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WR-35
Rev. 8/23/13

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV
State of West Virginia

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

API 47 - 017 - 06247 County Doddridge District Grant
Quad Smithburg 7.5' Pad Name RJ Smith Pad Field/Pool Name _____
Farm name Smith, Robert J. Well Number Duff 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 4,357,417m Easting 523,018m
Landing Point of Curve Northing 4,357,265.97m Easting 523,079.98m
Bottom Hole Northing 4,354,353m Easting 524,252m

Elevation (ft) 998' 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 06/19/2013 Date drilling commenced 12/27/2013 Date drilling ceased 01/31/2014
Date completion activities began 05/29/2014 Date completion activities ceased 09/03/2014
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

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

Freshwater depth(s) ft 231' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1,425' 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: _____

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API 47-017 - 06247

Farm name Smith, Robert J.

Well number Duff 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"	483'	New	48#; H-40	N/A	Yes
Coal							
Intermediate 1	12 1/4"	9 5/8"	2,636'	New	36#; J-55	N/A	Yes
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	17,496'	New	23#; P-110	N/A	Yes
Tubing		2 3/8"	6,966'		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	100 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	569 sx	15.6	1.18	335	0'	8 Hrs.
Coal							
Intermediate 1	Class A	963 sx	15.6	1.18	826	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1,055 sx (Lead); 1,636 sx (Tail)	14.5 (Lead); 15.2 (Tail)	1.3 (Lead); 1.86 (Tail)	3,519	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17,496' MD, 6,826' TVD (BHL) 6,889' TVD (Deepest Point Drilled)

Loggers TD (ft) 17,448'

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6,431'

Check all wireline logs run **

- caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No

Conventional Sidewall

Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Conductor- 0

Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface

Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface

Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE Yes No

DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No

DETAILS _____

WERE TRACERS USED Yes No

TYPE OF TRACER(S) USED _____

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API 47- 017 - 06247 Farm name Smith, Robert J. Well number Duff Unit 2H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6,824' (top) TVD	6,967' (top) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3550 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 12,009 mcfpd Oil 31 bpd NGL _____ bpd Water 159 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 17701

Logging Company Cased Hole Solutions
Address 100 Arentzen Blvd. City Charleroi State PA Zip 15022

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

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

Please insert additional pages as applicable.

Completed by Megan Darling Telephone 303-357-7230
Signature Megan C. Darling Title Permitting Agent Date 05/22/2015

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

API 47-017-06247 Farm Name Smith, Robert J. Well Number Duff Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	29-May-14	17,236	17,405	60	Marcellus
2	17-Jul-14	17,036	17,205	60	Marcellus
3	18-Jul-14	16,836	17,005	60	Marcellus
4	18-Jul-14	16,636	16,805	60	Marcellus
5	18-Jul-14	16,436	16,605	60	Marcellus
6	18-Jul-14	16,236	16,405	60	Marcellus
7	19-Jul-14	16,037	16,205	60	Marcellus
8	20-Jul-14	15,837	16,005	60	Marcellus
9	20-Jul-14	15,637	15,805	60	Marcellus
10	21-Jul-14	15,437	15,605	60	Marcellus
11	22-Jul-14	15,237	15,406	60	Marcellus
12	22-Jul-14	15,037	15,206	60	Marcellus
13	22-Jul-14	14,837	15,006	60	Marcellus
14	23-Jul-14	14,637	14,806	60	Marcellus
15	23-Jul-14	14,437	14,606	60	Marcellus
16	24-Jul-14	14,238	14,406	60	Marcellus
17	24-Jul-14	14,038	14,206	60	Marcellus
18	24-Jul-14	13,838	14,006	60	Marcellus
19	24-Jul-14	13,638	13,806	60	Marcellus
20	25-Jul-14	13,438	13,607	60	Marcellus
21	25-Jul-14	13,238	13,407	60	Marcellus
22	25-Jul-14	13,038	13,207	60	Marcellus
23	25-Jul-14	12,838	13,007	60	Marcellus
24	26-Jul-14	12,638	12,807	60	Marcellus
25	27-Jul-14	12,439	12,607	60	Marcellus
26	27-Jul-14	12,239	12,407	60	Marcellus
27	27-Jul-14	12,039	12,207	60	Marcellus
28	28-Jul-14	11,839	12,007	60	Marcellus
29	28-Jul-14	11,639	11,808	60	Marcellus
30	28-Jul-14	11,439	11,608	60	Marcellus
31	28-Jul-14	11,239	11,408	60	Marcellus
32	29-Jul-14	11,039	11,208	60	Marcellus
33	29-Jul-14	10,839	11,008	60	Marcellus
34	29-Jul-14	10,640	10,808	60	Marcellus
35	29-Jul-14	10,440	10,608	60	Marcellus
36	29-Jul-14	10,240	10,408	60	Marcellus
37	30-Jul-14	10,040	10,208	60	Marcellus
38	30-Jul-14	9,840	10,009	60	Marcellus
39	30-Jul-14	9,397	9,565	60	Marcellus
40	31-Jul-14	9,198	9,366	60	Marcellus
41	31-Jul-14	8,998	9,166	60	Marcellus
42	1-Aug-14	8,799	8,967	60	Marcellus
43	1-Aug-14	8,600	8,768	60	Marcellus
44	1-Aug-14	8,401	8,569	60	Marcellus
45	1-Aug-14	8,201	8,369	60	Marcellus
46	2-Aug-14	8,002	8,170	60	Marcellus
47	2-Aug-14	7,803	7,971	60	Marcellus
48	3-Aug-14	7,604	7,772	60	Marcellus
49	3-Aug-14	7,404	7,572	60	Marcellus
50	3-Aug-14	7,205	7,373	60	Marcellus
51	3-Aug-14	7,006	7,174	60	Marcellus

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EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	17-Jul-14	74.0	7,601	5,957	4,908	242,686	7,276	N/A
2	18-Jul-14	74.0	7,939	6,627	4,913	264,014	6,891	N/A
3	18-Jul-14	74.0	7,468	5,927	5,503	261,043	6,826	N/A
4	18-Jul-14	74.0	7,587	6,185	4,950	273,275	6,828	N/A
5	18-Jul-14	75.7	7,574	6,575	4,867	251,278	7,310	N/A
6	19-Jul-14	75.3	7,740	6,212	4,544	259,940	6,952	N/A
7	20-Jul-14	76.7	7,706	6,057	4,839	225,818	7,284	N/A
8	20-Jul-14	76.0	7,842	6,247	5,058	253,651	6,757	N/A
9	21-Jul-14	76.0	7,756	6,455	5,429	259,933	8,038	N/A
10	21-Jul-14	75.0	5,273	6,224	5,109	210,653	6,689	N/A
11	22-Jul-14	74.0	6,717	6,417	4,553	256,193	6,646	N/A
12	22-Jul-14	75.0	7,590	5,800	4,803	256,968	7,021	N/A
13	22-Jul-14	78.0	7,638	6,496	5,565	261,606	6,667	N/A
14	23-Jul-14	80.0	7,779	6,370	4,895	249,290	6,507	N/A
15	23-Jul-14	74.0	7,481	6,134	5,619	257,297	7,259	N/A
16	24-Jul-14	79.0	7,477	5,791	4,795	260,481	6,598	N/A
17	24-Jul-14	80.0	7,514	5,874	4,767	256,949	6,643	N/A
18	24-Jul-14	79.0	7,658	6,259	5,411	258,041	6,621	N/A
19	24-Jul-14	85.0	7,520	6,047	4,706	255,242	6,547	N/A
20	25-Jul-14	83.0	7,588	5,821	4,534	257,973	6,514	N/A
21	25-Jul-14	82.0	7,617	6,292	4,380	248,604	6,520	N/A
22	25-Jul-14	75.0	7,725	5,768	5,219	124,936	6,459	N/A
23	26-Jul-14	78.0	7,471	5,760	4,454	261,996	6,528	N/A
24	27-Jul-14	69.0	7,493	5,641	4,516	243,425	6,521	N/A
25	27-Jul-14	80.0	7,819	5,947	5,456	171,486	6,824	N/A
26	27-Jul-14	75.0	7,560	5,770	4,859	260,656	6,377	N/A
27	27-Jul-14	77.0	7,501	5,572	4,535	215,777	6,407	N/A
28	28-Jul-14	81.0	7,711	3,880	5,194	239,903	6,396	N/A
29	28-Jul-14	77.0	7,316	5,775	4,454	162,362	5,270	N/A
30	28-Jul-14	59.0	6,918	5,800	4,269	122,978	5,270	N/A
31	28-Jul-14	75.0	7,680	5,865	4,550	261,626	5,270	N/A
32	29-Jul-14	77.0	7,143	5,397	4,141	262,043	5,270	N/A
33	29-Jul-14	76.0	7,103	5,939	4,621	247,883	5,270	N/A
34	29-Jul-14	74.0	7,225	6,137	4,612	263,582	6,540	N/A
35	29-Jul-14	78.0	7,353	5,915	4,298	257,812	6,513	N/A
36	29-Jul-14	78.0	7,719	6,025	4,955	232,754	6,723	N/A
37	30-Jul-14	78.0	7,145	6,200	4,971	260,252	6,629	N/A
38	30-Jul-14	78.0	7,125	6,500	6,609	260,979	6,483	N/A
39	30-Jul-14	75.0	7,708	5,562	6,039	233,539	6,126	N/A
40	31-Jul-14	80.0	7,418	6,178	4,858	256,953	6,418	N/A
41	31-Jul-14	54.0	6,930	5,925	5,643	146,082	6,321	N/A
42	1-Aug-14	77.0	7,164	6,270	4,070	258,739	6,332	N/A
43	1-Aug-14	77.0	7,016	6,763	4,539	263,431	6,545	N/A
44	1-Aug-14	78.0	7,121	6,001	4,479	262,247	6,231	N/A
45	1-Aug-14	77.0	7,164	6,106	4,269	264,152	6,436	N/A
46	2-Aug-14	77.0	7,480	6,263	4,450	239,539	6,069	N/A
47	2-Aug-14	64.0	7,129	6,287	4,902	261,069	6,236	N/A
48	3-Aug-14	78.0	6,642	6,280	4,018	261,279	6,374	N/A
49	3-Aug-14	77.0	6,770	6,665	5,141	260,415	6,166	N/A
50	3-Aug-14	78.0	6,435	6,355	5,650	260,415	6,123	N/A
51	3-Aug-14	78.0	6,435	6,326	3,549	263,353	6,147	N/A
AVG=		76.0	7,343	6,052	4,852	12,402,598	330,668	TOTAL

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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	231'	N/A	231'	N/A
Sandstone/ Siltstone	0	591	0	591
Sandy Shale/ Dolostone	Est. 591	691	Est. 591	691
Sandstone/ Siltstone	Est. 691	871	Est. 691	871
Sitly Shale	Est. 871	1,021	Est. 871	1,021
Sandstone/ Siltstone	Est. 1021	1,101	Est. 1021	1,101
Sandstone/ Trace Coal	Est. 1101	1,191	Est. 1101	1,191
Sandstone/ Siltstone	Est. 1191	1,641	Est. 1191	1,641
Limestone/ Sandstone	Est. 1641	1,701	Est. 1641	1,701
Sandstone/ Trace Coal	Est. 1701	1,731	Est. 1701	1,731
Sandy Shale	Est. 1731	1,861	Est. 1731	1,861
Sandstone/ Siltstone	Est. 1861	1,941	Est. 1861	1,941
Limestone/ Sandstone	Est. 1941	1,976	Est. 1941	1,978
Big Lime	1,976	2,086	1,978	2,088
Big Injun	2,086	2,522	2,088	2,523
Gantz Sand	2,522	2,662	2,523	2,664
Fifty Foot Sandstone	2,662	2,731	2,664	2,732
Gordon	2,731	3,079	2,732	3,081
Fifth Sandstone	3,079	3,129	3,081	3,131
Bayard	3,129	3,463	3,131	3,465
Warren	3,463	3,846	3,465	3,848
Speechley	3,846	4,102	3,848	4,104
Baltown	4,102	4,583	4,104	4,585
Bradford	4,583	5,068	4,585	5,069
Benson	5,068	5,325	5,069	5,327
Alexander	5,325	5,523	5,327	5,525
Elk	5,523	6,044	5,525	6,046
Rhinestreet	6,044	6,414	6,046	6,416
Sycamore	6,414	6,596	6,416	6,612
Middlesex	6,596	6,736	6,612	6,795
Burkett	6,736	6,764	6,795	6,840
Tully	6,764	6,824	6,840	6,967
Marcellus	6,824	NA	6,967	NA

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

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Hydraulic Fracturing Fluid Product Component Information Disclosure

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Job Start Date:	7/17/2014
Job End Date:	8/3/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06247-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Duff Unit 2H
Longitude:	-80.73297200
Latitude:	39.36582200
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,889
Total Base Water Volume (gal):	14,719,992
Total Base Non Water Volume:	0

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	90.20390	
Sand, White, 40/70	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		5.58652	
Sand, White, 20/40	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		3.16710	
Sand, White, 100 mesh	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.61944	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.19557	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.06604	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.05675	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01495	SmartCare Product

Alpha 1427	Baker Hughes	Biocide	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01316	SmartCare Product
Enzyme G-NE	Baker Hughes	Breaker	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01148	SmartCare Product
GW-3	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00757	
Ferrolrol 300L	Baker Hughes	Iron Control	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00135	SmartCare Product
CI-14	Baker Hughes	Corrosion Inhibitor	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00031	SmartCare Product
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Ingredients in Additive (s) (MSDS and non- MSDS)	Baker Hughes	See Trade Name(s) List					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	9.36727	
			Water	7732-18-5	95.00000	0.21576	
			Guar Gum	9000-30-0	100.00000	0.04716	
			Mineral Oil	8042-47-5	70.00000	0.04620	
			Hydrochloric Acid	7647-01-0	15.00000	0.02932	
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.01980	
			Poly (acrylamide-co-acrylic acid) partial sodium salt	62649-23-4	30.00000	0.01701	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.01701	
			Ethylene Glycol	107-21-1	45.00000	0.00672	
			Glutaraldehyde	111-30-8	30.00000	0.00395	
			Crystalline Silica: Quartz	14808-60-7	5.00000	0.00330	
			Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00330	
			1-butoxy-2-propanol	5131-66-8	5.00000	0.00330	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9	20.00000	0.00299	
			Sodium Chloride	7647-14-5	5.00000	0.00299	
			Ammonium Chloride	12125-02-9	3.00000	0.00170	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00132	
			Oleamide DEA	93-83-4	2.00000	0.00113	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00113	
			Citric Acid	77-92-9	60.00000	0.00081	
			Calcium Chloride	10043-52-4	5.00000	0.00075	
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00066	
			Ethanol	64-17-5	5.00000	0.00066	
			Hemicellulase Enzyme Concentrate	9025-56-3	5.00000	0.00057	
			Methanol	67-56-1	100.00000	0.00031	
			Sorbitan Monooleate	1338-43-8	0.50000	0.00028	

						9005-65-6		0.50000	0.00028
			Polyoxyethylene Sorbitan Monooleate			7447-40-7		1.00000	0.00015
			Potassium Chloride			68951-67-7		30.00000	0.00009
			Polyoxyalkylenes			15821-83-7		0.10000	0.00007
			2-butoxy-1-propanol			61790-12-3		10.00000	0.00003
			Fatty Acids			68527-49-1		7.00000	0.00002
			Modified Thiourea Polymer			107-19-7		5.00000	0.00002
			Propargyl Alcohol			64743-02-8		5.00000	0.00002
			Olefin			50-00-0		1.00000	0.00000
			Formaldehyde						

* 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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WV GEOLOGICAL SURVEY
 MORGANTOWN, WV

LATITUDE 39°22'30"

6,966'

LATITUDE 39°22'30"

LONGITUDE 80°42'30"

LONGITUDE 80°42'30"

LONGITUDE 80°42'30"

COUNTY NAME PERMIT

Antero Resources Corporation
Well No. Duff Unit 2H
47-017-06247 (AS DRILLED)

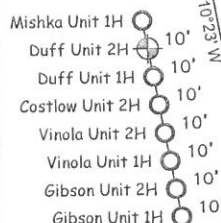
NOTE:
7 WATER WELLS WERE
LOCATED WITHIN 2000'
OF PROPOSED WELL

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
N: 317,742ft E: 1,651,412ft
LAT: 39°21'56.96" LON: 80°43'58.70"
BOTTOM HOLE INFORMATION:
N: 307,619ft E: 1,655,293ft
LAT: 39°20'17.44" LON: 80°43'07.53"
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: 4,357,417m E: 523,018m
BOTTOM HOLE INFORMATION:
N: 4,354,353m E: 524,252m

- 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.

PAD LAYOUT



NOT TO SCALE

LINE	BEARING	DISTANCE
L1	S 24°00' W	1447.1'
L2	S 29°38' W	1413.9'
L3	N 49°44' W	961.9'
L4	N 22°51' W	903.5'
L5	N 12°12' W	1881.7'
L6	N 11°42' W	799.3'
L7	N 10°33' W	1650.2'

JOB # 12-107WA
DRAWING # DUFF2H
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND

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

DATE 05/07/15

OPERATOR'S WELL # DUFF UNIT #2H



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

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

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

API WELL # 47 - 017 - 06247

STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
LOCATION: ELEVATION 1,004' ORIGINAL - 998' AS-DRILLED WATERSHED MCELROY CREEK
QUADRANGLE SMITHBURG 7.5' DISTRICT GRANT COUNTY DODDRIDGE
SURFACE OWNER ROBERT J. SMITH ACREAGE 100 ACRES +/-

OIL & GAS ROYALTY OWNER VINOLA BOSSALA; DUFF MISHKA; JOSEPH COSTLOW ET UX; F.H. UNDERWOOD ET AL; ED BROOME INC.; DEPL; ALVADORE SMITH ET UX; MAURICE K. WILCOX ET AL; DEPL; DOMINION TRANSMISSION INC.
LEASE ACREAGE 120 ACRES±; 41 ACRES±; 350 ACRES±; 102 ACRES±; 36.25 ACRES±; 224.75 ACRES±; 65 ACRES±; 101 ACRES±; 65.10 ACRES±; 24.28 ACRES±

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 6,826' TVD 17,496' MD

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