WR-35
Rev. 8/23/13

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

RECEIVED
MAY 20 2016
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

API 47 - 085 - 10079 County Ritchie District Clay
Quad Pullman 7.5' Pad Name Edwin Field/Pool Name ----
Farm name Quimby, Franklin P. Well Number Moats 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 4342354m Easting 508388m
Landing Point of Curve Northing 4342126.54m Easting 507901.16m
Bottom Hole Northing 4340391m Easting 508714m

Elevation (ft) 1191' 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 12/10/2014 Date drilling ceased 9/7/2015
Date completion activities began 10/16/2015 Date completion activities ceased 2/21/2016
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 49' Open mine(s) (Y/N) depths No
Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths No
Coal depth(s) ft 1287' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

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API 47- 085 - 10079 Farm name Quimby, Franklin P. Well number Moats 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	30"	20"	40'	New	94# H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	333'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2557'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	13615'	New	20# P-110	N/A	Y
Tubing		2-3/8"	6950'		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	200 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	493 sx	15.6	1.18	231	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1003 sx	15.6	1.18	801	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	953 sx (Lead) 1060 sx (Tail)	13.5 Lead 15.2 Tail	1.30 Lead 1.85 Tail	2648	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 13615' MD, 6646' TVD (BHL), 6647' (Deepest Point Drilled) Loggers TD (ft) 13566'

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

Plug back procedure N/A

Kick off depth (ft) 6271'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Hornet Unit 1H API #47-085-10062). Please reference the wireline logs submitted with Form WR-35 for Hornet 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- 085 - 10079 Farm name Quimby, Franklin P. Well number Moats 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- 085 - 10079 Farm name Quimby, Franklin P. Well number Moats Unit 1H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6479' (top) TVD	7006' (top) MD	

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	10737 mcfpd	88 bpd	--- bpd	672 bpd	□ 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_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 17701

Logging Company Rush Wellsite Services
Address 60 Alpha Dr. City Canonsburg State PA Zip 15317

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main St. 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.

Completed by Kara Quackenbush Telephone 303-357-7233
Signature _____ Title Permit Representative Date 5/13/2016

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

API 47-085-10079 Farm Name Quimby, Franklin P. Well Number Moats 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	49'	N/A	49'	N/A
Sandy Shale	0	187	0	187
Sandstone	est. 187	447	est. 187	447
Shale/Siltstone	est. 447	647	est. 447	647
Shaley Limestone	est. 647	727	est. 647	727
Shale/Siltstone	est. 727	1127	est. 727	1127
Shaley Limestone	est. 1127	1287	est. 1127	1287
Coal	est. 1287	1307	est. 1287	1307
Shaley Limestone (trace coal)	est. 1307	1627	est. 1307	1627
Shale/Siltstone	est. 1627	1787	est. 1627	1787
Sandstone/Siltstone	est. 1787	1827	est. 1787	1827
Sandstone/Siltstone with trace coal	est. 1827	2007	est. 1827	2007
Silty Sandstone	est. 2007	2160	est. 2007	2162
Big Lime	2160	2258	2162	2260
Big Injun	2258	2659	2260	2661
Gantz Sand	2659	2858	2661	2861
Fifty Foot Sandstone	2858	2659	2861	2922
Gordon	2659	2858	2922	3070
Fifth Sandstone	2858	2918	3070	3213
Bayard	2918	3061	3213	3659
Warren	3061	3199	3659	4116
Speechley	3199	3623	4116	4371
Baltown	3623	4038	4371	4864
Bradford	4038	4266	4864	5279
Benson	4266	4709	5279	5565
Alexander	4709	5081	5565	5804
Elk	5081	5319	5804	6209
Rhinestreet	5319	5536	6209	6542
Sycamore	5536	5918	6542	6729
Middlesex	5918	6215	6729	6892
Burkett	6215	6372	6892	6946
Tully	6372	6479	6946	7006
Marcellus	6479	NA	7006	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.

API 47-085-10079 **Farm Name** Quimby, Franklin P. **Well Number** Moats 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	17-Jan-16	72.0	7,085	N/A	4,210	237,820	6,339	N/A
2	17-Jan-16	72.0	7,078	5,597	4,948	236,790	6,518	N/A
3	17-Jan-16	70.4	6,886	5,728	5,119	246,620	6,429	N/A
4	17-Jan-16	70.9	6,731	5,598	4,803	247,240	6,402	N/A
5	18-Jan-16	72.0	6,737	5,515	5,249	248,635	6,377	N/A
6	18-Jan-16	71.0	6,866	5,156	4,989	245,280	6,515	N/A
7	18-Jan-16	71.6	6,881	5,385	4,763	248,500	6,356	N/A
8	19-Jan-16	65.5	7,732	5,555	4,233	105,520	6,718	N/A
9	19-Jan-16	66.0	7,434	6,134	4,052	129,210	6,740	N/A
10	20-Jan-16	71.0	7,308	5,509	5,755	238,620	6,950	N/A
11	20-Jan-16	67.0	7,370	5,434	3,744	250,300	7,207	N/A
12	25-Jan-16	59.0	7,805	5,568	6,010	66,650	5,966	N/A
13	31-Jan-16	42.2	8,511	6,955	4,724	9,550	5,134	N/A
14	31-Jan-16	71.2	6,735	6,126	4,336	248,870	6,427	N/A
15	31-Jan-16	72.6	6,485	5,762	4,294	246,910	6,265	N/A
16	1-Feb-16	72.7	6,348	5,400	4,458	249,150	6,290	N/A
17	1-Feb-16	71.1	6,344	5,312	5,156	247,290	6,226	N/A
18	1-Feb-16	64.4	6,263	5,722	5,133	222,250	7,136	N/A
19	1-Feb-16	72.0	6,252	5,370	4,471	227,190	6,317	N/A
20	1-Feb-16	72.0	6,428	5,559	4,307	226,650	6,173	N/A
21	2-Feb-16	73.0	6,437	5,559	5,353	246,010	6,203	N/A
22	2-Feb-16	71.6	6,266	5,085	4,707	247,020	6,184	N/A
23	2-Feb-16	71.7	6,137	4,977	4,327	247,490	6,190	N/A
24	2-Feb-16	71.0	5,972	5,325	3,292	152,300	4,886	N/A
25	3-Feb-16	71.8	5,923	5,113	4,161	246,870	6,188	N/A
26	3-Feb-16	71.2	6,133	5,809	3,759	247,520	6,328	N/A
27	3-Feb-16	71.2	5,884	5,465	4,918	247,350	6,250	N/A
28	3-Feb-16	73.0	6,145	5,595	4,606	246,810	6,532	N/A
29	4-Feb-16	72.0	5,997	4,853	4,930	247,960	6,069	N/A
30	4-Feb-16	72.4	6,043	4,916	5,095	247,370	6,610	N/A
31	4-Feb-16	71.7	5,906	5,580	4,969	247,120	6,101	N/A
32	4-Feb-16	73.0	5,978	5,541	4,961	246,095	6,026	N/A
33	4-Feb-16	72.0	6,079	6,657	4,459	250,710	6,851	N/A
AVG=		**69.8**	**6,611**	**5,558**	**4,675**	**7,299,670**	**6,330**	TOTAL

API 47-085-10079 Farm Name Quimby, Franklin P. Well Number Moats Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	16-Oct-15	13,357	13,524	60	Marcellus
2	17-Jan-16	13,160	13,327	60	Marcellus
3	17-Jan-16	12,963	13,129	60	Marcellus
4	17-Jan-16	12,765	12,932	60	Marcellus
5	18-Jan-16	12,568	12,734	60	Marcellus
6	18-Jan-16	12,370	12,537	60	Marcellus
7	18-Jan-16	12,173	12,339	60	Marcellus
8	19-Jan-16	11,975	12,142	60	Marcellus
9	19-Jan-16	11,778	11,945	60	Marcellus
10	20-Jan-16	11,581	11,747	60	Marcellus
11	20-Jan-16	11,383	11,550	60	Marcellus
12	25-Jan-16	11,186	11,352	60	Marcellus
13	31-Jan-16	10,988	11,155	60	Marcellus
14	31-Jan-16	10,791	10,957	60	Marcellus
15	31-Jan-16	10,593	10,760	60	Marcellus
16	1-Feb-16	10,396	10,563	60	Marcellus
17	1-Feb-16	10,199	10,365	60	Marcellus
18	1-Feb-16	10,001	10,168	60	Marcellus
19	1-Feb-16	9,804	9,970	60	Marcellus
20	1-Feb-16	9,606	9,773	60	Marcellus
21	2-Feb-16	9,409	9,575	60	Marcellus
22	2-Feb-16	9,211	9,378	60	Marcellus
23	2-Feb-16	9,014	9,181	60	Marcellus
24	2-Feb-16	8,817	8,983	60	Marcellus
25	3-Feb-16	8,619	8,786	60	Marcellus
26	3-Feb-16	8,422	8,588	60	Marcellus
27	3-Feb-16	8,224	8,391	60	Marcellus
28	3-Feb-16	8,027	8,193	60	Marcellus
29	4-Feb-16	7,829	7,996	60	Marcellus
30	4-Feb-16	7,632	7,799	60	Marcellus
31	4-Feb-16	7,435	7,601	60	Marcellus
32	4-Feb-16	7,237	7,404	60	Marcellus
33	4-Feb-16	7,040	7,206	60	Marcellus

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/17/2016
Job End Date:	2/4/2016
State:	West Virginia
County:	Ritchie
API Number:	47-085-10079-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Moats 1H
Longitude:	-80.90281700
Latitude:	39.23044200
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,647
Total Base Water Volume (gal):	9,077,136
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Oil & Gas

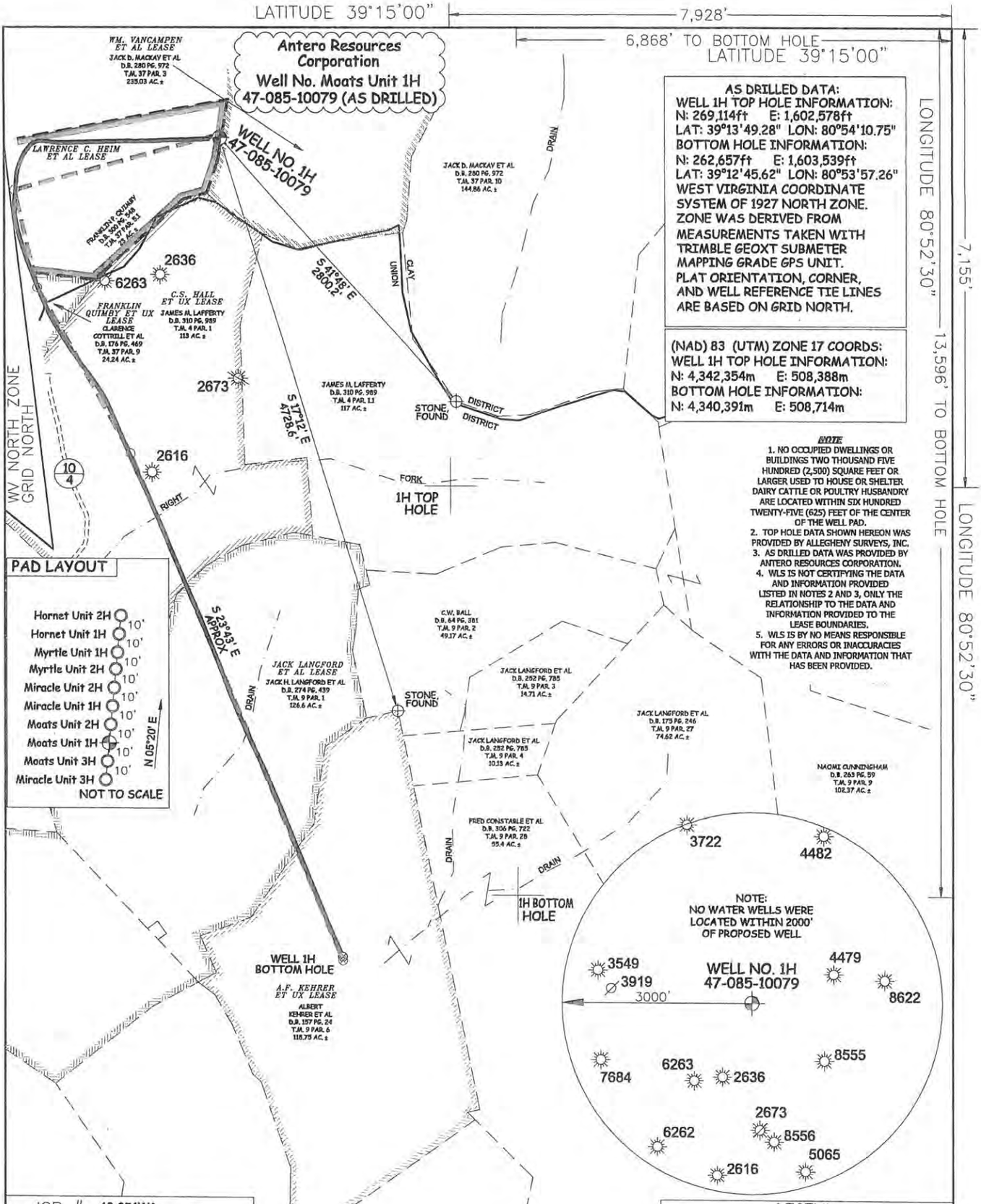
Hydraulic Fracturing Fluid Composition:

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	90.71367	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	8.74704	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.19655	
			Hydrogen Chloride	7647-01-0	18.00000	0.04695	
LGC-15	U.S. Well Services	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.08704	
			Petroleum Distillates	64742-47-8	60.00000	0.08243	
			Suspending agent (solid)	14808-60-7	3.00000	0.01331	
			Surfactant	68439-51-0	3.00000	0.00522	
WFRA-405	U.S. Well Services	Friction Reducer					
			Water	7732-18-5	60.00000	0.03989	
			2-Propenoic acid, polymer with 2-propenamide	9003-06-9	30.00000	0.01994	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01605	
			Ethoxylated alcohol blend	68002-97-1	4.00000	0.00266	

SI-1100	U.S. Well Services	Scale Inhibitor					
			Water	7732-18-5	80.00000	0.01087	
			Ethylene Glycol	107-21-1	25.00000	0.00384	
			Copolymer of Maleic and Acrylic acid	52255-49-9	10.00000	0.00160	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	7.50000	0.00138	
			Hexamethylene tramine penta (methylene phosphonic acid)	34690-00-1	5.00000	0.00088	
			Phosphino carboxylic acid polymer	71050-62-9	5.00000	0.00088	
			Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5	2.00000	0.00035	
K-BAC 1020	U.S. Well Services	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00423	
			Deionized Water	7732-18-5	28.00000	0.00242	
AP One	U.S. Well Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00229	
AI-302	U.S. Well Services	Acid Corrosion Inhibitors					
			Water	7732-18-5	95.00000	0.00043	
			2-Propyn-1-olcompound with methyloxirane	38172-91-7	15.00000	0.00007	
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)



JOB # 13-051WA
DRAWING # MOATS1HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

DATE 2/24/2016
OPERATOR'S WELL# MOATS UNIT #1H

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

API WELL # 47 – 085 – 10079
STATE COUNTY PERMIT

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 1,216' ORIGINAL - 1,191' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PULLMAN 7.5' DISTRICT CLAY (TH) UNION (BH) COUNTY RITCHIE
SURFACE OWNER FRANKLIN P. QUIMBY ACREAGE 23 ACRES +/-
OIL & GAS ROYALTY OWNER LAWRENCE C. HEIM ET AL; FRANKLIN QUIMBY ET UX; C.S. HALL ET UX; JACK LANGFORD ET AL; A.F. KEHRER ET UX LEASE ACREAGE 53 AC±; 28.4289 AC±; 113 AC±; 448.5 AC±; 118.75 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 6,646' TVD 13,615' MD

WELL OPERATOR ANTERO RESOURCES CORP.
ADDRESS 1615 WYNKOOP STREET
DENVER, CO 80202

DESIGNATED AGENT DIANNA STAMPER
ADDRESS CT CORPORATION SYSTEM
5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

COUNTY NAME PERMIT

FORM WW-6