

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

API 47 - 017 - 06434 County Doddridge District Greenbrier
Quad Big Isaac 7.5' Pad Name Wagner Pad Field/Pool Name _____
Farm name Perine, Junior Well Number Downs 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 4,340,237m Easting 534,186m
Landing Point of Curve Northing 4,340,363.75m Easting 534,427.49m
Bottom Hole Northing 4,343,264m Easting 533,501m

Elevation (ft) 1,270' 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 01/22/2014 Date drilling commenced 03/29/2014 Date drilling ceased 07/12/2014
Date completion activities began 08/18/2014 Date completion activities ceased 12/02/2014
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by Office of Oil & Gas

JUL 27 2015

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

Freshwater depth(s) ft 49' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1,692' 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

Reviewed by:
JL & L/S
10/23/2015

API 47-017 - 06434 Farm name Perine, Junior Well number Downs 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	28"	20"	40'	New	51#; H-40	N/A	Yes
Surface	17 1/2"	13 3/8"	443'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,536'	New	36#/40#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	17,820'	New	23#; P-110	N/A	Yes
Tubing		2 3/8"	7,510'		4.7#; N-80	N/A	
Packer type and depth set		N/A					

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	71 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	531 sx	15.6	1.18	308	0'	8 Hrs.
Coal							
Intermediate 1	Class A	987 sx	15.6	1.18	794	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,166 sx (Lead); 1,600 sx (Tail)	15.2 (Lead); 14.5 (Tail)	1.3 (Lead); 1.88 (Tail)	3,616	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17,820' MD; 7,356' TVD (BHL); 7,380' TVD (Deepest Point Drilled) Loggers TD (ft) 17,772'
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6,923'

**This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Downs Unit 1H, API #47-017-06433). Please reference the wireline logs submitted with Form WR-35 for the Downs Unit 1H. A Cement Bond Log has been included with this submittal.

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

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Conductor- 0
 Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface
 Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface
 Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

JUL 27 2015

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 017 - 06434 Farm name Perine, Junior Well number Downs 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								
							Received Office of Oil & Gas	

Please insert additional pages as applicable.

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API 47- 017 - 06434 Farm name Perine, Junior Well number Downs Unit 2H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	7,249' (top) TVD	7,653' (top) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3,950 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 12,835 mcfpd Oil 3 bpd NGL _____ bpd Water 239 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	0		0		
* PLEASE SEE ATTACHED EXHIBIT 3					

Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Road City Williamsport State PA Zip 1770

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 US Well Services
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Megan Darling Telephone 303-357-7230
Signature Megan C Darling Title Permitting Agent Date 07/24/2015

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

10/23/2015

API 47-017-06434 Farm Name Perine, Junior Well Number Downs Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	18-Aug-14	17,559	17,728	60	Marcellus
2	27-Oct-14	17,357	17,527	60	Marcellus
3	27-Oct-14	17,156	17,326	60	Marcellus
4	27-Oct-14	16,954	17,124	60	Marcellus
5	28-Oct-14	16,753	16,923	60	Marcellus
6	28-Oct-14	16,552	16,722	60	Marcellus
7	28-Oct-14	16,350	16,520	60	Marcellus
8	29-Oct-14	16,149	16,319	60	Marcellus
9	29-Oct-14	15,948	16,117	60	Marcellus
10	29-Oct-14	15,746	15,916	60	Marcellus
11	30-Oct-14	15,545	15,715	60	Marcellus
12	30-Oct-14	15,344	15,513	60	Marcellus
13	30-Oct-14	15,142	15,312	60	Marcellus
14	30-Oct-14	14,941	15,111	60	Marcellus
15	31-Oct-14	14,739	14,909	60	Marcellus
16	31-Oct-14	14,538	14,708	60	Marcellus
17	31-Oct-14	14,337	14,507	60	Marcellus
18	31-Oct-14	14,135	14,305	60	Marcellus
19	1-Nov-14	13,934	14,104	60	Marcellus
20	1-Nov-14	13,733	13,902	60	Marcellus
21	1-Nov-14	13,531	13,701	60	Marcellus
22	2-Nov-14	13,330	13,500	60	Marcellus
23	2-Nov-14	13,129	13,298	60	Marcellus
24	2-Nov-14	12,927	13,097	60	Marcellus
25	2-Nov-14	12,726	12,896	60	Marcellus
26	3-Nov-14	12,525	12,694	60	Marcellus
27	3-Nov-14	12,323	12,493	60	Marcellus
28	3-Nov-14	12,122	12,292	60	Marcellus
29	3-Nov-14	11,920	12,090	60	Marcellus
30	4-Nov-14	11,719	11,889	60	Marcellus
31	4-Nov-14	11,518	11,688	60	Marcellus
32	4-Nov-14	11,316	11,486	60	Marcellus
33	4-Nov-14	11,115	11,285	60	Marcellus
34	5-Nov-14	10,914	11,083	60	Marcellus
35	5-Nov-14	10,712	10,882	60	Marcellus
36	5-Nov-14	10,511	10,681	60	Marcellus
37	5-Nov-14	10,310	10,479	60	Marcellus
38	5-Nov-14	10,108	10,278	60	Marcellus
39	6-Nov-14	9,907	10,077	60	Marcellus
40	6-Nov-14	9,705	9,875	60	Marcellus
41	6-Nov-14	9,504	9,674	60	Marcellus
42	6-Nov-14	9,303	9,473	60	Marcellus
43	7-Nov-14	9,101	9,271	60	Marcellus
44	7-Nov-14	8,900	9,070	60	Marcellus
45	7-Nov-14	8,699	8,868	60	Marcellus
46	7-Nov-14	8,497	8,667	60	Marcellus
47	8-Nov-14	8,296	8,466	60	Marcellus
48	8-Nov-14	8,095	8,264	60	Marcellus
49	8-Nov-14	7,893	8,063	60	Marcellus
50	8-Nov-14	7,692	7,862	60	Marcellus

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API 47-017-06434 Farm Name Perine, Junior Well Number Downs 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	27-Oct-14	62.5	7,362	N/A	5,281	232,260	6,814	N/A
2	27-Oct-14	63.0	7,049	6,016	5,513	232,060	6,852	N/A
3	27-Oct-14	63.6	7,050	6,068	5,210	229,720	6,794	N/A
4	27-Oct-14	65.5	7,232	5,834	5,521	232,680	6,486	N/A
5	28-Oct-14	66.0	7,039	5,767	5,571	233,340	6,485	N/A
6	28-Oct-14	66.0	6,882	5,534	5,534	230,760	6,467	N/A
7	28-Oct-14	67.0	6,957	5,714	5,387	247,160	6,430	N/A
8	29-Oct-14	63.9	7,191	5,998	5,703	216,208	6,277	N/A
9	29-Oct-14	66.0	7,171	5,890	5,856	233,520	6,412	N/A
10	29-Oct-14	65.6	7,014	5,641	5,384	229,500	6,444	N/A
11	30-Oct-14	65.2	6,850	5,594	5,519	237,360	6,360	N/A
12	30-Oct-14	66.1	6,729	5,598	5,615	234,619	6,358	N/A
13	30-Oct-14	66.8	6,656	5,421	5,514	232,260	6,374	N/A
14	30-Oct-14	66.0	6,780	5,660	5,380	231,740	6,349	N/A
15	31-Oct-14	68.3	7,018	5,783	5,887	232,760	6,314	N/A
16	31-Oct-14	65.4	7,060	5,808	5,811	236,140	6,284	N/A
17	31-Oct-14	65.3	7,083	5,792	5,486	244,250	6,288	N/A
18	31-Oct-14	66.5	7,056	5,773	5,493	238,900	6,258	N/A
19	1-Nov-14	66.8	6,838	5,487	6,076	238,000	6,249	N/A
20	1-Nov-14	66.5	6,872	5,909	5,625	234,440	6,244	N/A
21	1-Nov-14	67.7	6,806	5,753	5,521	235,180	6,242	N/A
22	2-Nov-14	67.5	6,819	5,665	5,513	229,140	6,071	N/A
23	2-Nov-14	66.1	6,813	5,539	5,773	234,940	6,157	N/A
24	2-Nov-14	66.1	6,831	5,687	5,770	236,620	6,159	N/A
25	2-Nov-14	67.9	6,767	5,725	5,490	241,660	6,158	N/A
26	3-Nov-14	66.7	6,883	5,923	5,587	241,540	6,225	N/A
27	3-Nov-14	66.3	6,875	5,812	5,637	238,260	6,113	N/A
28	3-Nov-14	67.5	6,711	5,503	5,430	240,100	6,120	N/A
29	3-Nov-14	68.3	6,684	5,695	5,318	232,060	5,842	N/A
30	4-Nov-14	68.3	6,690	5,622	5,623	230,880	6,033	N/A
31	4-Nov-14	66.2	6,776	5,997	5,587	237,620	6,037	N/A
32	4-Nov-14	65.6	6,569	5,659	5,813	237,180	6,050	N/A
33	4-Nov-14	65.5	6,485	5,744	5,857	241,570	6,032	N/A
34	5-Nov-14	65.5	6,679	5,707	5,869	245,095	6,018	N/A
35	5-Nov-14	67.6	6,490	5,584	5,702	235,260	5,974	N/A
36	5-Nov-14	68.1	6,712	5,784	5,345	232,820	5,840	N/A
37	5-Nov-14	65.3	6,665	5,782	5,916	234,740	5,944	N/A
38	5-Nov-14	66.2	6,656	5,837	5,892	234,080	5,926	N/A
39	6-Nov-14	66.5	6,814	5,837	5,859	228,320	5,802	N/A
40	6-Nov-14	67.5	6,790	5,581	5,837	238,320	5,848	N/A
41	6-Nov-14	68.1	6,654	6,048	5,744	237,080	5,868	N/A
42	6-Nov-14	68.4	6,392	5,834	5,834	237,290	5,959	N/A
43	7-Nov-14	68.2	6,533	5,894	6,149	235,035	5,758	N/A
44	7-Nov-14	66.3	6,952	6,463	5,830	203,280	5,929	N/A
45	7-Nov-14	67.1	6,797	6,254	5,826	201,520	5,793	N/A
46	7-Nov-14	68.3	6,586	5,794	5,856	241,635	5,757	N/A
47	8-Nov-14	66.9	6,623	141	5,835	239,715	5,724	N/A
48	8-Nov-14	67.9	6,648	5,967	6,083	240,188	5,724	N/A
49	8-Nov-14	68.1	6,476	5,690	5,743	238,506	5,721	N/A
50	8-Nov-14	66.5	6,719	6,142	5,784	239,594	6,091	N/A
AVG=		66.5	6,816	5,672	5,668	11,716,905	307,454	TOTAL

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Fresh Water	49'	N/A	49'	N/A
Shale	0	29	0	29
Siltstone	est. 29	289	est. 29	289
Siltstone/ Trace Coal	est. 289	449	est. 289	449
Siltstone/ Sandstone	est. 449	649	est. 449	649
Sandy Shale/ Trace Coal	est. 649	669	est. 649	669
Siltstone	est. 669	829	est. 669	829
Limestone/ Coal	est. 829	889	est. 829	889
Siltstone	est. 889	1,269	est. 889	1,269
Sandstone	est. 1269	1,389	est. 1269	1,389
Siltstone	est. 1389	1,469	est. 1389	1,469
Sandstone	est. 1469	1,509	est. 1469	1,509
Limestone/ Siltstone	est. 1509	1,589	est. 1509	1,589
Sandstone/ Trace Coal	est. 1589	1,649	est. 1589	1,649
Siltstone/ Trace Coal	est. 1649	1,789	est. 1649	1,789
Sandstone	est. 1789	1,909	est. 1789	1,909
Shale/ Trace Coal	est. 1909	2,049	est. 1909	2,049
Siltstone/ Shale	est. 2049	2,272	est. 2049	2,272
Big Lime	2,272	2,374	2,272	2,374
Big Injun	2,374	2,602	2,374	2,602
Gantz Sand	2,602	2,687	2,602	2,688
Fifty Foot Sandstone	2,687	2,895	2,688	2,898
Gordon	2,895	3,226	2,898	3,231
Fifth Sandstone	3,226	3,267	3,231	3,272
Bayard	3,267	3,587	3,272	3,592
Warren	3,587	3,886	3,592	3,891
Speechley	3,886	4,091	3,891	4,096
Baltown	4,091	4,699	4,096	4,704
Bradford	4,699	5,198	4,704	5,214
Benson	5,198	5,506	5,214	5,541
Alexander	5,506	5,722	5,541	5,777
Elk	5,722	6,197	5,777	6,290
Rhinestreet	6,197	6,759	6,290	6,906
Sycamore	6,759	6,928	6,906	7,095
Middlesex	6,928	7,080	7,095	7,287
Burkett	7,080	7,109	7,287	7,330
Tully	7,109	7,249	7,330	7,653
Marcellus	7,249	NA	7,653	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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10/23/2015



Downs Unit 2H
Doddridge County WV
 Northing: 14238877.80
 Easting: 1752528.96
 As Drilled ST1



Received
 Office of Oil & Gas
 6/29/2015

Azimuths to Grid North
 True North: -0.25°
 Magnetic North: -8.83°

Magnetic Field
 Strength: 52191.5nT
 Declination: 66.78°
 Date: 6/29/2014
 Model: BGGM2014

WELL DETAILS						
Downs Unit 2H						
Ground Level: 1270.0						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.0	0.0	14238877.80	1752528.96	39° 12' 38.320 N	80° 36' 15.129 W	

PROJECT DETAILS: Doddridge County WV

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

Genie Lightfoot
 11:36, June 30 2015

Scientific Drilling
 421 South Eagle Lane
 Oklahoma City, OK 73126

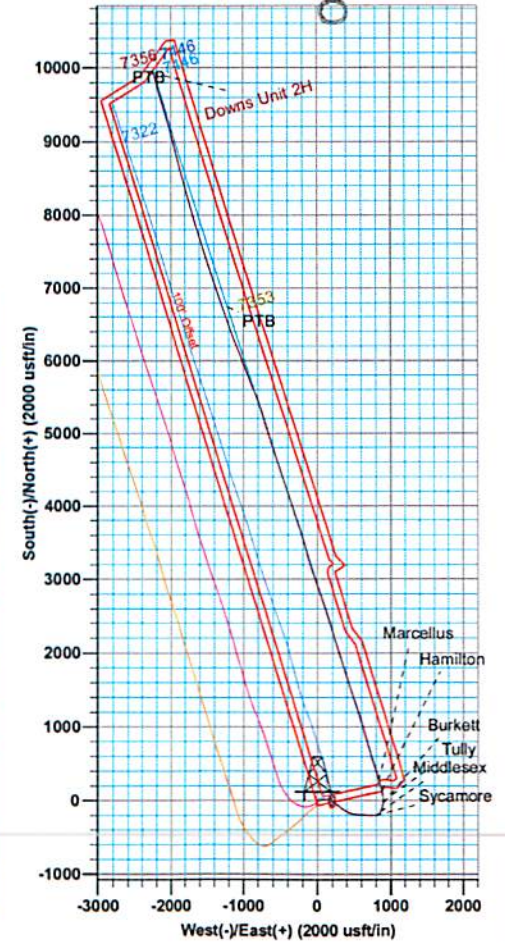
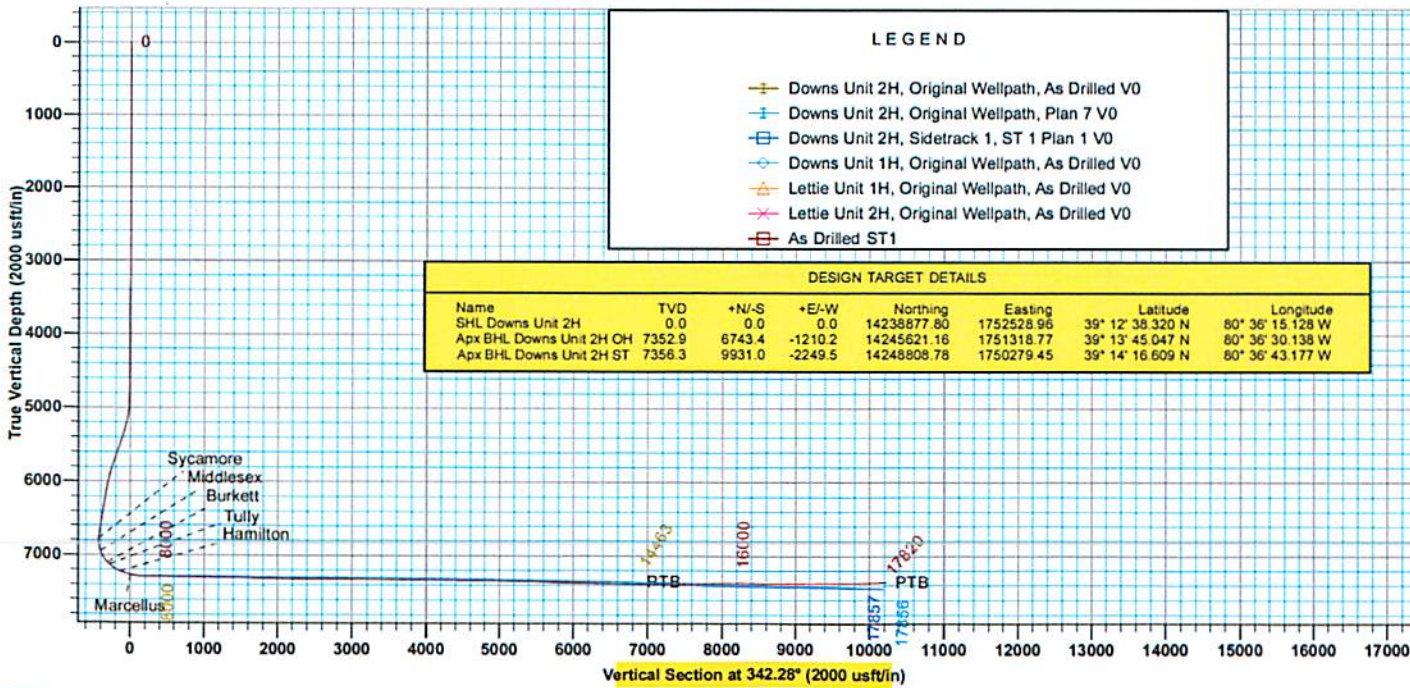
SITE DETAILS: Wagner Pad

Site Center: Lettie Unit 1H
 Site Centre Northing: 14238847.81
 Easting: 1752529.46

Positional Uncertainty: 2.0
 Convergence: 0.25
 Local North: Grid

LEGEND	
	Downs Unit 2H, Original Wellpath, As Drilled V0
	Downs Unit 2H, Original Wellpath, Plan 7 V0
	Downs Unit 2H, Sidetrack 1, ST 1 Plan 1 V0
	Downs Unit 1H, Original Wellpath, As Drilled V0
	Lettie Unit 1H, Original Wellpath, As Drilled V0
	Lettie Unit 2H, Original Wellpath, As Drilled V0
	As Drilled ST1

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Downs Unit 2H	0.0	0.0	0.0	14238877.80	1752528.96	39° 12' 38.320 N	80° 36' 15.128 W
Apx BHL Downs Unit 2H OH	7352.9	6743.4	-1210.2	14245621.16	1751318.77	39° 13' 45.047 N	80° 36' 30.138 W
Apx BHL Downs Unit 2H ST	7356.3	9931.0	-2249.5	14248808.78	1750279.45	39° 14' 16.609 N	80° 36' 43.177 W



17.06434

17-06434



Antero

Doddridge County WV

Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire

Downs Unit 2H

Sidetrack 1

Design: As Drilled ST1

EOW Completion Report

01 June, 2015



Scientific Drilling

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10/23/2015

17-06434



EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Downs Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Site:	Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire	MD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Well:	Downs Unit 2H	North Reference:	Grid
Wellbore:	Sidetrack 1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled ST1	Database:	Oklahoma District

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

Site	Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire				
Site Position:		Northing:	14,238,847.81 usft	Latitude:	39° 12' 38.023 N
From:	Map	Easting:	1,752,529.46 usft	Longitude:	80° 36' 15.124 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.25 °

Well	Downs Unit 2H, Marcellus					
Well Position	+N-S	0.0 usft	Northing:	14,238,877.80 usft	Latitude:	39° 12' 38.320 N
	+E-W	0.0 usft	Easting:	1,752,528.96 usft	Longitude:	80° 36' 15.129 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,289.0 usft	Ground Level:	1,270.0 usft

Wellbore	Sidetrack 1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	6/29/2014	-8.58	66.78	52,192

Design	As Drilled ST1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	13,125.0
Vertical Section:		Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
		0.0	0.0	0.0	342.28

Survey Program	Date 6/1/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
108.0	5,740.6	Survey #4 Def Gyro to KOP (Original Well)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
5,793.0	13,125.0	Survey #5 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	
13,178.0	17,820.0	Survey #1 MWD (Sidetrack 1)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00		
108.0	0.73	209.63	108.0	-0.6	-0.3	-0.5	0.68		
208.0	0.83	213.85	208.0	-1.8	-1.1	-1.3	0.12		
308.0	0.50	248.64	308.0	-2.5	-1.9	-1.8	0.51		
408.0	0.31	252.55	408.0	-2.8	-2.5	-1.9	0.19		
508.0	0.11	225.15	508.0	-2.9	-2.9	-1.9	0.22		
608.0	0.10	197.40	608.0	-3.1	-3.0	-2.2	0.05		
708.0	0.10	192.67	708.0	-3.2	-3.0	-2.2	0.05		
808.0	0.14	166.14	808.0	-3.4	-3.0	-2.4	0.07		
908.0	0.11	66.08	908.0	-3.5	-2.9	-2.4	0.19		

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17-06434



EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Downs Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Site:	Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire	MD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Well:	Downs Unit 2H	North Reference:	Grid
Wellbore:	Sidetrack 1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled ST1	Database:	Oklahoma District

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)		
1,008.0	0.10	115.97	1,008.0	-3.5	-2.7	-2.5			0.09
1,108.0	0.14	69.46	1,108.0	-3.5	-2.5	-2.6			0.10
1,208.0	0.10	77.29	1,208.0	-3.4	-2.3	-2.6			0.04
1,308.0	0.11	175.50	1,308.0	-3.5	-2.2	-2.7			0.16
1,408.0	0.11	102.60	1,408.0	-3.6	-2.1	-2.8			0.13
1,508.0	0.17	55.57	1,508.0	-3.6	-1.9	-2.8			0.12
1,608.0	0.12	59.53	1,608.0	-3.4	-1.7	-2.8			0.05
1,708.0	0.26	60.84	1,708.0	-3.3	-1.4	-2.7			0.14
1,808.0	0.24	92.71	1,808.0	-3.2	-1.0	-2.7			0.14
1,908.0	0.35	82.02	1,908.0	-3.1	-0.5	-2.8			0.12
2,008.0	0.27	122.62	2,008.0	-3.2	0.0	-3.1			0.23
2,108.0	0.43	129.59	2,108.0	-3.6	0.5	-3.6			0.17
2,208.0	0.34	108.21	2,208.0	-3.9	1.1	-4.1			0.17
2,308.0	0.25	99.59	2,308.0	-4.0	1.6	-4.3			0.10
2,408.0	0.18	171.76	2,408.0	-4.2	1.8	-4.6			0.26
2,508.0	0.28	139.54	2,508.0	-4.6	2.0	-5.0			0.16
2,608.0	3.86	60.92	2,607.9	-3.1	5.1	-4.5			3.81
2,708.0	8.99	61.79	2,707.2	2.2	14.9	-2.4			5.13
2,808.0	8.70	67.97	2,806.0	8.7	28.8	-0.5			0.99
2,908.0	8.26	77.30	2,905.0	13.2	42.8	-0.5			1.44
3,008.0	6.88	80.48	3,004.1	15.7	55.8	-2.0			1.44
3,108.0	5.52	80.45	3,103.5	17.5	66.4	-3.5			1.36
3,208.0	4.03	81.67	3,203.1	18.8	74.6	-4.8			1.49
3,308.0	3.11	84.84	3,302.9	19.6	80.8	-6.0			0.94
3,408.0	2.36	88.92	3,402.8	19.9	85.6	-7.1			0.77
3,508.0	1.87	91.70	3,502.8	19.8	89.3	-8.3			0.50
3,608.0	1.26	97.31	3,602.7	19.7	92.0	-9.3			0.63
3,708.0	1.01	101.76	3,702.7	19.3	93.9	-10.2			0.26
3,808.0	0.73	113.71	3,802.7	18.9	95.4	-11.0			0.33
3,908.0	0.71	119.81	3,902.7	18.3	96.5	-11.9			0.08
4,008.0	0.44	122.83	4,002.7	17.8	97.4	-12.7			0.27
4,108.0	0.24	127.34	4,102.7	17.5	97.8	-13.1			0.20
4,208.0	0.29	130.41	4,202.7	17.2	98.2	-13.5			0.05
4,308.0	0.15	85.39	4,302.7	17.0	98.5	-13.8			0.21
4,408.0	0.20	88.85	4,402.7	17.1	98.8	-13.8			0.05
4,508.0	0.23	98.38	4,502.7	17.0	99.2	-14.0			0.05
4,608.0	0.24	59.24	4,602.7	17.1	99.6	-14.0			0.16
4,708.0	1.16	70.63	4,702.7	17.5	100.7	-13.9			0.93
4,808.0	5.56	86.12	4,802.5	18.2	106.5	-15.1			4.45
4,908.0	10.34	81.98	4,901.5	19.8	120.2	-17.7			4.81
5,008.0	13.55	91.79	4,999.3	20.7	140.8	-23.2			3.79
5,108.0	15.61	106.53	5,096.1	16.5	165.5	-34.7			4.23
5,208.0	18.10	121.58	5,191.9	4.5	191.6	-54.6			5.06
5,308.0	18.36	130.14	5,286.9	-13.8	216.9	-79.1			2.69
5,408.0	18.70	130.84	5,381.7	-34.4	241.1	-106.2			0.41

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17-06434



EOW Completion Report



Company: Antero	Local Co-ordinate Reference: Well Downs Unit 2H
Project: Doddridge County WV	TVD Reference: Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Site: Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire	MD Reference: Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Well: Downs Unit 2H	North Reference: Grid
Wellbore: Sidetrack 1	Survey Calculation Method: Minimum Curvature
Design: As Drilled ST1	Database: Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,508.0	21.67	132.27	5,475.5	-57.3	266.9	-135.8	3.01
5,608.0	23.48	130.19	5,567.9	-82.6	295.7	-168.7	1.98
5,708.0	24.58	126.05	5,659.2	-107.7	327.8	-202.4	2.01
5,740.6	23.95	124.65	5,688.9	-115.5	338.7	-213.1	2.62
5,793.0	23.39	120.73	5,736.9	-126.8	356.4	-229.3	3.19
5,837.0	22.51	120.06	5,777.4	-135.5	371.2	-242.0	2.09
5,926.0	23.20	118.59	5,859.4	-152.4	401.3	-267.3	1.01
6,016.0	21.52	110.67	5,942.7	-166.7	432.3	-290.4	3.83
6,106.0	21.11	101.71	6,026.6	-175.8	463.7	-308.6	3.64
6,195.0	22.87	97.96	6,109.1	-181.5	496.5	-324.0	2.53
6,285.0	22.64	97.40	6,192.1	-186.2	531.0	-338.9	0.35
6,374.0	22.73	94.06	6,274.2	-189.6	565.1	-352.6	1.45
6,464.0	22.77	93.78	6,357.2	-192.0	599.9	-365.4	0.13
6,553.0	24.62	93.30	6,438.7	-194.2	635.6	-378.4	2.09
6,643.0	23.63	93.76	6,520.8	-196.4	672.3	-391.7	1.12
6,732.0	24.34	92.40	6,602.1	-198.4	708.4	-404.6	1.01
6,817.0	24.53	94.19	6,679.5	-200.4	743.5	-417.2	0.90
6,834.0	24.18	94.32	6,695.0	-200.9	750.5	-419.8	2.08
6,879.0	24.18	93.31	6,736.1	-202.1	768.9	-426.6	0.92
6,923.0	24.17	79.91	6,776.2	-201.1	786.8	-431.0	12.45
6,969.0	25.50	65.18	6,818.0	-195.3	805.0	-431.0	13.72
7,013.0	27.35	56.22	6,857.4	-185.7	822.0	-427.0	9.98
7,059.0	27.26	43.39	6,898.4	-172.1	838.1	-419.0	12.77
7,103.0	29.21	32.79	6,937.1	-155.8	850.8	-407.3	12.21
7,148.0	31.92	25.28	6,975.9	-135.8	861.8	-391.6	10.40
7,192.0	35.47	19.36	7,012.5	-113.2	871.1	-372.9	10.98
7,238.0	39.57	15.17	7,049.0	-86.4	879.3	-350.0	10.49
7,281.0	43.19	9.61	7,081.3	-58.7	885.4	-325.4	11.99
7,327.0	46.96	2.78	7,113.8	-26.3	888.8	-295.6	13.32
7,371.0	51.23	358.47	7,142.6	6.9	889.1	-264.1	12.20
7,417.0	56.10	355.14	7,169.8	43.9	887.0	-228.2	12.08
7,461.0	60.14	350.79	7,193.1	80.9	882.4	-191.5	12.44
7,506.0	65.42	347.66	7,213.7	120.2	874.9	-151.8	13.26
7,550.0	70.46	345.31	7,230.2	159.8	865.4	-111.1	12.48
7,580.0	71.31	345.03	7,240.0	187.2	858.1	-82.8	2.97
7,610.0	71.29	345.10	7,249.6	214.7	850.8	-54.4	0.23
7,640.0	72.19	344.85	7,259.0	242.2	843.4	-26.0	3.10
7,671.0	75.36	344.15	7,267.7	270.9	835.5	3.8	10.45
7,701.0	78.26	343.27	7,274.5	298.9	827.3	32.9	10.08
7,729.0	80.00	343.06	7,279.8	325.2	819.3	60.4	6.26
7,760.0	81.51	342.57	7,284.8	354.5	810.3		5.11
7,772.0	83.01	342.65	7,286.4	365.8	806.7		102.9
7,825.0	89.13	342.06	7,290.0	416.2	790.7		155.8
7,872.0	89.33	342.18	7,290.7	460.9	776.3		202.8

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17-06434



EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Downs Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Site:	Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire	MD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Well:	Downs Unit 2H	North Reference:	Grid
Wellbore:	Sidetrack 1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled ST1	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,962.0	89.73	341.82	7,291.4	546.5	748.5	292.8	0.60
8,051.0	88.96	344.35	7,292.4	631.6	722.6	381.7	2.97
8,140.0	89.09	344.13	7,293.9	717.3	698.4	470.7	0.29
8,230.0	89.16	343.51	7,295.3	803.7	673.3	560.6	0.69
8,319.0	89.50	343.74	7,296.3	889.1	648.2	649.6	0.46
8,409.0	89.53	344.54	7,297.1	975.7	623.6	739.6	0.89
8,498.0	89.56	342.84	7,297.8	1,061.1	598.6	828.5	1.91
8,587.0	89.60	342.48	7,298.5	1,146.0	572.1	917.5	0.41
8,677.0	89.76	341.06	7,299.0	1,231.5	544.0	1,007.5	1.59
8,766.0	89.76	341.36	7,299.3	1,315.8	515.3	1,096.5	0.34
8,856.0	89.70	341.22	7,299.8	1,401.0	486.4	1,186.5	0.17
8,945.0	89.09	342.01	7,300.7	1,485.4	458.4	1,275.5	1.12
9,035.0	89.09	341.45	7,302.1	1,570.9	430.1	1,365.4	0.62
9,124.0	89.46	342.53	7,303.3	1,655.5	402.6	1,454.4	1.28
9,214.0	89.16	342.78	7,304.3	1,741.4	375.8	1,544.4	0.43
9,303.0	88.76	341.88	7,306.0	1,826.2	348.8	1,633.4	1.11
9,393.0	88.66	342.40	7,308.0	1,911.9	321.2	1,723.4	0.59
9,482.0	88.72	341.15	7,310.0	1,996.4	293.4	1,812.4	1.41
9,572.0	88.99	340.89	7,311.8	2,081.5	264.1	1,902.3	0.42
9,662.0	89.19	344.22	7,313.2	2,167.3	237.1	1,992.3	3.71
9,751.0	88.86	344.74	7,314.8	2,253.0	213.3	2,081.2	0.69
9,840.0	88.82	343.75	7,316.6	2,338.7	189.2	2,170.1	1.11
9,930.0	89.53	342.43	7,317.9	2,424.8	163.0	2,260.1	1.67
10,020.0	90.00	341.54	7,318.2	2,510.4	135.1	2,350.1	1.12
10,109.0	90.67	341.31	7,317.7	2,594.7	106.8	2,439.1	0.80
10,198.0	90.20	342.54	7,317.0	2,679.3	79.2	2,528.1	1.48
10,288.0	90.17	341.36	7,316.7	2,764.9	51.3	2,618.1	1.31
10,377.0	89.06	340.40	7,317.3	2,849.0	22.2	2,707.1	1.65
10,467.0	88.99	339.90	7,318.9	2,933.6	-8.4	2,797.0	0.56
10,556.0	89.87	341.84	7,319.8	3,017.7	-37.6	2,886.0	2.39
10,645.0	90.30	341.36	7,319.6	3,102.1	-65.7	2,975.0	0.72
10,735.0	90.03	342.89	7,319.4	3,187.8	-93.3	3,064.9	1.73
10,824.0	90.03	343.94	7,319.3	3,273.1	-118.7	3,153.9	1.18
10,914.0	88.62	344.49	7,320.4	3,359.7	-143.2	3,243.9	1.68
11,003.0	88.59	345.07	7,322.5	3,445.5	-166.5	3,332.8	0.65
11,098.0	89.19	343.70	7,324.4	3,537.0	-192.1	3,427.7	1.57
11,193.0	89.66	342.36	7,325.3	3,627.9	-219.8	3,522.7	1.49
11,288.0	89.87	341.69	7,325.7	3,718.2	-249.1	3,617.7	0.74
11,382.0	89.93	340.86	7,325.9	3,807.3	-279.3	3,711.6	0.89
11,477.0	88.79	342.33	7,327.0	3,897.4	-309.3	3,805.5	1.96
11,572.0	88.96	343.13	7,328.8	3,988.1	-337.5	3,899.0	0.86
11,667.0	89.06	341.69	7,330.5	4,078.6	-366.2	3,996.6	1.52
11,762.0	89.50	341.67	7,331.7	4,168.8	-396.1	4,092.5	0.46
11,856.0	90.09	342.29	7,332.0	4,258.2	-425.1	4,185.6	0.91

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EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Downs Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Site:	Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire	MD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Well:	Downs Unit 2H	North Reference:	Grid
Wellbore:	Sidetrack 1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled ST1	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,951.0	90.47	341.90	7,331.5	4,348.6	-454.3	4,280.6	0.57
12,046.0	89.40	341.79	7,331.6	4,438.9	-483.9	4,375.6	1.13
12,140.0	89.13	342.27	7,332.8	4,528.3	-512.9	4,469.6	0.59
12,230.0	89.46	342.03	7,333.9	4,613.9	-540.5	4,559.5	0.45
12,320.0	89.39	342.27	7,334.9	4,699.6	-568.1	4,649.5	0.28
12,409.0	89.13	341.75	7,336.0	4,784.2	-595.6	4,738.5	0.65
12,499.0	89.23	342.65	7,337.3	4,869.9	-623.1	4,828.5	1.01
12,588.0	89.29	342.31	7,338.4	4,954.8	-649.9	4,917.5	0.39
12,678.0	89.26	343.39	7,339.6	5,040.8	-676.4	5,007.5	1.20
12,767.0	88.92	343.42	7,341.0	5,126.1	-701.9	5,096.5	0.38
12,857.0	88.69	344.05	7,342.9	5,212.4	-727.1	5,186.4	0.75
12,946.0	89.70	343.92	7,344.1	5,298.0	-751.6	5,275.4	1.14
13,036.0	89.80	341.84	7,344.5	5,384.0	-778.1	5,365.4	2.31
13,125.0	88.76	339.16	7,345.6	5,467.9	-807.8	5,454.3	3.23
13,178.0	86.26	338.35	7,347.9	5,517.2	-827.0	5,507.1	4.96
13,256.0	85.83	336.97	7,353.3	5,589.2	-856.6	5,584.7	1.85
13,301.0	86.07	337.01	7,356.5	5,630.5	-874.1	5,629.4	0.54
13,391.0	87.72	337.51	7,361.4	5,713.4	-908.8	5,718.9	1.92
13,480.0	88.19	338.31	7,364.5	5,795.8	-942.3	5,807.6	1.04
13,570.0	89.16	341.26	7,366.6	5,880.2	-973.4	5,897.5	3.45
13,660.0	89.80	341.30	7,367.4	5,965.4	-1,002.3	5,987.5	0.71
13,749.0	89.13	338.68	7,368.3	6,049.1	-1,032.7	6,076.4	3.04
13,839.0	88.96	338.10	7,369.8	6,132.7	-1,065.9	6,166.2	0.67
13,929.0	89.90	339.45	7,370.7	6,216.6	-1,098.4	6,256.0	1.83
14,018.0	89.53	338.40	7,371.1	6,299.7	-1,130.4	6,344.8	1.25
14,108.0	89.73	340.52	7,371.7	6,383.9	-1,162.0	6,434.7	2.37
14,198.0	89.83	340.57	7,372.0	6,468.8	-1,192.0	6,524.7	0.12
14,287.0	89.77	342.03	7,372.3	6,553.1	-1,220.5	6,613.7	1.64
14,377.0	88.36	341.78	7,373.8	6,638.6	-1,248.5	6,703.6	1.59
14,466.0	88.25	341.77	7,376.4	6,723.1	-1,276.3	6,792.6	0.12
14,556.0	88.56	341.34	7,379.0	6,808.5	-1,304.8	6,882.6	0.59
14,645.0	89.97	340.51	7,380.1	6,892.6	-1,333.8	6,971.5	1.84
14,735.0	91.07	342.41	7,379.3	6,977.9	-1,362.5	7,061.5	2.44
14,824.0	90.54	341.19	7,378.0	7,062.4	-1,390.2	7,150.5	1.49
14,914.0	90.74	340.24	7,377.0	7,147.4	-1,420.0	7,240.5	1.08
15,004.0	91.18	341.95	7,375.5	7,232.5	-1,449.1	7,330.4	1.96
15,093.0	89.83	341.51	7,374.7	7,317.0	-1,477.0	7,419.4	1.60
15,183.0	89.93	340.46	7,374.9	7,402.1	-1,506.3	7,509.4	1.17
15,273.0	91.61	342.27	7,373.7	7,487.4	-1,535.1	7,599.4	2.74
15,362.0	90.75	342.13	7,371.9	7,572.1	-1,562.3	7,689.3	0.98
15,452.0	90.37	341.28	7,371.0	7,657.5	-1,590.6	7,778.3	1.03
15,541.0	91.08	341.85	7,369.9	7,742.0	-1,618.7	7,867.3	1.02
15,631.0	92.22	343.70	7,367.3	7,827.9	-1,645.3	7,957.3	2.41
15,721.0	91.51	343.39	7,364.4	7,914.1	-1,670.8	8,047.2	0.86

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EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Downs Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Site:	Wagner Pad : Lettie/Downs/Bolte/Mason/McQuire	MD Reference:	Precision 523 GL 1270' + 19' RKB @ 1289.0usft
Well:	Downs Unit 2H	North Reference:	Grid
Wellbore:	Sidetrack 1	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled ST1	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
15,810.0	91.14	344.22	7,362.3	7,999.6	-1,695.6	8,136.1	1.02
15,900.0	90.00	344.68	7,361.4	8,086.3	-1,719.8	8,226.1	1.37
15,989.0	89.60	344.30	7,361.7	8,172.0	-1,743.6	8,315.0	0.62
16,079.0	88.62	344.88	7,363.1	8,258.8	-1,767.5	8,404.9	1.27
16,169.0	88.15	344.81	7,365.6	8,345.6	-1,791.0	8,494.8	0.53
16,258.0	89.43	344.54	7,367.5	8,431.4	-1,814.5	8,583.7	1.47
16,348.0	89.63	344.21	7,368.3	8,518.1	-1,838.7	8,673.6	0.43
16,438.0	89.13	345.32	7,369.2	8,604.9	-1,862.4	8,763.5	1.35
16,527.0	90.91	345.93	7,369.2	8,691.2	-1,884.5	8,852.4	2.11
16,617.0	90.00	345.76	7,368.5	8,778.4	-1,906.5	8,942.2	1.03
16,707.0	90.13	345.20	7,368.4	8,865.5	-1,929.1	9,032.1	0.64
16,796.0	90.91	345.27	7,367.6	8,951.6	-1,951.7	9,120.9	0.88
16,886.0	90.30	343.75	7,366.6	9,038.3	-1,975.8	9,210.9	1.82
16,976.0	89.77	341.49	7,366.6	9,124.2	-2,002.7	9,300.9	2.58
17,065.0	90.50	342.92	7,366.4	9,209.0	-2,029.9	9,389.9	1.80
17,155.0	90.03	342.55	7,365.9	9,294.9	-2,056.6	9,479.8	0.66
17,245.0	89.87	341.25	7,366.0	9,380.4	-2,084.5	9,569.8	1.46
17,334.0	89.83	342.80	7,366.3	9,465.1	-2,112.0	9,658.8	1.74
17,424.0	90.13	343.09	7,366.3	9,551.1	-2,138.4	9,748.8	0.46
17,514.0	90.30	342.12	7,366.0	9,637.0	-2,165.3	9,838.8	1.09
17,603.0	91.27	343.96	7,364.7	9,722.1	-2,191.2	9,927.8	2.34
17,693.0	92.12	344.47	7,362.1	9,808.7	-2,215.7	10,017.7	1.10
17,764.0	92.77	344.59	7,359.0	9,877.1	-2,234.6	10,088.6	0.93
17,820.0	92.77	344.59	7,356.3	9,931.0	-2,249.5	10,144.5	0.00
PTB							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
17,820.0	7,356.3	9,931.0	-2,249.5	PTB

Checked By: _____ Approved By: _____ Date: _____

Received
Office of Oil & Gas
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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/27/2014
Job End Date:	11/8/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06434-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Downs Unit 2H
Longitude:	-80.60401700
Latitude:	39.21073300
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,353
Total Base Water Volume (gal):	12,657,246
Total Base Non Water Volume:	575,376



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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	Antero Resources	Base Fluid	Water	7732-18-5	100.00000	89.90028	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	9.77453	
LGC-15	U.S. Well Services, LLC	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.05054	
			Petroleum Distillates	64742-47-8	60.00000	0.04786	
			Suspending agent (solid)	14808-60-7	3.00000	0.00773	
			Surfactant	68439-51-0	3.00000	0.00303	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.06382	
			Hydrogen Chloride	7647-01-1	18.00000	0.02002	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	Water	7732-18-5	40.00000	0.02529	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02529	
			Petroleum Distillates	64742-47-8	40.00000	0.02035	
			Crystalline Salt	12125-02-9	5.00000	0.00316	

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			Ethoxylated alcohol blend	Proprietary	5.00000	0.00316	
SI-1100	U.S. Well Services	Scale Inhibitor					
			Di Water	7732-18-5	80.00000	0.01063	
			Ethylene Glycol	107-21-1	40.00000	0.00601	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	10.00000	0.00179	
			2-Phosphonobutane 1,2,4 tricarboxylic salt	37971-36-1	10.00000	0.00171	
			hexamethylenediamine tetra (methylene phosphonic acid)	38820-59-6	10.00000	0.00166	
			Copolymer of Maleic and Acrylic acid	26677-99-6	10.00000	0.00157	
			bis (hexamethylene) tramine penta (methylene phosphonic acid) - phosphate acid	40623-75-4	10.00000	0.00153	
			Acrylic polymer	52255-49-9	5.00000	0.00066	
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00466	
			Deionized Water	7732-18-5	28.00000	0.00266	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00171	
AI-301	U.S. Well Services, LLC	Acid Corrosion Inhibitors					
			Diethylene Glycol	111-46-6	30.00000	0.00013	
			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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LATITUDE 39°15'00"

5,914'

8,118' TO BOTTOM HOLE

LATITUDE 39°15'00"

4,390' TO BOTTOM HOLE

14,334'

LONGITUDE 80°35'00"

COUNTY NAME PERMIT

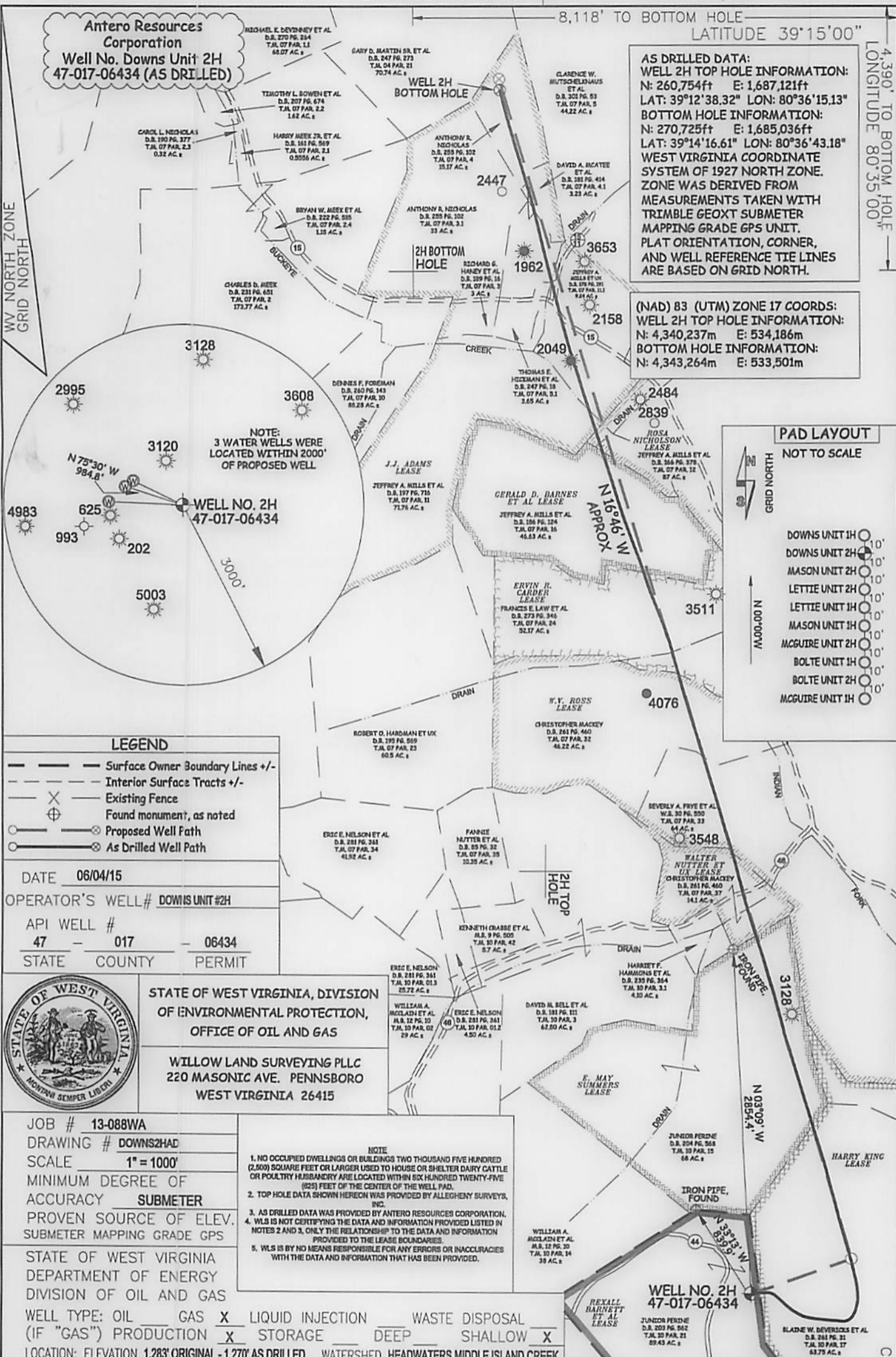
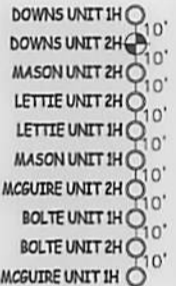
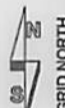
Antero Resources Corporation
Well No. Downs Unit 2H
47-017-06434 (AS DRILLED)

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
N: 260,754ft E: 1,687,121ft
LAT: 39°12'38.32" LON: 80°36'15.13"
BOTTOM HOLE INFORMATION:
N: 270,725ft E: 1,685,036ft
LAT: 39°14'16.61" LON: 80°36'43.18"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 4,340,237m E: 534,186m
BOTTOM HOLE INFORMATION:
N: 4,343,264m E: 533,501m

PAD LAYOUT

NOT TO SCALE



LEGEND

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

DATE 06/04/15
 OPERATOR'S WELL# DOWNS UNIT #2H
 API WELL # 47 - 017 - 06434
 STATE COUNTY PERMIT



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

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

JOB # 13-088WA
 DRAWING # DOWNS2HAD
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

- 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.

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

WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW
 LOCATION: ELEVATION 1,283' ORIGINAL - 1,270' AS DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE BIG ISSAC 7.5' DISTRICT GREENBRIER COUNTY DODDRIDGE

SURFACE OWNER JUNIOR PERINE ACREAGE 89.43 ACRES +/-
 OIL & GAS ROYALTY OWNER REXALL BARNETT ET AL; HARRY KING; E. MAY SUMMERS; LEASE ACREAGE 81.4 AC±; 59.3 AC±; 68 AC±;
 WALTER NUTTER ET UX; W.V. ROSS; ERVIN R. CARDER; GERALD D. BARNES ET AL; ROSA NICHOLSON; J.J. ADAMS 14.1 AC±; 132 AC±; 52.2 AC±; 46.5 AC±; 96 AC±; 136.3 AC±
 PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___
 PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,356' TVD 17,820' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
 ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM
 DENVER, CO 80202 CHARLESTON, WV 25313

10/23/2015