WR-35
Rev. 8/23/13

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

API 47 - 013 - 04374 REWORK County CALHOUN District CENTER
Quad SMITHVILLE Pad Name _____ Field/Pool Name _____
Farm name MONA MILLER Well Number DAVID MATHESS #12
Operator (as registered with the OOG) MEGAN OIL AND GAS CO. INC.
Address P. O. BOX 1007 City SPENCER State WV Zip 25276

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 730,340 Easting 1,948,767
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing _____ Easting _____

Elevation (ft) 1025' 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)
NONE

Date permit issued 4/22/2013 Date drilling commenced REWORK Date drilling ceased REWORK
Date completion activities began 6/19/2013 Date completion activities ceased 5/31/2015
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 EXISTING 8 5/8 CTS Open mine(s) (Y/N) depths NO
Salt water depth(s) ft 1695' Void(s) encountered (Y/N) depths NO
Coal depth(s) ft NONE Cavern(s) encountered (Y/N) depths NO
Is coal being mined in area (Y/N) NO

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JUL 06 2015

Reviewed by:
JL 7/25/15
E

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API 47- 013 - 04374 REWORK Farm name MONA MILLER Well number DAVID MATHESS #12

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor							
Surface		8 5/8			28#		YES, CTS
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production		4 1/2			10.5		CTS
Tubing							
Packer type and depth set							

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50/50 POZ	300	14.3	1.29	387	CTS	24
Tubing							

Drillers TD (ft) 2491' Loggers TD (ft) 2491'
Deepest formation penetrated BEREA Plug back to (ft)
Plug back procedure

Kick off depth (ft)

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
EXISTING 4 1/2"

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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- 013 - 04374 Farm name MONA MILLER Well number DAVID MATHESS #12

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	6/19/2013	1884	1889	15	MAXON
2	8/2013	1825	1830	15	SALT SAND
3	12/18/2013	1762	1768	10	SALT SAND
					STIMULATION NOTE:
					MAXON & SALT SANDS TESTED
					INDEPENDANTLY AND PRODUCED
					GAS WITH EXCESSIVE WATER
					CUT AT CURRENT PRICES. ALL
					TEST FORMATIONS WERE
					SQUEEZE CEMENTED OFF.
					DURING DRILL OUT W/ POWER
					SWIVEL, ENCOUNTERED FISHING
					JOB & MILL OUT OF DRILL PIPE TO
					LEAVE WELL PRODUCING FROM
					ORIGINAL BEREA/ INJUN
					COMPLETION.

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)
1	12/20/15	10.1	2211	2397	1416	15000	100	9000
2	12/20/15	10.1	2211	2397	1416	25000	150	11772

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Please insert additional pages as applicable.

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API 47- 013 - 04374 Farm name MONA MILLER Well number DAVID MATHESS #12

PRODUCING FORMATION(S)	DEPTHS			
INJUN	2,072 - 2,095	TVD		MD
BEREA	2,450 - 2,462			

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown ■ Open Flow OIL TEST □ Flow □ Pump

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

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	50,000 mcfpd	0 bpd	_____ bpd	10 bpd	■ Estimated □ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
	0		0		SEE LOG DATED 1/29/02
SALT SAND	1666	1708			BRINE
SALT SAND	1760	1769			BRINE, GOOD GAS SHOW
SALT SAND	1818	1833			BRINE, GOOD GAS SHOW
MAXON	1872	1890			BRINE, GAS SHOW
INJUN	2071	2094			OIL/GAS
BEREA	2450	2462			OIL/GAS

Please insert additional pages as applicable.

Drilling Contractor WORK OVER - ROY G. HILDRETH & SON, INC.
Address P O BOX 1007 City SPENCER State WV Zip 25276

Logging Company GRAY WIRELINE SERVICE, INC.
Address 6000 WESTERN PLACE, STE. 375 City FORT WORTH State TX Zip 76107

Cementing Company UNIVERSAL & ROY G. HILDRETH & SON, INC
Address P O BOX 200969 City DALLAS State TX Zip 75320

Stimulating Company UNIVERSAL WELL SERVICES, INC.
Address P O BOX 200969 City DALLAS State TX Zip 75320

Please insert additional pages as applicable.

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Completed by JON R. HILDRETH, MEGAN OIL & GAS CO., INC. Telephone 304-927-2130
Signature Jon R. Hildreth Title PRESIDENT Date 6/23/2015

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

IR-35
Rev (5-01)

DATE: January 29, 2002
API #: 013-4374

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: David Mathess Operator Well No.: #12

LOCATION: Elevation: 1,025 Quadrangle: Smithville 7.5

District: Center County: Calhoun
Latitude: 7,600 Feet South of 39 Deg. 02 Min. 30 Sec.
Longitude 13,200 Feet West of 81 Deg. 02 Min. 30 Sec.

Company: Megan Oil and Gas Inc.

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: P O BOX 1007	8 5/8"	350'	350'	Surface
SPENCER, WV 25276	4 1/2"	2,491'	2,491'	180 bags
Agent: Roy G. Hildreth				
Inspector: Homer Dogherty/ D. Mace				
Date Permit Issued: 11-19-00				
Date Well Work Commenced: 12-16-00				
Date Well Work Completed: 12-30-00				
Verbal Plugging:				
Date Permission granted on:				
Rotary XX Cable Rig				
Total Depth (feet): 2,491				
Fresh Water Depth (ft.): 200				
Salt Water Depth (ft.): 1,900				
Is coal being mined in area (N/Y)? NO				
Coal Depths (ft.): N/A				

OPEN FLOW DATA

Producing formation Berea Pay zone depth (ft) 14
Gas: Initial open flow N/A MCF/d Oil: Initial open flow N/A Bbl/d
Final open flow N/A MCF/d Final open flow N/A Bbl/d
Time of open flow between initial and final tests N/A Hours
Static rock Pressure N/A psig (surface pressure) after N/A Hours

Second producing formation Big Injun Pay zone depth (ft) 14
Gas: Initial open flow N/A MCF/d Oil: Initial open flow N/A Bbl/d
Final open flow N/A MCF/d Final open flow N/A Bbl/d
Time of open flow between initial and final tests N/A Hours
Static rock Pressure N/A psig (surface pressure) after N/A Hours

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NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed: Roy G. Hildreth
By: Vice President
Date: January 29, 2002

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Perforated 2,074-2,084, Bottom Perforated 2,443-2,453, Frac with 500 gallon acid, 18,000 lb sand frac in Injun, 29,000 lb sand frac in Berea

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Ss	Surface	41	
Shale	41	168	
Ss	168	207	
Shale	207	230	
Ss	230	270	
Shale & Ss	270	312	
Ss	312	409	
Ss & Shale	409	600	
Ss	600	620	
Shale	620	640	
Ss	640	680	
Shale	680	752	
Ss	752	780	
Shale	780	790	
Ss	790	808	
Shale	808	872	
Ss	872	890	
Shale	890	1,078	
Ss	1,078	1,086	
Shale	1,086	1,132	
Sand (Dunkard)	1,132	1,172	
Shale & Ss	1,172	1,267	
Sand (Salt Sand)	1,267	1,517	
Shale	1,517	1,832	
Sand(Maxton)	1,832	1,876	
Shale	1,876	1,905	
Little Lime	1,905	1,910	
Shale (Pencil Cave)	1,910	1,940	
Lime Sand	1,940	1,950	
Big Lime	1,950	2,050	
Big Injun	2,050	2,090	
Slate & Shells	2,090	2,318	
Sand	2,318	2,330	
Slate & Shells	2,330	2,442	
Berea Sand	2,442	2,455	
Slate & Shells	2,455	2,491	

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Megan Oil & Gas Inc.
WELL OPERATOR

By: Ray B Hiebert

Date: January 29, 2002

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

WR 34

Revenue and Division Order questions call:
Ergon Oil Purchasing Inc.: 800-278-3364

Dispatch and Trucking questions call:
Oil Haulers LLC: 800-457-6916

Oil Haulers LLC

Crude Purchase Run Ticket Seq. No.: 8817720

Date Reported	Tank No.	ALS	Truck No.	Gauged Gross Barrels
5/29/15	5145	—	2005	
Date Delivered	**Operator**			**Gross Barrels (This Ticket)**
5/29/15	Roy G. Hildreth + Son			
Gathering Point	**Farm Name (Origin)**			**Gross Barrels (Total Load)**
888	Mathess 12			
Driver/Gauger No.	**Driver/Gauger Name**			**B.S.W. Barrels (This Ticket)**
70701	Todd Bailey			
Terminal No.	**Dispatcher**			**Net Barrels (Total Load)**
4				

Gauging Data	Feet	Inches	Quarters
1st Measurement	Meter		
2nd Measurement	Load		

Old Seal	Avg. B.S.W. (%)	Avg. Temperature
New Seal	**Tank Size**	
	250	

Field B.S.W. (%)	
Field Temperature	
Odometer Stop	
Odometer Start	69239
Fuel	

Ticket Comments:

All Brine
79.12 Bbl Brine

Tank Comments:

Disposing of pit contents, Fresh water brine. (WR 34)

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This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Todd Bailey
Driver's Signature

WR 34

Revenue and Division Order questions call:
Ergon Oil Purchasing Inc.: 800-278-3364

Dispatch and Trucking questions call:
Oil Haulers LLC: 800-457-6916

Oil Haulers LLC

Crude Purchase Run Ticket Seq. No.: 8817721

Date Reported	Tank No.	ALS	Truck No.	Gauged Gross Barrels
5/29/15	5145	—	2005	
Date Delivered	**Operator**			**Gross Barrels (This Ticket)**
5/29/15	Roy G. Hildreth + Son			
Gathering Point	**Farm Name (Origin)**			**Gross Barrels (Total Load)**
888	Mathess 12			
Driver/Gauger No.	**Driver/Gauger Name**			**B.S.W. Barrels (This Ticket)**
70701	Todd Bailey			
Terminal No.	**Dispatcher**			**Net Barrels (Total Load)**
4				

Gauging Data	Feet	Inches	Quarters
1st Measurement	Meter		
2nd Measurement	Load		

Old Seal	Avg. B.S.W. (%)	Avg. Temperature
New Seal	**Tank Size**	
	250	

Field B.S.W. (%)	
Field Temperature	
Odometer Stop	
Odometer Start	69252
Fuel	

Ticket Comments:

All Brine
70.95 Bbl Brine

Tank Comments:

Disposing of pit contents. Fresh water and brine (WR 34)

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JUL 06 2015

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Todd Bailey
Driver's Signature

MEGAN OIL AND GAS CO., INC.
OIL & GAS OFFICE
LAND DEPARTMENT
758 Arnoldsburg Road • P.O. Box 1007 • Spencer, WV 25276
Phone: (304) 927-2130 • Fax: (304) 927-5933
www.roysghildrethandsoninc.com • pattv@roysghildrethandsoninc.com

Mona Miller
7463 Truman Ct.
Mentor, OH 44060

July 1, 2015

Re: Surface Owner -Well Completion Report
David Mathess #12 – API# 013-04374

Dear Ms. Miller:

The above well has been reworked and completed. Please find enclosed, for your records, the above well completion reports. If you have any questions, please contact me.

Sincerely,

Jon R. Hildreth

Jon R. Hildreth
President

JRH:plh
Enclosures

Certified Mail No. 7009-0820-0000-6448-6259

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

API 47 - 017 - 06274 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name Chestnut Field/Pool Name ----------
Farm name Trustees Chestnut Grove Church Well Number Mishka Unit 2H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street 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 4,357,128m	Easting 524,014m
Landing Point of Curve	Northing 4,356,935.76m	Easting 523,644.64m
Bottom Hole	Northing 4,354,570m	Easting 524,596m

Elevation (ft) 1,115' 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 07/25/2013 Date drilling commenced 01/09/2014 Date drilling ceased 05/01/2014
Date completion activities began 08/01/2014 Date completion activities ceased 01/24/2015
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 67', 122' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 900'; 1,143' Void(s) encountered (Y/N) depths None
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) No

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API 47- 017 - 06274 Farm name Trustees Chestnut Grove Church Well number Mishka Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	New	94#; J-55	N/A	Yes
Surface	17 1/2"	13 3/8"	363'	New	48#; H-40	N/A	Yes*
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,516'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	15,958'	New	23#; P-110	N/A	Yes
Tubing		2 3/8"	7,363'		5.95#; N-80	N/A	
Packer type and depth set		N/A					

Comment Details *1st attempt to cement surface casing (432 sx) failed to bring returns to surface. Grout was performed (100 sx) which was successful in bringing returns to surface.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	93 sx	17.5	1.18	38	0'	8 Hrs.
Surface	Class A	532 sx*	15.6	1.18	252	0'	8 Hrs.
Coal							
Intermediate 1	Class A	927 sx	15.6	1.18	788	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,173 sx (Lead); 1,298 sx (Tail)	14.5 (Lead); 15.2 (Tail)	1.3 (Lead); 1.86 (Tail)	3,194'	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15,958' MD; 6,974' TVD (BHL); 7,015' (Deepest Point Drilled) Loggers TD (ft) 15,909'

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6,806'

**This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Hoskinson Unit 2H, API #47-017-06400). Please reference the wireline logs submitted with Form WR-35 for the Hoskinson Unit 2H. 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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Environmental Protection

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API 47- 017 - 06274 Farm name Trustees Chestnut Grove Church Well number Mishka Unit 2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

*** PLEASE SEE ATTACHED EXHIBIT 1**

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)

*** PLEASE SEE ATTACHED EXHIBIT 2**

Please insert additional pages as applicable.

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API 47- 017 - 06274 Farm name Trustees Chestnut Grove Church Well number Mishka Unit 2H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6,947' (top)	TVD	7,352' (top)	MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ☐ Flow ☐ Pump

SHUT-IN PRESSURE Surface 3,550 psi Bottom Hole ---------- psi DURATION OF TEST ---------- hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	1,693 mcfpd	---------- bpd	---------- bpd	---------- bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITYAND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

*** PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC
Address 562 spring Run Road City Pennsboro State WV Zip 26415

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

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

Stimulating Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

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Environmental Protection

Completed by Megan Darling Telephone 303-357-7230
Signature Megan C. Darling Title Permitting Agent Date 07/10/2015

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

API 47-017-06274 Farm Name Trustees Chestnut Grove Church Well Number Mishka Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	1-Aug-14	15,700	15,867	60	Marcellus
2	6-Sep-14	15,503	15,670	60	Marcellus
3	6-Sep-14	15,305	15,472	60	Marcellus
4	8-Sep-14	15,107	15,274	60	Marcellus
5	9-Sep-14	14,910	15,077	60	Marcellus
6	10-Sep-14	14,712	14,879	60	Marcellus
7	10-Sep-14	14,514	14,681	60	Marcellus
8	10-Sep-14	14,317	14,484	60	Marcellus
9	11-Sep-14	14,119	14,286	60	Marcellus
10	11-Sep-14	13,921	14,088	60	Marcellus
11	11-Sep-14	13,724	13,891	60	Marcellus
12	12-Sep-14	13,526	13,693	60	Marcellus
13	12-Sep-14	13,328	13,495	60	Marcellus
14	13-Sep-14	13,131	13,297	60	Marcellus
15	13-Sep-14	12,933	13,100	60	Marcellus
16	14-Sep-14	12,735	12,902	60	Marcellus
17	14-Sep-14	12,538	12,704	60	Marcellus
18	14-Sep-14	12,340	12,507	60	Marcellus
19	15-Sep-14	12,142	12,309	60	Marcellus
20	15-Sep-14	11,945	12,111	60	Marcellus
21	16-Sep-14	11,747	11,914	60	Marcellus
22	16-Sep-14	11,549	11,716	60	Marcellus
23	17-Sep-14	11,352	11,518	60	Marcellus
24	17-Sep-14	11,154	11,321	60	Marcellus
25	17-Sep-14	10,956	11,123	60	Marcellus
26	18-Sep-14	10,759	10,925	60	Marcellus
27	18-Sep-14	10,561	10,728	60	Marcellus
28	18-Sep-14	10,363	10,530	60	Marcellus
29	18-Sep-14	10,166	10,332	60	Marcellus
30	19-Sep-14	9,968	10,135	60	Marcellus
31	19-Sep-14	9,770	9,937	60	Marcellus
32	19-Sep-14	9,573	9,739	60	Marcellus
33	19-Sep-14	9,375	9,542	60	Marcellus
34	20-Sep-14	9,177	9,344	60	Marcellus
35	20-Sep-14	8,980	9,146	60	Marcellus
36	20-Sep-14	8,782	8,949	60	Marcellus
37	21-Sep-14	8,584	8,751	60	Marcellus
38	21-Sep-14	8,387	8,553	60	Marcellus
39	21-Sep-14	8,189	8,356	60	Marcellus
40	21-Sep-14	7,991	8,158	60	Marcellus
41	21-Sep-14	7,794	7,960	60	Marcellus
42	22-Sep-14	7,596	7,763	60	Marcellus
43	22-Sep-14	7,398	7,565	60	Marcellus

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API 47-017-06274 Farm Name Trustees Chestnut Grove Church Well Number Mishka Unit 2H

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	5-Sep-14	69.9	7,565	N/A	5,366	96,725	6,936	N/A
2	6-Sep-14	75.1	7,456	5,826	5,189	252,540	6,724	N/A
3	6-Sep-14	78.7	7,758	5,953	4,952	227,516	6,919	N/A
4	8-Sep-14	71.5	7,416	5,710	5,021	220,144	6,807	N/A
5	9-Sep-14	72.0	7,414	5,660	5,448	216,795	6,868	N/A
6	10-Sep-14	72.0	7,414	5,603	5,489	214,904	6,992	N/A
7	10-Sep-14	76.0	7,493	5,456	4,608	231,752	6,679	N/A
8	10-Sep-14	76.0	7,493	5,728	5,183	204,877	6,980	N/A
9	11-Sep-14	77.5	7,746	5,532	5,571	185,319	6,250	N/A
10	11-Sep-14	76.0	7,405	5,777	4,647	232,377	6,684	N/A
11	11-Sep-14	81.0	7,672	5,533	5,693	246,555	6,676	N/A
12	12-Sep-14	80.0	7,610	5,587	4,795	232,113	6,446	N/A
13	12-Sep-14	83.0	7,705	5,515	5,244	232,063	6,390	N/A
14	13-Sep-14	80.0	7,412	5,731	5,367	233,431	6,381	N/A
15	13-Sep-14	79.0	7,350	5,518	5,000	236,679	6,448	N/A
16	14-Sep-14	81.0	7,437	5,451	4,461	233,448	6,352	N/A
17	14-Sep-14	81.0	7,482	5,703	5,091	253,761	6,487	N/A
18	14-Sep-14	79.0	7,340	5,578	5,336	234,111	6,455	N/A
19	15-Sep-14	79.0	7,451	5,547	5,004	236,430	6,342	N/A
20	15-Sep-14	80.0	7,482	5,759	5,438	236,775	6,305	N/A
21	16-Sep-14	82.0	7,369	5,843	5,618	236,374	6,407	N/A
22	16-Sep-14	81.0	7,242	5,712	5,526	237,514	6,441	N/A
23	17-Sep-14	78.0	7,167	5,494	5,174	235,297	6,262	N/A
24	17-Sep-14	80.0	7,223	5,446	5,107	240,040	6,291	N/A
25	17-Sep-14	82.0	7,321	5,813	5,755	238,501	6,308	N/A
26	18-Sep-14	80.0	7,240	5,578	5,071	240,365	6,347	N/A
27	18-Sep-14	80.0	7,228	5,634	5,304	240,348	6,179	N/A
28	18-Sep-14	80.0	7,379	5,587	5,551	237,734	6,185	N/A
29	18-Sep-14	82.0	7,278	5,925	5,408	235,841	6,214	N/A
30	19-Sep-14	78.0	6,962	5,430	5,007	236,882	6,182	N/A
31	19-Sep-14	77.0	6,974	5,670	4,878	232,838	6,216	N/A
32	19-Sep-14	82.0	7,029	5,766	5,396	232,277	6,069	N/A
33	19-Sep-14	82.0	7,091	5,705	5,427	233,893	6,450	N/A
34	20-Sep-14	75.0	6,685	5,743	4,984	237,363	6,201	N/A
35	20-Sep-14	78.0	6,816	5,594	440	239,499	6,089	N/A
36	20-Sep-14	82.0	7,010	5,980	4,409	232,301	6,084	N/A
37	21-Sep-14	78.0	6,888	5,745	4,605	237,977	6,066	N/A
38	21-Sep-14	79.0	6,911	5,505	4,540	233,296	5,829	N/A
39	21-Sep-14	80.0	6,819	6,051	5,150	235,095	5,998	N/A
40	21-Sep-14	80.0	6,806	5,512	4,705	240,793	6,076	N/A
41	21-Sep-14	77.0	6,834	5,555	5,584	237,657	6,120	N/A
42	22-Sep-14	78.0	6,744	5,018	5,198	225,094	5,968	N/A
43	22-Sep-14	79.0	6,884	6,600	5,107	237,679	6,151	N/A
	AVG=	**78.6**	**7,256**	**5,668**	**5,043**	**9,892,973**	**274,157**	TOTAL

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API 47-017-06274 Farm Name Trustees Chestnut Grove Church Well Number Mishka Unit 2H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Fresh Water	67'	N/A	67'	N/A
Fresh Water	122'	N/A	122'	N/A
Shale/Siltstone	0	257	0	257
Shale w/ Coal	est. 257	347	est. 257	347
Shale and Siltstone	est. 347	377	est. 347	377
Shale/Sandstone/Siltstone	est. 377	1,457	est. 377	1,457
Shale and Siltstone w/trace coal	est. 1457	1,487	est. 1457	1,487
Shale/Sandstone/Siltstone	est. 1487	1,637	est. 1487	1,637
Sandstone	est. 1637	1,757	est. 1637	1,757
Sandstone w/trace coal	est. 1757	1,787	est. 1757	1,787
Shale/Sandstone/Siltstone	est. 1787	2,061	est. 1787	2,061
Big Lime	2,061	2,205	2,061	2,205
Big Injun	2,205	2,634	2,205	2,634
Gantz Sand	2,634	2,780	2,634	2,780
Fifty Foot Sandstone	2,780	2,846	2,780	2,846
Gordon	2,846	3,211	2,846	3,211
Fifth Sandstone	3,211	3,250	3,211	3,250
Bayard	3,250	3,586	3,250	3,587
Warren	3,586	3,961	3,587	3,975
Speechley	3,961	4,211	3,975	4,247
Baltown	4,211	4,718	4,247	4,800
Bradford	4,718	5,210	4,800	5,333
Benson	5,210	5,448	5,333	5,592
Alexander	5,448	5,654	5,592	5,819
Elk	5,654	6,215	5,819	6,440
Rhinestreet	6,215	6,534	6,440	6,793
Sycamore	6,534	6,720	6,793	7,011
Middlesex	6,720	6,857	7,011	7,194
Burkett	6,857	6,885	7,194	7,237
Tully	6,885	6,947	7,237	7,352
Marcellus	6,947	NA	7,352	NA

*Please note Antero determines shallow formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Mishka Unit 2H
Doddridge County WV
Northing: 14294295.71
Easting: 1719154.86
As Drilled

Antero Resources

Scientific Drilling

To convert Magnetic North to Grid, Subtract 8.69°
To convert True North to Grid, Subtract 0.18°

Azimuths to Grid North
True North: -0.18°
Magnetic North: -8.69°

Magnetic Field
Strength: 52376.5snT
Dip Angle: 66.90°
Date: 1/13/2014
Model: IGRF2010

WELL DETAILS Mishka Unit 2H
Ground Level: 1115.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14294295.71	1719154.86	39° 21' 47.496 N	80° 43' 17.117 W

SITE DETAILS: Mishka/McMillan/Hoskinson Pad

Site Center: Mishka Unit 2H
Mishka / McMillan / Hoskinson

Site Centre Northing: 14294295.71
Easting: 1719154.86

Positional Uncertainity: 2.8
Convergence: 0.18
Local North: Grid

Frontier 22: 1115' + 25' RKB @ 1140.0usft
Gr: 1115.0

LEGEND

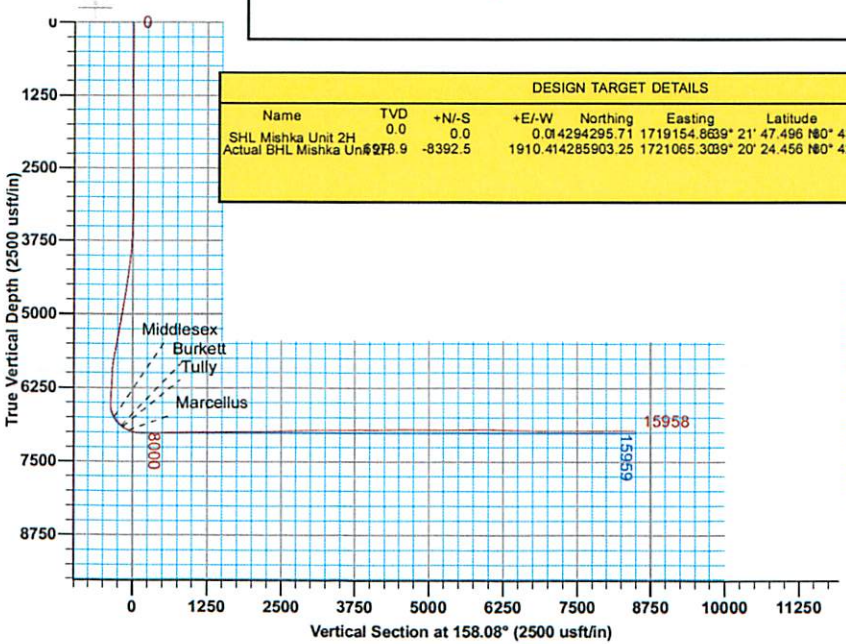
Mishka Unit 2H, Original Wellpath, Plan 4 V0
As Drilled

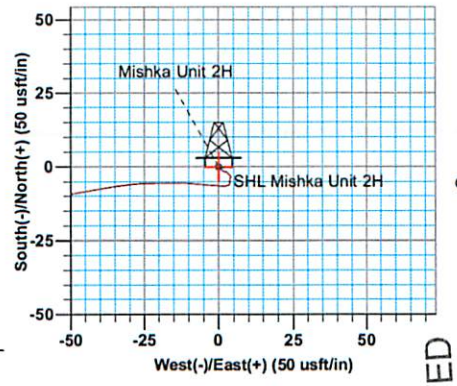
PROJECT DETAILS: Doddridge County WV

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)
System Datum: Mean Sea Level

DESIGN TARGET DETAILS

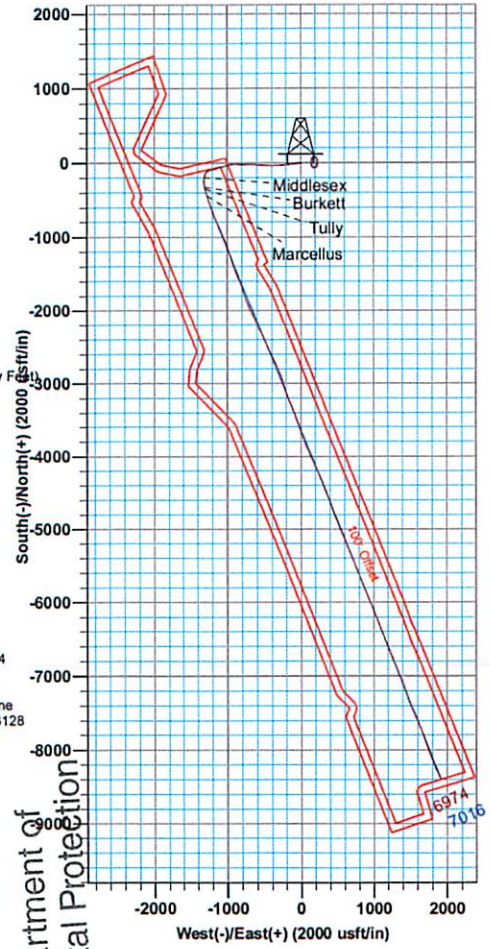
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Mishka Unit 2H	0.0	0.0	0.0	14294295.71	1719154.86	39° 21' 47.496 N	80° 43' 17.117 W
Actual BHL Mishka Unit 2H	6278.9	-8392.5	1910.4	14285903.25	1721065.30	39° 20' 24.456 N	80° 42' 53.121 W





Genie Lightfoot
13:45, May 05 2014

Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK 73128



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Antero Resources

Doddridge County WV
Mishka/McMillan/Hoskinson Pad
Mishka Unit 2H
Original Wellpath

Design: As Drilled

EOW Completion Report

05 May, 2014

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Scientific Drilling

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Mishka Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Well:	Mishka Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

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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 Mishka/McMillan/Hoskinson Pad, Site Center: Mishka Unit 2H

Site Position:		**Northing:**	14,294,295.71 usft	**Latitude:**	39° 21' 47.496 N
From:	Map	**Easting:**	1,719,154.86 usft	**Longitude:**	80° 43' 17.117 W
Position Uncertainty:	2.8 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.18 °

Well Mishka Unit 2H, Marcellus

Well Position	**+N/-S**	0.0 usft	**Northing:**	14,294,295.71 usft	**Latitude:**	39° 21' 47.496 N
	+E/-W	0.0 usft	**Easting:**	1,719,154.86 usft	**Longitude:**	80° 43' 17.117 W
Position Uncertainty		2.8 usft	**Wellhead Elevation:**	1,140.0 usft	**Ground Level:**	1,115.0 usft

Wellbore Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/13/2014	-8.52	66.90	52,377

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	158.08

Survey Program Date 5/5/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
12.0	5,944.0	Survey #3 Def Gyro to KOP (Original Well	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
6,041.0	15,958.0	Survey #4 MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
12.0	0.00	0.00	12.0	0.0	0.0	0.0	0.00
112.0	0.07	108.11	112.0	0.0	0.1	0.0	0.07
212.0	0.10	125.20	212.0	-0.1	0.2	0.2	0.04
312.0	0.04	355.21	312.0	-0.1	0.3	0.2	0.13
412.0	0.09	161.64	412.0	-0.1	0.3	0.2	0.13
512.0	0.12	116.74	512.0	-0.3	0.4	0.4	0.08
612.0	0.17	146.23	612.0	-0.4	0.6	0.6	0.09
712.0	0.24	141.78	712.0	-0.7	0.8	1.0	0.07
812.0	0.20	136.12	812.0	-1.0	1.0	1.3	0.05
912.0	0.20	136.14	912.0	-1.3	1.3	1.7	0.00

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Mishka Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Well:	Mishka Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,012.0	0.16	112.63	1,012.0	-1.4	1.5	1.9	0.08
1,112.0	0.10	103.84	1,112.0	-1.5	1.7	2.1	0.06
1,212.0	0.17	96.39	1,212.0	-1.6	2.0	2.2	0.07
1,312.0	0.18	109.71	1,312.0	-1.6	2.3	2.4	0.04
1,412.0	0.19	111.65	1,412.0	-1.7	2.6	2.6	0.01
1,512.0	0.22	145.72	1,512.0	-2.0	2.8	2.9	0.12
1,612.0	0.18	127.53	1,612.0	-2.2	3.1	3.2	0.07
1,712.0	0.16	140.52	1,712.0	-2.4	3.3	3.5	0.04
1,812.0	0.27	135.17	1,812.0	-2.7	3.5	3.8	0.11
1,912.0	0.15	139.06	1,912.0	-3.0	3.8	4.2	0.12
2,012.0	0.14	125.16	2,012.0	-3.1	4.0	4.4	0.04
2,112.0	0.08	178.03	2,112.0	-3.3	4.1	4.6	0.11
2,212.0	0.03	149.61	2,212.0	-3.4	4.1	4.6	0.06
2,312.0	0.07	190.47	2,312.0	-3.4	4.1	4.7	0.05
2,412.0	0.03	257.27	2,412.0	-3.5	4.1	4.8	0.06
2,512.0	0.12	222.79	2,512.0	-3.6	4.0	4.8	0.10
2,612.0	0.24	192.23	2,612.0	-3.9	3.8	5.0	0.15
2,712.0	0.22	183.12	2,712.0	-4.3	3.8	5.4	0.04
2,812.0	0.22	189.05	2,812.0	-4.7	3.7	5.7	0.02
2,912.0	0.19	188.88	2,912.0	-5.0	3.7	6.0	0.03
3,012.0	0.17	183.21	3,012.0	-5.3	3.7	6.3	0.03
3,112.0	0.24	192.41	3,112.0	-5.7	3.6	6.6	0.08
3,212.0	0.31	198.25	3,212.0	-6.1	3.5	7.0	0.08
3,312.0	1.42	264.41	3,312.0	-6.5	2.2	6.8	1.33
3,412.0	3.91	276.69	3,411.9	-6.2	-2.5	4.9	2.54
3,512.0	6.22	273.80	3,511.5	-5.5	-11.3	0.9	2.32
3,612.0	8.96	266.87	3,610.6	-5.5	-24.4	-4.0	2.88
3,712.0	12.04	259.59	3,708.9	-7.9	-42.5	-8.6	3.35
3,812.0	15.28	262.83	3,806.1	-11.4	-65.8	-14.0	3.33
3,912.0	18.41	265.42	3,901.8	-14.3	-94.6	-22.1	3.22
4,012.0	22.07	265.95	3,995.6	-16.9	-129.1	-32.5	3.66
4,112.0	24.17	263.33	4,087.5	-20.6	-168.2	-43.7	2.34
4,212.0	24.47	263.42	4,178.7	-25.3	-209.1	-54.6	0.30
4,312.0	24.23	264.13	4,269.8	-29.8	-250.1	-65.7	0.38
4,412.0	23.12	267.01	4,361.4	-32.9	-290.1	-77.8	1.60
4,512.0	23.30	267.48	4,453.3	-34.8	-329.5	-90.7	0.26
4,612.0	23.96	270.68	4,544.9	-35.5	-369.6	-105.1	1.44
4,712.0	23.08	269.31	4,636.6	-35.4	-409.5	-120.0	1.04
4,812.0	22.79	269.25	4,728.7	-35.9	-448.4	-134.1	0.29
4,912.0	22.53	272.15	4,821.0	-35.5	-486.9	-148.9	1.15
5,012.0	22.23	275.15	4,913.4	-33.1	-524.9	-165.3	1.18
5,112.0	22.81	275.88	5,005.8	-29.4	-563.0	-182.9	0.64
5,212.0	22.65	273.00	5,098.0	-26.4	-601.6	-200.1	1.12
5,312.0	22.47	269.85	5,190.4	-25.4	-639.9	-215.3	1.22

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Mishka Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Well:	Mishka Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,412.0	22.87	270.62	5,282.7	-25.3	-678.4	-229.8	0.50
5,512.0	22.73	271.54	5,374.8	-24.5	-717.2	-245.0	0.38
5,612.0	24.06	271.50	5,466.6	-23.5	-756.9	-260.8	1.33
5,712.0	25.25	273.68	5,557.5	-21.6	-798.5	-278.1	1.50
5,812.0	25.77	273.46	5,647.8	-18.9	-841.5	-296.6	0.53
5,912.0	25.24	271.41	5,738.0	-17.1	-884.5	-314.4	1.03
5,944.0	25.15	270.24	5,767.0	-16.9	-898.2	-319.7	1.58
6,041.0	24.63	265.50	5,855.0	-18.4	-938.9	-333.5	2.13
6,137.0	26.42	254.88	5,941.6	-25.5	-979.5	-342.0	5.11
6,233.0	25.95	254.17	6,027.8	-36.8	-1,020.3	-346.8	0.59
6,330.0	24.92	252.62	6,115.4	-48.7	-1,060.3	-350.6	1.26
6,426.0	25.42	256.94	6,202.3	-59.4	-1,099.6	-355.4	1.98
6,522.0	24.15	252.69	6,289.4	-69.9	-1,138.5	-360.2	2.28
6,619.0	23.55	255.30	6,378.2	-80.7	-1,176.1	-364.2	1.25
6,715.0	24.56	256.28	6,465.8	-90.3	-1,214.1	-369.4	1.13
6,742.0	24.08	256.03	6,490.4	-93.0	-1,224.9	-371.0	1.82
6,774.0	24.23	252.50	6,519.6	-96.5	-1,237.5	-372.4	4.54
6,806.0	25.56	242.64	6,548.7	-101.7	-1,249.9	-372.3	13.60
6,838.0	27.33	234.19	6,577.3	-109.2	-1,262.0	-369.8	12.98
6,870.0	28.79	226.43	6,605.6	-118.8	-1,273.5	-365.2	12.28
6,902.0	30.69	219.18	6,633.4	-130.4	-1,284.3	-358.4	12.70
6,935.0	31.97	210.60	6,661.6	-144.5	-1,294.0	-349.1	14.05
6,967.0	33.21	204.43	6,688.5	-159.7	-1,302.0	-337.8	11.08
6,999.0	34.79	199.04	6,715.1	-176.4	-1,308.6	-324.9	10.63
7,031.0	36.04	192.99	6,741.1	-194.2	-1,313.7	-310.3	11.63
7,035.0	36.19	192.36	6,744.4	-196.5	-1,314.2	-308.3	9.97
Middlesex							
7,063.0	37.34	188.11	6,766.8	-212.9	-1,317.2	-294.2	9.97
7,095.0	39.17	184.70	6,791.9	-232.6	-1,319.4	-276.7	8.73
7,128.0	41.04	179.95	6,817.2	-253.9	-1,320.2	-257.3	10.86
7,160.0	43.44	173.26	6,840.9	-275.3	-1,318.9	-237.0	15.92
7,192.0	45.43	169.19	6,863.7	-297.4	-1,315.5	-215.1	10.86
7,224.0	47.90	167.49	6,885.7	-320.2	-1,310.8	-192.2	8.63
7,230.0	48.58	167.11	6,889.7	-324.6	-1,309.8	-187.8	12.35
Burkett							
7,256.0	51.56	165.53	6,906.4	-344.0	-1,305.0	-168.1	12.35
7,262.0	52.08	165.31	6,910.1	-348.5	-1,303.9	-163.4	9.14
Tully							
7,288.0	54.34	164.39	6,925.7	-368.6	-1,298.4	-142.7	9.14
7,320.0	56.42	163.40	6,943.8	-393.9	-1,291.1	-116.5	6.98
7,352.0	60.70	163.25	6,960.5	-420.1	-1,283.3	-89.4	13.38
7,377.0	63.90	163.10	6,972.1	-441.2	-1,276.9	-67.3	12.83
Marcellus							
7,385.0	64.93	163.06	6,975.6	-448.2	-1,274.8	-60.1	12.83
7,417.0	69.58	162.37	6,988.0	-476.3	-1,266.0	-30.7	14.67

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Mishka Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Well:	Mishka Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,449.0	74.43	161.04	6,997.9	-505.2	-1,256.4	-0.4	15.66
7,481.0	78.88	159.31	7,005.2	-534.5	-1,245.9	30.7	14.87
7,513.0	82.93	160.09	7,010.3	-564.1	-1,234.9	62.3	12.88
7,584.0	90.13	161.21	7,014.6	-630.9	-1,211.5	133.1	10.26
7,680.0	90.40	156.86	7,014.1	-720.6	-1,177.1	229.0	4.54
7,777.0	90.87	154.60	7,013.1	-809.0	-1,137.3	325.9	2.38
7,873.0	89.77	154.64	7,012.5	-895.7	-1,096.1	421.8	1.15
7,970.0	91.24	159.02	7,011.7	-984.9	-1,058.0	518.7	4.76
8,065.0	90.64	157.34	7,010.1	-1,073.0	-1,022.7	613.7	1.88
8,162.0	92.65	162.52	7,007.3	-1,164.1	-989.4	710.6	5.73
8,258.0	91.65	163.24	7,003.7	-1,255.8	-961.2	806.2	1.28
8,355.0	92.02	163.59	7,000.6	-1,348.7	-933.5	902.7	0.52
8,451.0	89.33	158.69	6,999.5	-1,439.5	-902.5	998.5	5.82
8,548.0	88.79	155.65	7,001.1	-1,528.8	-864.8	1,095.5	3.18
8,644.0	89.46	158.76	7,002.6	-1,617.3	-827.7	1,191.4	3.31
8,740.0	90.81	160.58	7,002.3	-1,707.3	-794.3	1,287.4	2.36
8,837.0	93.39	163.74	6,998.8	-1,799.6	-764.6	1,384.1	4.20
8,933.0	90.77	158.64	6,995.3	-1,890.4	-733.7	1,479.8	5.97
9,030.0	89.43	154.91	6,995.1	-1,979.5	-695.4	1,576.8	4.09
9,126.0	90.20	155.51	6,995.4	-2,066.6	-655.2	1,672.6	1.02
9,222.0	90.87	153.17	6,994.5	-2,153.2	-613.6	1,768.4	2.54
9,313.0	89.70	155.70	6,994.1	-2,235.2	-574.4	1,859.2	3.06
9,404.0	90.03	156.34	6,994.3	-2,318.4	-537.4	1,950.2	0.79
9,494.0	90.13	154.77	6,994.2	-2,400.3	-500.1	2,040.1	1.75
9,583.0	91.21	157.66	6,993.1	-2,481.7	-464.2	2,129.0	3.47
9,674.0	90.57	152.78	6,991.7	-2,564.3	-426.1	2,219.9	5.41
9,764.0	91.55	154.71	6,990.0	-2,645.0	-386.3	2,309.6	2.40
9,856.0	91.41	155.23	6,987.7	-2,728.4	-347.4	2,401.4	0.59
9,946.0	91.07	154.89	6,985.7	-2,809.9	-309.5	2,491.3	0.53
10,037.0	93.16	159.82	6,982.4	-2,893.8	-274.5	2,582.2	5.88
10,128.0	93.23	165.54	6,977.3	-2,980.5	-247.4	2,672.7	6.28
10,218.0	90.64	163.02	6,974.2	-3,067.1	-223.1	2,762.1	4.01
10,310.0	90.47	160.29	6,973.4	-3,154.4	-194.1	2,853.9	2.97
10,406.0	90.91	155.84	6,972.2	-3,243.5	-158.3	2,949.9	4.66
10,503.0	91.01	156.50	6,970.6	-3,332.2	-119.1	3,046.8	0.69
10,599.0	91.48	161.72	6,968.5	-3,421.8	-84.9	3,142.8	5.46
10,695.0	90.10	161.30	6,967.2	-3,512.8	-54.4	3,238.6	1.50
10,792.0	90.34	161.53	6,966.8	-3,604.8	-23.5	3,335.4	0.34
10,888.0	89.83	159.03	6,966.6	-3,695.1	8.9	3,431.3	2.66
10,985.0	90.20	157.77	6,966.6	-3,785.3	44.6	3,528.3	1.35
11,081.0	91.31	157.93	6,965.4	-3,874.2	80.8	3,624.3	1.17
11,178.0	91.31	158.22	6,963.1	-3,964.2	117.0	3,721.3	0.30
11,274.0	89.73	154.90	6,962.3	-4,052.3	155.2	3,817.2	3.83
11,371.0	89.73	154.60	6,962.7	-4,140.0	196.6	3,914.1	0.31

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Mishka Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Well:	Mishka Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,467.0	90.03	153.23	6,962.9	-4,226.2	238.8	4,009.8	1.46
11,564.0	91.07	157.92	6,962.0	-4,314.5	278.9	4,106.7	4.95
11,660.0	89.93	159.91	6,961.2	-4,404.1	313.4	4,202.7	2.39
11,756.0	90.81	159.66	6,960.5	-4,494.1	346.6	4,298.6	0.95
11,853.0	89.87	160.31	6,960.0	-4,585.3	379.8	4,395.6	1.18
11,949.0	91.04	161.23	6,959.2	-4,675.9	411.4	4,491.4	1.55
12,045.0	89.26	157.93	6,958.9	-4,765.9	444.9	4,587.4	3.91
12,141.0	90.34	157.85	6,959.3	-4,854.8	481.0	4,683.4	1.13
12,238.0	90.77	157.60	6,958.3	-4,944.6	517.8	4,780.4	0.51
12,334.0	89.26	157.50	6,958.3	-5,033.3	554.4	4,876.4	1.58
12,431.0	90.37	158.13	6,958.6	-5,123.1	591.1	4,973.4	1.32
12,527.0	88.72	157.83	6,959.4	-5,212.1	627.0	5,069.4	1.75
12,622.0	88.73	157.73	6,961.5	-5,300.0	663.0	5,164.3	0.11
12,718.0	89.90	157.11	6,962.7	-5,388.6	699.8	5,260.3	1.38
12,815.0	90.34	156.19	6,962.5	-5,477.7	738.3	5,357.3	1.05
12,911.0	91.08	158.81	6,961.3	-5,566.4	775.0	5,453.3	2.84
13,007.0	90.34	157.86	6,960.1	-5,655.6	810.4	5,549.3	1.25
13,103.0	91.68	158.91	6,958.4	-5,744.8	845.8	5,645.2	1.77
13,199.0	89.63	157.98	6,957.3	-5,834.1	881.1	5,741.2	2.34
13,296.0	90.34	156.56	6,957.3	-5,923.6	918.5	5,838.2	1.64
13,392.0	90.60	157.23	6,956.5	-6,011.9	956.2	5,934.2	0.75
13,488.0	89.20	156.73	6,956.7	-6,100.2	993.7	6,030.2	1.55
13,584.0	88.82	158.57	6,958.3	-6,189.0	1,030.2	6,126.2	1.96
13,681.0	88.86	158.08	6,960.3	-6,279.1	1,066.1	6,223.1	0.51
13,777.0	89.23	158.92	6,961.9	-6,368.4	1,101.2	6,319.1	0.96
13,873.0	88.52	158.76	6,963.8	-6,457.9	1,135.9	6,415.1	0.76
13,969.0	88.83	157.65	6,966.0	-6,547.0	1,171.5	6,511.1	1.20
14,066.0	88.22	156.29	6,968.5	-6,636.3	1,209.5	6,608.0	1.54
14,161.0	88.35	158.01	6,971.4	-6,723.8	1,246.3	6,703.0	1.81
14,258.0	89.87	157.57	6,972.9	-6,813.6	1,283.0	6,799.9	1.63
14,354.0	89.46	158.02	6,973.4	-6,902.4	1,319.3	6,895.9	0.63
14,450.0	88.49	158.48	6,975.1	-6,991.6	1,354.8	6,991.9	1.12
14,547.0	89.26	156.75	6,977.0	-7,081.3	1,391.8	7,088.9	1.95
14,643.0	89.80	157.59	6,977.8	-7,169.7	1,429.0	7,184.9	1.04
14,740.0	89.26	157.76	6,978.6	-7,259.5	1,465.9	7,281.9	0.58
14,836.0	91.07	159.89	6,978.4	-7,349.0	1,500.5	7,377.8	2.91
14,932.0	91.98	159.20	6,975.8	-7,438.9	1,534.1	7,473.8	1.19
15,029.0	89.87	158.62	6,974.2	-7,529.4	1,569.0	7,570.8	2.26
15,124.0	90.23	157.28	6,974.2	-7,617.4	1,604.6	7,665.7	1.46
15,221.0	91.34	159.70	6,972.8	-7,707.6	1,640.2	7,762.7	2.74
15,317.0	89.97	160.46	6,971.7	-7,797.9	1,672.9	7,858.7	1.63
15,414.0	90.20	160.85	6,971.6	-7,889.4	1,705.0	7,955.6	0.47
15,510.0	91.17	160.11	6,970.4	-7,979.9	1,737.1	8,051.5	1.27
15,606.0	90.30	160.67	6,969.2	-8,070.3	1,769.3	8,147.4	1.08
15,703.0	88.66	158.25	6,970.1	-8,161.1	1,803.3	8,244.3	3.01

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Mishka Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: 1115' + 25' RKB @ 1140.0usft
Well:	Mishka Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
15,799.0	88.62	154.44	6,972.4	-8,249.0	1,841.8	8,340.3	3.97
15,898.0	89.83	154.44	6,973.7	-8,338.3	1,884.6	8,439.0	1.22
15,958.0	89.83	154.44	6,973.9	-8,392.5	1,910.4	8,498.9	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,035.0	6,744.4	-196.5	-1,314.2	Middlesex
7,230.0	6,889.7	-324.6	-1,309.8	Burkett
7,262.0	6,910.1	-348.5	-1,303.9	Tully
7,377.0	6,972.1	-441.2	-1,276.9	Marcellus

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/5/2014
Job End Date:	9/22/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06274-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Mishka Unit 2H
Longitude:	-80.72124400
Latitude:	39.36327500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,979
Total Base Water Volume (gal):	12,277,020
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

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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	Operator	Carrier					
			Water	7732-18-5	100.00000	90.72039	
Sand, White, 40/70	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		4.92304	
Sand, White, 20/40	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		3.18204	
Sand, White, 100 mesh	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.64657	
HCl, 10.1 - 15%	Baker Hughes	Acidizing					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.20547	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.10826	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.05734	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01455	SmartCare Product

Enzyme G-NE	Baker Hughes	Breaker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01396	SmartCare Product
Alpha 1427	Baker Hughes	Biocide					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01231	SmartCare Product
Ferrotrol 300L	Baker Hughes	Iron Control					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00142	SmartCare Product
CI-14	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00033	SmartCare Product
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.							
Ingredients in Additive (s) (MSDS and non-MSDS)	Baker Hughes	See Trade Name(s) List					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	8.74065	
			Water	7732-18-5	95.00000	0.22593	
			Mineral Oil	8042-47-5	70.00000	0.07569	
			Guar Gum	9000-30-0	60.00000	0.06487	
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.03244	
			Petroleum Distillates	64742-47-8	30.00000	0.03244	
			Hydrochloric Acid	7647-01-0	15.00000	0.03078	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.01718	
			Poly (acrylamide-co-acrylic acid) partial sodium salt	62649-23-4	30.00000	0.01718	
			Ethylene Glycol	107-21-1	45.00000	0.00654	
			Crystalline Silica: Quartz	14808-60-7	5.00000	0.00541	
			1-butoxy-2-propanol	5131-66-8	5.00000	0.00541	
			Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00541	
			Glutaraldehyde	111-30-8	30.00000	0.00369	
			Sodium Chloride	7647-14-5	5.00000	0.00301	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9	20.00000	0.00291	
			Ammonium Chloride	12125-02-9	3.00000	0.00172	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00123	
			Oleamide DEA	93-83-4	2.00000	0.00115	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00115	
			Citric Acid	77-92-9	60.00000	0.00085	
			Calcium Chloride	10043-52-4	5.00000	0.00073	
			Hemicellulase Enzyme Concentrate	9025-56-3	5.00000	0.00070	
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00061	
			Ethanol	64-17-5	5.00000	0.00061	
			Methanol	67-56-1	100.00000	0.00033	
			Sorbitan Monooleate	1338-43-8	0.50000	0.00029	
			Polyoxythylene Sorbitan Monooleate	9005-65-6	0.50000	0.00029	

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			Potassium Chloride	7447-40-7	1.00000	0.00015	
			2-butoxy-1-propanol	15821-83-7	0.10000	0.00011	
			Polyoxyalkylenes	68951-67-7	30.00000	0.00010	
			Fatty Acids	61790-12-3	10.00000	0.00003	
			Modified Thiourea Polymer	68527-49-1	7.00000	0.00002	
			Olefin	64743-02-8	5.00000	0.00002	
			Propargyl Alcohol	107-19-7	5.00000	0.00002	
			Formaldehyde	50-00-0	1.00000	0.00000	

* 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)

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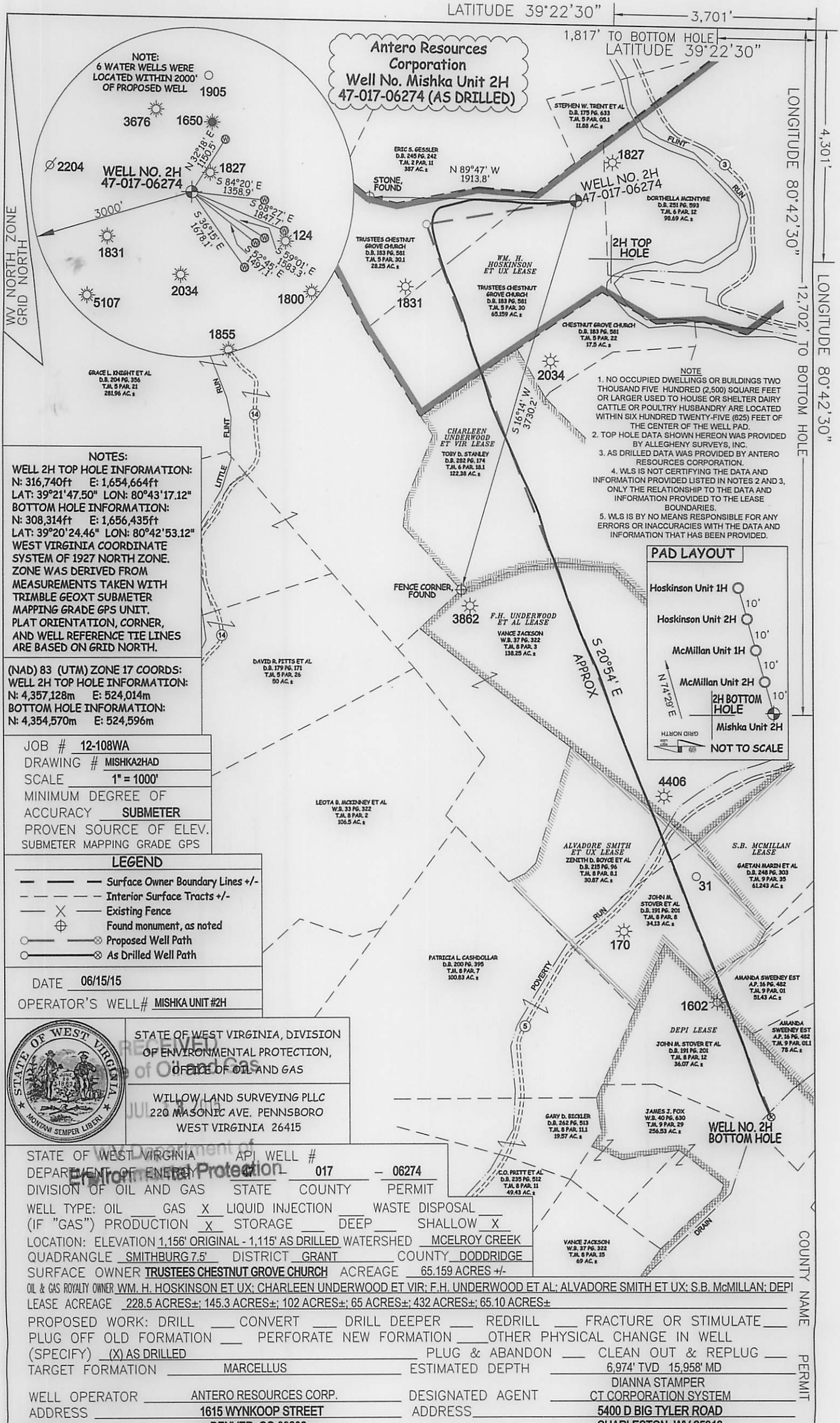

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 017 - 06292 County Doddridge District Central
Quad Oxford 7.5 Pad Name Robert Williams Pad Field/Pool Name ----
Farm name Williams, Robert Well Number Leggett Unit 1H
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	4343160m	Easting	511847m
Landing Point of Curve	Northing	4343481.36m	Easting	512081.23m
Bottom Hole	Northing	4345041m	Easting	511299m

Elevation (ft) 990' 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 8/21/2013 Date drilling commenced 12/18/2013 Date drilling ceased 7/6/2014
Date completion activities began 8/22/2014 Date completion activities ceased 11/5/2014
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 59' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1509' Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

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Reviewed by:
JW 7/24/15

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API 47- 017 - 06292 Farm name Williams, Robert Well number Leggett Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	New	94# H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	358'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2511'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	12932'	New	20# P-110	N/A	Y
Tubing		2-3/8"	6812'		5.95# 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^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	150 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	429 sx	15.6	1.18	249	0'	8 Hrs.
Coal							
Intermediate 1	Class A	922 sx	15.6	1.18	786	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	694 sx (Lead) 1028 sx (Tail)	13.5 Lead 15.2 Tail	1.44 Lead 1.8 Tail	2502	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 12932' (MD), 6519' TVD (BHL); 6539' TVD (Deepest point drilled) Loggers TD (ft) 12878'

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6266'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Pike Unit 1H API#47-017-06289). Please reference the wireline logs submitted with Form WR-35 for Pike 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 aboce 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 - 06292 Farm name Williams, Robert Well number Leggett Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

*PLEASE SEE ATTACHED EXHIBIT 1

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)

*PLEASE SEE ATTACHED EXHIBIT 2

Please insert additional pages as applicable.

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API 47- 017 - 06292 Farm name Williams, Robert Well number Leggett Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6489' (TOP) TVD	6850' (TOP) 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	Oil	NGL	Water	GAS MEASURED BY
	7774 mcfpd	39 bpd	--- bpd	437 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
	0		0		

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Rd. City Williamsport State PA Zip 15301

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

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main Street City Bridgeport State WV Zip 26330

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

Please insert additional pages as applicable.

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Completed by Kara Quackenbush Telephone 303-357-7233
Signature Title Permit Representative Date 6/8/2015

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

API 47-017-06292 Farm Name Williams, Robert Well Number Leggett Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	22-Aug-14	12,691	12,859	60	Marcellus
2	20-Sep-14	12,490	12,659	60	Marcellus
3	20-Sep-14	12,290	12,459	60	Marcellus
4	20-Sep-14	12,090	12,259	60	Marcellus
5	20-Sep-14	11,890	12,059	60	Marcellus
6	21-Sep-14	11,690	11,859	60	Marcellus
7	22-Sep-14	11,490	11,659	60	Marcellus
8	22-Sep-14	11,290	11,459	60	Marcellus
9	22-Sep-14	11,090	11,259	60	Marcellus
10	22-Sep-14	10,890	11,058	60	Marcellus
11	23-Sep-14	10,690	10,858	60	Marcellus
12	23-Sep-14	10,489	10,658	60	Marcellus
13	23-Sep-14	10,289	10,458	60	Marcellus
14	23-Sep-14	10,089	10,258	60	Marcellus
15	24-Sep-14	9,889	10,058	60	Marcellus
16	24-Sep-14	9,689	9,858	60	Marcellus
17	24-Sep-14	9,489	9,658	60	Marcellus
18	25-Sep-14	9,289	9,458	60	Marcellus
19	25-Sep-14	9,089	9,257	60	Marcellus
20	25-Sep-14	8,889	9,057	60	Marcellus
21	25-Sep-14	8,689	8,857	60	Marcellus
22	25-Sep-14	8,488	8,657	60	Marcellus
23	26-Sep-14	8,288	8,457	60	Marcellus
24	26-Sep-14	8,088	8,257	60	Marcellus
25	26-Sep-14	7,888	8,057	60	Marcellus
26	26-Sep-14	7,688	7,857	60	Marcellus
27	27-Sep-14	7,488	7,657	60	Marcellus
28	27-Sep-14	7,288	7,457	60	Marcellus
29	27-Sep-14	7,088	7,256	60	Marcellus
30	27-Sep-14	6,888	7,056	60	Marcellus

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API 47-017-06292 Farm Name Williams, Robert Well Number Leggett Unit 1H

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	20-Sep-14	59.3	7,507	N/A	4,867	168,800	6,634	N/A
2	20-Sep-14	63.0	6,698	6,198	4,857	220,550	6,434	N/A
3	20-Sep-14	64.0	6,553	6,187	6,012	239,300	6,588	N/A
4	20-Sep-14	64.6	6,783	5,701	4,138	207,800	6,095	N/A
5	21-Sep-14	66.0	6,700	6,037	6,362	240,000	6,535	N/A
6	21-Sep-14	65.3	6,603	5,897	4,699	241,800	6,513	N/A
7	22-Sep-14	64.5	6,742	6,262	4,810	240,400	6,492	N/A
8	22-Sep-14	62.6	6,683	5,851	5,404	240,250	6,469	N/A
9	22-Sep-14	64.2	6,468	5,836	4,839	240,700	6,451	N/A
10	22-Sep-14	66.0	6,816	6,219	3,719	240,400	6,395	N/A
11	23-Sep-14	63.7	6,850	6,323	3,755	238,850	6,414	N/A
12	23-Sep-14	62.8	6,694	5,808	4,689	215,650	6,061	N/A
13	23-Sep-14	64.5	6,709	5,658	4,857	205,500	6,004	N/A
14	24-Sep-14	64.3	6,671	5,643	4,653	194,000	5,870	N/A
15	24-Sep-14	64.0	6,580	5,760	4,063	240,020	6,314	N/A
16	24-Sep-14	64.0	6,771	5,590	4,388	225,200	6,914	N/A
17	24-Sep-14	63.9	6,203	5,382	4,245	241,700	6,270	N/A
18	25-Sep-14	64.7	6,289	5,404	4,263	238,650	6,221	N/A
19	25-Sep-14	64.8	6,383	5,533	4,796	239,550	6,224	N/A
20	25-Sep-14	63.5	6,426	6,015	3,955	239,300	6,199	N/A
21	25-Sep-14	64.7	6,388	6,151	4,098	240,450	6,174	N/A
22	26-Sep-14	65.3	6,268	5,686	4,263	240,000	6,161	N/A
23	26-Sep-14	63.1	6,105	6,398	4,181	240,200	6,140	N/A
24	26-Sep-14	62.6	6,189	6,326	4,084	240,000	6,117	N/A
25	26-Sep-14	64.9	6,485	6,158	4,528	194,550	5,592	N/A
26	27-Sep-14	65.0	6,047	6,219	4,921	238,900	6,077	N/A
27	27-Sep-14	63.3	6,054	6,271	5,271	240,500	6,042	N/A
28	27-Sep-14	63.5	6,015	5,518	4,499	239,900	6,023	N/A
29	27-Sep-14	63.9	6,172	5,372	4,685	239,950	6,008	N/A
30	27-Sep-14	63.5	6,406	7,145	4,288	138,650	5,074	N/A
AVG=		**64.0**	**6,509**	**5,950**	**4,606**	**6,811,520**	**186,505**	TOTAL

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API 47-017-06292 Farm Name Williams, Robert Well Number Leggett Unit 1H				
EXHIBIT 3				
LITHOLOGY/ FORMATION	**TOP DEPTH (TVD) From Surface**	**BOTTOM DEPTH (TVD) From Surface**	**TOP DEPTH (MD) From Surface**	**BOTTOM DEPTH (MD) From Surface**
Fresh Water	59'	N/A	59'	N/A
Shale/ Sandstone	0	429	0	429
Limestone/ Sandstone	est. 429	509	est. 429	509
Shale/ Siltstone	est. 509	589	est. 509	589
Sandstone/ Trace Coal	est. 589	609	est. 589	609
Sandstone/ Siltstone	est. 609	689	est. 609	689
Sandstone/ Limestone	est. 689	789	est. 689	789
Shale/ Sandstone	est. 789	949	est. 789	949
Siltstone/ Limestone	est. 949	1329	est. 949	1329
Shale/ Trace Coal	est. 1329	1389	est. 1329	1389
Shale/ Sandstone	est. 1389	1429	est. 1389	1429
Shale/ Coal	est. 1429	1489	est. 1429	1489
Sandstone	est. 1489	1529	est. 1489	1529
Sandstone/ Trace Coal	est. 1529	1669	est. 1529	1669
Sandstone/ Siltstone	est. 1669	1909	est. 1669	1909
Sandstone/ Trace Coal	est. 1909	1993	est. 1909	1993
Big Lime	1993	2082	1993	2082
Big Injun	2082	2401	2082	2401
Gantz Sand	2401	2602	2401	2602
Fifty Foot Sandstone	2602	2678	2602	2678
Gordon	2678	2986	2678	2986
Fifth Sandstone	2986	3020	2986	3020
Bayard	3020	3427	3020	3427
Warren	3427	3789	3427	3789
Speechley	3789	4085	3789	4086
Baltown	4085	4546	4086	4565
Bradford	4546	4957	4565	5015
Benson	4957	5210	5015	5296
Alexander	5210	5375	5296	5480
Elk	5375	5843	5480	5993
Rhinestreet	5843	6147	5993	6332
Sycamore	6147	6315	6332	6542
Middlesex	6315	6435	6542	6724
Burkett	6435	6461	6724	6779
Tully	6461	6489	6779	6850
Marcellus	6489	NA	6850	NA

*Please note Antero determines formation tops based on wireline logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Antero Resources

Antero Resources
Leggett Unit 1H
Doddridge County WV
Northing: 14248469.44
Easting: 1679238.07
As Drilled

WELL DETAILS: Leggett Unit 1H
Ground Level: 990.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14248469.44	1679238.07	39° 14' 15.290 N	80° 51' 46.417 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Leggett Unit 1H, Grid North
Vertical (TVD) Reference: P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Calculation Method: Minimum Curvature

Scientific Drilling

PROJECT DETAILS: Doddridge County WV

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

Genie Lightfoot
11:12, July 08 2014

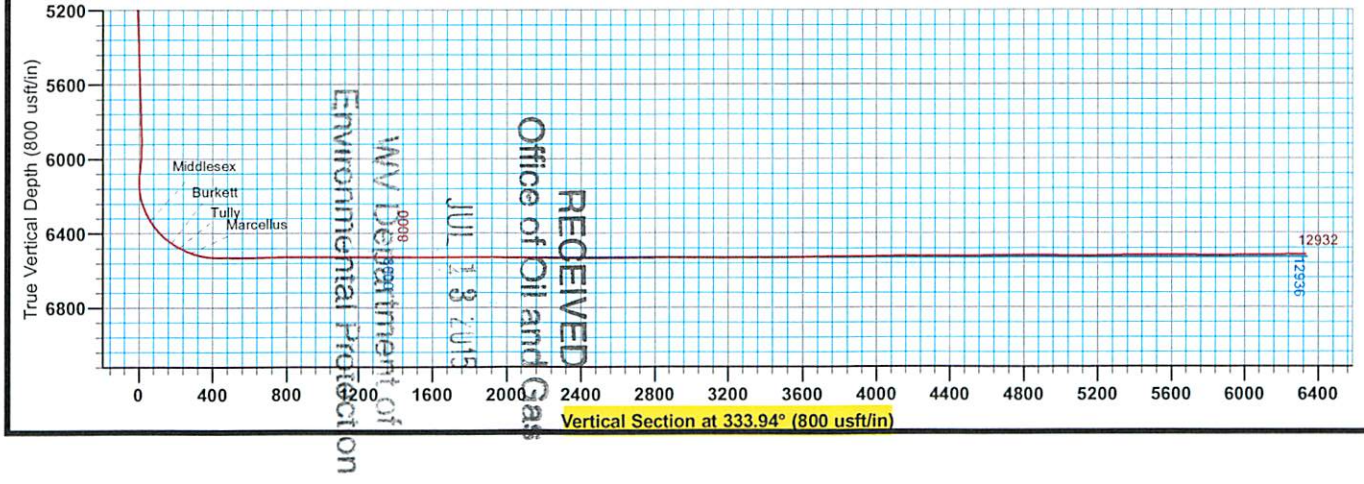
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

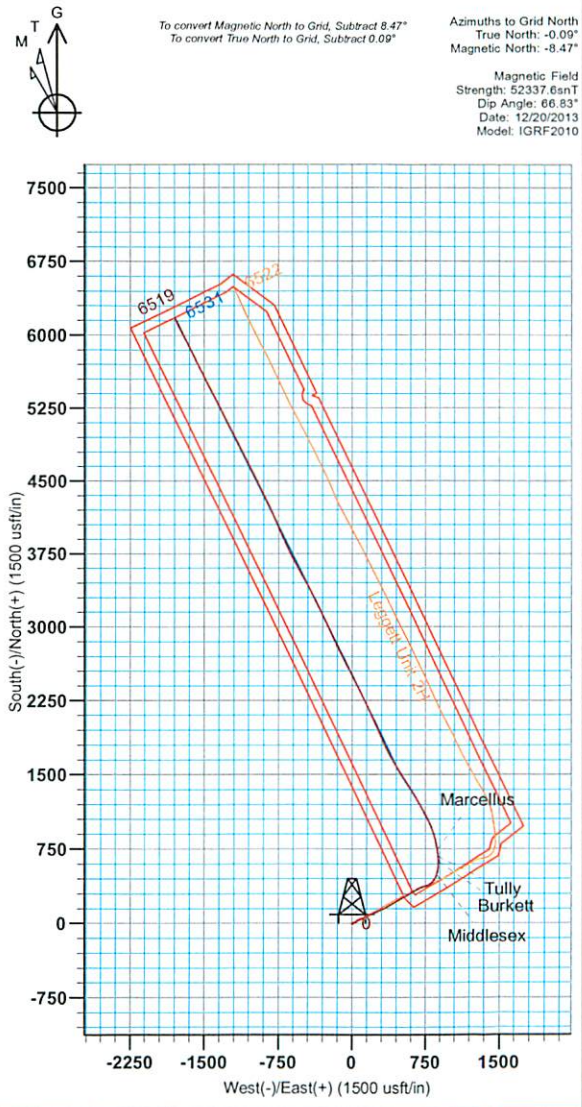
LEGEND

- Leggett Unit 2H, Original Wellpath, As Drilled V0
- Leggett Unit 1H, Original Wellpath, Plan 6 V0
- As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Leggett Unit 1H	0.0	0.0	0.0	14248469.43	1679238.07	39° 14' 15.290 N	80° 51' 46.417 W
Actual BHL Leggett Unit 1H	6519.1	6169.9	-1797.91	14254639.37	1677440.21	39° 15' 16.323 N	80° 52' 9.162 W





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Doddridge County WV
Leggett/ Pike Pad
Leggett Unit 1H
Original Wellpath

Design: As Drilled

EOW Completion Report

08 July, 2014

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Scientific Drilling

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 1H	**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 Leggett/ Pike Pad

Site Position:		**Northing:**	14,248,467.61 usft	**Latitude:**	39° 14' 15.272 N
From:	Map	**Easting:**	1,679,248.10 usft	**Longitude:**	80° 51' 46.289 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.09 °

Well Leggett Unit 1H

Well Position	**+N/-S**	0.0 usft	**Northing:**	14,248,469.44 usft	**Latitude:**	39° 14' 15.290 N
	+E/-W	0.0 usft	**Easting:**	1,679,238.07 usft	**Longitude:**	80° 51' 46.417 W
Position Uncertainty		2.0 usft	**Wellhead Elevation:**	1,008.0 usft	**Ground Level:**	990.0 usft

Wellbore Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/20/2013	-8.39	66.83	52,338

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	333.94

Survey Program Date 7/8/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
107.0	6,023.0	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
6,050.0	12,932.0	Survey #7 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	0.00
107.0	0.01	169.60	107.0	0.0	0.0	0.0	0.01
207.0	0.02	169.60	207.0	0.0	0.0	0.0	0.01
307.0	0.02	169.60	307.0	-0.1	0.0	-0.1	0.00
407.0	0.03	169.60	407.0	-0.1	0.0	-0.1	0.01
507.0	0.04	169.60	507.0	-0.2	0.0	-0.2	0.01
607.0	0.05	169.60	607.0	-0.2	0.0	-0.2	0.01
707.0	0.06	169.60	707.0	-0.3	0.1	-0.3	0.01
807.0	0.06	169.60	807.0	-0.4	0.1	-0.4	0.00
907.0	0.07	169.60	907.0	-0.6	0.1	-0.5	0.01
1,007.0	0.08	169.60	1,007.0	-0.7	0.1	-0.7	0.01

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 1H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,107.0	0.09	169.60	1,107.0	-0.8	0.2	-0.8	0.01
1,207.0	0.10	169.60	1,207.0	-1.0	0.2	-1.0	0.01
1,307.0	0.10	169.60	1,307.0	-1.2	0.2	-1.1	0.00
1,407.0	0.11	169.60	1,407.0	-1.3	0.2	-1.3	0.01
1,507.0	0.12	169.60	1,507.0	-1.5	0.3	-1.5	0.01
1,607.0	0.13	169.60	1,607.0	-1.8	0.3	-1.7	0.01
1,707.0	0.13	169.60	1,707.0	-2.0	0.4	-1.9	0.00
1,807.0	0.14	169.60	1,807.0	-2.2	0.4	-2.2	0.01
1,907.0	0.15	169.60	1,907.0	-2.5	0.5	-2.4	0.01
2,007.0	0.16	169.60	2,007.0	-2.7	0.5	-2.7	0.01
2,107.0	0.17	169.60	2,107.0	-3.0	0.6	-2.9	0.01
2,207.0	0.17	169.60	2,207.0	-3.3	0.6	-3.2	0.00
2,307.0	0.18	169.60	2,307.0	-3.6	0.7	-3.5	0.01
2,407.0	0.19	131.74	2,407.0	-3.9	0.8	-3.8	0.12
2,507.0	0.29	175.72	2,507.0	-4.2	1.0	-4.2	0.20
2,607.0	0.25	171.58	2,607.0	-4.7	1.0	-4.7	0.04
2,707.0	0.27	185.59	2,707.0	-5.2	1.0	-5.1	0.07
2,807.0	0.30	203.42	2,807.0	-5.6	0.9	-5.4	0.09
2,907.0	0.26	211.02	2,907.0	-6.1	0.7	-5.7	0.05
3,007.0	0.30	194.66	3,007.0	-6.5	0.5	-6.1	0.09
3,107.0	0.30	188.50	3,107.0	-7.0	0.4	-6.5	0.03
3,207.0	0.40	184.02	3,207.0	-7.6	0.3	-7.0	0.10
3,307.0	0.40	198.42	3,307.0	-8.3	0.2	-7.5	0.10
3,407.0	0.41	198.96	3,407.0	-9.0	0.0	-8.0	0.01
3,507.0	0.37	210.83	3,507.0	-9.6	-0.3	-8.5	0.09
3,607.0	0.42	226.14	3,607.0	-10.1	-0.8	-8.8	0.12
3,707.0	0.23	192.76	3,707.0	-10.6	-1.1	-9.0	0.26
3,807.0	0.13	119.08	3,807.0	-10.8	-1.0	-9.3	0.23
3,907.0	3.12	58.12	3,906.9	-9.4	1.4	-9.1	3.06
4,007.0	6.68	58.70	4,006.5	-5.0	8.7	-8.3	3.56
4,107.0	9.94	51.25	4,105.5	3.4	20.4	-5.9	3.43
4,207.0	12.76	58.77	4,203.5	14.6	36.6	-3.0	3.18
4,307.0	13.84	65.86	4,300.8	25.2	56.9	-2.4	1.95
4,407.0	16.60	62.59	4,397.3	36.7	80.5	-2.4	2.89
4,507.0	19.04	64.59	4,492.5	50.2	107.9	-2.3	2.52
4,607.0	21.81	68.62	4,586.2	64.0	140.0	-4.0	3.11
4,707.0	24.21	68.03	4,678.3	78.5	176.3	-7.0	2.41
4,807.0	25.69	65.25	4,768.9	95.2	215.0	-8.9	1.89
4,907.0	24.89	63.04	4,859.4	113.8	253.4	-9.1	1.24
5,007.0	24.34	66.59	4,950.3	131.6	291.1	-9.7	1.58
5,107.0	25.36	65.18	5,041.0	148.7	329.5	-11.1	1.18
5,207.0	25.63	61.05	5,131.3	168.2	367.8	-10.5	1.80
5,307.0	26.69	58.97	5,221.0	190.2	406.0	-8.5	1.40
5,407.0	26.81	58.54	5,310.3	213.6	444.5	-3.4	0.23

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 1H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,507.0	25.80	60.87	5,400.0	235.9	482.7	-0.1	1.44
5,607.0	25.25	61.88	5,490.2	256.6	520.6	1.8	0.70
5,707.0	25.66	59.82	5,580.5	277.5	558.1	4.1	0.98
5,807.0	24.95	57.81	5,670.9	299.7	594.7	8.0	1.11
5,907.0	21.22	59.27	5,762.9	320.1	628.1	11.7	3.77
6,007.0	20.36	60.96	5,856.4	337.8	658.8	14.1	1.05
6,023.0	20.56	61.82	5,871.4	340.5	663.7	14.3	2.26
6,050.0	20.37	63.28	5,896.7	344.9	672.1	14.5	2.02
6,081.0	20.55	66.16	5,925.7	349.5	681.9	14.4	3.30
6,112.0	21.92	67.24	5,954.6	353.9	692.2	13.8	4.60
6,143.0	24.04	68.85	5,983.2	358.4	703.5	13.0	7.13
6,174.0	25.64	71.38	6,011.3	362.9	715.7	11.6	6.20
6,204.0	27.04	76.88	6,038.2	366.5	728.5	9.2	9.37
6,235.0	28.17	80.00	6,065.6	369.4	742.6	5.6	5.92
6,266.0	28.64	73.02	6,092.9	372.8	756.9	2.4	10.81
6,297.0	30.15	66.30	6,119.9	378.1	771.1	0.9	11.69
6,328.0	32.04	59.93	6,146.5	385.4	785.4	1.2	12.23
6,359.0	34.24	54.79	6,172.5	394.5	799.6	3.1	11.51
6,390.0	35.94	48.99	6,197.8	405.5	813.6	6.8	12.07
6,421.0	36.59	42.74	6,222.8	418.3	826.8	12.5	12.10
6,452.0	37.01	36.46	6,247.7	432.6	838.6	20.2	12.21
6,482.0	37.75	30.38	6,271.5	447.8	848.6	29.4	12.54
6,513.0	38.40	24.93	6,295.9	464.7	857.4	40.7	11.04
6,544.0	38.90	19.45	6,320.1	482.6	864.7	53.6	11.16
6,560.0	40.11	17.14	6,332.5	492.2	867.9	60.9	11.90
Middlesex							
6,575.0	41.28	15.07	6,343.9	501.6	870.6	68.2	11.90
6,606.0	43.67	10.95	6,366.7	522.0	875.3	84.4	11.83
6,637.0	46.29	7.25	6,388.6	543.7	878.8	102.3	11.94
6,668.0	49.54	4.49	6,409.4	566.5	881.1	121.9	12.39
6,698.0	53.28	2.22	6,428.1	589.9	882.5	142.3	13.80
6,729.0	56.72	0.67	6,445.9	615.3	883.1	164.8	11.83
6,742.0	58.10	359.63	6,452.9	626.3	883.1	174.6	12.58
Burkett							
6,760.0	60.02	358.23	6,462.2	641.7	882.9	188.6	12.58
6,791.0	62.95	355.35	6,477.0	668.9	881.3	213.7	12.49
6,797.0	63.51	354.82	6,479.7	674.2	880.9	218.7	12.18
Tully							
6,822.0	65.86	352.68	6,490.4	696.7	878.4	240.0	12.18
6,853.0	69.39	350.27	6,502.2	725.0	874.1	267.8	13.47
6,868.0	71.03	349.16	6,507.2	738.9	871.6	280.9	12.96
Marcellus							
6,884.0	72.79	348.01	6,512.2	753.8	868.6	295.6	12.96
6,915.0	76.15	348.25	6,520.5	783.1	862.5	324.6	10.86
6,945.0	80.37	347.20	6,526.6	811.8	856.2	353.1	14.48

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 1H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
6,976.0	84.52	346.67	6,530.7	841.7	849.3	383.0	13.49
7,007.0	88.72	345.89	6,532.5	871.7	841.9	413.2	13.78
7,019.0	89.60	344.91	6,532.7	883.4	838.9	425.0	10.98
7,112.0	88.90	335.51	6,533.9	970.8	807.5	517.3	10.13
7,205.0	91.01	333.84	6,534.0	1,054.8	767.7	610.3	2.89
7,297.0	92.15	331.29	6,531.4	1,136.4	725.3	702.2	3.04
7,390.0	90.22	328.21	6,529.5	1,216.7	678.5	795.0	3.91
7,482.0	90.40	327.16	6,529.0	1,294.5	629.3	886.4	1.16
7,575.0	90.04	327.42	6,528.7	1,372.7	579.1	978.8	0.48
7,668.0	89.60	327.60	6,529.0	1,451.2	529.1	1,071.2	0.51
7,760.0	89.96	327.60	6,529.3	1,528.8	479.8	1,162.6	0.39
7,853.0	89.52	329.27	6,529.7	1,608.1	431.1	1,255.2	1.86
7,945.0	90.04	331.73	6,530.1	1,688.2	385.8	1,347.0	2.73
8,038.0	89.96	334.10	6,530.1	1,770.9	343.5	1,440.0	2.55
8,131.0	89.52	335.77	6,530.5	1,855.2	304.1	1,533.0	1.86
8,223.0	90.13	335.16	6,530.8	1,938.9	265.9	1,625.0	0.94
8,316.0	89.43	335.95	6,531.2	2,023.5	227.4	1,717.9	1.13
8,408.0	90.48	335.86	6,531.2	2,107.5	189.8	1,809.9	1.15
8,501.0	89.43	335.33	6,531.3	2,192.2	151.4	1,902.8	1.26
8,593.0	89.96	333.84	6,531.8	2,275.3	111.9	1,994.8	1.72
8,686.0	89.60	333.75	6,532.1	2,358.7	70.9	2,087.8	0.40
8,779.0	88.02	333.05	6,534.1	2,441.9	29.2	2,180.8	1.86
8,874.0	88.11	333.75	6,537.3	2,526.8	-13.3	2,275.7	0.74
8,968.0	90.31	333.57	6,538.6	2,611.0	-55.0	2,369.7	2.35
9,062.0	90.48	333.13	6,537.9	2,695.0	-97.1	2,463.7	0.50
9,156.0	89.43	332.69	6,538.0	2,778.7	-139.9	2,557.7	1.21
9,251.0	90.92	335.95	6,537.7	2,864.3	-181.1	2,652.7	3.77
9,346.0	91.72	335.25	6,535.5	2,950.8	-220.3	2,747.6	1.12
9,441.0	89.52	334.72	6,534.5	3,036.9	-260.5	2,842.6	2.38
9,535.0	89.43	333.75	6,535.4	3,121.5	-301.4	2,936.6	1.04
9,630.0	90.84	334.89	6,535.1	3,207.1	-342.5	3,031.6	1.91
9,723.0	90.22	333.49	6,534.3	3,290.8	-383.0	3,124.5	1.65
9,815.0	90.04	332.87	6,534.1	3,373.0	-424.5	3,216.5	0.70
9,908.0	90.13	330.94	6,533.9	3,455.0	-468.3	3,309.5	2.08
10,000.0	90.13	331.55	6,533.7	3,535.6	-512.6	3,401.4	0.66
10,093.0	89.96	330.94	6,533.6	3,617.2	-557.3	3,494.3	0.68
10,186.0	91.89	331.55	6,532.1	3,698.7	-602.0	3,587.1	2.18
10,278.0	91.28	335.07	6,529.6	3,780.8	-643.3	3,679.1	3.88
10,371.0	90.22	334.80	6,528.4	3,865.1	-682.7	3,772.1	1.18
10,463.0	90.13	337.35	6,528.1	3,949.2	-720.9	3,864.0	2.77
10,556.0	90.57	336.47	6,527.5	4,034.7	-756.5	3,956.9	1.06
10,648.0	91.01	336.91	6,526.3	4,119.2	-792.9	4,048.8	0.68
10,741.0	89.87	335.07	6,525.5	4,204.1	-830.8	4,141.7	2.33
10,833.0	90.13	334.28	6,525.5	4,287.3	-870.1	4,233.7	0.90

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	P522 Leggett 1H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 1H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
10,926.0	90.48	334.54	6,525.1	4,371.2	-910.3	4,326.7	0.47
11,018.0	90.57	334.54	6,524.2	4,454.2	-949.8	4,418.7	0.10
11,111.0	90.48	334.45	6,523.4	4,538.2	-989.9	4,511.7	0.14
11,204.0	90.13	334.45	6,522.9	4,622.1	-1,030.0	4,604.7	0.38
11,296.0	90.22	334.45	6,522.6	4,705.1	-1,069.7	4,696.6	0.10
11,389.0	90.57	334.28	6,521.9	4,788.9	-1,109.9	4,789.6	0.42
11,482.0	89.25	333.13	6,522.1	4,872.3	-1,151.1	4,882.6	1.88
11,574.0	89.34	332.87	6,523.2	4,954.3	-1,192.9	4,974.6	0.30
11,667.0	89.69	332.96	6,524.0	5,037.1	-1,235.2	5,067.6	0.39
11,759.0	90.40	333.57	6,523.9	5,119.2	-1,276.6	5,159.6	1.02
11,852.0	90.57	332.43	6,523.1	5,202.1	-1,318.8	5,252.6	1.24
11,945.0	90.48	334.54	6,522.3	5,285.3	-1,360.3	5,345.6	2.27
12,037.0	91.01	334.19	6,521.1	5,368.2	-1,400.1	5,437.6	0.69
12,130.0	89.52	333.75	6,520.7	5,451.8	-1,440.9	5,530.5	1.67
12,222.0	89.52	334.10	6,521.4	5,534.4	-1,481.4	5,622.5	0.38
12,315.0	89.77	333.94	6,522.0	5,618.0	-1,522.1	5,715.5	0.32
12,408.0	89.78	334.01	6,522.4	5,701.6	-1,562.9	5,808.5	0.08
12,500.0	90.48	333.40	6,522.2	5,784.1	-1,603.7	5,900.5	1.01
12,593.0	90.92	333.57	6,521.0	5,867.3	-1,645.2	5,993.5	0.51
12,685.0	89.78	333.84	6,520.5	5,949.8	-1,685.9	6,085.5	1.27
12,778.0	90.13	332.87	6,520.5	6,032.9	-1,727.6	6,178.5	1.11
12,870.0	90.66	332.87	6,519.9	6,114.8	-1,769.6	6,270.5	0.58
12,932.0	90.80	332.87	6,519.1	6,169.9	-1,797.9	6,332.5	0.23

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,560.0	6,332.5	492.2	867.9	Middlesex
6,742.0	6,452.9	626.3	883.1	Burkett
6,797.0	6,479.7	674.2	880.9	Tully
6,868.0	6,507.2	738.9	871.6	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/20/2014
Job End Date:	9/27/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06292-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Leggett Unit 1H
Longitude:	-80.86272500
Latitude:	39.23766400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,539
Total Base Water Volume (gal):	7,833,210
Total Base Non Water Volume:	348,869

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

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	90.20298	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	9.40501	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.08554	
			Petroleum Distillates	64742-47-8	60.00000	0.08101	
			Suspending agent (solid)	14808-60-7	3.00000	0.01308	
			Surfactant	68439-51-0	3.00000	0.00513	
HCL Acid (12.0%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.09311	
			Hydrogen Chloride	7647-01-0	18.00000	0.02224	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Water	7732-18-5	40.00000	0.02332	
			Anionic Polyacrylamide	Proprietary		0.02332	
			Petroleum Distillates	64742-47-8	22.00000	0.01877	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00292	

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			Crystalline Salt	12125-02-9	5.00000	0.00292	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor					
			Anionic Copolymer	Proprietary		0.00392	
			Ethylene Glycol	107-21-1	20.00000	0.00355	
			Water	7732-18-5	30.00000	0.00296	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00480	
			Deionized Water	7732-18-5	28.00000	0.00274	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00231	
AI-301	U.S. Well Services	Acid Corrosion Inhibitors					
			Diethylene Glycol	111-46-6	30.00000	0.00014	
			Methenamine	100-97-0	20.00000	0.00011	
			Hydrogen Chloride	7647-01-0	10.00000	0.00005	
			Polyethylene polyamine	68603-67-8	10.00000	0.00004	
			Coco amine	61791-14-8	5.00000	0.00002	

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)

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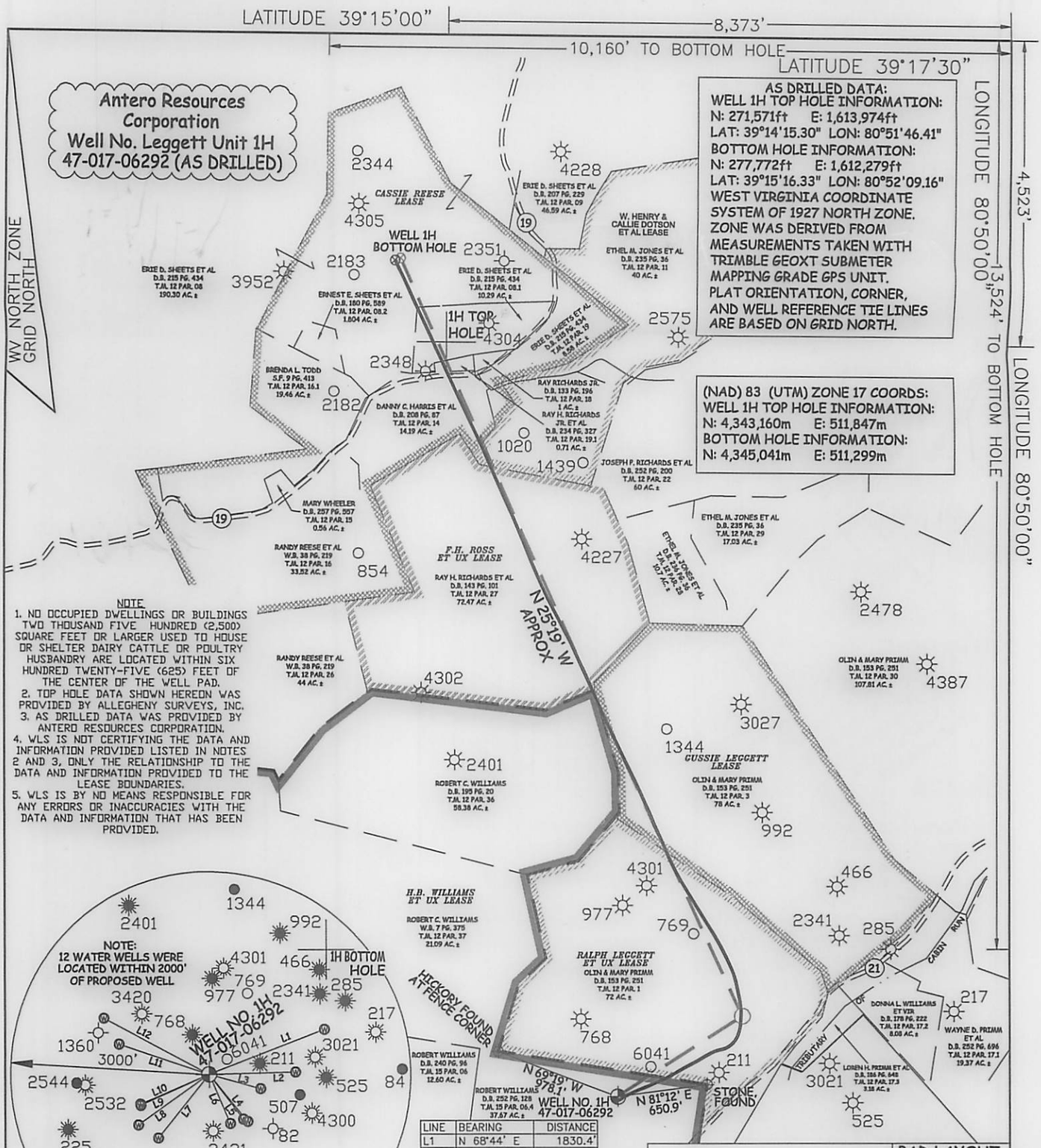

NOTE

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.

LINE	BEARING	DISTANCE
L1	N 68°44' E	1830.4'
L2	N 88°21' E	1278.9'
L3	S 74°46' E	784.9'
L4	S 39°23' E	890.2'
L5	S 37°22' E	822.3'
L6	S 22°57' E	779.0'
L7	S 39°30' W	1209.7'
L8	S 55°16' W	1299.4'
L9	S 66°18' W	1127.0'
L10	S 67°15' W	1124.0'
L11	N 71°47' W	1427.7'
L12	N 62°25' W	1788.7'

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Existing Fence
- Found monument, as noted
- Proposed Well Path
- As Drilled Well Path

JOB # 12-153WA
DRAWING # LEGGETT1HAD
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

DATE 05/29/15
OPERATOR'S WELL# LEGGETT UNIT #1H
API WELL # 47 – 017 – 06292
STATE COUNTY PERMIT

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 1,000' ORIGINAL - 990' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE OXFORD 7.5' (TOP HOLE) WEST UNION 7.5' (BOTTOM HOLE) DISTRICT CENTRAL COUNTY DODDRIDGE
SURFACE OWNER ROBERT WILLIAMS ACREAGE 37.67 ACRES +/-
OIL & GAS ROYALTY OWNER H.B. WILLIAMS ET UX; RALPH LEGGETT ET UX; GUSSIE LEGGETT; F.H. ROSS ET UX; W. HENRY & CALLIE DOTSON ET AL; CASSIE REESE LEASE ACREAGE 307 ACRES±; 72 ACRES±; 78 ACRES±; 72 ACRES±; 50.25 ACRES±; 142 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 6,519' TVD 12,932' MD

COUNTY NAME PERMIT

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

FORM WW-6

WR-35
Rev. 8/23/13

Page ___ of ___

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

API 47 - 017 - 06293 County Doddridge District Central
Quad Oxford 7.5' Pad Name Robert Williams Pad Field/Pool Name ----
Farm name Williams, Robert Well Number Leggett 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 4343159m Easting 511850m
Landing Point of Curve Northing 4343513.30m Easting 512278.16m
Bottom Hole Northing 4345134m Easting 511481m

Elevation (ft) 990' 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 8/21/2013 Date drilling commenced 12/18/2013 Date drilling ceased 6/23/2014
Date completion activities began 8/30/2014 Date completion activities ceased 11/12/2014
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 57' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1507' Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

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Reviewed by:
JK 7/24/15

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API 47- 017 - 06293 Farm name Williams, Robert Well number Leggett Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	30"	20"	40'	New	94# H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	361'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2500'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	13103'	New	20# P-110	N/A	Y
Tubing		2-3/8"	7008'		5.95# N-80	N/A	
Packer type and depth set		N/A					

Comment Details *Cement 20" conductor with 150 sacks of Class A cement. Grout conductor with 50 sacks of Class A cement.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	200 sx*	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	448 sx	15.6	1.18	251	0'	8 Hrs.
Coal							
Intermediate 1	Class A	922 sx	15.6	1.18	783	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	904 sx (Lead) 1051 sx (Tail)	13.5 Lead 15.2 Tail	1.44 Lead 1.8 Tail	2544	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 13103' MD, 6522' TVD (BHL); 6544' TVD (Deepest point drilled) Loggers TD (ft) 13057'

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6275'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Pike Unit 1H API#47-017-06289). Please reference the wireline logs submitted with Form WR-35 for Pike 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 aboce 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 - 06293 Farm name Williams, Robert Well number Leggett Unit 2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

*PLEASE SEE ATTACHED EXHIBIT 1

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)

*PLEASE SEE ATTACHED EXHIBIT 2

Please insert additional pages as applicable.

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API 47- 017 - 06293 Farm name Williams, Robert Well number Leggett Unit 2H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6489' (TOP) TVD	6971' (TOP) 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	Oil	NGL	Water	GAS MEASURED BY
	8769 mcfpd	36 bpd	--- bpd	332 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT 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_2S, ETC)
	0		0		

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Rd. City Williamsport State PA Zip 15301

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

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main Street City Bridgeport State WV Zip 26330

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

Please insert additional pages as applicable.

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Completed by Kara Quackenbush Telephone 303-357-7233
Signature [signature] Title Permit Representative Date 6/8/2015

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

API 47-017-06293 Farm Name Williams, Robert Well Number Leggett Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	30-Aug-14	12,864	13,034	60	Marcellus
2	8-Sep-14	12,662	12,832	60	Marcellus
3	8-Sep-14	12,461	12,631	60	Marcellus
4	8-Sep-14	12,259	12,429	60	Marcellus
5	8-Sep-14	12,057	12,227	60	Marcellus
6	9-Sep-14	11,856	12,026	60	Marcellus
7	9-Sep-14	11,654	11,824	60	Marcellus
8	9-Sep-14	11,452	11,622	60	Marcellus
9	10-Sep-14	11,250	11,420	60	Marcellus
10	11-Sep-14	11,049	11,219	60	Marcellus
11	11-Sep-14	10,847	11,017	60	Marcellus
12	11-Sep-14	10,645	10,815	60	Marcellus
13	11-Sep-14	10,443	10,614	60	Marcellus
14	12-Sep-14	10,242	10,412	60	Marcellus
15	12-Sep-14	10,040	10,210	60	Marcellus
16	12-Sep-14	9,838	10,008	60	Marcellus
17	12-Sep-14	9,637	9,807	60	Marcellus
18	12-Sep-14	9,435	9,605	60	Marcellus
19	13-Sep-14	9,233	9,403	60	Marcellus
20	13-Sep-14	9,031	9,202	60	Marcellus
21	16-Sep-14	8,830	9,000	60	Marcellus
22	16-Sep-14	8,628	8,798	60	Marcellus
23	17-Sep-14	9,426	8,596	60	Marcellus
24	17-Sep-14	8,225	8,395	60	Marcellus
25	17-Sep-14	8,023	8,193	60	Marcellus
26	17-Sep-14	7,821	7,991	60	Marcellus
27	17-Sep-14	7,619	7,789	60	Marcellus
28	18-Sep-14	7,418	7,588	60	Marcellus
29	18-Sep-14	7,216	7,386	60	Marcellus
30	18-Sep-14	7,014	7,184	60	Marcellus

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API 47-017-06293 Farm Name Williams, Robert Well Number Leggett Unit 2H

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	7-Sep-14	58.4	7,899	6,225	5,325	102,850	6,958	N/A
2	8-Sep-14	69.0	7,365	6,023	5,147	103,050	7,180	N/A
3	8-Sep-14	27.0	8,734	6,588	5,486	1,500	6,939	N/A
4	8-Sep-14	69.2	7,433	6,402	4,277	173,650	7,502	N/A
5	9-Sep-14	71.4	7,421	6,262	4,313	251,550	6,899	N/A
6	9-Sep-14	77.0	7,504	6,291	5,475	254,500	6,872	N/A
7	9-Sep-14	72.9	7,531	5,747	5,203	164,050	7,425	N/A
8	10-Sep-14	67.2	7,829	5,704	4,628	152,500	6,863	N/A
9	11-Sep-14	68.3	7,640	5,858	5,200	185,450	7,370	N/A
10	11-Sep-14	77.0	7,795	5,622	4,900	178,500	6,489	N/A
11	11-Sep-14	66.0	6,861	5,783	5,325	252,700	6,664	N/A
12	11-Sep-14	65.2	6,834	5,440	5,146	194,200	5,685	N/A
13	12-Sep-14	63.7	7,626	5,940	4,009	162,500	6,365	N/A
14	12-Sep-14	66.0	6,767	5,944	5,411	207,500	5,772	N/A
15	12-Sep-14	66.0	6,839	6,169	4,896	207,400	5,772	N/A
16	12-Sep-14	66.5	6,658	6,112	4,900	204,100	5,696	N/A
17	12-Sep-14	65.2	6,521	6,079	5,475	204,550	5,701	N/A
18	13-Sep-14	65.0	6,469	6,183	5,758	199,500	5,721	N/A
19	13-Sep-14	65.0	6,289	6,037	5,318	207,200	5,653	N/A
20	16-Sep-14	64.0	6,454	6,548	4,714	207,200	5,651	N/A
21	16-Sep-14	67.2	6,361	5,887	4,349	207,750	5,618	N/A
22	16-Sep-14	66.8	6,430	5,958	4,728	206,300	5,598	N/A
23	17-Sep-14	67.0	6,546	6,316	4,656	207,000	5,566	N/A
24	17-Sep-14	66.0	6,422	5,997	5,221	207,000	5,544	N/A
25	17-Sep-14	67.0	6,475	5,865	6,284	210,200	5,552	N/A
26	17-Sep-14	67.1	6,296	5,908	4,789	206,800	5,501	N/A
27	18-Sep-14	69.8	6,516	6,162	4,510	192,200	5,277	N/A
28	18-Sep-14	65.0	6,239	5,515	5,150	207,000	5,460	N/A
29	18-Sep-14	64.0	6,645	7,271	5,229	192,500	5,242	N/A
30	18-Sep-14	65.0	5,994	5,697	4,449	207,000	5,414	N/A
AVG=		**65.8**	**6,946**	**6,051**	**5,009**	**5,658,200**	**183,949**	TOTAL

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API 47-017-06293 Farm Name Williams, Robert Well Number Leggett Unit 2H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Fresh Water	57'	N/A	57'	N/A
Shale/ Sandstone	0	427	0	427
Limestone/ Sandstone	est. 427	507	est. 427	507
Shale/ Siltstone	est. 507	587	est. 507	587
Sandstone/ Trace Coal	est. 587	607	est. 587	607
Sandstone/ Siltstone	est. 607	687	est. 607	687
Sandstone/ Limestone	est. 687	787	est. 687	787
Shale/ Sandstone	est. 787	947	est. 787	947
Siltstone/ Limestone	est. 947	1327	est. 947	1327
Shale/ Trace Coal	est. 1327	1387	est. 1327	1387
Shale/ Sandstone	est. 1387	1427	est. 1387	1427
Shale/ Coal	est. 1427	1487	est. 1427	1487
Sandstone	est. 1487	1527	est. 1487	1527
Sandstone/ Trace Coal	est. 1527	1667	est. 1527	1667
Sandstone/ Siltstone	est. 1667	1907	est. 1667	1907
Sandstone/ Trace Coal	est. 1907	1988	est. 1907	1988
Big Lime	1988	2079	1988	2079
Big Injun	2079	2393	2079	2393
Gantz Sand	2393	2633	2393	2633
Fifty Foot Sandstone	2633	2680	2633	2680
Gordon	2680	3000	2680	3006
Fifth Sandstone	3000	3019	3006	3026
Bayard	3019	3416	3026	3450
Warren	3416	3778	3450	3851
Speechley	3778	4078	3851	4185
Baltown	4078	4539	4185	4697
Bradford	4539	4957	4697	5165
Benson	4957	5199	5165	5440
Alexander	5199	5367	5440	5623
Elk	5367	5847	5623	6151
Rhinestreet	5847	6144	6151	5587
Sycamore	6144	6313	5587	6688
Middlesex	6313	6433	6688	6860
Burkett	6433	6460	6860	6908
Tully	6460	6489	6908	6971
Marcellus	6489	NA	6971	NA

*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Antero Resources

Antero Resources
Leggett Unit 2H
Doddridge County WV
Northing: 14248467.61
Easting: 1679248.10
As Drilled

WELL DETAILS: Leggett Unit 2H
Ground Level: 990.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14248467.61	1679248.10	39° 14' 15.272 N	80° 51' 46.289 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Leggett Unit 2H, Grid North
Vertical (TVD) Reference: Leggett 2H 990 GL + 18 KB @ 1008.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Leggett 2H 990 GL + 18 KB @ 1008.0usft
Calculation Method: Minimum Curvature

PROJECT DETAILS: Doddridge County WV

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

Scientific Drilling

Genie Lightfoot
11:57, June 23 2014

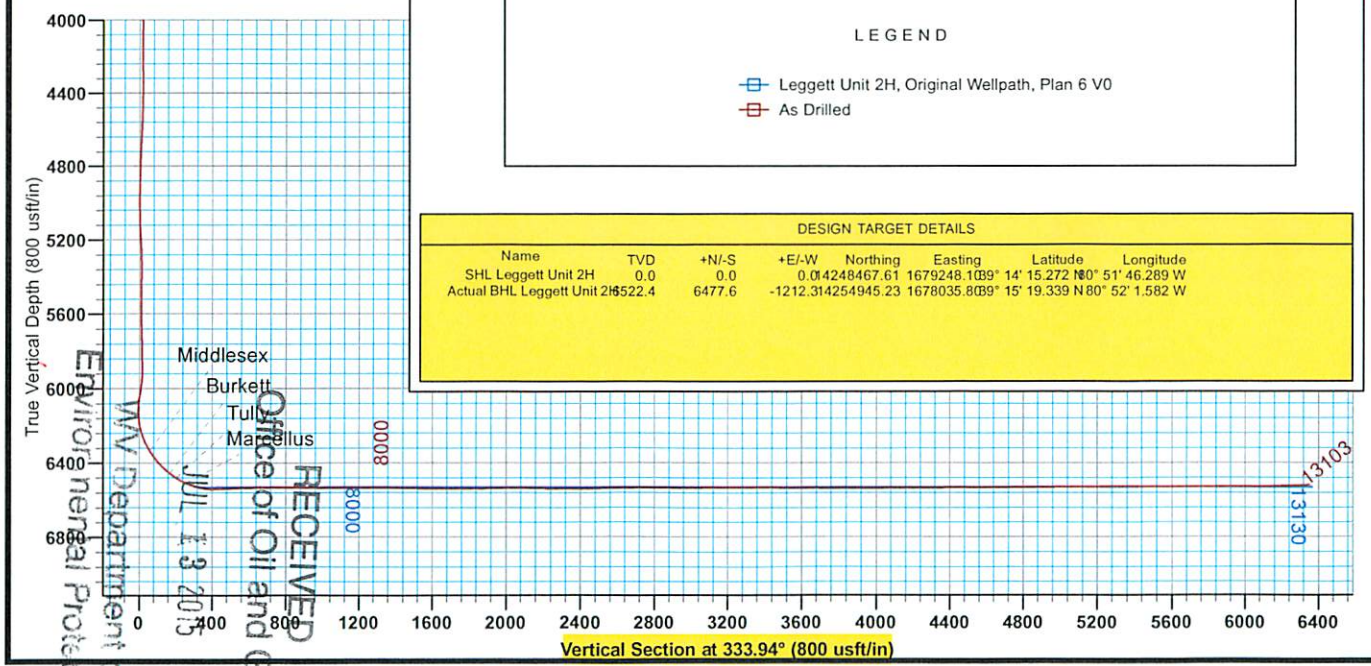
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

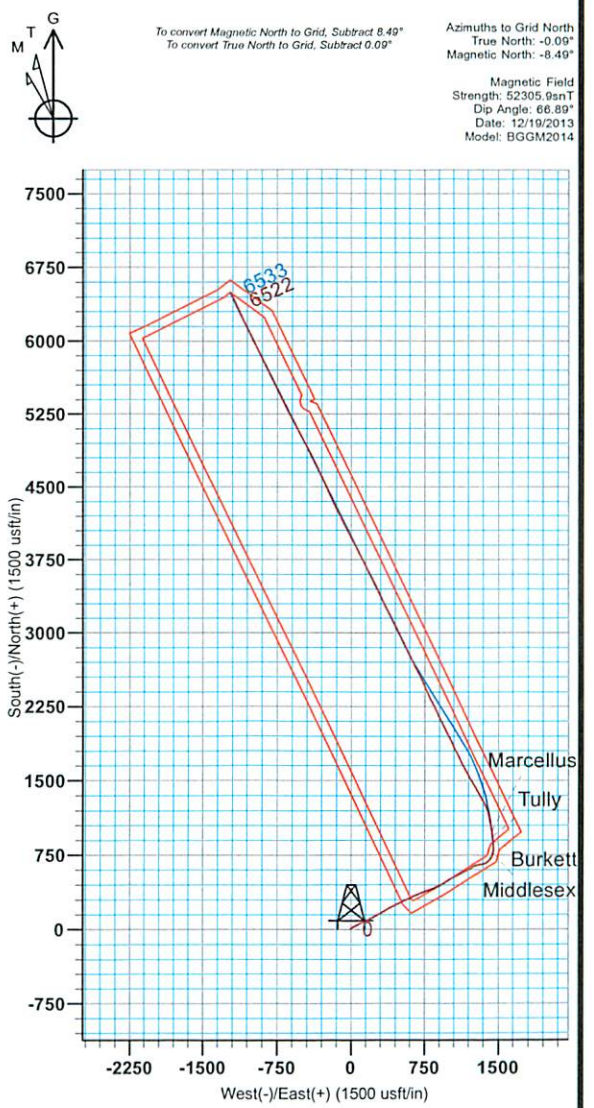
LEGEND

Leggett Unit 2H, Original Wellpath, Plan 6 V0
As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Leggett Unit 2H	0.0	0.0	0.0	14248467.61	1679248.10	39° 14' 15.272 N	80° 51' 46.289 W
Actual BHL Leggett Unit 2H	6522.4	6477.6	-1212.31	14254945.23	1678035.80	39° 15' 19.339 N	80° 52' 1.582 W





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Antero Resources

Doddridge County WV
Leggett/ Pike Pad
Leggett Unit 2H
Original Wellpath

Design: As Drilled

EOW Completion Report

23 June, 2014

Scientific Drilling

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Leggett 2H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	Leggett 2H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett 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 Leggett/ Pike Pad

Site Position:		**Northing:**	14,248,467.61 usft	**Latitude:**	39° 14' 15.272 N
From:	Map	**Easting:**	1,679,248.10 usft	**Longitude:**	80° 51' 46.289 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.09 °

Well Leggett Unit 2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	14,248,467.61 usft	**Latitude:**	39° 14' 15.272 N
	+E/-W	0.0 usft	**Easting:**	1,679,248.10 usft	**Longitude:**	80° 51' 46.289 W
Position Uncertainty		2.0 usft	**Wellhead Elevation:**	1,008.0 usft	**Ground Level:**	990.0 usft

Wellbore Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	12/19/2013	-8.40	66.89	52,306

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	333.94

Survey Program **Date** 6/23/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
107.0	5,579.5	Survey #3 Def Gyro to KOP (Original Well	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
5,627.0	13,103.0	Survey #4 MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
107.0	0.23	326.38	107.0	0.2	-0.1	0.2	0.21
207.0	0.29	345.81	207.0	0.6	-0.3	0.7	0.11
307.0	0.25	326.38	307.0	1.0	-0.5	1.1	0.10
407.0	0.35	323.31	407.0	1.4	-0.8	1.6	0.10
507.0	0.23	319.05	507.0	1.8	-1.1	2.1	0.12
607.0	0.21	314.35	607.0	2.1	-1.4	2.5	0.03
707.0	0.27	296.19	707.0	2.4	-1.7	2.9	0.10
807.0	0.27	286.11	807.0	2.5	-2.1	3.2	0.05
907.0	0.19	316.27	907.0	2.7	-2.5	3.5	0.14
1,007.0	0.27	330.06	1,007.0	3.0	-2.7	3.9	0.10

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Leggett 2H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	Leggett 2H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,107.0	0.25	355.45	1,107.0	3.5	-2.8	4.4	0.12
1,207.0	0.27	24.54	1,207.0	3.9	-2.8	4.7	0.13
1,307.0	0.21	24.69	1,307.0	4.3	-2.6	5.0	0.06
1,407.0	0.12	47.10	1,407.0	4.5	-2.4	5.1	0.11
1,507.0	0.14	42.56	1,507.0	4.7	-2.3	5.2	0.02
1,607.0	0.20	62.77	1,607.0	4.8	-2.0	5.2	0.08
1,707.0	0.31	41.69	1,707.0	5.1	-1.7	5.3	0.14
1,807.0	0.02	344.78	1,807.0	5.3	-1.5	5.5	0.30
1,907.0	0.15	67.00	1,907.0	5.4	-1.4	5.5	0.15
2,007.0	0.32	29.71	2,007.0	5.7	-1.2	5.6	0.22
2,107.0	0.07	47.01	2,107.0	6.0	-1.0	5.8	0.25
2,207.0	0.13	64.53	2,207.0	6.1	-0.8	5.8	0.07
2,307.0	0.06	121.08	2,307.0	6.1	-0.7	5.8	0.11
2,407.0	0.08	94.28	2,407.0	6.1	-0.6	5.7	0.04
2,507.0	0.22	185.52	2,507.0	5.9	-0.5	5.5	0.24
2,607.0	1.07	55.01	2,607.0	6.2	0.2	5.5	1.22
2,707.0	5.80	54.40	2,706.8	9.7	5.1	6.5	4.73
2,807.0	9.63	50.85	2,805.8	17.9	15.7	9.2	3.86
2,907.0	12.33	59.65	2,904.0	28.6	31.4	11.9	3.17
3,007.0	15.35	61.80	3,001.1	40.2	52.3	13.2	3.06
3,107.0	17.52	67.55	3,097.0	52.2	77.9	12.7	2.71
3,207.0	19.00	71.63	3,192.0	63.1	107.2	9.6	1.95
3,307.0	21.88	62.58	3,285.7	76.8	139.2	7.9	4.27
3,407.0	23.98	62.76	3,377.8	94.7	173.9	8.7	2.10
3,507.0	23.55	64.21	3,469.3	112.7	209.9	9.0	0.73
3,607.0	25.37	59.78	3,560.3	132.2	246.4	10.5	2.58
3,707.0	27.02	62.10	3,650.1	153.6	285.0	12.8	1.94
3,807.0	26.38	61.75	3,739.4	174.8	324.7	14.4	0.66
3,907.0	25.19	60.84	3,829.4	195.6	362.8	16.4	1.25
4,007.0	25.58	61.09	3,919.8	216.5	400.3	18.6	0.40
4,107.0	26.82	64.96	4,009.5	236.4	439.6	19.3	2.11
4,207.0	25.84	64.11	4,099.1	255.5	479.7	18.8	1.05
4,307.0	25.33	62.83	4,189.3	274.8	518.3	19.1	0.75
4,407.0	26.13	63.18	4,279.4	294.5	557.0	19.9	0.81
4,507.0	25.15	63.61	4,369.6	313.9	595.7	20.3	1.00
4,607.0	25.82	66.38	4,459.9	332.0	634.7	19.5	1.37
4,707.0	27.06	68.64	4,549.4	349.1	675.8	16.7	1.60
4,807.0	27.47	69.30	4,638.3	365.5	718.6	12.7	0.51
4,907.0	26.16	68.75	4,727.5	381.6	760.7	8.7	1.33
5,007.0	25.93	68.11	4,817.4	397.8	801.5	5.2	0.36
5,107.0	27.15	66.97	4,906.8	414.9	842.8	2.0	1.32
5,207.0	26.47	65.34	4,996.1	433.1	881.1	0.7	1.00
5,307.0	26.28	60.05	5,085.7	453.4	923.5	1.6	2.36
5,407.0	28.27	57.20	5,174.6	477.3	962.6	5.9	2.38

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well Leggett Unit 2H
Project:	Doddridge County WV	**TVD Reference:**	Leggett 2H 990 GL + 18 KB @ 1008.0usft
Site:	Leggett/ Pike Pad	**MD Reference:**	Leggett 2H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,507.0	26.29	59.30	5,263.4	501.5	1,001.6	10.5	2.20
5,579.5	25.10	63.03	5,328.8	516.6	1,029.1	12.0	2.77
5,627.0	24.46	64.58	5,371.9	525.4	1,046.9	12.1	1.92
5,719.0	26.00	64.09	5,455.1	542.4	1,082.3	11.8	1.69
5,812.0	25.34	64.08	5,538.9	560.0	1,118.5	11.7	0.71
5,905.0	23.53	62.91	5,623.6	577.2	1,152.9	12.0	2.01
5,997.0	24.59	63.05	5,707.6	594.2	1,186.4	12.6	1.15
6,090.0	23.47	61.49	5,792.6	611.8	1,219.9	13.7	1.38
6,183.0	25.17	62.36	5,877.3	629.8	1,253.7	15.0	1.87
6,213.0	25.17	61.49	5,904.5	635.8	1,264.9	15.5	1.23
6,244.0	25.22	65.60	5,932.5	641.7	1,276.7	15.6	5.65
6,275.0	25.50	72.95	5,960.5	646.4	1,289.1	14.3	10.19
6,306.0	27.31	78.85	5,988.3	649.7	1,302.5	11.5	10.28
6,337.0	29.56	82.00	6,015.6	652.2	1,317.0	7.3	8.72
6,368.0	31.12	83.98	6,042.3	654.1	1,332.6	2.2	5.98
6,399.0	28.40	78.16	6,069.2	656.4	1,347.8	-2.4	12.79
6,429.0	28.38	70.83	6,095.6	660.2	1,361.5	-5.0	11.61
6,460.0	28.49	64.01	6,122.9	665.9	1,375.1	-5.9	10.48
6,491.0	29.05	55.66	6,150.1	673.4	1,388.0	-4.8	13.08
6,522.0	28.87	48.41	6,177.2	682.6	1,399.8	-1.7	11.33
6,553.0	29.29	41.61	6,204.3	693.2	1,410.4	3.1	10.74
6,584.0	30.18	33.88	6,231.2	705.4	1,419.8	9.9	12.69
6,615.0	31.85	27.91	6,257.8	719.1	1,428.0	18.6	11.29
6,646.0	34.32	23.74	6,283.8	734.3	1,435.3	29.1	10.83
6,676.0	36.71	18.64	6,308.2	750.6	1,441.6	40.9	12.68
6,707.0	37.93	12.39	6,332.9	768.7	1,446.6	55.0	12.84
6,711.0	38.13	11.64	6,336.0	771.1	1,447.1	56.9	12.63
Middlesex							
6,738.0	39.62	6.75	6,357.0	787.8	1,449.8	70.8	12.63
6,769.0	42.64	2.63	6,380.4	808.1	1,451.5	88.3	13.09
6,800.0	45.24	359.12	6,402.7	829.6	1,451.8	107.5	11.49
6,831.0	48.03	356.19	6,424.0	852.1	1,450.8	128.1	11.32
6,862.0	51.66	354.34	6,444.0	875.7	1,448.9	150.2	12.57
6,883.0	53.76	352.80	6,456.7	892.3	1,447.0	165.9	11.58
Burkett							
6,893.0	54.77	352.10	6,462.6	900.4	1,445.9	173.6	11.58
6,923.0	58.47	352.80	6,479.1	925.2	1,442.6	197.4	12.49
6,931.0	59.38	352.74	6,483.2	932.0	1,441.8	203.8	11.34
Tully							
6,954.0	61.98	352.58	6,494.5	951.9	1,439.2	222.8	11.34
6,985.0	66.04	352.23	6,508.0	979.5	1,435.5	249.3	13.14
6,994.0	67.06	352.18	6,511.6	987.7	1,434.4	257.1	11.33
Marcellus							
7,016.0	69.55	352.06	6,519.7	1,007.9	1,431.6	276.5	11.33
7,047.0	73.58	352.30	6,529.5	1,037.0	1,427.6	304.4	13.02

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Site:	Leggett/ Pike Pad	**MD Reference:**	Leggett 2H 990 GL + 18 KB @ 1008.0usft
Well:	Leggett Unit 2H	**North Reference:**	Grid
Wellbore:	Original Wellpath	**Survey Calculation Method:**	Minimum Curvature
Design:	As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,078.0	78.91	349.52	6,536.9	1,066.8	1,422.9	333.2	19.27
7,113.0	84.42	349.57	6,542.0	1,100.8	1,416.6	366.6	15.74
7,144.0	89.96	348.60	6,543.5	1,131.2	1,410.7	396.4	18.14
7,175.0	91.27	345.44	6,543.2	1,161.4	1,403.8	426.6	11.03
7,206.0	91.80	341.66	6,542.3	1,191.1	1,395.0	457.2	12.31
7,299.0	92.59	332.78	6,538.8	1,276.7	1,359.0	549.9	9.58
7,391.0	91.36	330.93	6,535.6	1,357.8	1,315.7	641.7	2.41
7,484.0	90.40	328.56	6,534.2	1,438.1	1,268.8	734.5	2.75
7,577.0	89.08	330.67	6,534.6	1,518.3	1,221.8	827.2	2.68
7,669.0	89.25	330.14	6,535.9	1,598.3	1,176.3	919.0	0.60
7,762.0	89.08	331.02	6,537.3	1,679.3	1,130.7	1,011.9	0.96
7,854.0	89.78	334.89	6,538.2	1,761.2	1,088.9	1,103.8	4.27
7,947.0	90.31	332.95	6,538.1	1,844.7	1,048.0	1,196.8	2.16
8,040.0	89.66	334.68	6,538.2	1,928.2	1,006.9	1,289.8	1.99
8,132.0	90.40	333.66	6,538.1	2,011.0	966.8	1,381.8	1.37
8,225.0	88.99	333.22	6,538.6	2,094.2	925.3	1,474.8	1.59
8,318.0	89.25	333.39	6,540.0	2,177.3	883.5	1,567.8	0.33
8,411.0	89.78	333.75	6,540.8	2,260.5	842.1	1,660.8	0.69
8,503.0	90.04	334.62	6,541.0	2,343.4	802.0	1,752.8	0.99
8,596.0	90.31	335.77	6,540.7	2,427.8	763.0	1,845.7	1.27
8,689.0	91.01	336.29	6,539.6	2,512.7	725.2	1,938.7	0.94
8,781.0	90.22	333.13	6,538.6	2,595.9	685.9	2,030.7	3.54
8,874.0	89.16	333.83	6,539.1	2,679.1	644.4	2,123.6	1.37
8,967.0	89.34	334.01	6,540.3	2,762.6	603.5	2,216.6	0.27
9,059.0	89.87	333.31	6,541.0	2,845.1	562.7	2,308.6	0.95
9,152.0	90.31	333.22	6,540.8	2,928.2	520.9	2,401.6	0.48
9,245.0	90.57	333.31	6,540.1	3,011.2	479.0	2,494.6	0.30
9,337.0	91.19	333.22	6,538.7	3,093.4	437.7	2,586.6	0.68
9,430.0	89.52	334.71	6,538.1	3,176.9	396.8	2,679.6	2.41
9,523.0	89.73	334.48	6,538.7	3,260.9	357.0	2,772.6	0.33
9,615.0	89.87	334.62	6,539.1	3,344.0	317.4	2,864.6	0.22
9,708.0	90.04	334.10	6,539.1	3,427.8	277.2	2,957.6	0.59
9,801.0	90.75	333.48	6,538.5	3,511.3	236.1	3,050.6	1.01
9,893.0	91.01	333.31	6,537.1	3,593.5	194.9	3,142.6	0.34
9,986.0	91.01	333.22	6,535.4	3,676.6	153.1	3,235.5	0.10
10,080.0	89.16	333.66	6,535.3	3,760.6	111.0	3,329.5	2.02
10,175.0	88.99	333.04	6,536.8	3,845.5	68.4	3,424.5	0.68
10,269.0	89.43	332.50	6,538.1	3,929.1	25.4	3,518.5	0.74
10,364.0	89.87	332.78	6,538.7	4,013.5	-18.2	3,613.5	0.55
10,458.0	89.43	332.87	6,539.3	4,097.1	-61.2	3,707.4	0.48
10,552.0	89.96	331.72	6,539.8	4,180.3	-104.9	3,801.4	1.35
10,647.0	89.96	334.10	6,539.9	4,264.9	-148.1	3,896.4	2.51
10,741.0	90.40	336.29	6,539.6	4,350.2	-187.5	3,990.3	2.38
10,836.0	90.84	336.38	6,538.5	4,437.2	-225.7	4,085.3	0.47

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Survey

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10,931.0	90.92	336.91	6,537.1	4,524.4	-263.3	4,180.1	0.56
11,025.0	89.96	334.10	6,536.3	4,610.0	-302.3	4,274.1	3.16
11,120.0	90.75	334.45	6,535.8	4,695.5	-343.5	4,369.1	0.91
11,212.0	89.34	333.75	6,535.7	4,778.3	-383.7	4,461.1	1.71
11,305.0	89.87	333.92	6,536.3	4,861.8	-424.7	4,554.1	0.60
11,398.0	90.57	332.78	6,536.0	4,944.9	-466.4	4,647.1	1.44
11,490.0	91.36	332.95	6,534.4	5,026.7	-508.4	4,739.0	0.88
11,583.0	89.69	332.60	6,533.6	5,109.4	-550.9	4,832.0	1.83
11,676.0	90.04	332.87	6,533.8	5,192.1	-593.5	4,925.0	0.48
11,768.0	90.75	332.69	6,533.2	5,273.9	-635.6	5,017.0	0.80
11,861.0	90.57	335.15	6,532.1	5,357.4	-676.5	5,110.0	2.65
11,953.0	90.84	334.71	6,531.0	5,440.8	-715.5	5,201.9	0.56
12,046.0	89.36	334.57	6,530.8	5,524.8	-755.3	5,294.9	1.60
12,139.0	89.60	334.27	6,531.6	5,608.7	-795.5	5,387.9	0.41
12,231.0	89.60	334.27	6,532.3	5,691.5	-835.4	5,479.9	0.00
12,324.0	89.96	333.66	6,532.6	5,775.1	-876.2	5,572.9	0.76
12,417.0	90.22	333.13	6,532.5	5,858.3	-917.9	5,665.9	0.63
12,509.0	90.66	333.66	6,531.8	5,940.5	-959.1	5,757.9	0.75
12,602.0	91.01	333.57	6,530.4	6,023.8	-1,000.4	5,850.9	0.39
12,695.0	89.87	334.54	6,529.7	6,107.4	-1,041.1	5,943.9	1.61
12,787.0	89.87	335.15	6,529.9	6,190.7	-1,080.2	6,035.9	0.66
12,880.0	90.48	335.50	6,529.6	6,275.2	-1,119.0	6,128.8	0.76
12,972.0	91.89	335.24	6,527.7	6,358.8	-1,157.3	6,220.8	1.56
13,046.0	92.51	335.15	6,524.9	6,426.0	-1,188.4	6,294.7	0.85
13,103.0	92.51	335.15	6,522.4	6,477.6	-1,212.3	6,351.7	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,711.0	6,336.0	771.1	1,447.1	Middlesex
6,883.0	6,456.7	892.3	1,447.0	Burkett
6,931.0	6,483.2	932.0	1,441.8	Tully
6,994.0	6,511.6	987.7	1,434.4	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/7/2014
Job End Date:	9/18/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06293-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Leggett Unit 2H
Longitude:	-80.86269200
Latitude:	39.23765600
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,544
Total Base Water Volume (gal):	7,725,858
Total Base Non Water Volume:	393,958

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

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	91.52630	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	8.03732	
EGC-45	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.09068	
			Petroleum Distillates	64742-47-8	60.00000	0.08588	
			Suspending agent (solid)	14808-60-7	3.00000	0.01387	
			Surfactant	68439-51-0	3.00000	0.00544	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.10097	
			Hydrogen Chloride	7647-01-0	18.00000	0.02412	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			Anionic Polyacrylamide	Proprietary		0.03074	
			Water	7732-18-5	40.00000	0.03074	
			Petroleum Distillates	64742-47-8	22.00000	0.02474	
			Crystalline Salt	12125-02-9	5.00000	0.00384	

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			Ethoxylated alcohol blend	Proprietary	5.00000	0.00384	
SI-1000	U.S. Well Services, LLC	Scale Inhibitor					
			Anionic Copolymer	Proprietary		0.00412	
			Ethylene Glycol	107-21-1	20.00000	0.00372	
			Water	7732-18-5	30.00000	0.00311	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00487	
			Deionized Water	7732-18-5	28.00000	0.00278	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00232	
AI-300	U.S. Well Services, LLC	Acid Corrosion Inhibitors					
			Ethylene Glycol	107-21-1	31.00000	0.00026	
			N,N-Dimethylformamide	68-12-2	15.00000	0.00008	
			Cinnamaldehyde	104-55-2	5.00000	0.00007	
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	13.00000	0.00007	
			2-Butoxyethanol	111-76-2	7.00000	0.00006	
			Water	7732-18-5	20.00000	0.00002	
			Ethoxylated Nonylphenol	68412-54-4	5.00000	0.00002	
			Triethyl Phosphate	78-40-0	3.00000	0.00001	
			Isopropyl Alcohol	67-63-0	3.00000	0.00001	
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)

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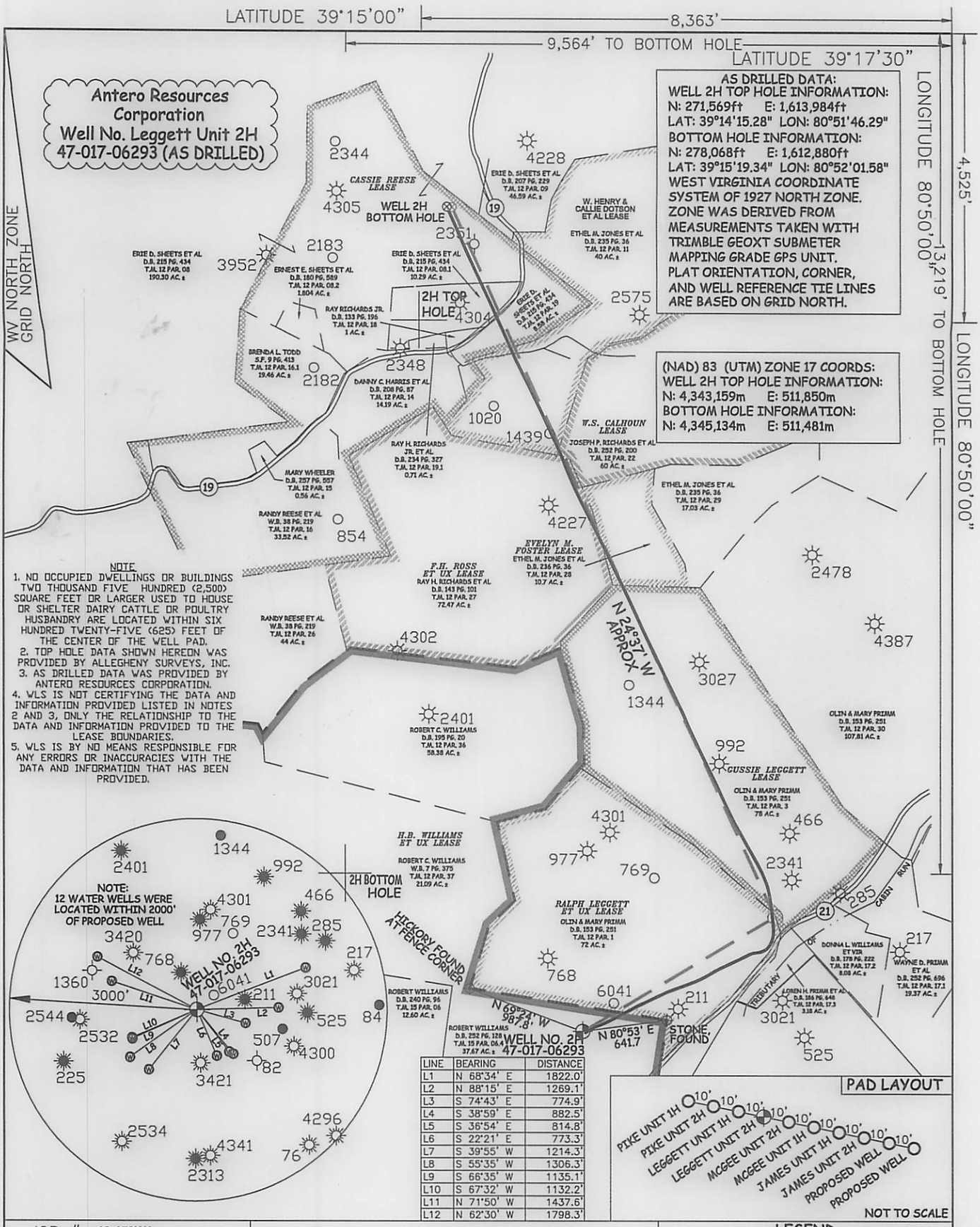

LINE	BEARING	DISTANCE
L1	N 68°34' E	1822.0'
L2	N 88°15' E	1269.1'
L3	S 74°43' E	774.9'
L4	S 38°59' E	882.5'
L5	S 36°54' E	814.8'
L6	S 22°21' E	773.3'
L7	S 39°55' W	1214.3'
L8	S 55°35' W	1306.3'
L9	S 66°35' W	1135.1'
L10	S 67°32' W	1132.2'
L11	N 71°50' W	1437.6'
L12	N 62°30' W	1798.3'

JOB # 12-153WA
DRAWING # LEGGETT2HAD
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 +/-
- 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

DATE 05/29/15
OPERATOR'S WELL# LEGGETT UNIT #2H
API WELL # 47 – 017 – 06293
STATE COUNTY PERMIT

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION: ELEVATION 1,000' ORIGINAL - 990' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE OXFORD 7.5' (TOP HOLE) WEST UNION 7.5' (BOTTOM HOLE) DISTRICT CENTRAL COUNTY DODDRIDGE
SURFACE OWNER ROBERT WILLIAMS ACREAGE 37.67 ACRES +/-
OIL & GAS ROYALTY OWNER H.B. WILLIAMS ET UX; RALPH LEGGETT ET UX; GUSSIE LEGGETT; W.S. CALHOUN; EVELYN M. FOSTER; F.H. ROSS ET UX; W. HENRY & CALLIE DOTSON ET AL; CASSIE REESE LEASE ACREAGE 307 ACRES±; 72 ACRES±; 78 ACRES±; 63 ACRES±; 10.7 ACRES±; 72 ACRES±; 50.25 ACRES±; 142 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 6,522' TVD 13,103' 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

COUNTY NAME PERMIT

FORM WW-6

WR-35
Rev. 8/23/13

Page ___ of ___

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

API 47 - 017 - 06397 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name Chestnut Pad Field/Pool Name ----------
Farm name Trustee Chestnut Grove Church Well Number McMillan Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street 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	4,357,130m	Easting	524,019m
Landing Point of Curve	Northing	4,357,081.38m	Easting	524,287.16m
Bottom Hole	Northing	4,354,382m	Easting	525,379m

Elevation (ft) 1,115' 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 12/30/2013 Date drilling commenced 03/14/2014 Date drilling ceased 06/18/2014
Date completion activities began 08/02/2014 Date completion activities ceased 02/17/2015
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 67', 122' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 900'; 1,143' Void(s) encountered (Y/N) depths None
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) No

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Reviewed by:
JK 7/24/15

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Rev. 8/23/13

API 47- 017 - 06397 Farm name Trustee Chestnut Grove Church Well number McMillan Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	New	133#; J-55	N/A	Yes
Surface	17 1/2"	13 3/8"	363'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,518'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	17,044'	New	23#; P-110	N/A	Yes
Tubing		2 3/8"	7,207'		4.7#; N-80	N/A	
Packer type and depth set		N/A					

Comment Details Set cement plug from 5,700' - 6,200' with 260 sx of Class H cement.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	100 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	430 sx	15.6	1.18	252	0'	8 Hrs.
Coal							
Intermediate 1	Class A	987 sx	15.6	1.18	789	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,132 sx (Lead); 1,505 sx (Tail)	14.5 (Lead); 15.2 (Tail)	1.3 (Lead); 1.86 (Tail)	3,442	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17,044' MD; 7,030' TVD (BHL & Deepest Point Drilled) Loggers TD (ft) 16,999'
Deepest formation penetrated Marcellus Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 6,388'

**This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Hoskinson Unit 2H, API #47-017-06400. Please reference the wireline logs submitted with Form WR-35 for the Hoskinson Unit 2H 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 - 06397 Farm name Trustee Chestnut Grove Church Well number McMillan Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

* PLEASE SEE ATTACHED EXHIBIT 1

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)

* PLEASE SEE ATTACHED EXHIBIT 2

Please insert additional pages as applicable.

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API 47- 017 - 06397 Farm name Trustee Chestnut Grove Church Well number McMillan Unit 1H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6,945' (top)	TVD	7,210' (top)	MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 3,550 psi Bottom Hole ---------- psi DURATION OF TEST ---------- hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	3,866 mcfpd	5 bpd	---------- bpd	2 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITYAND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

*** PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling, LLC
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

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

Stimulating Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Megan Darling Telephone 303-357-7230
Signature Megan C. Darling Title Permitting Agent Date 07/10/2015

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

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API 47-017-06397 Farm Name Trustees Chestnut Grove Church Well Number McMillan Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2-Aug-14	16,782	16,949	60	Marcellus
2	30-Sep-14	16,583	16,751	60	Marcellus
3	1-Oct-14	16,385	16,552	60	Marcellus
4	1-Oct-14	16,186	16,354	60	Marcellus
5	1-Oct-14	15,988	16,155	60	Marcellus
6	2-Oct-14	15,789	15,957	60	Marcellus
7	2-Oct-14	15,591	15,758	60	Marcellus
8	3-Oct-14	15,392	15,560	60	Marcellus
9	3-Oct-14	15,194	15,361	60	Marcellus
10	4-Oct-14	14,995	15,163	60	Marcellus
11	4-Oct-14	14,797	14,964	60	Marcellus
12	4-Oct-14	14,598	14,766	60	Marcellus
13	4-Oct-14	14,400	14,567	60	Marcellus
14	5-Oct-14	14,201	14,369	60	Marcellus
15	5-Oct-14	14,003	14,170	60	Marcellus
16	5-Oct-14	13,805	13,972	60	Marcellus
17	6-Oct-14	13,606	13,773	60	Marcellus
18	6-Oct-14	13,408	13,575	60	Marcellus
19	6-Oct-14	13,209	13,376	60	Marcellus
20	6-Oct-14	13,011	13,178	60	Marcellus
21	7-Oct-14	12,812	12,980	60	Marcellus
22	7-Oct-14	12,614	12,781	60	Marcellus
23	7-Oct-14	12,415	12,583	60	Marcellus
24	7-Oct-14	12,217	12,384	60	Marcellus
25	8-Oct-14	12,018	12,186	60	Marcellus
26	8-Oct-14	11,820	11,987	60	Marcellus
27	8-Oct-14	11,621	11,789	60	Marcellus
28	8-Oct-14	11,423	11,590	60	Marcellus
29	9-Oct-14	11,224	11,392	60	Marcellus
30	9-Oct-14	11,026	11,193	60	Marcellus
31	9-Oct-14	10,827	10,995	60	Marcellus
32	9-Oct-14	10,629	10,796	60	Marcellus
33	10-Oct-14	10,430	10,598	60	Marcellus
34	10-Oct-14	10,232	10,399	60	Marcellus
35	10-Oct-14	10,033	10,201	60	Marcellus
36	10-Oct-14	9,835	10,002	60	Marcellus
37	11-Oct-14	9,636	9,804	60	Marcellus
38	11-Oct-14	9,438	9,605	60	Marcellus
39	11-Oct-14	9,239	9,407	60	Marcellus
40	11-Oct-14	9,041	9,208	60	Marcellus
41	12-Oct-14	8,842	9,010	60	Marcellus
42	12-Oct-14	8,644	8,811	60	Marcellus
43	12-Oct-14	8,446	8,613	60	Marcellus
44	13-Oct-14	8,247	8,414	60	Marcellus
45	14-Oct-14	8,049	8,216	60	Marcellus
46	14-Oct-14	7,850	8,017	60	Marcellus
47	14-Oct-14	7,652	7,819	60	Marcellus
48	15-Oct-14	7,453	7,621	60	Marcellus
49	15-Oct-14	7,255	7,422	60	Marcellus

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API 47-017-06397 Farm Name Trustees Chestnut Grove Church Well Number McMillan Unit 1H

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	30-Sep-14	72.0	7,650	0	5,003	232,539	6,862	N/A
2	30-Sep-14	73.0	7,406	5,708	5,495	177,048	7,418	N/A
3	1-Oct-14	77.0	7,675	5,771	4,733	217,920	6,983	N/A
4	1-Oct-14	75.0	7,499	5,931	5,139	240,669	6,810	N/A
5	1-Oct-14	78.0	7,652	5,871	4,974	233,118	6,788	N/A
6	2-Oct-14	76.0	7,414	5,936	4,808	250,042	6,902	N/A
7	2-Oct-14	79.0	7,198	5,344	5,043	246,041	6,820	N/A
8	3-Oct-14	79.0	7,419	5,711	5,192	180,885	7,273	N/A
9	3-Oct-14	80.0	7,432	5,705	5,400	227,927	6,697	N/A
10	4-Oct-14	82.0	7,549	5,197	5,024	234,848	6,648	N/A
11	4-Oct-14	83.0	7,227	5,505	4,832	237,385	6,592	N/A
12	4-Oct-14	80.0	7,076	5,571	5,048	233,174	6,598	N/A
13	4-Oct-14	82.0	7,169	5,704	4,682	237,094	6,585	N/A
14	5-Oct-14	83.0	7,230	5,483	5,259	236,103	6,498	N/A
15	5-Oct-14	79.0	7,097	5,544	5,334	238,265	6,501	N/A
16	5-Oct-14	81.0	6,928	5,359	5,511	241,211	6,629	N/A
17	6-Oct-14	83.0	7,171	5,639	5,356	235,228	6,463	N/A
18	6-Oct-14	78.0	7,246	5,405	5,795	235,355	6,466	N/A
19	6-Oct-14	79.0	7,319	5,856	5,553	227,500	6,406	N/A
20	6-Oct-14	83.0	7,287	5,845	4,887	235,520	6,370	N/A
21	7-Oct-14	82.0	7,016	5,466	5,205	234,715	6,379	N/A
22	7-Oct-14	84.0	7,020	5,797	5,421	234,413	6,321	N/A
23	7-Oct-14	80.0	6,821	5,708	5,597	232,290	6,285	N/A
24	7-Oct-14	80.0	6,821	5,703	5,387	222,773	6,242	N/A
25	8-Oct-14	81.0	7,406	5,718	5,047	232,915	6,430	N/A
26	8-Oct-14	79.0	6,926	5,790	5,224	234,042	6,267	N/A
27	8-Oct-14	79.0	6,943	5,757	5,729	211,271	6,263	N/A
28	8-Oct-14	83.0	6,945	5,700	5,356	233,482	6,297	N/A
29	9-Oct-14	80.0	7,417	5,666	5,386	232,547	6,208	N/A
30	9-Oct-14	79.0	6,909	5,734	5,641	235,793	6,198	N/A
31	9-Oct-14	80.0	6,914	5,659	5,597	242,776	6,124	N/A
32	9-Oct-14	80.0	6,909	5,686	5,509	230,547	6,123	N/A
33	10-Oct-14	83.0	7,127	5,544	5,154	231,770	6,141	N/A
34	10-Oct-14	79.0	7,013	5,423	4,767	233,766	6,164	N/A
35	10-Oct-14	80.0	6,890	5,767	4,657	233,334	6,040	N/A
36	10-Oct-14	80.0	6,890	5,504	5,317	229,951	6,136	N/A
37	11-Oct-14	81.0	6,888	5,526	4,904	231,198	6,165	N/A
38	11-Oct-14	79.0	6,795	5,568	4,314	232,414	6,024	N/A
39	11-Oct-14	79.0	6,841	6,044	4,981	233,472	6,060	N/A
40	11-Oct-14	83.0	6,950	5,835	4,857	232,054	5,911	N/A
41	12-Oct-14	83.0	6,950	5,861	5,653	199,769	6,358	N/A
42	12-Oct-14	83.0	6,950	5,727	5,420	233,851	5,860	N/A
43	12-Oct-14	81.0	7,110	5,750	5,270	233,400	5,941	N/A
44	13-Oct-14	78.0	6,912	5,513	4,928	232,967	6,093	N/A
45	14-Oct-14	71.0	6,690	5,650	5,603	169,260	5,924	N/A
46	14-Oct-14	72.0	6,932	5,602	5,470	201,135	5,764	N/A
47	14-Oct-14	72.0	6,932	5,709	5,268	225,574	5,801	N/A
48	15-Oct-14	84.0	6,808	6,107	5,149	229,004	5,781	N/A
49	15-Oct-14	79.0	5,728	6,704	4,235	225,063	5,801	N/A
	AVG=	**79.5**	**7,084**	**5,578**	**5,186**	**11,183,418**	**311,410**	TOTAL

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API 47-014-06397 Farm Name Trustees Chestnut Grove Church Well Number McMillan Unit 1H				
EXHIBIT 3				
LITHOLOGY/ FORMATION	**TOP DEPTH (TVD) From Surface**	**BOTTOM DEPTH (TVD) From Surface**	**TOP DEPTH (MD) From Surface**	**BOTTOM DEPTH (MD) From Surface**
Fresh Water	67'	N/A	67'	N/A
Fresh Water	122'	N/A	122'	N/A
Shale/Siltstone	0	257	0	257
Shale w/ Coal	est. 257	347	est. 257	347
Shale and Siltstone	est. 347	377	est. 347	377
Shale/Sandstone/Siltstone	est. 377	1,457	est. 377	1,457
Shale and Siltstone w/trace coal	est. 1457	1,487	est. 1457	1,487
Shale/Sandstone/Siltstone	est. 1487	1,637	est. 1487	1,637
Sandstone	est. 1637	1,757	est. 1637	1,757
Sandstone w/trace coal	est. 1757	1,787	est. 1757	1,787
Shale/Sandstone/Siltstone	est. 1787	2,057	est. 1787	2,057
Big Lime	2,057	2,208	2,057	2,208
Big Injun	2,208	2,634	2,208	2,634
Gantz Sand	2,634	2,780	2,634	2,780
Fifty Foot Sandstone	2,780	2,847	2,780	2,847
Gordon	2,847	3,210	2,847	3,210
Fifth Sandstone	3,210	3,249	3,210	3,249
Bayard	3,249	3,588	3,249	3,588
Warren	3,588	3,956	3,588	3,956
Speechley	3,956	4,214	3,956	4,214
Baltown	4,214	4,721	4,214	4,721
Bradford	4,721	5,208	4,721	5,213
Benson	5,208	5,445	5,213	5,465
Alexander	5,445	5,658	5,465	5,698
Elk	5,658	6,217	5,698	6,287
Rhinestreet	6,217	6,522	6,287	6,628
Sycamore	6,522	6,717	6,628	6,848
Middlesex	6,717	6,853	6,848	7,027
Burkett	6,853	6,881	7,027	7,073
Tully	6,881	6,945	7,073	7,210
Marcellus	6,945	NA	7,210	NA

*Please note Antero determines shallow formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Antero Resources

Antero Resources
McMillan Unit 1H
Doddridge County WV
Northing: 14294302.02
Easting: 1719173.75
Sidetrack As Drilled

WELL DETAILS: McMillan Unit 1H
Ground Level: 1115.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	14294302.02	1719173.75	39° 21' 47.557 N	80° 43' 16.876 W	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well McMillan Unit 1H, Grid North
Vertical (TVD) Reference: Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Section (VS) Reference: Slot - (0.0N, 0.0E)
Measured Depth Reference: Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Calculation Method: Minimum Curvature

PROJECT DETAILS: Doddridge County WV

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level

Scientific Drilling

Genie Lightfoot
10:40, June 23 2014

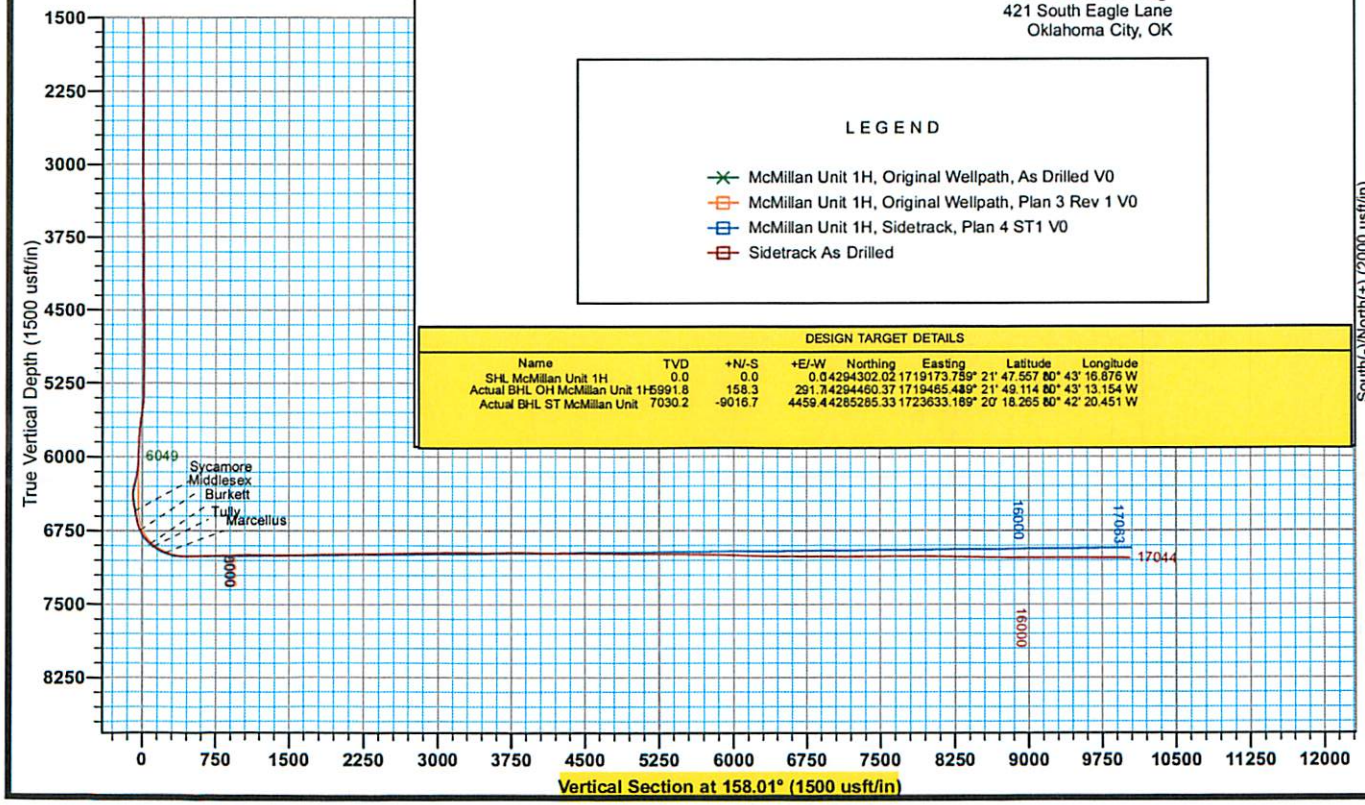
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK

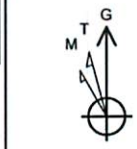
LEGEND

- McMillan Unit 1H, Original Wellpath, As Drilled V0
- McMillan Unit 1H, Original Wellpath, Plan 3 Rev 1 V0
- McMillan Unit 1H, Sidetrack, Plan 4 ST1 V0
- Sidetrack As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL McMillan Unit 1H	0.0	0.0	0.0	14294302.02	1719173.75	9° 21' 47.557	80° 43' 16.876 W
Actual BHL OH McMillan Unit 1H	5991.8	158.3	291.7	14294460.37	1719465.48	9° 21' 49.114	80° 43' 13.154 W
Actual BHL ST McMillan Unit	7030.2	-9016.7	4459.4	14285285.33	1723633.18	9° 20' 18.265	80° 42' 20.451 W

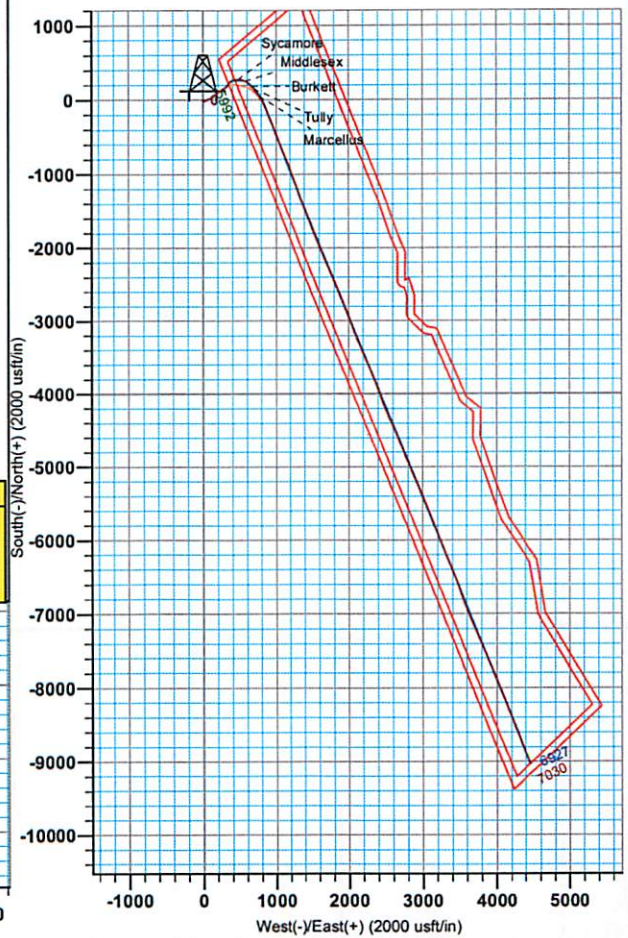




To convert Magnetic North to Grid, Subtract 8.71°
To convert True North to Grid, Subtract 0.18°

Azimuths to Grid North
True North: -0.18°
Magnetic North: -8.71°

Magnetic Field
Strength: 52295.9snT
Dip Angle: 66.92°
Date: 5/23/2014
Model: BGGM2014



Antero Resources

Doddridge County WV
Mishka/McMillan/Hoskinson Pad
McMillan Unit 1H
Sidetrack

Design: Sidetrack As Drilled

EOW Completion Report

23 June, 2014

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Scientific Drilling

Company:	Antero Resources	**Local Co-ordinate Reference:**	Well McMillan Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Well:	McMillan Unit 1H	**North Reference:**	Grid
Wellbore:	Sidetrack	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack 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 Mishka/McMillan/Hoskinson Pad, Site Center: Mishka Unit 2H

Site Position:		**Northing:**	14,294,295.71 usft	**Latitude:**	39° 21' 47.496 N
From:	Map	**Easting:**	1,719,154.86 usft	**Longitude:**	80° 43' 17.117 W
Position Uncertainty:	2.0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.18 °

Well McMillan Unit 1H, Marcellus

Well Position	**+N/-S**	0.0 usft	**Northing:**	14,294;302.02 usfi	**Latitude:**	39° 21' 47.557 N
	+E/-W	0.0 usft	**Easting:**	1,719,173.75 usfi	**Longitude:**	80° 43' 16.876 W
Position Uncertainty		2.0 usft	**Wellhead Elevation:**	1,140.0 usfi	**Ground Level:**	1,115.0 usft

Wellbore Sidetrack

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	5/23/2014	-8.53	66.92	52,296

Design Sidetrack As Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	6,012.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	158.01

Survey Program Date 6/23/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
112.0	6,012.0	Survey #6 Def Gyro to KOP (Original Well	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
6,012.0	17,044.0	Survey #1 MWD (Sidetrack)	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	0.00
112.0	0.45	342.46	112.0	0.4	-0.1	-0.4	0.40
212.0	0.42	347.54	212.0	1.2	-0.3	-1.2	0.05
312.0	0.19	331.65	312.0	1.7	-0.5	-1.7	0.24
412.0	0.14	193.33	412.0	1.7	-0.6	-1.8	0.31
512.0	0.21	167.51	512.0	1.4	-0.6	-1.5	0.10
612.0	0.39	144.68	612.0	0.9	-0.3	-1.0	0.21
712.0	0.43	138.56	712.0	0.4	0.1	-0.3	0.06
812.0	0.44	114.66	812.0	-0.1	0.7	0.3	0.18
912.0	0.35	121.57	912.0	-0.4	1.3	0.9	0.10
1,012.0	0.27	105.36	1,012.0	-0.6	1.8	1.2	0.12

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well McMillan Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Well:	McMillan Unit 1H	**North Reference:**	Grid
Wellbore:	Sidetrack	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,112.0	0.12	147.77	1,112.0	-0.8	2.1	1.5	0.20
1,212.0	0.35	161.67	1,212.0	-1.1	2.2	1.9	0.24
1,312.0	0.46	97.48	1,312.0	-1.5	2.7	2.4	0.44
1,412.0	0.15	140.06	1,412.0	-1.6	3.2	2.7	0.36
1,512.0	0.36	131.94	1,512.0	-1.9	3.5	3.1	0.21
1,612.0	0.21	109.12	1,612.0	-2.2	3.9	3.5	0.19
1,712.0	0.08	216.72	1,712.0	-2.3	4.1	3.7	0.25
1,812.0	0.36	105.96	1,812.0	-2.5	4.3	3.9	0.40
1,912.0	0.30	55.62	1,912.0	-2.4	4.8	4.1	0.29
2,012.0	0.12	195.91	2,012.0	-2.4	5.0	4.1	0.40
2,112.0	0.29	85.61	2,112.0	-2.5	5.2	4.2	0.35
2,212.0	0.10	0.45	2,212.0	-2.3	5.5	4.2	0.30
2,312.0	0.09	123.62	2,312.0	-2.3	5.6	4.2	0.17
2,412.0	0.19	152.48	2,412.0	-2.5	5.7	4.4	0.12
2,512.0	0.22	172.58	2,512.0	-2.8	5.8	4.8	0.08
2,612.0	0.23	165.02	2,612.0	-3.2	5.9	5.2	0.03
2,712.0	0.21	150.69	2,712.0	-3.6	6.0	5.6	0.06
2,812.0	0.21	161.97	2,812.0	-3.9	6.2	5.9	0.04
2,912.0	0.25	172.16	2,912.0	-4.3	6.3	6.3	0.06
3,012.0	0.20	156.45	3,012.0	-4.7	6.4	6.7	0.08
3,112.0	0.26	172.30	3,112.0	-5.1	6.5	7.1	0.09
3,212.0	0.14	153.19	3,212.0	-5.4	6.5	7.4	0.14
3,312.0	0.35	176.94	3,312.0	-5.8	6.6	7.9	0.23
3,412.0	0.37	165.15	3,412.0	-6.4	6.7	8.5	0.08
3,512.0	0.36	177.31	3,512.0	-7.0	6.8	9.1	0.08
3,612.0	0.39	184.15	3,612.0	-7.7	6.8	9.7	0.05
3,712.0	0.41	180.67	3,712.0	-8.4	6.8	10.3	0.03
3,812.0	0.40	175.74	3,812.0	-9.1	6.8	11.0	0.04
3,912.0	0.21	176.46	3,912.0	-9.6	6.8	11.5	0.19
4,012.0	0.39	170.85	4,012.0	-10.1	6.9	12.0	0.18
4,112.0	0.41	161.97	4,111.9	-10.8	7.1	12.7	0.07
4,212.0	0.54	140.51	4,211.9	-11.5	7.5	13.5	0.22
4,312.0	0.61	145.82	4,311.9	-12.3	8.1	14.5	0.09
4,412.0	0.65	137.44	4,411.9	-13.2	8.8	15.5	0.09
4,512.0	0.61	142.50	4,511.9	-14.0	9.5	16.6	0.07
4,612.0	0.61	139.52	4,611.9	-14.9	10.1	17.6	0.03
4,712.0	0.68	142.13	4,711.9	-15.7	10.8	18.6	0.08
4,812.0	0.73	145.30	4,811.9	-16.7	11.6	19.8	0.06
4,912.0	0.65	127.33	4,911.9	-17.6	12.4	20.9	0.23
5,012.0	6.02	58.37	5,011.7	-15.2	17.3	20.6	5.82
5,112.0	12.37	59.24	5,110.4	-6.9	31.0	18.0	6.35
5,212.0	15.85	68.61	5,207.4	3.5	52.9	16.6	4.15
5,312.0	19.97	68.23	5,302.5	14.8	81.5	16.8	4.12
5,412.0	21.60	59.88	5,396.0	30.4	113.3	14.2	3.38

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well McMillan Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Well:	McMillan Unit 1H	**North Reference:**	Grid
Wellbore:	Sidetrack	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,512.0	24.63	51.96	5,488.0	52.5	145.6	5.9	4.34
5,612.0	24.45	47.01	5,579.0	79.5	177.2	-7.3	2.06
5,712.0	22.91	49.74	5,670.5	106.1	207.2	-20.8	1.89
5,812.0	19.93	59.87	5,763.7	127.3	236.8	-29.4	4.74
5,912.0	16.38	58.41	5,858.7	143.2	263.6	-34.1	3.58
6,012.0	12.03	64.04	5,955.6	155.2	285.0	-37.2	4.56
6,032.0	11.57	64.99	5,975.2	157.0	288.6	-37.5	2.50
6,068.0	13.15	63.62	6,010.3	160.3	295.6	-38.0	4.46
6,100.0	15.12	61.42	6,041.4	163.9	302.5	-38.7	6.38
6,131.0	16.29	55.46	6,071.2	168.3	309.6	-40.1	6.42
6,163.0	18.29	49.14	6,101.8	174.1	317.1	-42.7	8.57
6,195.0	20.70	44.53	6,131.9	181.5	324.9	-46.6	8.93
6,227.0	22.14	40.01	6,161.7	190.1	332.7	-51.7	6.84
6,260.0	23.08	34.47	6,192.2	200.2	340.4	-58.2	7.05
6,292.0	24.32	30.89	6,221.5	211.0	347.3	-65.6	5.93
6,324.0	24.63	28.43	6,250.6	222.6	353.9	-73.8	3.33
6,356.0	24.61	32.33	6,279.7	234.0	360.6	-82.0	5.08
6,388.0	24.16	43.68	6,308.9	244.4	368.7	-88.6	14.69
6,420.0	24.23	53.65	6,338.1	253.1	378.5	-92.9	12.76
6,452.0	24.39	59.10	6,367.2	260.3	389.5	-95.6	7.03
6,484.0	25.31	69.43	6,396.3	266.1	401.6	-96.4	13.85
6,517.0	26.75	79.43	6,425.9	270.0	415.5	-94.8	13.98
6,549.0	27.73	85.25	6,454.4	271.9	430.0	-91.1	8.87
6,581.0	27.36	85.97	6,482.8	273.1	444.8	-86.7	1.56
6,613.0	26.86	91.46	6,511.3	273.4	459.3	-81.5	7.97
6,645.0	26.73	92.85	6,539.8	272.8	473.7	-75.6	2.00
6,653.0	26.62	92.65	6,547.0	272.7	477.3	-74.1	1.72
Sycamore							
6,677.0	26.31	92.05	6,568.5	272.2	488.0	-69.7	1.72
6,709.0	26.05	90.46	6,597.2	271.9	502.1	-64.1	2.34
6,742.0	25.76	92.07	6,626.9	271.6	516.5	-58.4	2.31
6,774.0	26.20	100.61	6,655.6	270.1	530.4	-51.8	11.76
6,806.0	27.61	108.13	6,684.2	266.4	544.4	-43.2	14.50
6,838.0	29.20	113.51	6,712.3	261.0	558.6	-32.9	9.41
6,870.0	31.93	118.34	6,739.9	253.9	573.2	-20.8	11.47
6,873.0	32.18	118.92	6,742.4	253.1	574.6	-19.5	13.12
Middlesex							
6,902.0	34.69	124.11	6,766.6	244.8	588.2	-6.7	13.12
6,934.0	37.05	128.76	6,792.6	233.6	603.3	9.3	11.26
6,967.0	40.63	130.62	6,818.3	220.4	619.2	27.5	11.11
6,999.0	43.78	132.08	6,842.0	206.2	635.3	46.7	10.31
7,031.0	47.37	134.16	6,864.4	190.6	652.0	67.4	12.14
7,052.0	50.03	135.56	6,878.2	179.4	663.2	82.0	13.62
Burkett							
7,063.0	51.43	136.25	6,885.2	173.3	669.1	89.8	13.62

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well McMillan Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Well:	McMillan Unit 1H	**North Reference:**	Grid
Wellbore:	Sidetrack	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,095.0	55.42	138.61	6,904.3	154.4	686.5	113.9	13.80
7,098.0	55.66	138.76	6,906.0	152.5	688.1	116.2	9.12
Tully							
7,127.0	58.03	140.17	6,921.8	134.1	703.9	139.2	9.12
7,159.0	61.16	142.26	6,938.0	112.6	721.2	165.7	11.29
7,191.0	65.29	144.29	6,952.4	89.7	738.2	193.3	14.09
7,224.0	68.03	145.18	6,965.5	64.9	755.7	222.8	8.66
7,235.0	68.48	145.43	6,969.6	56.5	761.5	232.7	4.63
Marcellus							
7,256.0	69.35	145.90	6,977.1	40.3	772.6	251.9	4.63
7,288.0	72.85	148.10	6,987.5	15.0	789.1	281.6	12.72
7,320.0	76.83	150.56	6,995.9	-11.6	804.8	312.1	14.48
7,352.0	80.99	153.22	7,002.0	-39.3	819.6	343.3	15.35
7,384.0	84.03	152.84	7,006.2	-67.6	834.0	374.9	9.57
7,410.0	85.91	153.28	7,008.5	-90.7	845.7	400.7	7.42
7,486.0	90.84	157.01	7,010.6	-159.6	877.6	476.6	8.13
7,581.0	91.88	158.65	7,008.4	-247.5	913.5	571.5	2.04
7,677.0	91.65	157.28	7,005.4	-336.5	949.5	667.5	1.45
7,774.0	92.25	158.29	7,002.1	-426.2	986.1	764.4	1.21
7,870.0	91.48	159.27	6,999.0	-515.6	1,020.9	860.4	1.30
7,966.0	92.08	158.34	6,996.0	-605.1	1,055.5	956.3	1.15
8,063.0	90.44	156.56	6,993.9	-694.7	1,092.7	1,053.3	2.49
8,159.0	89.43	154.08	6,994.0	-781.9	1,132.8	1,149.2	2.79
8,256.0	88.63	156.95	6,995.6	-870.1	1,173.0	1,246.1	3.07
8,352.0	88.63	159.28	6,997.9	-959.2	1,208.8	1,342.0	2.43
8,449.0	89.53	159.74	6,999.5	-1,050.0	1,242.7	1,439.0	1.04
8,545.0	91.78	160.90	6,998.4	-1,140.4	1,275.1	1,534.9	2.64
8,641.0	91.95	160.93	6,995.2	-1,231.1	1,306.4	1,630.7	0.18
8,738.0	90.77	158.47	6,992.9	-1,322.0	1,340.1	1,727.6	2.81
8,834.0	91.45	157.41	6,991.1	-1,411.0	1,376.1	1,823.6	1.31
8,930.0	91.24	157.59	6,988.8	-1,499.7	1,412.8	1,919.6	0.29
9,026.0	90.67	158.97	6,987.2	-1,588.8	1,448.4	2,015.6	1.56
9,123.0	90.67	158.58	6,986.1	-1,679.2	1,483.5	2,112.5	0.40
9,218.0	90.00	158.49	6,985.5	-1,767.6	1,518.2	2,207.5	0.71
9,314.0	91.24	158.70	6,984.5	-1,857.0	1,553.3	2,303.5	1.31
9,410.0	90.40	157.56	6,983.1	-1,946.1	1,589.0	2,399.5	1.47
9,506.0	89.60	156.71	6,983.1	-2,034.5	1,626.3	2,495.5	1.22
9,603.0	91.78	157.93	6,982.0	-2,124.0	1,663.7	2,592.5	2.58
9,699.0	91.27	156.89	6,979.4	-2,212.6	1,700.6	2,688.4	1.21
9,795.0	91.01	156.80	6,977.5	-2,300.9	1,738.3	2,784.4	0.29
9,891.0	91.58	157.45	6,975.3	-2,389.3	1,775.6	2,880.4	0.90
9,987.0	90.54	157.13	6,973.5	-2,477.9	1,812.7	2,976.3	1.13
10,084.0	90.17	156.10	6,972.9	-2,566.9	1,851.2	3,073.3	1.13
10,180.0	89.40	157.84	6,973.3	-2,655.2	1,888.7	3,169.3	1.98
10,277.0	89.63	156.71	6,974.1	-2,744.7	1,926.2	3,266.3	1.19

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well McMillan Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Well:	McMillan Unit 1H	**North Reference:**	Grid
Wellbore:	Sidetrack	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
10,367.0	89.43	160.08	6,974.9	-2,828.4	1,959.4	3,356.3	3.75
10,458.0	88.99	160.03	6,976.1	-2,913.9	1,990.4	3,447.2	0.49
10,548.0	90.20	159.83	6,976.8	-2,998.4	2,021.3	3,537.1	1.36
10,638.0	90.81	160.69	6,976.0	-3,083.1	2,051.7	3,627.1	1.17
10,728.0	91.44	160.22	6,974.2	-3,167.9	2,081.8	3,717.0	0.87
10,820.0	90.37	155.85	6,972.7	-3,253.2	2,116.2	3,808.9	4.89
10,910.0	88.35	155.72	6,973.7	-3,335.3	2,153.1	3,898.8	2.25
11,001.0	88.56	157.86	6,976.2	-3,418.9	2,188.9	3,989.8	2.36
11,092.0	89.63	158.12	6,977.6	-3,503.2	2,223.0	4,080.8	1.21
11,183.0	89.66	157.43	6,978.2	-3,587.5	2,257.4	4,171.8	0.76
11,274.0	89.80	156.54	6,978.6	-3,671.2	2,293.0	4,262.8	0.99
11,364.0	88.76	157.09	6,979.8	-3,754.0	2,328.5	4,352.7	1.31
11,461.0	89.40	160.28	6,981.3	-3,844.3	2,363.7	4,449.7	3.35
11,557.0	89.90	161.12	6,981.9	-3,934.9	2,395.4	4,545.6	1.02
11,654.0	89.29	159.53	6,982.6	-4,026.2	2,428.1	4,642.5	1.76
11,750.0	89.10	158.45	6,983.9	-4,115.8	2,462.5	4,738.5	1.14
11,846.0	89.40	158.57	6,985.2	-4,205.2	2,497.7	4,834.5	0.34
11,943.0	89.70	158.70	6,986.0	-4,295.5	2,533.0	4,931.5	0.34
12,039.0	89.30	155.79	6,986.8	-4,384.0	2,570.1	5,027.4	3.06
12,136.0	89.66	156.14	6,987.7	-4,472.6	2,609.6	5,124.4	0.52
12,232.0	89.73	156.04	6,988.2	-4,560.3	2,648.5	5,220.3	0.13
12,328.0	88.39	158.50	6,989.8	-4,648.9	2,685.6	5,316.3	2.92
12,425.0	89.60	159.12	6,991.5	-4,739.3	2,720.7	5,413.3	1.40
12,521.0	89.50	158.16	6,992.2	-4,828.7	2,755.7	5,509.2	1.01
12,618.0	89.80	157.25	6,992.8	-4,918.4	2,792.5	5,606.2	0.99
12,714.0	89.03	156.76	6,993.8	-5,006.8	2,830.0	5,702.2	0.95
12,811.0	89.26	157.73	6,995.2	-5,096.2	2,867.5	5,799.2	1.03
12,907.0	88.29	156.33	6,997.3	-5,184.6	2,904.9	5,895.2	1.77
13,003.0	88.39	155.03	7,000.1	-5,272.1	2,944.4	5,991.0	1.36
13,100.0	88.66	157.02	7,002.6	-5,360.7	2,983.8	6,087.9	2.07
13,196.0	88.25	158.12	7,005.2	-5,449.4	3,020.5	6,183.9	1.22
13,292.0	89.73	158.12	7,006.9	-5,538.4	3,056.2	6,279.9	1.54
13,389.0	89.53	157.82	7,007.5	-5,628.3	3,092.6	6,376.9	0.37
13,485.0	89.53	158.24	7,008.3	-5,717.4	3,128.5	6,472.9	0.44
13,582.0	89.20	157.22	7,009.3	-5,807.1	3,165.3	6,569.9	1.11
13,678.0	89.06	159.65	7,010.8	-5,896.4	3,200.6	6,665.8	2.54
13,774.0	89.97	159.35	7,011.6	-5,986.3	3,234.2	6,761.8	1.00
13,871.0	90.23	158.20	7,011.4	-6,076.7	3,269.3	6,858.8	1.22
13,967.0	88.73	155.61	7,012.3	-6,165.0	3,306.9	6,954.8	3.12
14,064.0	88.92	158.82	7,014.3	-6,254.4	3,344.5	7,051.7	3.31
14,160.0	90.91	159.41	7,014.4	-6,344.1	3,378.7	7,147.7	2.16
14,255.0	90.90	157.87	7,012.9	-6,432.6	3,413.3	7,242.7	1.62
14,352.0	89.70	158.21	7,012.4	-6,522.5	3,449.6	7,339.7	1.29
14,448.0	90.60	160.62	7,012.2	-6,612.4	3,483.3	7,435.6	2.68

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Company:	Antero Resources	**Local Co-ordinate Reference:**	Well McMillan Unit 1H
Project:	Doddridge County WV	**TVD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Site:	Mishka/McMillan/Hoskinson Pad	**MD Reference:**	Frontier 22: GL 1115 + 25' RKB @ 1140.0usft
Well:	McMillan Unit 1H	**North Reference:**	Grid
Wellbore:	Sidetrack	**Survey Calculation Method:**	Minimum Curvature
Design:	Sidetrack As Drilled	**Database:**	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
14,544.0	91.31	161.00	7,010.6	-6,703.0	3,514.9	7,531.5	0.84
14,641.0	90.67	159.83	7,008.9	-6,794.4	3,547.4	7,628.4	1.37
14,736.0	89.36	158.92	7,008.9	-6,883.3	3,580.9	7,723.4	1.68
14,833.0	89.60	157.60	7,009.8	-6,973.4	3,616.8	7,820.4	1.38
14,928.0	88.32	158.25	7,011.5	-7,061.4	3,652.5	7,915.4	1.51
15,024.0	88.86	156.36	7,013.9	-7,150.0	3,689.5	8,011.3	2.05
15,120.0	89.83	157.07	7,014.9	-7,238.1	3,727.5	8,107.3	1.25
15,216.0	88.83	156.04	7,016.1	-7,326.2	3,765.6	8,203.2	1.50
15,313.0	89.36	155.76	7,017.6	-7,414.7	3,805.2	8,300.2	0.62
15,409.0	89.77	156.47	7,018.3	-7,502.5	3,844.1	8,396.1	0.85
15,505.0	89.36	157.33	7,019.1	-7,590.8	3,881.8	8,492.1	0.99
15,602.0	89.77	156.58	7,019.8	-7,680.1	3,919.7	8,589.1	0.88
15,698.0	88.59	157.52	7,021.2	-7,768.5	3,957.2	8,685.0	1.57
15,794.0	88.42	157.85	7,023.7	-7,857.2	3,993.6	8,781.0	0.39
15,890.0	89.40	158.20	7,025.5	-7,946.2	4,029.5	8,877.0	1.08
15,986.0	90.47	158.64	7,025.6	-8,035.5	4,064.8	8,973.0	1.21
16,082.0	91.18	159.26	7,024.2	-8,125.1	4,099.3	9,069.0	0.98
16,177.0	90.07	159.72	7,023.2	-8,214.1	4,132.6	9,163.9	1.26
16,273.0	89.30	158.48	7,023.7	-8,303.8	4,166.8	9,259.9	1.52
16,369.0	90.23	160.03	7,024.1	-8,393.5	4,200.8	9,355.9	1.88
16,466.0	89.09	157.53	7,024.7	-8,483.9	4,236.0	9,452.9	2.83
16,562.0	90.44	157.94	7,025.1	-8,572.8	4,272.3	9,548.8	1.47
16,659.0	89.90	158.83	7,024.8	-8,663.0	4,308.1	9,645.8	1.07
16,757.0	90.37	158.79	7,024.6	-8,754.3	4,343.5	9,743.8	0.48
16,854.0	89.29	156.74	7,024.9	-8,844.1	4,380.2	9,840.8	2.39
16,951.0	88.19	154.87	7,027.0	-8,932.6	4,419.9	9,937.7	2.24
16,987.0	87.95	154.85	7,028.2	-8,965.1	4,435.2	9,973.6	0.67
17,044.0	87.95	154.85	7,030.2	-9,016.7	4,459.4	10,030.5	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,653.0	6,547.0	272.7	477.3	Sycamore
6,873.0	6,742.4	253.1	574.6	Middlesex
7,052.0	6,878.2	179.4	663.2	Burkett
7,098.0	6,906.0	152.5	688.1	Tully
7,235.0	6,969.6	56.5	761.5	Marcellus

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Checked By: _____ Approved By: _____ Date: _____

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/30/2014
Job End Date:	10/15/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06397-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	McMillan Unit 1H
Longitude:	-80.72118600
Latitude:	39.36329400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,030
Total Base Water Volume (gal):	13,483,260
Total Base Non Water Volume:	0

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FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

INTERSTATE Oil & Gas COMPACT COMMISSION

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	Operator	Carrier					
			Water	7732-18-5	100.00000	90.46058	
Sand, White, 40/70	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		4.95654	
Sand, White, 20/40	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		3.34238	
Sand, White, 100 mesh	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.68223	
HCl, 10.1 - 15%	Baker Hughes	Acidizing					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.20689	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.11819	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.06149	SmartCare Product
Enzyme G-NE	Baker Hughes	Breaker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01681	SmartCare Product

Scaletrol 720	Baker Hughes	Scale Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01554	SmartCare Product
Alpha 1427	Baker Hughes	Biocide					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01336	SmartCare Product
Ferrotrol 300L	Baker Hughes	Iron Control					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00143	SmartCare Product
CI-14	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00033	SmartCare Product
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.							
Ingredients in Additive (s) (MSDS and non-MSDS)	Baker Hughes	See Trade Name(s) List					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	8.96885	
			Water	7732-18-5	95.00000	0.23261	
			Mineral Oil	8042-47-5	70.00000	0.08262	
			Guar Gum	9000-30-0	60.00000	0.07082	
			Petroleum Distillates	64742-47-8	30.00000	0.03541	
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.03541	
			Hydrochloric Acid	7647-01-0	15.00000	0.03099	
			Poly (acrylamide-co-acrylic acid) partial sodium salt	62649-23-4	30.00000	0.01842	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.01842	
			Ethylene Glycol	107-21-1	45.00000	0.00698	
			Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00590	
			Crystalline Silica: Quartz	14808-60-7	5.00000	0.00590	
			1-butoxy-2-propanol	5131-66-8	5.00000	0.00590	
			Glutaraldehyde	111-30-8	30.00000	0.00400	
			Sodium Chloride	7647-14-5	5.00000	0.00323	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9	20.00000	0.00310	
			Ammonium Chloride	12125-02-9	3.00000	0.00184	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00133	
			Oleamide DEA	93-83-4	2.00000	0.00123	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00123	
			Citric Acid	77-92-9	60.00000	0.00086	
			Hemicellulase Enzyme Concentrate	9025-56-3	5.00000	0.00084	
			Calcium Chloride	10043-52-4	5.00000	0.00078	
			Ethanol	64-17-5	5.00000	0.00067	
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00067	
			Methanol	67-56-1	100.00000	0.00033	
			Sorbitan Monooleate	1338-43-8	0.50000	0.00031	
			Polyoxythylene Sorbitan Monooleate	9005-65-6	0.50000	0.00031	

			Potassium Chloride	7447-40-7	1.00000	0.00016	
			2-butoxy-1-propanol	15821-83-7	0.10000	0.00012	
			Polyoxyalkylenes	68951-67-7	30.00000	0.00010	
			Fatty Acids	61790-12-3	10.00000	0.00003	
			Modified Thiourea Polymer	68527-49-1	7.00000	0.00002	
			Propargyl Alcohol	107-19-7	5.00000	0.00002	
			Olefin	64743-02-8	5.00000	0.00002	
			Formaldehyde	50-00-0	1.00000	0.00000	

* 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)

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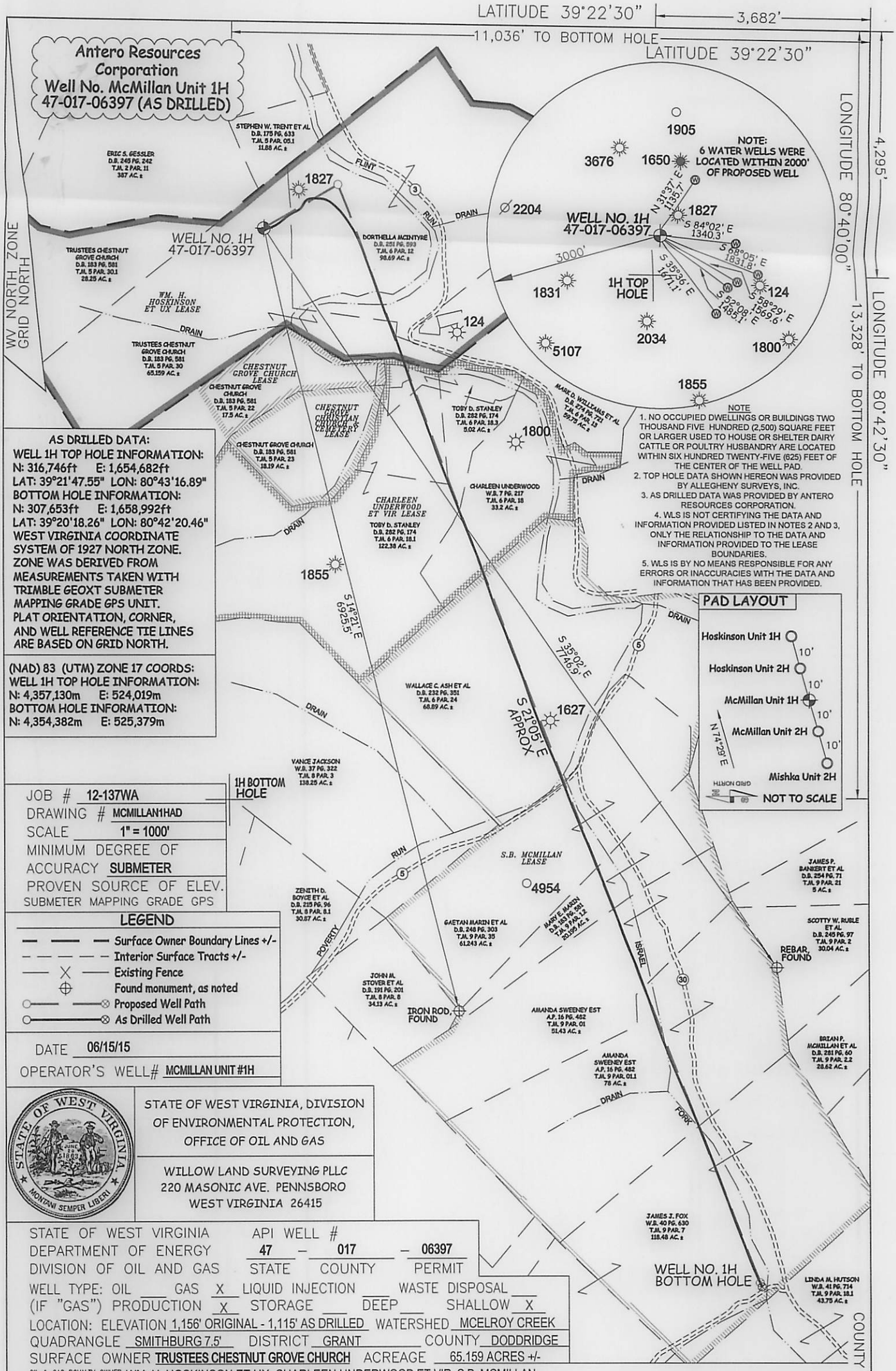

NOTE

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.

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 316,746ft E: 1,654,682ft
LAT: 39°21'47.55" LON: 80°43'16.89"
BOTTOM HOLE INFORMATION:
N: 307,653ft E: 1,658,992ft
LAT: 39°20'18.26" LON: 80°42'20.46"
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 1H TOP HOLE INFORMATION:
N: 4,357,130m E: 524,019m
BOTTOM HOLE INFORMATION:
N: 4,354,382m E: 525,379m

JOB # 12-137WA
DRAWING # MCMILLAN1HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

DATE 06/15/15
OPERATOR'S WELL# MCMILLAN UNIT #1H

STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

API WELL # 47 – 017 – 06397
STATE COUNTY PERMIT

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 1,156' ORIGINAL - 1,115' AS DRILLED WATERSHED MCELROY CREEK
QUADRANGLE SMITHBURG 7.5' DISTRICT GRANT COUNTY DODDRIDGE
SURFACE OWNER TRUSTEES CHESTNUT GROVE CHURCH ACREAGE 65.159 ACRES +/-
OIL & GAS ROYALTY OWNER WM. H. HOSKINSON ET UX; CHARLEEN UNDERWOOD ET VIR; S.B. MCMILLAN
LEASE ACREAGE 228.5 ACRES±; 127.11 ACRES±; 432 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 7,030' TVD 17,044' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM
DENVER, CO 80202 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT

FORM WW-6