

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

API 47-017-06400 County Doddridge District Grant  
Quad Smithburg 7.5' Pad Name Chestnut Pad Field/Pool Name \_\_\_\_\_  
Farm name Trustees Chestnut Grove Church Well Number Hoskinson 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 4,357,131m Easting 524,023m  
Landing Point of Curve Northing 4,356,947.52m Easting 524,108.14m  
Bottom Hole Northing 4,354,224m Easting 525,206m

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 12/04/2013 Date drilling commenced 01/30/2014 Date drilling ceased 07/05/2014  
Date completion activities began 08/02/2014 Date completion activities ceased 01/13/2015  
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', 1143' 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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JUL 13 2015

Reviewed by:  
JR 8/21/15  
**10/23/2015**

API 47-017 - 06400 Farm name Trustees Chestnut Grove Church Well number Hoskinson 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	133#; J-55	N/A	Yes
Surface	17 1/2"	13 3/8"	360'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,510'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	17,021'	New	23#; P-110	N/A	Yes
Tubing		2 3/8"	7,037'		4.7#; N-80	N/A	
Packer type and depth set		N/A					

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

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	100 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	426 sx	15.6	1.18	250	0'	8 Hrs.
Coal							
Intermediate 1	Class A	935 sx	15.6	1.18	783	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,090 sx (Lead); 1,531 sx (Tail)	14.5 (Lead); 15.2 (Tail)	1.3 (Lead); 1.86 (Tail)	3,439	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17,021' MD, 7,017' TVD (BHL); 7,018' TVD (Deepest Point Drilled) Loggers TD (ft) 16,974'  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6.556'

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 \_\_\_\_\_ **RECEIVED**  
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WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_ JUL 13 2015

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_ WV Department of  
 Environmental Protection







API 47-017-06400 Farm Name Trustees Chestnut Grove Church Well Number Hoskinson Unit 2H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2-Aug-14	16,761	16,930	60	Marcellus
2	26-Sep-14	16,560	16,729	60	Marcellus
3	26-Sep-14	16,360	16,529	60	Marcellus
4	26-Sep-14	16,159	16,328	60	Marcellus
5	27-Sep-14	15,958	16,127	60	Marcellus
6	28-Sep-14	15,758	15,927	60	Marcellus
7	28-Sep-14	15,557	15,726	60	Marcellus
8	28-Sep-14	15,356	15,525	60	Marcellus
9	29-Sep-14	15,156	15,325	60	Marcellus
10	24-Nov-14	14,955	15,124	60	Marcellus
11	24-Nov-14	14,754	14,924	60	Marcellus
12	25-Nov-14	14,554	14,723	60	Marcellus
13	25-Nov-14	14,353	14,522	60	Marcellus
14	26-Nov-14	14,152	14,322	60	Marcellus
15	26-Nov-14	13,952	14,121	60	Marcellus
16	27-Nov-14	13,751	13,920	60	Marcellus
17	27-Nov-14	13,550	13,720	60	Marcellus
18	27-Nov-14	13,350	13,519	60	Marcellus
19	28-Nov-14	13,149	13,318	60	Marcellus
20	28-Nov-14	12,948	13,118	60	Marcellus
21	29-Nov-14	12,748	12,917	60	Marcellus
22	29-Nov-14	12,547	12,716	60	Marcellus
23	30-Nov-14	12,346	12,516	60	Marcellus
24	30-Nov-14	12,146	12,315	60	Marcellus
25	1-Dec-14	11,945	12,114	60	Marcellus
26	1-Dec-14	11,744	11,914	60	Marcellus
27	2-Dec-14	11,544	11,713	60	Marcellus
28	2-Dec-14	11,343	11,512	60	Marcellus
29	2-Dec-14	11,142	11,312	60	Marcellus
30	2-Dec-14	10,942	11,111	60	Marcellus
31	3-Dec-14	10,741	10,910	60	Marcellus
32	3-Dec-14	10,540	10,710	60	Marcellus
33	3-Dec-14	10,340	10,509	60	Marcellus
34	3-Dec-14	10,139	10,308	60	Marcellus
35	4-Dec-14	9,939	10,108	60	Marcellus
36	4-Dec-14	9,738	9,907	60	Marcellus
37	4-Dec-14	9,537	9,706	60	Marcellus
38	4-Dec-14	9,337	9,506	60	Marcellus
39	5-Dec-14	9,136	9,305	60	Marcellus
40	5-Dec-14	8,935	9,104	60	Marcellus
41	5-Dec-14	8,735	8,904	60	Marcellus
42	6-Dec-14	8,534	8,703	60	Marcellus
43	6-Dec-14	8,333	8,502	60	Marcellus
44	6-Dec-14	8,133	8,302	60	Marcellus
45	6-Dec-14	7,932	8,101	60	Marcellus
46	7-Dec-14	7,731	7,900	60	Marcellus
47	7-Dec-14	7,531	7,700	60	Marcellus
48	7-Dec-14	7,330	7,499	60	Marcellus
49	7-Dec-14	7,129	7,299	60	Marcellus

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API 47-017-06400 Farm Name Trustees Chestnut Grove Church Well Number Hoskinson 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	25-Sep-14	72.0	7,544	N/A	5,385	236,794	6,883	N/A
2	26-Sep-14	75.0	7,595	5,850	5,431	237,703	6,860	N/A
3	26-Sep-14	79.0	7,684	5,736	5,544	238,462	6,807	N/A
4	26-Sep-14	78.0	7,638	5,705	5,738	239,042	6,773	N/A
5	27-Sep-14	77.0	7,768	5,722	5,772	240,698	6,823	N/A
6	28-Sep-14	75.0	7,708	5,617	5,853	159,856	6,718	N/A
7	28-Sep-14	79.0	7,855	5,700	5,651	245,858	6,800	N/A
8	28-Sep-14	76.0	7,564	5,763	5,308	240,325	6,717	N/A
9	29-Sep-14	78.0	7,036	5,634	5,834	301,890	6,503	N/A
10	24-Nov-14	68.0	6,867	5,403	5,146	243,781	6,538	N/A
11	24-Nov-14	70.8	7,174	5,693	4,803	246,713	6,577	N/A
12	25-Nov-14	69.0	6,922	5,524	4,865	237,962	6,551	N/A
13	25-Nov-14	69.0	6,950	5,690	5,095	242,412	6,456	N/A
14	26-Nov-14	64.3	6,965	5,544	4,953	245,903	6,528	N/A
15	26-Nov-14	65.2	6,810	5,814	4,804	239,244	6,442	N/A
16	27-Nov-14	64.9	7,121	5,669	4,623	242,524	6,404	N/A
17	27-Nov-14	64.9	6,804	5,344	4,865	241,469	6,309	N/A
18	27-Nov-14	66.0	6,722	5,755	4,815	249,041	6,458	N/A
19	28-Nov-14	63.3	6,693	5,500	5,343	246,587	6,390	N/A
20	28-Nov-14	67.1	6,797	5,526	4,939	243,991	6,342	N/A
21	29-Nov-14	65.4	6,996	5,762	4,776	248,307	6,376	N/A
22	29-Nov-14	66.4	6,765	5,748	5,054	247,351	6,329	N/A
23	30-Nov-14	64.9	6,712	5,722	4,856	245,529	6,362	N/A
24	30-Nov-14	64.0	6,536	5,473	5,443	148,275	6,936	N/A
25	1-Dec-14	58.0	6,425	5,555	5,435	210,014	6,803	N/A
26	1-Dec-14	62.0	6,554	6,350	5,060	247,660	6,415	N/A
27	2-Dec-14	64.6	6,858	5,740	5,176	244,897	6,295	N/A
28	2-Dec-14	63.0	6,735	5,668	4,832	245,364	6,240	N/A
29	2-Dec-14	69.0	6,888	5,582	5,351	245,458	6,352	N/A
30	2-Dec-14	64.5	6,853	5,803	5,514	244,786	6,201	N/A
31	3-Dec-14	64.9	6,923	6,257	5,122	245,127	6,146	N/A
32	3-Dec-14	63.4	6,511	5,611	5,200	244,206	6,248	N/A
33	3-Dec-14	63.6	6,514	5,479	5,297	246,358	6,245	N/A
34	3-Dec-14	65.8	6,647	5,756	5,190	236,631	6,143	N/A
35	4-Dec-14	64.2	6,814	5,610	5,037	244,212	6,121	N/A
36	4-Dec-14	62.3	6,495	5,582	5,473	246,443	6,216	N/A
37	4-Dec-14	63.1	6,610	5,724	5,211	246,110	6,159	N/A
38	4-Dec-14	64.2	6,344	5,870	5,799	247,881	6,402	N/A
39	5-Dec-14	64.8	6,603	5,769	5,135	246,373	6,030	N/A
40	5-Dec-14	62.9	6,345	5,649	4,935	247,134	6,003	N/A
41	5-Dec-14	64.3	6,689	5,552	4,771	242,534	6,120	N/A
42	6-Dec-14	65.2	6,383	5,568	4,547	236,613	6,094	N/A
43	6-Dec-14	63.6	6,628	6,054	4,444	248,012	6,039	N/A
44	6-Dec-14	63.1	6,661	5,714	4,342	245,019	6,028	N/A
45	6-Dec-14	64.7	6,339	6,013	5,211	246,285	5,910	N/A
46	7-Dec-14	64.9	6,623	6,418	4,556	246,518	5,910	N/A
47	7-Dec-14	63.4	6,568	6,308	4,379	247,435	5,964	N/A
48	7-Dec-14	63.8	6,140	5,518	4,392	248,606	5,968	N/A
49	7-Dec-14	64.2	6,519	6,512	4,012	248,273	5,820	N/A
AVG=		66.9	6,855	5,741	5,088	11,807,666	311,754	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	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	2,052	est. 1787	2,052
Big Lime	2,052	2,202	2,052	2,202
Big Injun	2,202	2,635	2,202	2,635
Gantz Sand	2,635	2,776	2,635	2,776
Fifty Foot Sandstone	2,776	2,843	2,776	2,843
Gordon	2,843	3,208	2,843	3,208
Fifth Sandstone	3,208	3,245	3,208	3,245
Bayard	3,245	3,582	3,245	3,582
Warren	3,582	3,958	3,582	3,958
Speechley	3,958	4,209	3,958	4,209
Baltown	4,209	4,714	4,209	4,714
Bradford	4,714	5,203	4,714	5,203
Benson	5,203	5,453	5,203	5,453
Alexander	5,453	5,655	5,453	5,655
Eik	5,655	6,216	5,655	6,216
Rhinestreet	6,216	6,530	6,216	6,531
Sycamore	6,530	6,716	6,531	6,730
Middlesex	6,716	6,849	6,730	6,905
Burkett	6,849	6,877	6,905	6,950
Tully	6,877	6,941	6,950	7,084
Marcellus	6,941	NA	7,084	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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Hoskinson Unit 2H  
 Doddridge County WV  
 Northing: 14294304.19  
 Easting: 1719183.71  
 As Drilled

**WELL DETAILS**

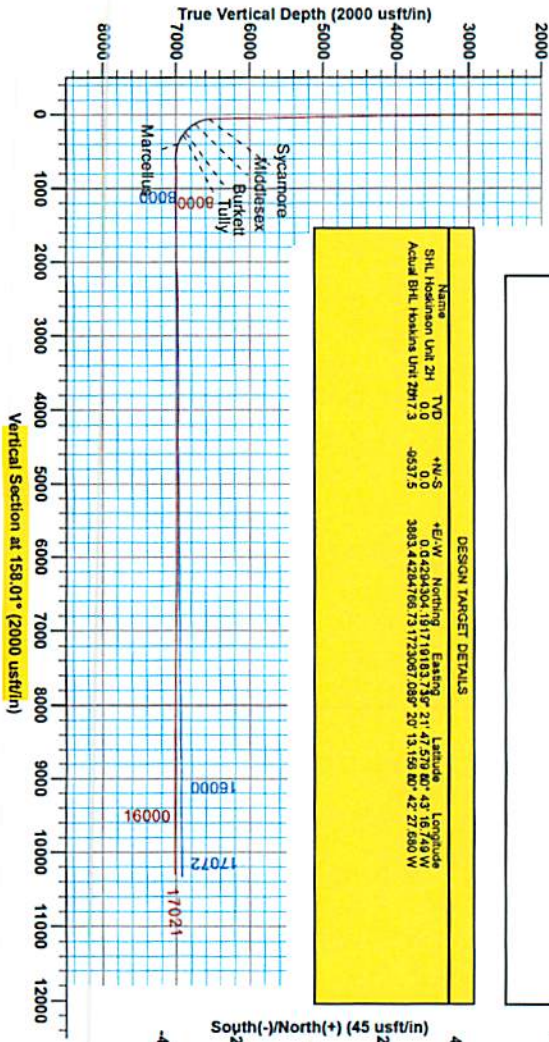
+N-/S	+E-/W	Ground Level:	1115.0	Hoskinson Unit 2H
0.0	0.0	Northing	14294304.19	
		East	1719183.71	
		Longitude	43 18 749 W	

**PROJECT DETAILS:** Doddridge County WV  
 Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1987 (NAD83 CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

Frontier 22: 1115' GL + 25' RKA @ 1140' OAH  
 Gr: 1115.0

**LEGEND**

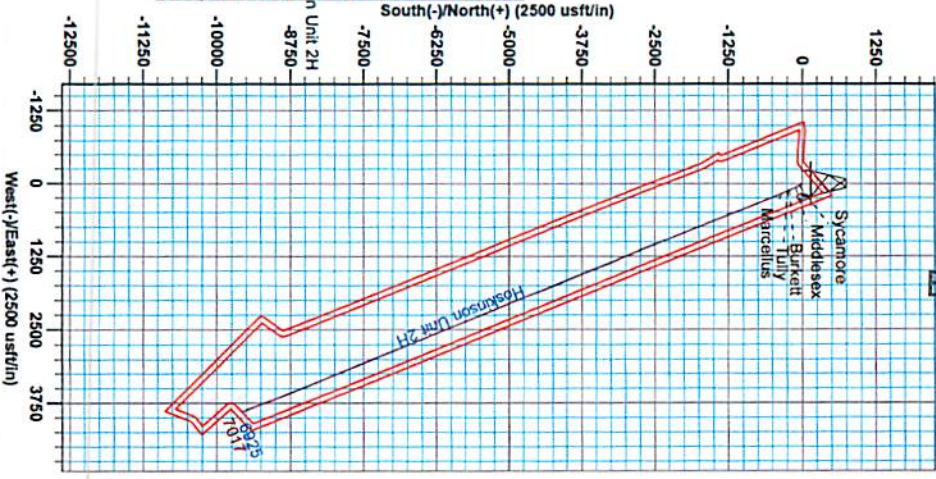
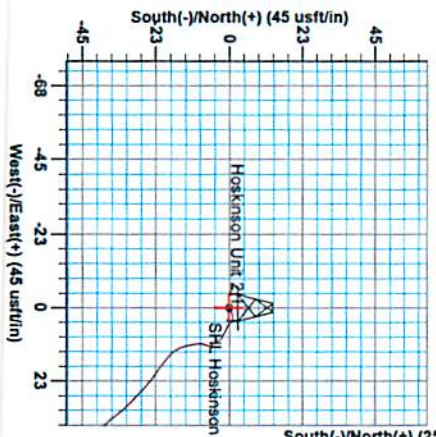
- Hoskinson Unit 2H, Original Wellpath, Plan 3 V0
- ◇ As Drilled



**SITE DETAILS:** Mashka/Mckillian/Hoskinson Pad  
 Site Center: Mashka Unit 2H  
 Mashka / Mckillian / Hoskinson  
 Site Center Northing: 14294295.71  
 Easting: 1719154.88  
 Positional Uncertainty: 2.0  
 Cornering: 0.18  
 Local North: Grid



Gene Lightfoot  
 11/23, July 07/2014  
 Scientific Drilling  
 421 South Epila Lane  
 Oklaoma City, OK 73128



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Azimuth to Grid North  
 True North: -0.16°  
 Magnetic North: -8.70°  
 Magnetic Field  
 Strength: 52370.5 nT  
 Dip Angle: 89.90°  
 Date: 1/31/2014  
 Model: IGRF2010

10/23/2015

17-06400



17-06400



## **Antero Resources**

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

**Design: As Drilled**

## **EOW Completion Report**

**07 July, 2014**

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**Scientific Drilling**

10/23/2015

17-06400



EOW Completion Report



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

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

<b>Site</b>	Mishka/McMillan/Hoskinson Pad, Site Center: Mishka Unit 2H				
<b>Site Position:</b>		<b>Northing:</b>	14,294,295.71 usft	<b>Latitude:</b>	39° 21' 47.496 N
<b>From:</b>	Map	<b>Easting:</b>	1,719,154.86 usft	<b>Longitude:</b>	80° 43' 17.117 W
<b>Position Uncertainty:</b>	2.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.18 °

<b>Well</b>	Hoskinson Unit 2H, Marcellus					
<b>Well Position</b>	<b>+N-S</b>	0.0 usft	<b>Northing:</b>	14,294,304.19 usft	<b>Latitude:</b>	39° 21' 47.579 N
	<b>+E-W</b>	0.0 usft	<b>Easting:</b>	1,719,183.71 usft	<b>Longitude:</b>	80° 43' 16.749 W
<b>Position Uncertainty</b>		2.0 usft	<b>Wellhead Elevation:</b>	1,140.0 usft	<b>Ground Level:</b>	1,115.0 usft

<b>Wellbore</b>	Original Wellpath				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/31/2014	-8.52	66.90	52,370

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	158.01	

<b>Survey Program</b>	Date 7/7/2014				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
112.0	6,485.0	Survey #4 Gyro to KOP (Original Wellpath	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,530.0	17,021.0	Survey #5 MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1	

<b>Survey</b>								
<b>MD (usft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (usft)</b>	<b>N/S (usft)</b>	<b>E/W (usft)</b>	<b>V. Sec (usft)</b>	<b>DLeg (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	
112.0	0.58	51.31	112.0	0.4	0.4	-0.2	0.52	
212.0	0.47	74.63	212.0	0.8	1.2	-0.3	0.24	
312.0	0.47	79.43	312.0	1.0	2.0	-0.1	0.04	
412.0	0.46	85.88	412.0	1.1	2.8	0.1	0.05	
512.0	0.45	103.78	512.0	1.0	3.6	0.4	0.14	
612.0	0.30	121.39	612.0	0.8	4.2	0.9	0.19	
712.0	0.25	133.12	712.0	0.5	4.6	1.8	0.08	
812.0	0.36	141.02	812.0	0.1	5.0	1.8	0.12	
912.0	0.38	123.84	912.0	-0.3	5.4	2.3	0.11	
1,012.0	0.40	111.21	1,012.0	-0.6	6.0	2.3	0.09	

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EOW Completion Report



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

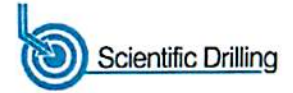
Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)		
1,112.0	0.43	107.98	1,112.0	-0.9	6.7	3.3	0.04		
1,212.0	0.29	119.38	1,212.0	-1.1	7.3	3.8	0.16		
1,312.0	0.29	135.56	1,312.0	-1.4	7.7	4.2	0.08		
1,412.0	0.33	129.45	1,412.0	-1.8	8.1	4.7	0.05		
1,512.0	0.53	97.93	1,512.0	-2.0	8.8	5.2	0.30		
1,612.0	0.30	126.17	1,612.0	-2.3	9.4	5.6	0.30		
1,712.0	0.27	159.73	1,712.0	-2.6	9.7	6.1	0.17		
1,812.0	0.45	159.73	1,812.0	-3.2	10.0	6.7	0.18		
1,912.0	0.39	133.22	1,912.0	-3.8	10.3	7.4	0.20		
2,012.0	0.24	185.22	2,012.0	-4.3	10.6	7.9	0.31		
2,112.0	0.24	130.83	2,112.0	-4.6	10.7	8.3	0.22		
2,212.0	0.29	166.10	2,212.0	-5.0	10.9	8.7	0.17		
2,312.0	0.29	102.77	2,312.0	-5.3	11.2	9.1	0.30		
2,412.0	0.26	104.83	2,412.0	-5.4	11.7	9.4	0.03		
2,512.0	0.23	193.25	2,512.0	-5.7	11.9	9.7	0.34		
2,612.0	0.28	191.87	2,611.9	-6.1	11.8	10.1	0.05		
2,712.0	0.21	201.48	2,711.9	-6.5	11.7	10.4	0.08		
2,812.0	0.33	191.16	2,811.9	-7.0	11.5	10.8	0.13		
2,912.0	0.20	187.65	2,911.9	-7.4	11.5	11.2	0.13		
3,012.0	0.17	213.82	3,011.9	-7.7	11.4	11.4	0.09		
3,112.0	0.40	196.40	3,111.9	-8.2	11.2	11.8	0.24		
3,212.0	0.56	181.54	3,211.9	-9.0	11.1	12.5	0.20		
3,312.0	0.47	171.31	3,311.9	-9.9	11.1	13.3	0.13		
3,412.0	0.54	168.57	3,411.9	-10.8	11.3	14.2	0.07		
3,512.0	0.52	169.88	3,511.9	-11.7	11.4	15.1	0.02		
3,612.0	0.51	166.18	3,611.9	-12.5	11.6	16.0	0.03		
3,712.0	0.55	164.53	3,711.9	-13.4	11.9	16.9	0.04		
3,812.0	0.61	163.71	3,811.9	-14.4	12.1	17.9	0.06		
3,912.0	0.58	153.21	3,911.9	-15.4	12.5	18.9	0.11		
4,012.0	0.58	149.44	4,011.9	-16.3	13.0	19.9	0.04		
4,112.0	0.70	140.77	4,111.9	-17.2	13.6	21.0	0.15		
4,212.0	0.75	131.44	4,211.9	-18.1	14.5	22.2	0.13		
4,312.0	0.84	128.72	4,311.9	-19.0	15.6	23.4	0.10		
4,412.0	0.98	128.46	4,411.9	-20.0	16.8	24.8	0.14		
4,512.0	1.09	126.35	4,511.9	-21.1	18.3	26.4	0.12		
4,612.0	1.08	126.24	4,611.8	-22.2	19.8	28.0	0.01		
4,712.0	0.91	122.92	4,711.8	-23.2	21.2	29.4	0.18		
4,812.0	1.04	128.90	4,811.8	-24.2	22.6	30.9	0.16		
4,912.0	1.06	131.22	4,911.8	-25.3	24.0	32.5	0.05		
5,012.0	1.28	132.66	5,011.8	-26.7	25.5	34.3	0.22		
5,112.0	1.18	134.67	5,111.7	-28.2	27.1	36.3	0.11		
5,212.0	1.34	135.05	5,211.7	-29.7	28.6	38.3	0.16		
5,312.0	1.03	133.53	5,311.7	-31.2	30.1	40.2	0.31		
5,412.0	1.12	140.26	5,411.7	-32.6	31.4	41.8	0.15		

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EOW Completion Report



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

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,512.0	0.99	141.97	5,511.7	-34.0	32.5	43.7	0.13
5,612.0	0.95	141.96	5,611.6	-35.3	33.6	45.3	0.04
5,712.0	1.01	138.95	5,711.6	-36.6	34.7	47.0	0.08
5,812.0	1.00	138.94	5,811.6	-38.0	35.8	48.6	0.01
5,912.0	0.88	141.09	5,911.6	-39.2	36.9	50.2	0.13
6,012.0	0.82	144.13	6,011.6	-40.4	37.8	51.6	0.08
6,112.0	0.86	153.89	6,111.6	-41.7	38.5	53.0	0.15
6,212.0	0.69	148.28	6,211.6	-42.8	39.2	54.4	0.19
6,312.0	0.65	156.75	6,311.6	-43.9	39.7	55.5	0.11
6,412.0	0.68	169.28	6,411.6	-45.0	40.0	56.7	0.15
6,485.0	0.58	158.34	6,484.6	-45.7	40.3	57.5	0.21
6,530.0	3.20	161.91	6,529.5	-47.2	40.7	59.0	5.83
6,556.0	6.90	160.91	6,555.4	-49.3	41.5	61.3	14.22
<b>Sycamore</b>							
6,562.0	7.75	160.81	6,561.4	-50.0	41.7	62.0	14.22
6,580.0	12.22	159.00	6,579.1	-53.0	42.8	65.1	24.89
6,613.0	15.78	158.91	6,611.1	-60.4	45.7	73.1	10.79
6,645.0	19.12	158.81	6,641.6	-69.4	49.1	82.7	10.44
6,677.0	23.01	158.27	6,671.5	-80.1	53.3	94.2	12.17
6,709.0	26.45	157.78	6,700.6	-92.5	58.3	107.6	10.77
6,741.0	29.27	156.94	6,728.8	-106.3	64.1	122.5	8.90
6,755.0	30.66	157.01	6,741.0	-112.7	66.8	129.5	9.91
<b>Middlesex</b>							
6,773.0	32.44	157.09	6,756.3	-121.4	70.5	139.0	9.91
6,806.0	36.50	157.09	6,783.5	-138.6	77.8	157.6	12.30
6,838.0	39.50	156.91	6,808.7	-156.7	85.5	177.3	9.38
6,870.0	43.31	155.27	6,832.7	-176.1	94.1	198.5	12.38
6,902.0	46.83	153.88	6,855.3	-196.5	103.8	221.1	11.42
6,930.0	49.52	154.38	6,874.0	-215.3	112.9	241.9	9.69
<b>Burkett</b>							
6,934.0	49.90	154.45	6,876.6	-218.0	114.2	244.9	9.69
6,966.0	53.02	155.04	6,896.5	-240.7	124.9	269.9	9.86
6,975.0	54.07	155.00	6,901.9	-247.2	128.0	277.2	11.66
<b>Tully</b>							
6,998.0	56.75	154.89	6,914.9	-264.4	136.0	296.1	11.66
7,030.0	60.23	154.34	6,931.6	-289.0	147.7	323.3	10.97
7,063.0	63.86	153.81	6,947.1	-315.2	160.4	352.4	11.09
7,095.0	67.27	154.25	6,960.3	-341.4	173.2	381.4	10.73
7,109.0	68.58	154.99	6,965.6	-353.1	178.7	411.2	10.53
<b>Marcellus</b>							
7,127.0	70.26	155.92	6,971.9	-368.5	185.7	441.6	10.53
7,159.0	73.16	157.33	6,982.0	-396.4	197.8	472.4	9.98
7,191.0	76.21	158.59	6,990.4	-425.0	209.4	503.7	10.26
7,223.0	79.92	158.68	6,997.0	-454.1	220.8	534.4	11.60
7,255.0	83.01	158.47	7,001.8	-483.6	232.3	565.1	11.60

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EOW Completion Report



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

Survey								
MD (usft)	Inc (")	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
7,292.0	85.74	157.50	7,005.4	-517.7	246.1	572.2	7.83	
7,382.0	92.75	157.82	7,006.6	-600.9	280.3	662.1	7.80	
7,479.0	90.70	158.74	7,003.7	-691.0	316.2	759.1	2.32	
7,575.0	89.10	156.69	7,003.8	-779.8	352.6	855.1	2.71	
7,671.0	88.35	156.55	7,006.0	-867.9	390.7	951.0	0.79	
7,768.0	89.09	158.37	7,008.1	-957.4	427.8	1,048.0	2.03	
7,864.0	92.32	160.41	7,007.0	-1,047.3	461.6	1,143.9	3.98	
7,961.0	91.88	158.40	7,003.4	-1,138.0	495.7	1,240.8	2.12	
8,057.0	91.64	156.36	7,000.5	-1,226.6	532.6	1,336.8	2.14	
8,153.0	90.47	157.48	6,998.7	-1,314.9	570.2	1,432.7	1.69	
8,250.0	89.70	156.12	6,998.6	-1,404.0	608.5	1,529.7	1.61	
8,346.0	89.80	157.34	6,999.0	-1,492.2	646.4	1,625.7	1.28	
8,442.0	91.24	158.35	6,998.1	-1,581.1	682.6	1,721.7	1.83	
8,539.0	92.15	159.14	6,995.2	-1,671.5	717.7	1,818.6	1.24	
8,635.0	88.89	156.91	6,994.4	-1,760.5	753.6	1,914.6	4.11	
8,731.0	92.08	159.39	6,993.5	-1,849.6	789.4	2,010.6	4.21	
8,828.0	92.58	158.29	6,989.6	-1,939.9	824.4	2,107.5	1.24	
8,924.0	92.12	158.65	6,985.7	-2,029.2	859.6	2,203.4	0.61	
9,021.0	91.71	157.48	6,982.4	-2,119.1	895.8	2,300.3	1.28	
9,117.0	92.01	159.89	6,979.3	-2,208.5	930.6	2,396.3	2.53	
9,213.0	89.60	160.60	6,978.0	-2,298.8	963.1	2,492.2	2.62	
9,310.0	90.17	160.17	6,978.2	-2,390.2	995.6	2,589.1	0.74	
9,406.0	90.74	157.02	6,977.4	-2,479.5	1,030.7	2,685.1	3.33	
9,503.0	90.57	157.03	6,976.3	-2,568.8	1,068.5	2,782.1	0.18	
9,599.0	90.30	156.98	6,975.6	-2,657.2	1,106.0	2,878.0	0.29	
9,696.0	91.51	158.96	6,974.0	-2,747.1	1,142.4	2,975.0	2.39	
9,792.0	89.83	155.60	6,972.9	-2,835.6	1,179.5	3,071.0	3.91	
9,888.0	90.74	156.25	6,972.4	-2,923.3	1,218.6	3,166.9	1.16	
9,984.0	91.11	155.33	6,970.9	-3,010.8	1,258.0	3,262.8	1.03	
10,081.0	89.60	157.01	6,970.3	-3,099.6	1,297.2	3,359.8	2.33	
10,177.0	89.46	155.16	6,971.1	-3,187.3	1,336.1	3,455.7	1.93	
10,273.0	89.90	157.57	6,971.6	-3,275.2	1,374.6	3,551.7	2.55	
10,370.0	90.17	157.68	6,971.5	-3,364.9	1,411.5	3,648.7	0.30	
10,460.0	90.40	159.60	6,971.1	-3,448.8	1,444.3	3,738.7	2.15	
10,551.0	90.60	158.78	6,970.3	-3,533.8	1,476.6	3,829.6	0.93	
10,641.0	90.10	158.40	6,969.7	-3,617.6	1,509.5	3,919.6	0.70	
10,732.0	89.40	156.96	6,970.1	-3,701.8	1,544.0	4,010.6	1.76	
10,823.0	90.44	158.22	6,970.3	-3,785.9	1,578.7	4,101.6	1.80	
10,913.0	87.98	157.04	6,971.5	-3,869.1	1,613.0	4,191.6	3.03	
11,004.0	88.46	156.53	6,974.3	-3,952.7	1,648.8	4,282.5	0.77	
11,095.0	88.49	158.87	6,976.8	-4,036.9	1,683.3	4,373.5	2.57	
11,185.0	88.83	158.84	6,978.9	-4,120.8	1,715.8	4,463.5	0.38	
11,276.0	89.73	157.54	6,980.0	-4,205.3	1,749.6	4,554.5	1.74	
11,366.0	90.40	158.86	6,979.9	-4,288.8	1,783.0	4,645.5	0.64	
11,457.0	90.67	158.39	6,979.1	-4,373.6	1,816.2	4,735.4	0.50	

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EOW Completion Report



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<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Frontier 22: 1115' GL + 25' RKB @ 1140.0usft
<b>Site:</b>	Mishka/McMillan/Hoskinson Pad	<b>MD Reference:</b>	Frontier 22: 1115' GL + 25' RKB @ 1140.0usft
<b>Well:</b>	Hoskinson Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Irc (")	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
11,553.0	89.40	158.05	6,979.0	-4,462.7	1,851.8	4,831.4	1.37	
11,650.0	90.64	161.47	6,979.0	-4,553.7	1,885.4	4,928.4	3.75	
11,746.0	91.58	162.89	6,977.1	-4,645.1	1,914.7	5,024.1	1.77	
11,843.0	89.50	159.11	6,976.2	-4,736.8	1,946.3	5,120.9	4.45	
11,939.0	89.23	157.81	6,977.3	-4,826.1	1,981.5	5,216.9	1.38	
12,035.0	89.97	157.31	6,977.9	-4,914.8	2,018.2	5,312.9	0.93	
12,132.0	89.33	154.30	6,978.5	-5,003.2	2,057.9	5,409.8	3.17	
12,227.0	89.83	157.02	6,979.2	-5,089.8	2,097.1	5,504.7	2.91	
12,323.0	89.97	158.10	6,979.4	-5,178.5	2,133.7	5,600.7	1.13	
12,420.0	88.96	157.32	6,980.3	-5,268.3	2,170.5	5,697.7	1.32	
12,516.0	90.37	158.44	6,980.8	-5,357.2	2,206.7	5,793.7	1.88	
12,611.0	87.42	157.62	6,982.7	-5,445.3	2,242.2	5,888.7	3.22	
12,708.0	89.00	159.61	6,985.7	-5,535.5	2,277.5	5,985.6	2.62	
12,804.0	89.16	158.95	6,987.2	-5,625.3	2,311.5	6,081.6	0.71	
12,900.0	89.40	157.51	6,988.5	-5,714.5	2,347.1	6,177.6	1.52	
12,996.0	89.60	158.00	6,989.3	-5,803.3	2,383.5	6,273.6	0.55	
13,092.0	89.40	159.17	6,990.1	-5,892.7	2,418.5	6,369.6	1.24	
13,189.0	89.63	158.55	6,991.0	-5,983.2	2,453.5	6,466.6	0.68	
13,285.0	88.99	159.10	6,992.1	-6,072.7	2,488.2	6,562.5	0.88	
13,382.0	89.77	158.82	6,993.2	-6,163.2	2,523.0	6,659.5	0.85	
13,478.0	89.80	157.74	6,993.5	-6,252.4	2,558.5	6,755.5	1.13	
13,575.0	88.79	157.49	6,994.7	-6,342.1	2,595.4	6,852.5	1.07	
13,671.0	89.53	158.19	6,996.1	-6,431.0	2,631.6	6,948.5	1.06	
13,767.0	89.23	157.21	6,997.2	-6,519.8	2,668.1	7,044.5	1.07	
13,864.0	89.19	157.70	6,998.5	-6,609.3	2,705.3	7,141.5	0.51	
13,959.0	89.83	158.34	6,999.3	-6,697.4	2,740.8	7,236.5	0.95	
14,056.0	89.80	159.42	6,999.6	-6,787.9	2,775.8	7,333.5	1.11	
14,152.0	89.50	159.35	7,000.2	-6,877.8	2,809.6	7,429.4	0.32	
14,248.0	89.60	158.64	7,001.0	-6,967.4	2,844.0	7,525.4	0.75	
14,345.0	88.79	158.08	7,002.3	-7,057.5	2,879.7	7,622.4	1.02	
14,441.0	88.56	157.50	7,004.5	-7,146.4	2,916.0	7,718.4	0.65	
14,538.0	88.39	156.79	7,007.1	-7,235.7	2,953.7	7,815.3	0.75	
14,634.0	88.79	157.71	7,009.5	-7,324.2	2,990.8	7,911.3	1.04	
14,730.0	90.07	157.96	7,010.4	-7,413.1	3,027.0	8,007.3	1.36	
14,826.0	89.97	158.38	7,010.4	-7,502.3	3,062.7	8,103.3	0.45	
14,922.0	88.93	157.82	7,011.3	-7,591.3	3,098.5	8,199.3	1.23	
15,018.0	89.90	158.54	7,012.3	-7,680.4	3,134.2	8,295.3	1.26	
15,115.0	89.53	157.12	7,012.8	-7,770.3	3,170.8	8,391.3	1.51	
15,211.0	90.23	157.31	7,013.0	-7,858.8	3,208.0	8,487.3	1.76	
15,308.0	89.40	156.53	7,013.3	-7,948.0	3,246.0	8,585.2	1.17	
15,403.0	89.90	156.67	7,013.9	-8,035.2	3,283.7	8,682.1	0.55	
15,500.0	89.26	157.31	7,014.6	-8,124.5	3,321.6	8,777.2	0.93	
15,596.0	90.03	157.30	7,015.2	-8,213.0	3,358.7	8,873.2	0.80	
15,692.0	89.50	155.09	7,015.6	-8,300.9	3,397.4	8,969.1	2.37	

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EOW Completion Report



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

MD (usft)	Inc (")	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
15,789.0	89.50	157.50	7,016.4	-8,389.7	3,436.4	9,066.1	2.48
15,885.0	90.00	157.48	7,016.9	-8,478.4	3,473.2	9,162.1	0.52
15,981.0	89.03	157.19	7,017.7	-8,566.9	3,510.2	9,258.0	1.05
16,078.0	90.60	159.09	7,018.0	-8,657.0	3,546.3	9,355.0	2.54
16,174.0	90.67	158.31	7,016.9	-8,746.4	3,581.1	9,451.0	0.82
16,270.0	90.57	157.71	7,015.9	-8,835.4	3,617.1	9,547.0	0.63
16,366.0	91.14	160.18	7,014.4	-8,925.0	3,651.6	9,643.0	2.64
16,463.0	90.67	160.18	7,012.9	-9,016.2	3,684.5	9,739.9	0.48
16,559.0	88.89	159.33	7,013.3	-9,106.3	3,717.7	9,835.9	2.05
16,656.0	89.43	160.27	7,014.7	-9,197.3	3,751.2	9,932.8	1.12
16,752.0	90.13	159.75	7,015.1	-9,287.5	3,784.0	10,028.7	0.91
16,848.0	89.23	157.88	7,015.6	-9,377.0	3,818.7	10,124.7	2.16
16,944.0	89.43	158.08	7,016.7	-9,466.0	3,854.7	10,220.7	0.29
16,962.0	89.56	158.11	7,016.9	-9,482.7	3,861.4	10,238.7	0.74
17,021.0	89.56	158.11	7,017.3	-9,537.5	3,883.4	10,297.7	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,556.0	6,555.4	-49.3	41.5	Sycamore
6,755.0	6,741.0	-112.7	66.8	Middlesex
6,930.0	6,874.0	-215.3	112.9	Burkett
6,975.0	6,901.9	-247.2	128.0	Tully
7,109.0	6,965.6	-353.1	178.7	Marcellus

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

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/25/2014
Job End Date:	12/7/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06400-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Hoskinson Unit 2H
Longitude:	-80.72114200
Latitude:	39.36330300
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,018
Total Base Water Volume (gal):	13,543,488
Total Base Non Water Volume:	0



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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	90.31328	
Sand, White, 40/70	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00000	5.09646	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00000	3.43904	
Sand, White, 100 mesh	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00000	0.64369	
GW-3LDF	Baker Hughes	Gelling Agent	Mineral Oil	8042-47-5	70.00000	0.06591	SmartCare Product
			Guar Gum	9000-30-0	60.00000	0.05649	SmartCare Product
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.02825	SmartCare Product
			Petroleum Distillates	64742-47-8	30.00000	0.02825	SmartCare Product
			Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00471	SmartCare Product
			Crystalline Silica: Quartz	14808-60-7	5.00000	0.00471	SmartCare Product
			1-butoxy-2-propanol	5131-66-8	5.00000	0.00471	SmartCare Product
HCl, 10.1 - 15%	Baker Hughes	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03025	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer					

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			Hydrotreated Light Distillate	64742-47-8	30.00000	0.01713	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor					
			Ethylene Glycol	107-21-1	45.00000	0.00661	SmartCare Product
			Calcium Chloride	10043-52-4	5.00000	0.00073	SmartCare Product
Alpha 1427	Baker Hughes	Biocide					
			Glutaraldehyde	111-30-8	30.00000	0.00383	SmartCare Product
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00128	SmartCare Product
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00064	SmartCare Product
			Ethanol	64-17-5	5.00000	0.00064	SmartCare Product
Calcium Chloride	Baker Hughes	Salts					
			Calcium Chloride	10043-52-4	100.00000	0.00080	
			Potassium Chloride	7447-40-7	5.00000	0.00004	
			Sodium Chloride	7447-40-7	5.00000	0.00004	
Ferrotrol 300L	Baker Hughes	Iron Control					
			Citric Acid	77-92-9	60.00000	0.00084	SmartCare Product
CI-14	Baker Hughes	Corrosion Inhibitor					
			Methanol	67-56-1	100.00000	0.00032	SmartCare Product
			Polyoxyalkylenes	Trade Secret	30.00000	0.00010	SmartCare Product
			Fatty Acids	Trade Secret	10.00000	0.00003	SmartCare Product
			Olefin	Trade Secret	5.00000	0.00002	SmartCare Product
			Propargyl Alcohol	107-19-7	5.00000	0.00002	SmartCare Product
Enzyme G-NE	Baker Hughes	Breaker					
			Contains non-hazardous ingredients which are listed in the non-MSDS section of the report	NA			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.							
		Other Chemicals					
			Water	7732-18-5		0.22262	
			Poly (acrylamide-co-acrylic acid) partial sodium salt	Trade Secret		0.01713	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9		0.00294	
			Ammonium Chloride	12125-02-9		0.00171	
			Oleamide DEA	93-83-4		0.00114	
			Alcohols, C12-16, ethoxylated	Trade Secret		0.00114	
			Hemicellulase Enzyme Concentrate	9025-56-3		0.00067	
			Sorbitan Monooleate	Trade Secret		0.00029	
			Polyoxythylene Sorbitan Monooleate	9005-65-6		0.00029	
			Potassium Chloride	7447-40-7		0.00015	
			Sodium Chloride	7647-14-5		0.00015	
			2-butoxy-1-propanol	Trade Secret		0.00009	
			Modified Thiourea Polymer	68527-49-1		0.00002	

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			Formaldehyde	50-00-0		0.00000	
			Hydrochloric Acid	7647-01-0		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%

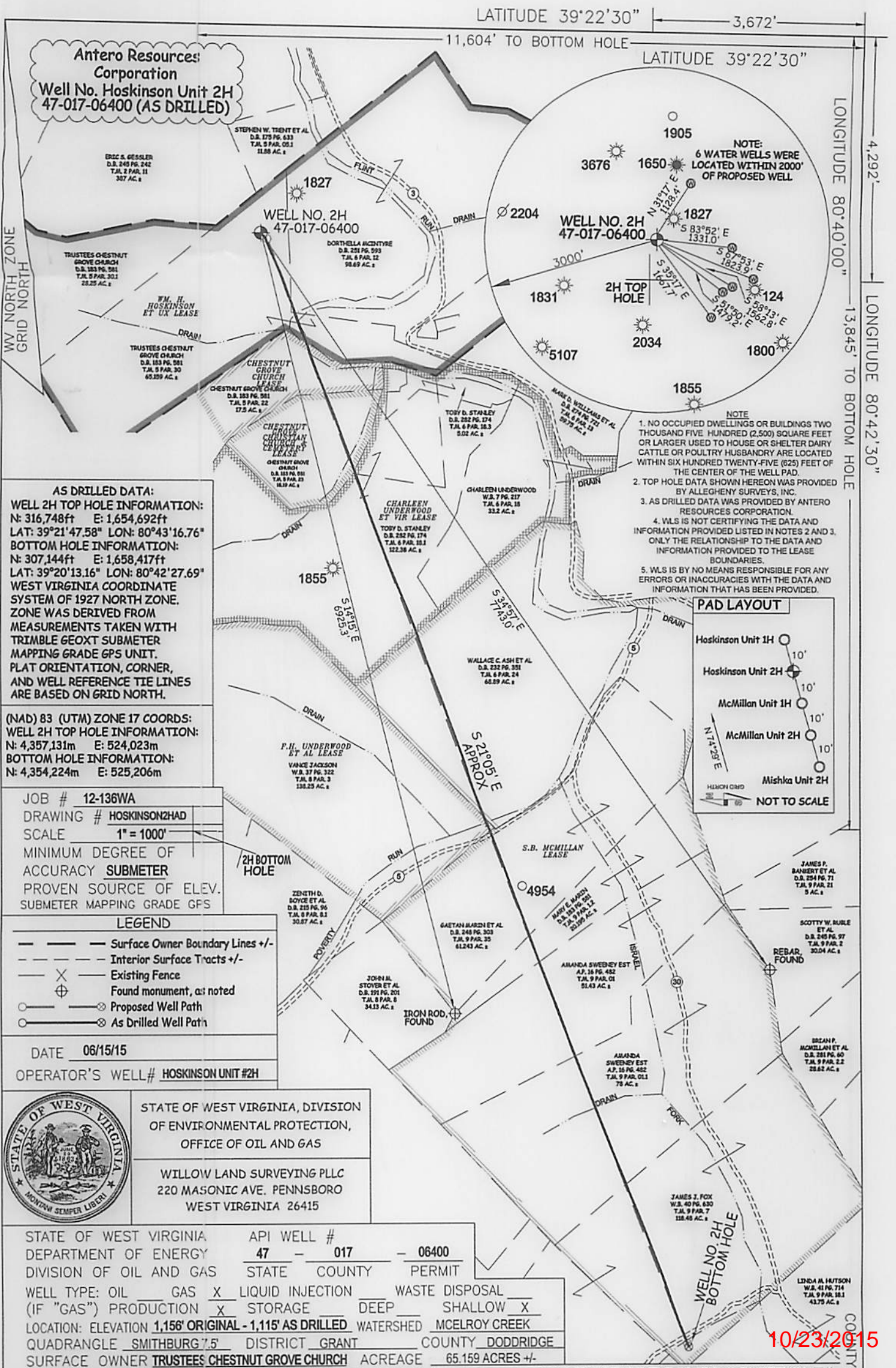
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.  
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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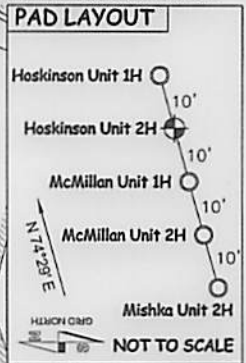
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NOTE:  
6 WATER WELLS WERE LOCATED WITHIN 2000' OF PROPOSED WELL

- 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.



10/23/2015