4345403m Easting 511810m

Elevation (ft) 989' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Air- Foam & 4% KCL  
Mud- Polymer

Date permit issued 1/28/2014 Date drilling commenced 7/21/2014 Date drilling ceased 9/11/2014  
Date completion activities began 10/9/2014 Date completion activities ceased 12/23/2014  
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 56' Open mine(s) (Y/N) depths Received No  
Salt water depth(s) ft 1527' Void(s) encountered Office of Oil & Gas No  
Coal depth(s) ft 381' Cavem(s) encountered (Y/N) depths NO No  
Is coal being mined in area (Y/N) No

Reviewed by:  
[Signature]  
10/23/2015

API 47-017 - 06432 Farm name Holland, Robert L., Jr. Well number Amanda Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/fl	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	28"	20"	40'	New	133# J-55	N/A	Y
Surface	17- 1/2"	13- 3/8"	346'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2493'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	12639'	New	20# P-110	N/A	Y
Tubing		2-3/8"	6511'		4.7# N-80	N/A	
Packer type and depth set	N/A						

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	185 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	410 sx	15.6	1.18	240	0'	8 Hrs.
Coal							
Intermediate 1	Class A	928 sx	15.6	1.18	781	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	968 sx (Lead) 958 sx (Tail)	14.5 Lead 15.2 Tail	1.30 Lead 1.86 Tail	2439	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 12840' MD, 6535' TVD Loggers TD (ft) 12591'  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5979'

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Amanda Unit 1H API #47-017-06431). Please reference the wireline logs submitted with Form WR-35 for Amanda Unit 1H. A Cement Bond Log has been included with this submittal.

Check all wireline logs run  caliper  density  deviated/directional  induction  neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No  Conventional  Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_  
 Conductor- 0  
 Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface  
 Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface  
 Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_

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API 47- 017 - 06432 Farm name Holland, Robert L., Jr. Well number Amanda Unit 2H

**PERFORATION RECORD**

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
<b>*PLEASE SEE EXHIBIT 1</b>					

Please insert additional pages as applicable.

**STIMULATION INFORMATION PER STAGE**

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
<b>*PLEASE SEE EXHIBIT 2</b>								
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API 47- 017 - 06432 Farm name Holland, Robert L., Jr. Well number Amanda Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6397' (TOP)</u> TVD	<u>6520' (TOP)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 3600 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 10198 mcfpd Oil 21 bpd NGL --- bpd Water 272 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	<u>0</u>		<u>0</u>		

**\*PLEASE SEE EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company, LP  
Address 2640 Reach Rd. City Williamsport State PA Zip 17701

Logging Company STRC  
Address 1560 Good Hope Pike City Clarksburg State WV Zip 26301

Cementing Company Nabors Completion & Production Services, Co.  
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company US Well Services  
Address 533 Industrial Park Dr. City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233  
Signature [Signature] Title Permitting Agent Date 8/27/2015

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Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

**10/23/2015**

API 47-017-06432 Farm Name Holland, Robert L., Jr. Well Number Amanda Unit 2H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9-Oct-14	12,379	12,548	60	Marcellus
2	11-Nov-14	12,178	12,347	60	Marcellus
3	11-Nov-14	11,978	12,147	60	Marcellus
4	12-Nov-14	11,777	11,946	60	Marcellus
5	12-Nov-14	11,577	11,746	60	Marcellus
6	12-Nov-14	11,376	11,545	60	Marcellus
7	13-Nov-14	11,176	11,345	60	Marcellus
8	22-Nov-14	10,975	11,144	60	Marcellus
9	23-Nov-14	10,775	10,944	60	Marcellus
10	23-Nov-14	10,574	10,743	60	Marcellus
11	23-Nov-14	10,374	10,543	60	Marcellus
12	24-Nov-14	10,173	10,343	60	Marcellus
13	24-Nov-14	9,973	10,142	60	Marcellus
14	24-Nov-14	9,773	9,942	60	Marcellus
15	24-Nov-14	9,572	9,741	60	Marcellus
16	25-Nov-14	9,372	9,541	60	Marcellus
17	25-Nov-14	9,171	9,340	60	Marcellus
18	25-Nov-14	8,971	9,140	60	Marcellus
19	25-Nov-14	8,770	8,939	60	Marcellus
20	26-Nov-14	8,570	8,739	60	Marcellus
21	26-Nov-14	8,369	8,538	60	Marcellus
22	26-Nov-14	8,169	8,338	60	Marcellus
23	26-Nov-14	7,968	8,137	60	Marcellus
24	27-Nov-14	7,768	7,937	60	Marcellus
25	27-Nov-14	7,568	7,737	60	Marcellus
26	27-Nov-14	7,367	7,536	60	Marcellus
27	27-Nov-14	7,167	7,336	60	Marcellus
28	28-Nov-14	6,966	7,135	60	Marcellus
29	28-Nov-14	6,766	6,935	60	Marcellus
30	28-Nov-14	6,565	6,734	60	Marcellus

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## EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	11-Nov-14	64.1	6,426	6,173	5,722	253,990	6,773	N/A
2	11-Nov-14	63.0	6,407	5,701	5,028	238,000	6,540	N/A
3	12-Nov-14	61.0	6,271	5,794	4,982	258,000	6,722	N/A
4	12-Nov-14	63.2	6,239	5,490	6,491	253,500	6,702	N/A
5	12-Nov-14	70.0	6,422	5,686	5,157	256,600	6,682	N/A
6	12-Nov-14	61.0	6,512	5,661	5,128	255,650	6,654	N/A
7	22-Nov-14	63.0	6,678	6,140	5,282	259,440	6,639	N/A
8	22-Nov-14	63.0	6,669	5,826	4,685	235,000	7,044	N/A
9	23-Nov-14	63.0	6,479	5,550	5,018	256,090	6,600	N/A
10	23-Nov-14	64.0	6,362	5,808	4,839	252,470	6,582	N/A
11	23-Nov-14	63.0	6,351	5,733	5,357	255,400	6,567	N/A
12	24-Nov-14	63.0	6,332	5,690	5,100	246,390	6,425	N/A
13	24-Nov-14	62.0	6,301	5,536	5,114	259,450	6,524	N/A
14	24-Nov-14	65.1	6,331	5,718	6,573	243,525	6,400	N/A
15	25-Nov-14	62.9	6,202	5,561	6,573	256,650	6,499	N/A
16	25-Nov-14	60.0	6,047	5,490	5,078	193,340	6,806	N/A
17	25-Nov-14	64.0	6,034	5,379	4,932	253,050	6,728	N/A
18	25-Nov-14	65.9	6,282	5,708	6,663	255,025	6,440	N/A
19	25-Nov-14	66.8	6,365	5,583	5,994	254,305	6,425	N/A
20	26-Nov-14	65.6	6,504	5,890	6,073	235,430	6,964	N/A
21	26-Nov-14	63.0	6,093	5,318	5,482	256,221	6,386	N/A
22	26-Nov-14	65.0	6,366	5,583	5,404	255,856	6,398	N/A
23	27-Nov-14	66.0	6,289	5,554	5,139	220,617	6,486	N/A
24	27-Nov-14	64.0	6,217	5,668	5,229	258,930	6,360	N/A
25	27-Nov-14	62.0	6,275	5,915	5,447	256,120	6,406	N/A
26	27-Nov-14	66.0	6,048	5,958	5,368	258,103	6,303	N/A
27	28-Nov-14	65.0	6,145	5,697	5,407	254,360	6,283	N/A
28	28-Nov-14	63.0	5,975	5,958	5,550	258,860	6,259	N/A
29	28-Nov-14	65.0	6,382	6,208	5,354	249,820	6,830	N/A
30	28-Nov-14	65.6	6,089	5,382	4,166	255,165	6,331	N/A
	AVG=	63.9	6,303	5,712	5,411	7,495,357	196,758	TOTAL

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**EXHIBIT 3**

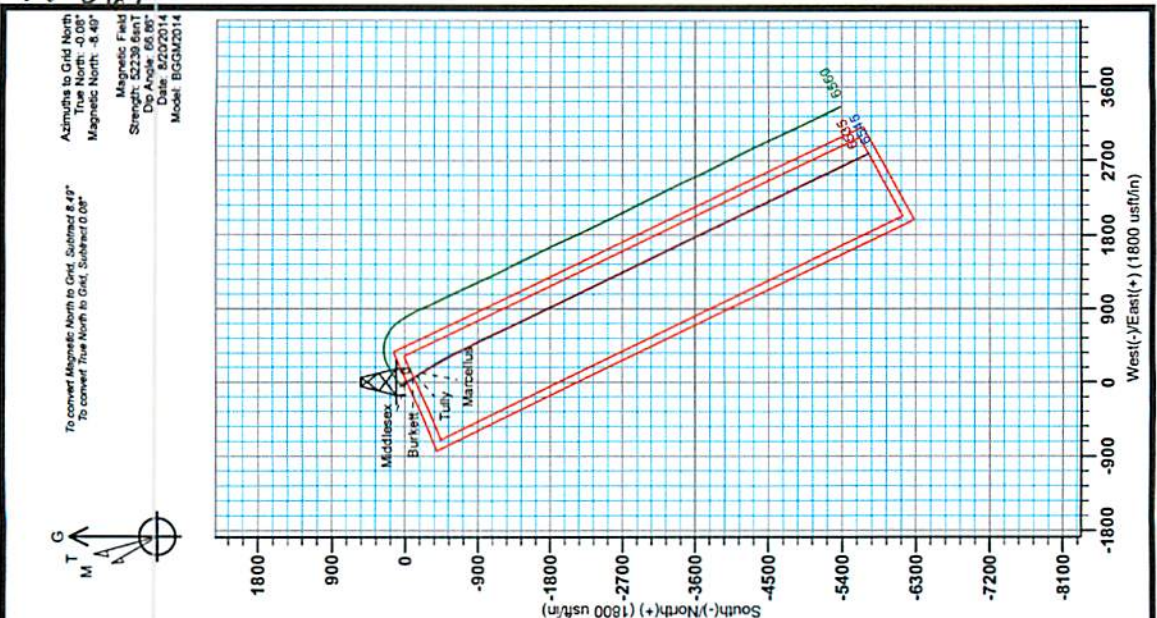
<b>LITHOLOGY/ FORMATION</b>	<b>TOP DEPTH (TVD) From Surface</b>	<b>BOTTOM DEPTH (TVD) From Surface</b>	<b>TOP DEPTH (MD) From Surface</b>	<b>BOTTOM DEPTH (MD) From Surface</b>
Fresh Water	56'	N/A	56'	N/A
Shale/ Siltstone	0	221	0	221
Sandstone	221	241	221	241
Shale/ Siltstone	241	381	241	381
Coal	381	401	381	401
Siltstone	401	441	401	441
Shale/ Limestone	441	561	441	561
Sandstone/ Siltstone	561	621	561	621
Shale/ Siltstone	621	761	621	761
Limestone	761	941	761	941
Siltstone / Trace Coal/ Shale	941	1381	941	1381
Sandstone	1381	1401	1381	1401
Shale/ Siltstone/ Trace Coal	1401	1621	1401	1621
Sandstone/ Siltstone	1621	1701	1621	1701
Shale/ Siltstone/ Trace Coal	1701	1741	1701	1741
Shale/ Siltstone	1741	1959	1741	1959
Big Lime	1959	2045	1959	2045
Big Injun	2045	2427	2045	2427
Gantz Sand	2427	2533	2427	2533
Fifty Foot Sandstone	2533	2644	2533	2644
Gordon	2644	2999	2644	2999
Fifth Sandstone	2999	3104	2999	3104
Bayard	3104	3372	3104	3372
Speechley	3372	4072	3372	4072
Baltown	4072	4508	4072	4508
Bradford	4508	4947	4508	4948
Benson	4947	5201	4948	5202
Alexander	5201	5356	5202	5357
Elk	5356	5841	5357	5842
Rhinestreet	5841	6058	5842	6060
Sycamore	6058	6219	6060	6236
Middlesex	6219	6333	6236	6390
Burkett	6333	6367	6390	6448
Tully	6367	6397	6448	6520
Marcellus	6397	NA	6520	NA

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17-016432



Admuths to Grid North  
True North: -0.00°  
Magnetic North: -8.40°  
Magnetic Field  
Strength: 52339.6nT  
Dip Angle: 66.80°  
Date: 8/20/2014  
Model: BGGM2014

To convert Magnetic North to Grid, Subtract 8.4°  
To convert True North to Grid, Subtract 0.00°

WELL DETAILS: Amanda Unit 2H			
+N/S	+E/W	Northing	Longitude
0.0	0.0	14261508.36	80° 52' 22.904 W
Ground Level:		599.0	Site
+N/S		+E/W	Northing
0.0	0.0	14261508.36	1676350.00
DESIGN TARGET DETAILS			
Name	TVD	+N/S	Northing
Actual BHL Amanda Unit 2H	6535.0	-5679.6	14261508.36
SHL Amanda Unit 2H	0.0	0.0	14261508.36



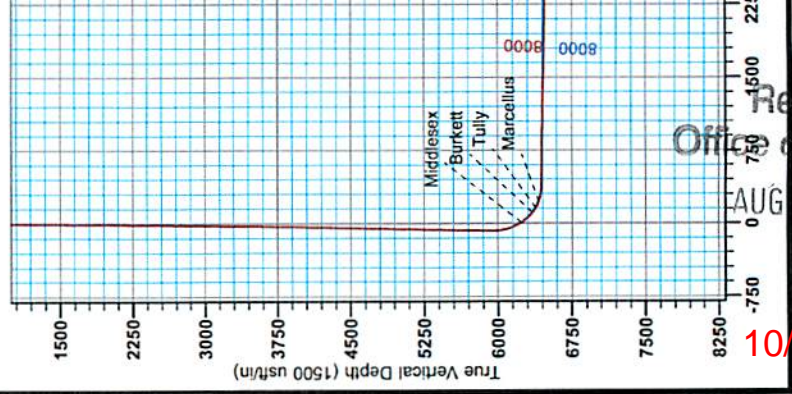
Genie Lightfoot  
9:33, September 15 2014  
Scientific Drilling  
421 South Eagle Lane  
Oklahoma City, OK

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 74 W)  
System Datum: Mean Sea Level

LEGEND  
 ✕ Zeilerback Unit 1H, Original Wellpath, As Drilled V0  
 ▲ Amanda Unit 2H, Original Wellpath, Plan 3 V0  
 ▣ As Drilled

DESIGN TARGET DETAILS			
Name	TVD	+N/S	Northing
SHL Amanda Unit 2H	0.0	0.0	2765.114255828 79
Actual BHL Amanda Unit 2H	6885.0	-5679.6	1676350.00000° 16' 24.257 160° 52' 22.904 W

Antero Resources  
Amanda Unit 2H  
Doddridge County WV  
Northing: 14261508.36  
Easting: 1676350.00  
As Drilled



Vertical Section at 154.54° (1500 usft/in)

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# Antero Resources

Doddridge County WV  
Zellerback/Amanda Pad  
Amanda Unit 2H  
Original Wellpath

Design: As Drilled

## EOW Completion Report

15 September, 2014



Scientific Drilling

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Amanda Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b>	Zellerback/Amanda Pad	<b>MD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b>	Amanda Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

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

<b>Site</b>	Zellerback/Amanda Pad				
<b>Site Position:</b>		<b>Northing:</b>	14,261,489.45 usft	<b>Latitude:</b>	39° 16' 24.070 N
<b>From:</b>	Map	<b>Easting:</b>	1,676,355.00 usft	<b>Longitude:</b>	80° 52' 22.841 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.08 °

<b>Well</b>	Amanda Unit 2H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,261,508.36 usft	<b>Latitude:</b>	39° 16' 24.257 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,676,350.00 usft	<b>Longitude:</b>	80° 52' 22.904 W
<b>Position Uncertainty</b>		2.0 usft	<b>Wellhead Elevation:</b>	1,008.0 usft	<b>Ground Level:</b>	989.0 usft

<b>Wellbore</b>	Original Wellpath				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	8/20/2014	-8.41	66.86	52,240

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
		0.0	0.0	0.0	154.54

<b>Survey Program</b>	Date 9/12/2014				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
25.0	5,790.0	Survey #4 Gyro to KOP (Original Wellpath)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,799.0	12,640.0	Survey #6 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

<b>Survey</b>									
<b>MD (usft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (usft)</b>	<b>N/S (usft)</b>	<b>E/W (usft)</b>	<b>V. Sec (usft)</b>	<b>DLeg (°/100usft)</b>		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.00	
25.0	0.10	307.49	25.0	0.0	0.0	0.0	0.0	0.40	
50.0	0.20	307.49	50.0	0.1	-0.1	-0.1	-0.1	0.40	
75.0	0.31	307.49	75.0	0.1	-0.2	-0.2	-0.2	0.44	
100.0	0.41	307.49	100.0	0.2	-0.3	-0.3	-0.3	0.40	
125.0	0.34	304.12	125.0	0.3	-0.4	-0.4	-0.4	0.29	
150.0	0.30	319.44	150.0	0.4	-0.5	-0.5	-0.5	0.38	
175.0	0.21	326.65	175.0	0.5	-0.6	-0.6	-0.6	0.38	
200.0	0.16	341.14	200.0	0.6	-0.6	-0.6	-0.6	0.27	
225.0	0.16	336.57	225.0	0.6	-0.6	-0.6	-0.6	0.05	
250.0	0.18	345.34	250.0	0.7	-0.7	-0.7	-0.9	0.13	

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EOW Completion Report



<b>Company:</b> Antero Resources	<b>Local Co-ordinate Reference:</b> Well Amanda Unit 2H
<b>Project:</b> Doddridge County WV	<b>TVD Reference:</b> Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b> Zellerback/Amanda Pad	<b>MD Reference:</b> Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b> Amanda Unit 2H	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Well/path	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> As Drilled	<b>Database:</b> Oklahoma District

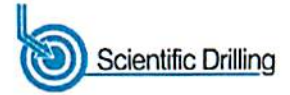
Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)		
275.0	0.16	357.86	275.0	0.8	-0.7	-1.0	0.17		
300.0	0.06	350.61	300.0	0.8	-0.7	-1.0	0.40		
325.0	0.05	292.20	325.0	0.8	-0.7	-1.1	0.22		
350.0	0.06	322.15	350.0	0.9	-0.7	-1.1	0.12		
375.0	0.07	14.18	375.0	0.9	-0.7	-1.1	0.23		
400.0	0.06	27.11	400.0	0.9	-0.7	-1.1	0.07		
425.0	0.05	21.45	425.0	0.9	-0.7	-1.1	0.05		
450.0	0.05	8.87	450.0	0.9	-0.7	-1.2	0.04		
475.0	0.06	353.22	475.0	1.0	-0.7	-1.2	0.07		
500.0	0.06	10.93	500.0	1.0	-0.7	-1.2	0.07		
525.0	0.09	29.86	525.0	1.0	-0.7	-1.2	0.15		
550.0	0.11	37.00	550.0	1.1	-0.7	-1.2	0.09		
575.0	0.06	36.92	575.0	1.1	-0.6	-1.3	0.20		
600.0	0.09	1.20	600.0	1.1	-0.6	-1.3	0.22		
625.0	0.11	13.26	625.0	1.2	-0.6	-1.3	0.12		
650.0	0.06	4.90	650.0	1.2	-0.6	-1.3	0.21		
675.0	0.11	342.70	675.0	1.2	-0.6	-1.4	0.24		
700.0	0.15	342.19	700.0	1.3	-0.6	-1.4	0.16		
725.0	0.16	343.45	725.0	1.4	-0.7	-1.5	0.04		
750.0	0.15	336.00	750.0	1.4	-0.7	-1.6	0.09		
775.0	0.19	327.29	775.0	1.5	-0.7	-1.6	0.19		
800.0	0.26	326.69	800.0	1.6	-0.8	-1.7	0.28		
825.0	0.23	329.87	825.0	1.7	-0.8	-1.9	0.13		
850.0	0.20	317.67	850.0	1.7	-0.9	-1.9	0.22		
875.0	0.21	300.83	875.0	1.8	-1.0	-2.0	0.24		
900.0	0.20	304.23	900.0	1.8	-1.0	-2.1	0.06		
925.0	0.23	309.15	925.0	1.9	-1.1	-2.2	0.14		
950.0	0.22	306.10	950.0	2.0	-1.2	-2.3	0.06		
975.0	0.24	304.66	975.0	2.0	-1.3	-2.4	0.08		
1,000.0	0.26	293.48	1,000.0	2.1	-1.4	-2.4	0.21		
1,025.0	0.25	283.60	1,025.0	2.1	-1.5	-2.5	0.18		
1,050.0	0.26	285.66	1,050.0	2.1	-1.6	-2.6	0.05		
1,075.0	0.27	281.88	1,075.0	2.2	-1.7	-2.7	0.08		
1,100.0	0.27	280.92	1,100.0	2.2	-1.8	-2.7	0.02		
1,125.0	0.28	279.02	1,125.0	2.2	-1.9	-2.8	0.05		
1,150.0	0.33	274.22	1,150.0	2.2	-2.0	-2.9	0.22		
1,175.0	0.36	266.67	1,175.0	2.2	-2.2	-2.9	0.22		
1,200.0	0.38	262.93	1,200.0	2.2	-2.4	-3.0	0.13		
1,225.0	0.38	265.89	1,225.0	2.2	-2.5	-3.1	0.08		
1,250.0	0.38	264.72	1,250.0	2.2	-2.7	-3.1	0.03		
1,275.0	0.37	269.65	1,275.0	2.2	-2.9	-3.1	0.14		
1,300.0	0.42	271.37	1,300.0	2.2	-3.0	-3.3	0.21		
1,325.0	0.48	268.08	1,325.0	2.2	-3.2	-3.3	0.26		
1,350.0	0.47	265.29	1,350.0	2.1	-3.4	-3.4	0.10		

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Amanda Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b>	Zellerback/Amanda Pad	<b>MD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b>	Amanda Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Well/path	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,375.0	0.44	265.40	1,375.0	2.1	-3.6	-3.5	0.12
1,400.0	0.46	271.85	1,400.0	2.1	-3.8	-3.6	0.22
1,425.0	0.51	274.11	1,425.0	2.1	-4.0	-3.7	0.21
1,450.0	0.53	281.15	1,450.0	2.2	-4.3	-3.8	0.27
1,475.0	0.57	283.66	1,475.0	2.2	-4.5	-3.9	0.19
1,500.0	0.59	282.04	1,500.0	2.3	-4.7	-4.1	0.10
1,525.0	0.61	285.62	1,525.0	2.3	-5.0	-4.3	0.17
1,550.0	0.66	287.71	1,550.0	2.4	-5.3	-4.4	0.22
1,575.0	0.70	288.46	1,575.0	2.5	-5.5	-4.6	0.16
1,600.0	0.71	286.84	1,600.0	2.6	-5.8	-4.9	0.09
1,625.0	0.70	285.54	1,625.0	2.7	-6.1	-5.1	0.08
1,650.0	0.70	287.51	1,650.0	2.8	-6.4	-5.3	0.10
1,675.0	0.73	285.95	1,675.0	2.9	-6.7	-5.5	0.14
1,700.0	0.76	290.81	1,700.0	3.0	-7.0	-5.7	0.28
1,725.0	0.73	294.82	1,725.0	3.1	-7.3	-5.9	0.24
1,750.0	0.71	292.97	1,750.0	3.2	-7.6	-6.2	0.12
1,775.0	0.73	296.08	1,775.0	3.4	-7.9	-6.4	0.18
1,800.0	0.71	296.93	1,800.0	3.5	-8.2	-6.7	0.09
1,825.0	0.66	297.56	1,825.0	3.6	-8.4	-6.9	0.20
1,850.0	0.61	301.16	1,850.0	3.8	-8.7	-7.1	0.26
1,875.0	0.64	305.29	1,875.0	3.9	-8.9	-7.4	0.22
1,900.0	0.68	311.33	1,900.0	4.1	-9.1	-7.6	0.32
1,925.0	0.72	311.90	1,925.0	4.3	-9.4	-7.9	0.16
1,950.0	0.80	314.09	1,949.9	4.5	-9.6	-8.2	0.34
1,975.0	0.70	307.33	1,974.9	4.7	-9.9	-8.5	0.53
2,000.0	0.62	303.31	1,999.9	4.9	-10.1	-8.8	0.37
2,025.0	0.70	312.36	2,024.9	5.1	-10.3	-9.0	0.52
2,050.0	0.72	311.82	2,049.9	5.3	-10.5	-9.3	0.08
2,075.0	0.71	308.46	2,074.9	5.5	-10.8	-9.6	0.17
2,100.0	0.70	304.78	2,099.9	5.7	-11.0	-9.9	0.19
2,125.0	0.75	306.59	2,124.9	5.9	-11.3	-10.1	0.22
2,150.0	0.81	309.06	2,149.9	6.1	-11.6	-10.4	0.28
2,175.0	0.82	308.73	2,174.9	6.3	-11.8	-10.8	0.04
2,200.0	0.78	307.18	2,199.9	6.5	-12.1	-11.1	0.18
2,225.0	0.79	308.65	2,224.9	6.7	-12.4	-11.4	0.09
2,250.0	0.72	314.80	2,249.9	6.9	-12.6	-11.7	0.43
2,275.0	0.73	313.80	2,274.9	7.2	-12.9	-12.0	0.06
2,300.0	0.84	310.57	2,299.9	7.4	-13.1	-12.3	0.47
2,325.0	0.84	312.23	2,324.9	7.6	-13.4	-12.6	0.10
2,350.0	0.89	315.81	2,349.9	7.9	-13.7	-13.0	0.29
2,375.0	0.93	314.64	2,374.9	8.2	-13.9	-13.3	0.18
2,400.0	0.92	310.87	2,399.9	8.4	-14.2	-13.7	0.25
2,425.0	0.94	311.49	2,424.9	8.7	-14.5	-14.1	0.09
2,450.0	0.93	310.01	2,449.9	9.0	-14.8	-14.5	0.10
2,475.0	0.92	306.95	2,474.9	9.2	-15.2	-14.8	0.20

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EOW Completion Report



<b>Company:</b> Antero Resources	<b>Local Co-ordinate Reference:</b> Well Amanda Unit 2H
<b>Project:</b> Doddridge County WV	<b>TVD Reference:</b> Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b> Zellerback/Amanda Pad	<b>MD Reference:</b> Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b> Amanda Unit 2H	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Wellpath	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> As Drilled	<b>Database:</b> Oklahoma District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,500.0	0.88	306.06	2,499.9	9.5	-15.5	-15.2	0.17
2,525.0	0.81	309.14	2,524.9	9.7	-15.8	-15.5	0.33
2,550.0	0.82	314.19	2,549.9	9.9	-16.0	-15.9	0.29
2,575.0	0.85	314.64	2,574.9	10.2	-16.3	-16.2	0.12
2,600.0	0.80	310.82	2,599.9	10.4	-16.6	-16.5	0.30
2,625.0	0.79	311.77	2,624.9	10.7	-16.8	-16.8	0.07
2,650.0	0.82	312.77	2,649.9	10.9	-17.1	-17.2	0.13
2,675.0	0.87	309.81	2,674.9	11.1	-17.4	-17.5	0.27
2,700.0	0.92	308.22	2,699.9	11.4	-17.7	-17.9	0.22
2,725.0	0.86	308.76	2,724.9	11.6	-18.0	-18.2	0.24
2,750.0	0.89	309.02	2,749.9	11.9	-18.3	-18.6	0.12
2,775.0	0.92	305.59	2,774.9	12.1	-18.6	-18.9	0.25
2,800.0	0.89	301.91	2,799.9	12.3	-18.9	-19.2	0.26
2,825.0	0.89	302.34	2,824.9	12.5	-19.2	-19.6	0.03
2,850.0	0.91	306.09	2,849.9	12.7	-19.6	-19.9	0.25
2,875.0	0.94	307.13	2,874.9	13.0	-19.9	-20.3	0.14
2,900.0	0.93	308.71	2,899.8	13.2	-20.2	-20.6	0.11
2,925.0	0.89	308.26	2,924.8	13.5	-20.5	-21.0	0.16
2,950.0	0.93	307.60	2,949.8	13.7	-20.8	-21.3	0.17
2,975.0	0.99	307.65	2,974.8	14.0	-21.2	-21.7	0.24
3,000.0	0.93	303.62	2,999.8	14.2	-21.5	-22.1	0.36
3,025.0	0.94	305.98	3,024.8	14.5	-21.8	-22.4	0.16
3,050.0	1.00	305.74	3,049.8	14.7	-22.2	-22.8	0.24
3,075.0	0.99	303.31	3,074.8	15.0	-22.5	-23.2	0.17
3,100.0	1.00	305.73	3,099.8	15.2	-22.9	-23.6	0.17
3,125.0	0.97	303.95	3,124.8	15.4	-23.2	-23.9	0.17
3,150.0	0.88	301.92	3,149.8	15.7	-23.6	-24.3	0.38
3,175.0	0.80	303.89	3,174.8	15.9	-23.9	-24.6	0.34
3,200.0	0.81	307.56	3,199.8	16.1	-24.2	-24.9	0.21
3,225.0	0.79	310.24	3,224.8	16.3	-24.4	-25.2	0.17
3,250.0	0.74	311.96	3,249.8	16.5	-24.7	-25.5	0.22
3,275.0	0.77	313.97	3,274.8	16.7	-24.9	-25.8	0.16
3,300.0	0.85	316.81	3,299.8	17.0	-25.2	-26.2	0.36
3,325.0	0.88	318.13	3,324.8	17.3	-25.4	-26.5	0.14
3,350.0	0.81	316.35	3,349.8	17.5	-25.7	-26.9	0.30
3,375.0	0.82	310.88	3,374.8	17.8	-25.9	-27.2	0.31
3,400.0	0.79	306.11	3,399.8	18.0	-26.2	-27.5	0.29
3,425.0	0.76	303.50	3,424.8	18.2	-26.5	-27.8	0.19
3,450.0	0.72	300.33	3,449.8	18.4	-26.8	-28.1	0.23
3,475.0	0.69	301.81	3,474.8	18.5	-27.0	-28.5	0.14
3,500.0	0.74	307.20	3,499.8	18.7	-27.3	-28.8	0.34
3,525.0	0.73	308.23	3,524.8	18.9	-27.5	-28.9	0.07
3,550.0	0.78	311.03	3,549.8	19.1	-27.8	-29.2	0.25
3,575.0	0.82	313.83	3,574.8	19.3	-28.1	-29.5	0.22

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EOW Completion Report



<b>Company:</b> Antero Resources	<b>Local Co-ordinate Reference:</b> Well Amanda Unit 2H
<b>Project:</b> Doddridge County WV	<b>TVD Reference:</b> Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b> Zellerback/Amanda Pad	<b>MD Reference:</b> Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b> Amanda Unit 2H	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Wellpath	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> As Drilled	<b>Database:</b> Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
3,600.0	0.79	312.41	3,599.8	19.6	-28.3	-29.8	0.14	
3,625.0	0.82	308.02	3,624.8	19.8	-28.6	-30.2	0.27	
3,650.0	0.81	305.34	3,649.8	20.0	-28.9	-30.5	0.16	
3,675.0	0.78	307.09	3,674.8	20.2	-29.1	-30.8	0.15	
3,700.0	0.71	305.59	3,699.8	20.4	-29.4	-31.1	0.29	
3,725.0	0.68	303.27	3,724.8	20.6	-29.7	-31.3	0.16	
3,750.0	0.71	306.65	3,749.8	20.8	-29.9	-31.6	0.20	
3,775.0	0.72	310.19	3,774.8	21.0	-30.2	-31.9	0.18	
3,800.0	0.75	309.25	3,799.8	21.2	-30.4	-32.2	0.13	
3,825.0	0.73	308.42	3,824.8	21.4	-30.6	-32.5	0.09	
3,850.0	0.69	311.80	3,849.8	21.6	-30.9	-32.7	0.23	
3,875.0	0.81	316.69	3,874.7	21.8	-31.1	-33.0	0.54	
3,900.0	1.03	313.98	3,899.7	22.1	-31.4	-33.4	0.90	
3,925.0	1.22	312.17	3,924.7	22.4	-31.8	-33.9	0.77	
3,950.0	1.31	312.83	3,949.7	22.8	-32.2	-34.4	0.36	
3,975.0	1.35	312.94	3,974.7	23.2	-32.6	-34.9	0.16	
4,000.0	1.35	312.62	3,999.7	23.6	-33.0	-35.5	0.03	
4,025.0	1.28	314.72	4,024.7	24.0	-33.4	-36.0	0.34	
4,050.0	1.36	319.67	4,049.7	24.4	-33.8	-36.6	0.56	
4,075.0	1.43	320.93	4,074.7	24.9	-34.2	-37.2	0.31	
4,100.0	1.49	324.72	4,099.7	25.4	-34.6	-37.8	0.45	
4,125.0	1.49	326.43	4,124.7	25.9	-35.0	-38.4	0.18	
4,150.0	1.46	326.23	4,149.7	26.4	-35.3	-39.1	0.12	
4,175.0	1.44	325.22	4,174.7	27.0	-35.7	-39.7	0.13	
4,200.0	1.38	326.45	4,199.7	27.5	-36.0	-40.3	0.27	
4,225.0	1.31	328.68	4,224.7	28.0	-36.3	-40.9	0.35	
4,250.0	1.26	327.94	4,249.6	28.4	-36.6	-41.4	0.21	
4,275.0	1.20	329.63	4,274.6	28.9	-36.9	-42.0	0.28	
4,300.0	1.21	334.39	4,299.6	29.4	-37.2	-42.5	0.40	
4,325.0	1.26	336.87	4,324.6	29.9	-37.4	-43.0	0.29	
4,350.0	1.28	337.22	4,349.6	30.4	-37.6	-43.6	0.09	
4,375.0	1.28	336.32	4,374.6	30.9	-37.8	-44.1	0.08	
4,400.0	1.31	334.21	4,399.6	31.4	-38.1	-44.7	0.23	
4,425.0	1.28	333.06	4,424.6	31.9	-38.3	-45.3	0.16	
4,450.0	1.27	333.84	4,449.6	32.4	-38.6	-45.8	0.08	
4,475.0	1.26	333.75	4,474.6	32.9	-38.8	-46.4	0.04	
4,500.0	1.25	333.50	4,499.6	33.4	-39.0	-46.9	0.05	
4,525.0	1.24	333.99	4,524.6	33.9	-39.3	-47.5	0.06	
4,550.0	1.23	337.17	4,549.6	34.4	-39.5	-48.0	0.28	
4,575.0	1.24	340.94	4,574.6	34.9	-39.7	-48.5	0.33	
4,600.0	1.24	340.79	4,599.6	35.4	-39.9	-49.1	0.01	
4,625.0	1.29	338.49	4,624.6	35.9	-40.1	-49.6	0.29	
4,650.0	1.33	337.31	4,649.6	36.4	-40.3	-50.2	0.19	
4,675.0	1.27	337.83	4,674.5	36.9	-40.5	-50.8	0.24	

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Amanda Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b>	Zellerback/Amanda Pad	<b>MD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b>	Amanda Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey									
MD (usft)	Inc (")	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)		
4,700.0	1.24	338.02	4,699.5	37.5	-40.7	-51.3	0.12		
4,725.0	1.18	337.43	4,724.5	37.9	-40.9	-51.8	0.25		
4,750.0	1.19	340.57	4,749.5	38.4	-41.1	-52.4	0.26		
4,775.0	1.31	342.73	4,774.5	38.9	-41.3	-52.9	0.52		
4,800.0	1.33	343.08	4,799.5	39.5	-41.4	-53.5	0.09		
4,825.0	1.38	345.37	4,824.5	40.1	-41.6	-54.1	0.29		
4,850.0	1.39	342.72	4,849.5	40.6	-41.8	-54.6	0.26		
4,875.0	1.41	338.75	4,874.5	41.2	-42.0	-55.3	0.40		
4,900.0	1.43	339.84	4,899.5	41.8	-42.2	-55.9	0.13		
4,925.0	1.35	338.61	4,924.5	42.4	-42.4	-56.5	0.34		
4,950.0	1.30	336.13	4,949.5	42.9	-42.6	-57.1	0.30		
4,975.0	1.36	337.16	4,974.5	43.4	-42.8	-57.6	0.26		
5,000.0	1.38	338.89	4,999.5	44.0	-43.1	-58.2	0.18		
5,025.0	1.34	341.70	5,024.5	44.5	-43.3	-58.8	0.31		
5,050.0	1.31	341.06	5,049.4	45.1	-43.5	-59.4	0.13		
5,075.0	1.29	340.00	5,074.4	45.6	-43.6	-60.0	0.13		
5,100.0	1.31	338.60	5,099.4	46.2	-43.8	-60.5	0.15		
5,125.0	1.30	340.13	5,124.4	46.7	-44.0	-61.1	0.15		
5,150.0	1.28	339.88	5,149.4	47.2	-44.2	-61.7	0.08		
5,175.0	1.27	335.45	5,174.4	47.7	-44.4	-62.2	0.40		
5,200.0	1.20	335.99	5,199.4	48.2	-44.7	-62.7	0.28		
5,225.0	1.15	337.63	5,224.4	48.7	-44.9	-63.3	0.24		
5,250.0	1.18	336.54	5,249.4	49.2	-45.1	-63.8	0.15		
5,275.0	1.24	334.56	5,274.4	49.6	-45.3	-64.3	0.29		
5,300.0	1.31	334.70	5,299.4	50.1	-45.5	-64.8	0.28		
5,325.0	1.28	330.66	5,324.4	50.6	-45.8	-65.4	0.38		
5,350.0	1.22	326.42	5,349.4	51.1	-46.1	-66.0	0.44		
5,375.0	1.21	331.93	5,374.4	51.6	-46.3	-66.5	0.47		
5,400.0	1.18	334.52	5,399.4	52.0	-46.6	-67.0	0.25		
5,425.0	1.16	330.99	5,424.4	52.5	-46.8	-67.5	0.30		
5,450.0	1.13	330.43	5,449.4	52.9	-47.1	-68.0	0.13		
5,475.0	1.07	333.62	5,474.3	53.3	-47.3	-68.5	0.34		
5,500.0	1.06	336.46	5,499.3	53.8	-47.5	-69.0	0.21		
5,525.0	1.01	335.24	5,524.3	54.2	-47.7	-69.4	0.22		
5,550.0	0.98	329.86	5,549.3	54.6	-47.9	-69.8	0.39		
5,575.0	0.97	331.54	5,574.3	54.9	-48.1	-70.3	0.12		
5,600.0	0.96	334.41	5,599.3	55.3	-48.3	-70.7	0.20		
5,625.0	1.03	325.55	5,624.3	55.7	-48.5	-71.1	0.68		
5,650.0	1.03	323.26	5,649.3	56.1	-48.7	-71.6	0.16		
5,675.0	0.96	329.42	5,674.3	56.4	-49.0	-72.0	0.51		
5,700.0	0.88	329.95	5,699.3	56.8	-49.2	-72.4	0.32		
5,725.0	0.86	327.46	5,724.3	57.1	-49.4	-72.8	0.17		
5,750.0	0.87	324.19	5,749.3	57.4	-49.6	-73.1	0.20		
5,775.0	0.89	327.69	5,774.3	57.7	-49.8	-73.5	0.23		

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Amanda Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b>	Zellerback/Amanda Pad	<b>MD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b>	Amanda Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Well/path	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
5,790.0	0.74	332.70	5,789.3	57.9	-49.9	-73.7	1.11	
5,799.0	0.70	327.34	5,798.3	58.0	-50.0	-73.8	0.87	
5,829.0	0.69	324.54	5,828.3	58.3	-50.2	-74.2	0.12	
5,859.0	0.71	323.10	5,858.3	58.6	-50.4	-74.6	0.09	
5,889.0	0.67	323.14	5,888.3	58.9	-50.6	-74.9	0.13	
5,919.0	0.80	318.60	5,918.3	59.2	-50.9	-75.3	0.47	
5,949.0	0.05	170.79	5,948.3	59.3	-51.0	-75.5	2.81	
5,979.0	3.15	145.86	5,978.3	58.6	-50.5	-74.7	10.35	
6,009.0	6.53	145.57	6,008.2	56.5	-49.1	-72.2	11.27	
6,038.0	9.39	142.95	6,036.9	53.3	-46.7	-68.2	9.94	
6,068.0	12.61	143.93	6,066.3	48.7	-43.3	-62.6	10.75	
6,098.0	15.73	144.17	6,095.4	42.7	-39.0	-55.4	10.40	
6,128.0	18.96	144.61	6,124.0	35.5	-33.8	-46.6	10.78	
6,158.0	21.90	146.11	6,152.2	26.9	-27.9	-36.2	9.95	
6,188.0	25.23	147.45	6,179.6	16.8	-21.3	-24.3	11.24	
6,218.0	28.86	147.62	6,206.4	5.3	-14.0	-10.8	12.10	
6,248.0	31.92	148.13	6,232.2	-7.5	-5.9	4.3	10.24	
6,255.0	32.69	148.22	6,238.2	-10.7	-4.0	8.0	11.05	
<b>Middlesex</b>								
6,278.0	35.23	148.49	6,257.2	-21.7	2.8	20.8	11.05	
6,307.0	38.74	147.90	6,280.4	-36.5	12.0	38.1	12.17	
6,337.0	42.31	147.91	6,303.2	-53.0	22.3	57.5	11.90	
6,367.0	46.31	147.87	6,324.7	-70.7	33.5	78.3	13.33	
6,397.0	49.83	147.85	6,344.7	-89.6	45.3	100.4	11.73	
6,407.0	51.04	147.67	6,351.1	-96.2	49.5	108.1	12.14	
<b>Burkett</b>								
6,427.0	53.45	147.34	6,363.3	-109.5	58.0	123.8	12.14	
6,457.0	57.76	147.10	6,380.3	-130.3	71.4	148.3	14.38	
6,467.0	59.28	147.31	6,385.5	-137.5	76.0	156.8	15.27	
<b>Tully</b>								
6,486.0	62.16	147.69	6,394.8	-151.4	84.9	173.2	15.27	
6,516.0	66.86	148.70	6,407.7	-174.5	99.1	200.1	15.96	
6,539.0	70.55	149.46	6,416.0	-192.8	110.1	221.5	16.35	
<b>Marcellus</b>								
6,546.0	71.68	149.68	6,418.3	-198.5	113.5	228.1	16.35	
6,585.0	77.45	150.47	6,428.7	-231.1	132.2	265.5	14.92	
6,614.0	81.51	151.32	6,434.0	-256.0	146.1	294.0	14.29	
6,644.0	83.88	151.81	6,437.8	-282.2	160.3	323.7	8.06	
6,701.0	89.29	150.93	6,441.2	-332.1	187.5	380.5	9.62	
6,793.0	89.80	151.08	6,441.9	-412.6	232.1	472.3	0.58	
6,861.0	89.70	150.07	6,442.2	-471.8	265.5	540.9	1.49	
6,955.0	89.20	150.05	6,443.1	-553.3	312.4	638.0	0.53	
7,049.0	90.13	151.84	6,443.6	-635.4	358.1	727.6	2.15	
7,143.0	89.60	153.77	6,443.9	-719.0	401.0	821.6	2.13	
7,237.0	88.02	153.50	6,445.8	-803.2	442.8	915.6	1.71	

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17-06432



EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Amanda Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b>	Zellerback/Amanda Pad	<b>MD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b>	Amanda Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

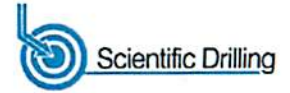
Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)		TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	
7,331.0	88.35	152.66	152.66	6,448.8	-887.0	485.3	1,009.5	0.96	
7,425.0	88.29	153.06	153.06	6,451.6	-970.6	528.2	1,103.4	0.43	
7,452.0	88.42	152.73	152.73	6,452.3	-994.6	540.5	1,130.4	1.31	
7,546.0	88.09	156.93	156.93	6,455.2	-1,079.7	580.4	1,224.3	4.48	
7,640.0	88.19	157.03	157.03	6,458.2	-1,166.1	617.2	1,318.2	0.15	
7,734.0	88.62	155.33	155.33	6,460.9	-1,252.1	655.1	1,412.1	1.86	
7,828.0	88.16	153.79	153.79	6,463.5	-1,336.9	695.5	1,506.1	1.71	
7,921.0	87.62	153.15	153.15	6,466.9	-1,420.1	737.0	1,599.0	0.90	
8,012.0	88.19	155.44	155.44	6,470.3	-1,502.0	776.4	1,689.9	2.59	
8,101.0	88.89	154.69	154.69	6,472.5	-1,582.7	813.9	1,778.9	1.15	
8,190.0	88.43	154.18	154.18	6,474.6	-1,663.0	852.3	1,867.9	0.77	
8,280.0	90.00	155.62	155.62	6,475.8	-1,744.4	890.5	1,957.8	2.37	
8,369.0	89.73	153.96	153.96	6,476.0	-1,825.0	928.4	2,046.8	1.89	
8,459.0	89.73	154.11	154.11	6,476.5	-1,905.9	967.8	2,136.8	0.17	
8,549.0	89.23	153.25	153.25	6,477.3	-1,986.5	1,007.7	2,226.8	1.11	
8,638.0	90.10	154.86	154.86	6,477.8	-2,066.6	1,046.7	2,315.8	2.06	
8,728.0	89.90	154.35	154.35	6,477.8	-2,147.9	1,085.3	2,405.8	0.61	
8,818.0	89.53	155.18	155.18	6,478.3	-2,229.3	1,123.6	2,495.8	1.01	
8,907.0	90.37	155.03	155.03	6,478.3	-2,310.0	1,161.1	2,584.8	0.96	
8,996.0	90.07	154.18	154.18	6,478.0	-2,390.4	1,199.3	2,673.8	1.01	
9,086.0	90.20	155.00	155.00	6,477.8	-2,471.7	1,237.9	2,763.8	0.92	
9,176.0	88.83	154.89	154.89	6,478.5	-2,553.2	1,276.0	2,853.8	1.53	
9,266.0	89.03	153.83	153.83	6,480.2	-2,634.3	1,314.9	2,943.8	1.20	
9,355.0	88.63	154.11	154.11	6,482.0	-2,714.3	1,354.0	3,032.8	0.55	
9,445.0	89.63	154.97	154.97	6,483.4	-2,795.6	1,392.7	3,122.7	1.47	
9,535.0	89.26	155.01	155.01	6,484.3	-2,877.1	1,430.7	3,212.7	0.41	
9,624.0	88.86	154.75	154.75	6,485.7	-2,957.7	1,468.5	3,301.7	0.54	
9,714.0	89.19	154.58	154.58	6,487.3	-3,039.0	1,507.0	3,391.7	0.41	
9,803.0	89.53	155.37	155.37	6,488.3	-3,119.7	1,544.6	3,480.7	0.97	
9,893.0	89.26	154.17	154.17	6,489.2	-3,201.1	1,583.0	3,570.7	1.37	
9,983.0	88.99	153.78	153.78	6,490.6	-3,281.9	1,622.5	3,660.7	0.53	
10,072.0	89.40	153.30	153.30	6,491.8	-3,361.6	1,662.1	3,749.6	0.71	
10,162.0	89.50	154.42	154.42	6,492.7	-3,442.4	1,701.8	3,839.6	1.25	
10,252.0	89.43	154.36	154.36	6,493.5	-3,523.5	1,740.7	3,929.6	0.10	
10,341.0	89.13	154.60	154.60	6,494.7	-3,603.8	1,779.0	4,018.6	0.43	
10,431.0	89.80	155.37	155.37	6,495.5	-3,685.4	1,817.1	4,108.6	1.13	
10,520.0	89.93	155.72	155.72	6,495.7	-3,766.4	1,853.9	4,197.6	0.42	
10,610.0	89.13	156.74	156.74	6,496.4	-3,848.8	1,890.2	4,287.6	1.44	
10,700.0	88.62	153.97	153.97	6,498.2	-3,930.6	1,927.7	4,377.5	3.13	
10,789.0	89.46	154.38	154.38	6,499.7	-4,010.7	1,966.5	4,466.5	1.05	
10,879.0	90.57	154.22	154.22	6,499.7	-4,091.8	2,005.5	4,556.5	1.25	
10,969.0	89.93	154.45	154.45	6,499.3	-4,172.9	2,044.5	4,646.5	0.78	
11,058.0	90.20	153.07	153.07	6,499.2	-4,252.7	2,083.8	4,735.5	1.58	
11,148.0	89.73	153.15	153.15	6,499.2	-4,333.0	2,124.5	4,825.5	0.53	

Received  
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17-06432



EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Amanda Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Site:</b>	Zellerback/Amanda Pad	<b>MD Reference:</b>	Precision 523: GL 989' + 19' RKB @ 1008.0usft
<b>Well:</b>	Amanda Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,237.0	88.96	155.18	6,500.3	-4,413.1	2,163.3	4,914.5	2.44
11,327.0	88.69	155.36	6,502.1	-4,494.8	2,201.0	5,004.4	0.36
11,417.0	89.83	154.83	6,503.3	-4,576.4	2,238.8	5,094.4	1.40
11,506.0	89.93	153.79	6,503.5	-4,656.6	2,277.4	5,183.4	1.17
11,596.0	89.33	153.67	6,504.0	-4,737.3	2,317.3	5,273.4	0.68
11,686.0	89.57	154.82	6,504.9	-4,818.4	2,356.4	5,363.4	1.31
11,775.0	90.34	155.53	6,505.0	-4,899.1	2,393.7	5,452.4	1.18
11,865.0	89.97	155.83	6,504.7	-4,981.2	2,430.8	5,542.4	0.53
11,955.0	88.80	154.60	6,505.7	-5,062.9	2,468.5	5,632.4	1.89
12,044.0	88.06	153.32	6,508.1	-5,142.8	2,507.6	5,721.3	1.66
12,134.0	88.29	154.32	6,511.0	-5,223.5	2,547.3	5,811.3	1.14
12,223.0	87.98	154.72	6,513.9	-5,303.8	2,585.5	5,900.2	0.57
12,313.0	87.62	155.12	6,517.3	-5,385.3	2,623.7	5,990.1	0.60
12,403.0	86.71	153.09	6,521.8	-5,466.1	2,662.9	6,080.0	2.47
12,492.0	87.05	154.92	6,526.6	-5,546.0	2,701.9	6,168.9	2.09
12,583.0	86.62	154.56	6,531.7	-5,628.2	2,740.6	6,259.7	0.62
12,640.0	86.62	154.56	6,535.0	-5,679.6	2,765.1	6,316.6	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,255.0	6,238.2	-10.7	-4.0	Middlesex
6,407.0	6,351.1	-96.2	49.5	Burkett
6,467.0	6,385.5	-137.5	76.0	Tully
6,539.0	6,416.0	-192.8	110.1	Marcellus

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Received  
Office of Oil & Gas  
AUG 31 2015



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/11/2014
Job End Date:	11/25/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06432-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Amanda Unit 2H
Longitude:	-80.87285800
Latitude:	39.27348600
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,535
Total Base Water Volume (gal):	8,263,863
Total Base Non Water Volume:	378,323



17-06432

## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Antero Resources	Base Fluid					
			Water	7732-18-5	100.00000	89.87346	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	9.77408	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.06029	
			Petroleum Distillates	64742-47-8	60.00000	0.05710	
			Suspending agent (solid)	14808-60-7	3.00000	0.00922	
			Surfactant	68439-51-0	3.00000	0.00362	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.08912	
			Hydrogen Chloride	7647-01-1	18.00000	0.02129	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Anionic Polyacrylamide	Proprietary	40.00000	0.02530	
			Water	7732-18-5	40.00000	0.02530	
			Petroleum Distillates	64742-47-8	40.00000	0.02037	
			Crystalline Salt	12125-02-9	5.00000	0.00316	

Office of Oil & Gas  
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17-06432

			Ethoxylated alcohol blend	Proprietary	5.00000	0.00316
SI-1100	U.S. Well Services	Scale Inhibitor				
			Di Water	7732-18-5	80.00000	0.01043
			Ethylene Glycol	107-21-1	40.00000	0.00589
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	10.00000	0.00176
			2-Phosphonobutane 1,2,4 tricarboxylic salt	37971-36-1	10.00000	0.00168
			hexamethylenediamine tetra (methylene phosphonic acid)	38820-59-6	10.00000	0.00163
			Copolymer of Maleic and Acrylic acid	26677-99-6	10.00000	0.00154
			bis (hexamethylene) tramine penta (methylene phosphonic acid) - phosphate acid	40623-75-4	10.00000	0.00150
			Acrylic polymer	52255-49-9	5.00000	0.00065
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent				
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00424
			Deionized Water	7732-18-5	28.00000	0.00242
AP One	U.S. Well Services, LLC	Gel Breakers				
			Ammonium Persulfate	7727-54-0	100.00000	0.00225
AI-301	U.S. Well Services, LLC	Acid Corrosion Inhibitors				
			Diethylene Glycol	111-46-6	30.00000	0.00020
			Methenamine	100-97-0	20.00000	0.00016
			Hydrogen Chloride	7647-01-0	10.00000	0.00007
			Polyethylene polyamine	68603-67-8	10.00000	0.00006
			Coco amine	61791-14-8	5.00000	0.00003
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.						

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

Received  
 Office of Oil & Gas  
 Date 9/1/15



LATITUDE 39°17'30"

11,238'

8,483' TO BOTTOM HOLE

LATITUDE 39°17'30"

LONGITUDE 80°50'00"

6,652'

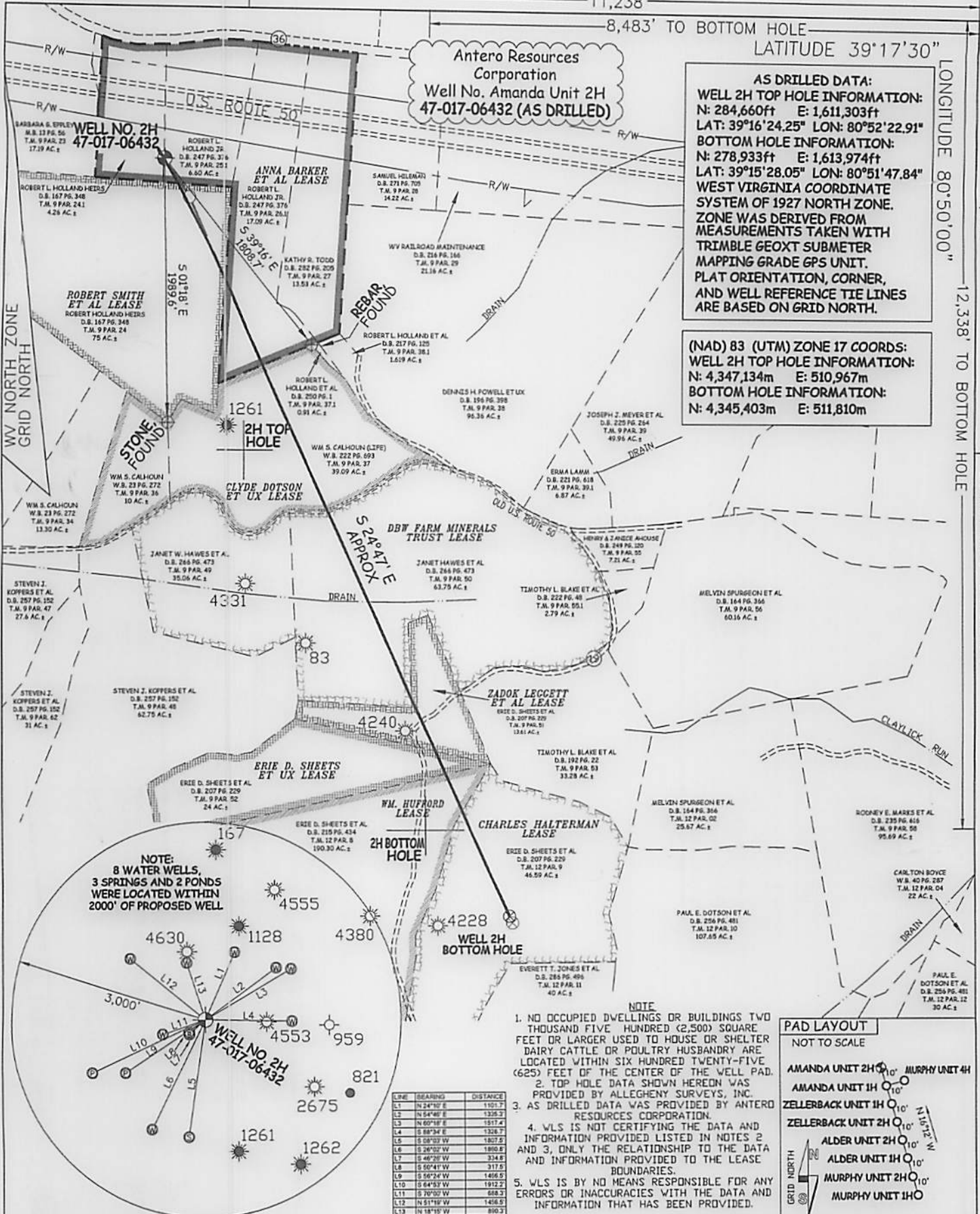
12,338' TO BOTTOM HOLE

LONGITUDE 80°50'00"

Antero Resources Corporation  
Well No. Amanda Unit 2H  
47-017-06432 (AS DRILLED)

AS DRILLED DATA:  
WELL 2H TOP HOLE INFORMATION:  
N: 284,660ft E: 1,611,303ft  
LAT: 39°16'24.25" LON: 80°52'22.91"  
BOTTOM HOLE INFORMATION:  
N: 278,933ft E: 1,613,974ft  
LAT: 39°15'28.05" LON: 80°51'47.84"  
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.  
ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT.  
PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

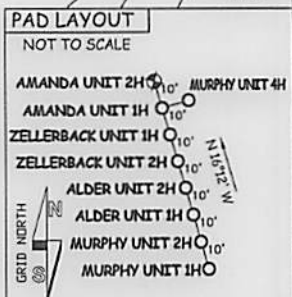
(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 2H TOP HOLE INFORMATION:  
N: 4,347,134m E: 510,967m  
BOTTOM HOLE INFORMATION:  
N: 4,345,403m E: 511,810m



NOTE:  
8 WATER WELLS,  
3 SPRINGS AND 2 PONDS  
WERE LOCATED WITHIN  
2000' OF PROPOSED WELL.

LINE	BEARING	DISTANCE
L1	N 24°10' E	1101.7
L2	N 64°46' E	1336.3
L3	N 60°18' E	1917.4
L4	S 88°34' E	1326.7
L5	S 08°03' W	1807.2
L6	S 26°02' W	1880.6
L7	S 46°28' W	334.6
L8	S 50°41' W	317.5
L9	S 50°24' W	1406.5
L10	S 64°53' W	1912.2
L11	S 70°00' W	688.3
L12	N 51°19' W	1456.5
L13	N 18°15' W	880.3

- NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
  2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
  3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
  5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



JOB # 13-061WA  
DRAWING # AMANDA2HAD  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

LEGEND  
— — — Surface Owner Boundary Lines +/-  
- - - Interior Surface Tracts +/-  
X Existing Fence  
⊕ Found monument, as noted  
○ Proposed Well Path  
⊗ As Drilled Well Path

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS  
WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
LOCATION: ELEVATION 990' ORIGINAL - 989' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER  
QUADRANGLE WEST UNION 7.5 DISTRICT CENTRAL COUNTY DODDRIDGE

SURFACE OWNER ROBERT L. HOLLAND JR. ACREAGE 6.60 ACRES +/-  
OIL & GAS ROYALTY OWNER ANNA BARKER ET AL; ROBERT SMITH ET AL; CLYDE DOTSON ET UX; LEASE ACREAGE 127 ACRES +/-; 75 ACRES +/-; 50 ACRES +/-  
DBW FARM MINERALS TRUST; ZADOK LEGGETT ET AL; ERIE D. SHEETS ET UX; WILLIAM HUFFORD; CHARLES HALTERMAN 98 ACRES +/-; 13.61 ACRES +/-; 24 ACRES +/-; 141 ACRES +/-; 47.17 ACRES +/-

PROPOSED WORK: DRILL \_\_\_ CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_  
PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL  
(SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,535' TVD 12,640' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
DENVER, CO 80202 CHARLESTON, WV 25313

10/23/2015

COUNTY NAME PERMIT