Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

July 26, 2019

West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street
Charleston, WV 25304

To Whom It May Concern:

Please find enclosed the Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat, Directional Survey and FracFocus report), Discharge Monitoring Report Form WR-34 and corresponding logs for the following wells:

- Bill Unit 1H (API # 47-085-10240)—Bison Pad
- Bill Unit 2H (API # 47-085-10241)—Bison Pad
- Bill Unit 3H (API # 47-085-10257)—Bison Pad
- Buffalo Unit 1H (API # 47-085-10249)—Bison Pad
- Buffalo Unit 2H (API # 47-085-10243)—Bison Pad

If you have any questions please feel free to contact me at (303) 357-7223.

Sincerely,

Megan Griffith
Permitting Agent
Antero Resources Corporation

Enclosures

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

API 47 - 085 - 10243 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Bison Pad Field/Pool Name -----
Farm name Donald L. Costilow Well Number Buffalo 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 4349550m Easting 508514m
Landing Point of Curve Northing 4349924m Easting 509131m
Bottom Hole Northing 4351761m Easting 508475m

Elevation (ft) 1221' 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 9/14/2015 Date drilling commenced 6/19/2017 Date drilling ceased 10/21/2018
Date completion activities began 2/4/2019 Date completion activities ceased 4/24/2019
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 None Identified 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 None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

API 47- 085 - 10243 Farm name Donald L. Costilow Well number Buffalo 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"	110'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	594.4'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2678.9'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	14118.3'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	7400'		4.7#, P-110		
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	204 sx	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	529 sx	15.6	1.20	635	0'	8 Hrs.
Coal							
Intermediate 1	Class A	910 sx	15.6	1.19	1083	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 1258sx (Tail)	14.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.6 (Tail)	3118	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14138' MD, 6603' TVD (BHL), 6612' (Deepest Point Drilled) Loggers TD (ft) 14138' MD

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

Plug back procedure N/A

Kick off depth (ft) 6200'

** This is a subsequent Well. Antero only runs wireline logs on one well on a multi-well pad (Bill Unit 3H API#47-085-10257). A Cement Bond Log has been included with this submittal.

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

Well cored □ Yes ■ No Conventional Sidewall Were cuttings collected □ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

Conductor - 0

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

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

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

WAS WELL COMPLETED AS SHOT HOLE □ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? □ Yes ■ No DETAILS

WERE TRACERS USED □ Yes ■ No TYPE OF TRACER(S) USED N/A

API 47- 085 - 10243 Farm name Donald L. Costilow Well number Buffalo Unit 2H

PERFORATION RECORD

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

***PLEASE SEE ATTACHED EXHIBIT 1**

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)

***PLEASE SEE ATTACHED EXHIBIT 2**

Please insert additional pages as applicable.

API 47- 085 - 10243 Farm name Donald L. Costilow Well number Buffalo Unit 2H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6556' (TOP) TVD	7464' (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 10033.04 mcfpd Oil 57.53 bpd NGL --- bpd Water 390.17 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_2S, ETC)

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

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

Logging Company KLX Energy Services
Address 6072 W Veterans Memorial Hwy City Bridgeport State WV Zip 26330

Cementing Company Schlumberger Oilfield Services
Address 300 Schlumberger Dr City Sugarland State TX Zip 77478

Stimulating Company CalFrac Well Services
Address 171 17th Street, Wuite 1445 City Denver State CO Zip 80202
Please insert additional pages as applicable.

Completed by Karin Cox Telephone 303-357-6820
Signature _____ Title Permitting Agent Date _____

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

API 47-085-10243 **Farm Name** Donald L. Costilow **Well Number** Buffalo Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/4/2019	14018.5	13974	60	Marcellus
2	2/5/2019	13935.18	13769.08	60	Marcellus
3	2/5/2019	13733.46	13567.36	60	Marcellus
4	2/6/2019	13531.74	13365.64	60	Marcellus
5	2/6/2019	13330.02	13163.92	60	Marcellus
6	2/7/2019	13128.3	12962.2	60	Marcellus
7	2/7/2019	12926.58	12760.48	60	Marcellus
8	2/8/2019	12724.86	12558.76	60	Marcellus
9	2/9/2019	12523.14	12357.04	60	Marcellus
10	2/9/2019	12321.42	12155.32	60	Marcellus
11	2/10/2019	12119.7	11953.6	60	Marcellus
12	2/11/2019	11917.98	11751.88	60	Marcellus
13	2/11/2019	11716.26	11550.16	60	Marcellus
14	2/12/2019	11514.54	11348.44	60	Marcellus
15	2/12/2019	11312.82	11146.72	60	Marcellus
16	2/13/2019	11111.1	10945	60	Marcellus
17	2/13/2019	10909.38	10743.28	60	Marcellus
18	2/15/2019	10707.66	10541.56	60	Marcellus
19	2/16/2019	10505.94	10339.84	60	Marcellus
20	2/16/2019	10304.22	10138.12	60	Marcellus
21	2/16/2019	10102.5	9936.4	60	Marcellus
22	2/17/2019	9900.78	9734.68	60	Marcellus
23	2/17/2019	9699.06	9532.96	60	Marcellus
24	2/18/2019	9497.34	9331.24	60	Marcellus
25	2/18/2019	9295.62	9129.52	60	Marcellus
26	2/19/2019	9093.9	8927.8	60	Marcellus
27	2/19/2019	8892.18	8726.08	60	Marcellus
28	2/20/2019	8690.46	8524.36	60	Marcellus
29	2/20/2019	8488.74	8322.64	60	Marcellus
30	2/21/2019	8287.02	8120.92	60	Marcellus
31	2/21/2019	8085.3	7919.2	60	Marcellus
32	2/22/2019	7883.58	7717.48	60	Marcellus
33	2/22/2019	7681.86	7515.76	60	Marcellus

API 47-085-10243 **Farm Name** Donald L. Costilow **Well Number** Buffalo 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	2/4/2019	74.4	7350	5913	4144	157144	4869	N/A
2	2/5/2019	74.1	7384	6194	4466	402680	8447	N/A
3	2/5/2019	85.2	8203	5130	4034	401600	8520	N/A
4	2/6/2019	82.8	7902	6134	4541	401330	8537	N/A
5	2/6/2019	84.9	8061	5267	4565	401000	8569	N/A
6	2/7/2019	86.4	8031	4833	3563	399400	8708	N/A
7	2/7/2019	76.1	7520	4730	3692	401750	8266	N/A
8	2/8/2019	84	8045	4823	4504	404350	9261	N/A
9	2/9/2019	78.1	8040	4550	3750	401850	8699	N/A
10	2/9/2019	81.4	8118	5017	4497	402020	8325	N/A
11	2/10/2019	81	7831	3808	3756	403360	8362	N/A
12	2/11/2019	81.4	8118	5017	4497	401750	8078	N/A
13	2/11/2019	77.9	7522	4896	3821	399160	8181	N/A
14	2/12/2019	86.6	7999	5070	3676	403190	8541	N/A
15	2/12/2019	85.2	7570	3920	3781	400670	8469	N/A
16	2/13/2019	79.5	8212	4034	4530	406510	9839	N/A
17	2/13/2019	82	7723	4960	3451	402030	8278	N/A
18	2/15/2019	88.1	7490	3724	5030	399600	9696	N/A
19	2/16/2019	84.4	7638	5507	3768	401700	8474	N/A
20	2/16/2019	87.8	7551	5145	3745	402650	8584	N/A
21	2/16/2019	84.9	7538	4774	3934	401850	8944	N/A
22	2/17/2019	88.4	8142	4998	4155	399750	8206	N/A
23	2/17/2019	85.2	7796	4885	4479	401040	8411	N/A
24	2/18/2019	89.15137	7989.081	4675	5066	400550	8120	N/A
25	2/18/2019	88.21765	8015.79	4802	4251	401130	8124	N/A
26	2/19/2019	88.4	7689	4850	3986	402950	8174	N/A
27	2/19/2019	88.07916	7372.242	5215	3901	403050	7827	N/A
28	2/20/2019	88.64746	7724.053	5657	3575	398270	8114	N/A
29	2/20/2019	88.62637	7434.615	5511	3951	401300	8157	N/A
30	2/21/2019	84.70403	7518.078	5317	3868	405800	8248	N/A
31	2/21/2019	87.81924	7317.472	5510	3947	401240	8432	N/A
32	2/22/2019	81.81937	7402.966	6090	4255	401030	8474	N/A
33	2/22/2019	79.29973	6815.365	5287	4239	400190	8233	N/A
	AVG=	**84**	**7,729**	**5,038**	**4,104**	**13,011,894**	**276,167**	TOTAL

API 47-085-10243 **Farm Name** Donald L. Costilow **Well Number** Buffalo Unit 2H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Silty Sandstone	0	190	0	190
Sandy siltstone	est 190	290	est 190	290
Sandstone	est 290	600	est 290	600
Silty Sandstone	est 600	870	est 600	870
limey siltstone	est 870	945	est 870	945
silty sandstone, tr. coal	est 945	1,095	est 945	1,095
silty sandstone	est 1095	1,490	est 1095	1,490
silty shale	est 1490	1,620	est 1490	1,620
sandstone, tr coal	est 1620	1,630	est 1620	1,630
silty sandstone	est 1630	1,670	est 1630	1,670
sandstone	est 1670	1,745	est 1670	1,745
sandy shale	est 1745	1,770	est 1745	1,770
shaly sand	est 1770	2,015	est 1770	2,052
Big Lime	2,015	2,801	2,052	2,930
Fifty Foot Sandstone	2,801	2,899	2,930	3,039
Gordon	2,899	3,055	3,039	3,212
Fifth Sandstone	3,055	3,285	3,212	3,468
Bayard	3,285	3,737	3,468	3,972
Speechley	3,737	3,971	3,972	4,232
Balltown	3,971	4,687	4,232	5,031
Bradford	4,687	5,049	5,031	5,433
Benson	5,049	5,310	5,433	5,725
Alexander	5,310	6,273	5,725	6,835
Sycamore	6,273	6,384	6,835	7,004
Middlesex	6,384	6,496	7,004	7,247
Burkett	6,496	6,529	7,247	7,349
Tully	6,529	6,556	7,349	7,464
Marcellus	6,556	NA	7,464	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.

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/4/2019
Job End Date:	2/22/2019
State:	West Virginia
County:	Ritchie
API Number:	47-085-10243-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Buffalo Unit 2H
Latitude:	39.29520400
Longitude:	-80.90146600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,603
Total Base Water Volume (gal):	11,925,875
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	Supplied by Operator	Base Fluid					
			Water	7732-18-5	100.00000	88.11555	
Calbreak 5501	CWS	Breaker					
				Listed Below			

CalGel 4000	CWS	Gel Slurry					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
SaniFrac 8844	CWS	Biocide					
				Listed Below			
15% HCl Acid	CWS	Clean Perforations					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					

				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica (Quartz)	14808-60-7	100.00000	11.52261	
			Hydrochloric acid	7647-01-0	37.00000	0.08079	
			Calcite	471-34-1	1.00000	0.08024	
			Illite	12173-60-3	1.00000	0.03497	
			Polymer	26100-47-0	45.00000	0.02756	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02743	
			Guar gum	9000-30-0	60.00000	0.02743	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01837	
			Goethite	1310-14-1	0.10000	0.01152	
			Apatite	64476-38-6	0.10000	0.01152	
			Biotite	1302-27-8	0.10000	0.01152	
			Ammonium chloride	12125-02-9	11.00000	0.00674	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00605	
			Ilmenite	98072-94-7	0.10000	0.00350	
			Sorbitan monooleate	1338-43-8	4.00000	0.00245	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00229	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00222	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00184	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00122	
			Ammonium Persulfate	7727-54-0	100.00000	0.00077	
			Citric acid	77-92-9	60.00000	0.00072	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00069	

			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00061	
			Sodium bromide	7647-15-6	4.00000	0.00044	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00033	
			Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00031	
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00015	
			Acrylamide	79-06-1	0.10000	0.00006	
			Ethylene Glycol	107-21-1	40.00000	0.00004	
			Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00002	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	
			Tar bases, quinolone derivs, benzyl chloride-quatenized	72480-70-7	10.00000	0.00001	
			Isopropyl alcohol	67-63-0	5.00000	0.00001	
			Formic acid	64-18-6	10.00000	0.00001	
			Ethoxylated Alcohols	68131-39-5	10.00000	0.00001	
			Glycol	57-55-6			Proprietary Additive Concentration
			Organic Acid Salts	9003-04-7			Proprietary Additive Concentration

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

WR-34
Page 1 of 3
Rev. 10-10

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Discharge Monitoring Report
Oil and Gas General Permit

Company Name: Antero Resources Corporation
API No: 47-085-10243 County: Ritchie
District: Clay Well No: Buffalo Unit 2H
Farm Name: Antero Resources Corporation
Discharge Date/s From:(MMDDYY) 05/06/19 To: (MMDDYY) 06/05/19
Discharge Times. From: 0:00 To: 24:00
Total Volume to be Disposed from this facility (gallons): 593,873
Disposal Option(s) Utilized (write volumes in gallons):

(1) Land Application: _____ (Include a topographical map of the Area.)
(2) UIC: 104,515 Permit No. 3416729731, 3400923821
(3) Offsite Disposal: _____ Site Location: _____
(4) Reuse: 489,359 Alternate Permit Number: _____
(5) Centralized Facility: _____ Permit No. _____
(6) Other method: _____ (Include an explanation)

Follow Instructions below to determine your treatment category:
Optional Pretreatment test: n/a Cl- mg/l n/a DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative? (Y/N) n/a If yes, who? _____ and place a four (4) on line 7. If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) n/a If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) n/a If yes, go to line 4 If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) n/a If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) n/a If yes, go to line 6 If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) n/a If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. n/a is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: n/a No pit on site.

Name of Principal Exec. Officer: Gretchen Kohler
Title of Officer: Senior Environmental and Regulatory Manager
Date Completed: 7/12/19

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Gretchen Kohler
Signature of a Principal Exec. Officer or Authorized agent.

Category 1
Sampling Results
API No : _____

Parameter	Predischarge Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
pH	6-10		6-10		S.U
Settling Time	5		N/A	N/A	Days
Fe	6		6		mg/l
D.O.	2.5		2.5		mg/l
Settleable Sol.	0.5		0.5		mg/l
Cl	5,000		5,000		mg/l
Oil	Trace		Trace		Obs.
TOC**			Monitor		mg/l
Oil and Grease			Monitor		mg/l
Total Al***			Monitor		mg/l
TSS			Monitor		mg/l
Total Mn	Monitor		Monitor		mg/l
Volume			Monitor		Gal
Flow			Monitor		Gal/min
Disposal Area			Monitor		Acres

*** Al is only reported if the pH is above 9.0

Category 2
Sampling Results
API No : _____

Parameter	Predischarge Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
pH	6-10		6-10		S.U
Settling Time	10		N/A	N/A	Days
Fe	6		6		mg/l
D.O.	2.5		2.5		mg/l
Settleable Sol.	0.5		0.5		mg/l
Cl*	12,500		12,500		mg/l
Oil	Trace		Trace		Obs.
TOC**			Monitor		mg/l
Oil and Grease			Monitor		mg/l
Total Al***			Monitor		mg/l
TSS			Monitor		mg/l
Total Mn	Monitor		Monitor		mg/l
Volume			Monitor		Gal
Flow			Monitor		Gal/min
Disposal Area			Monitor		Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____ Date: _____
** Include a description of your aeration technique. Aeration Code: _____
*** Al is only reported if the pH is above 9.0

Category 3
Sampling Results
API No : _____

Parameter	Predischarge Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
pH	6-10		6-10		S.U
Settling Time	20		N/A	N/A	Days
Fe	6		6		mg/l
D.O.	2.5		2.5		mg/l
Settleable Sol.	0.5		0.5		mg/l
Cl*	12,500		12,500		mg/l
Oil	Trace		Trace		Obs.
TOC**			Monitor		mg/l
Oil and Grease			Monitor		mg/l
Total Al***			Monitor		mg/l
TSS			Monitor		mg/l
Total Mn	Monitor		Monitor		mg/l
Volume			Monitor		Gal
Flow			Monitor		Gal/min
Disposal Area			Monitor		Acres

* Can be 25,000 with inspector's approval,

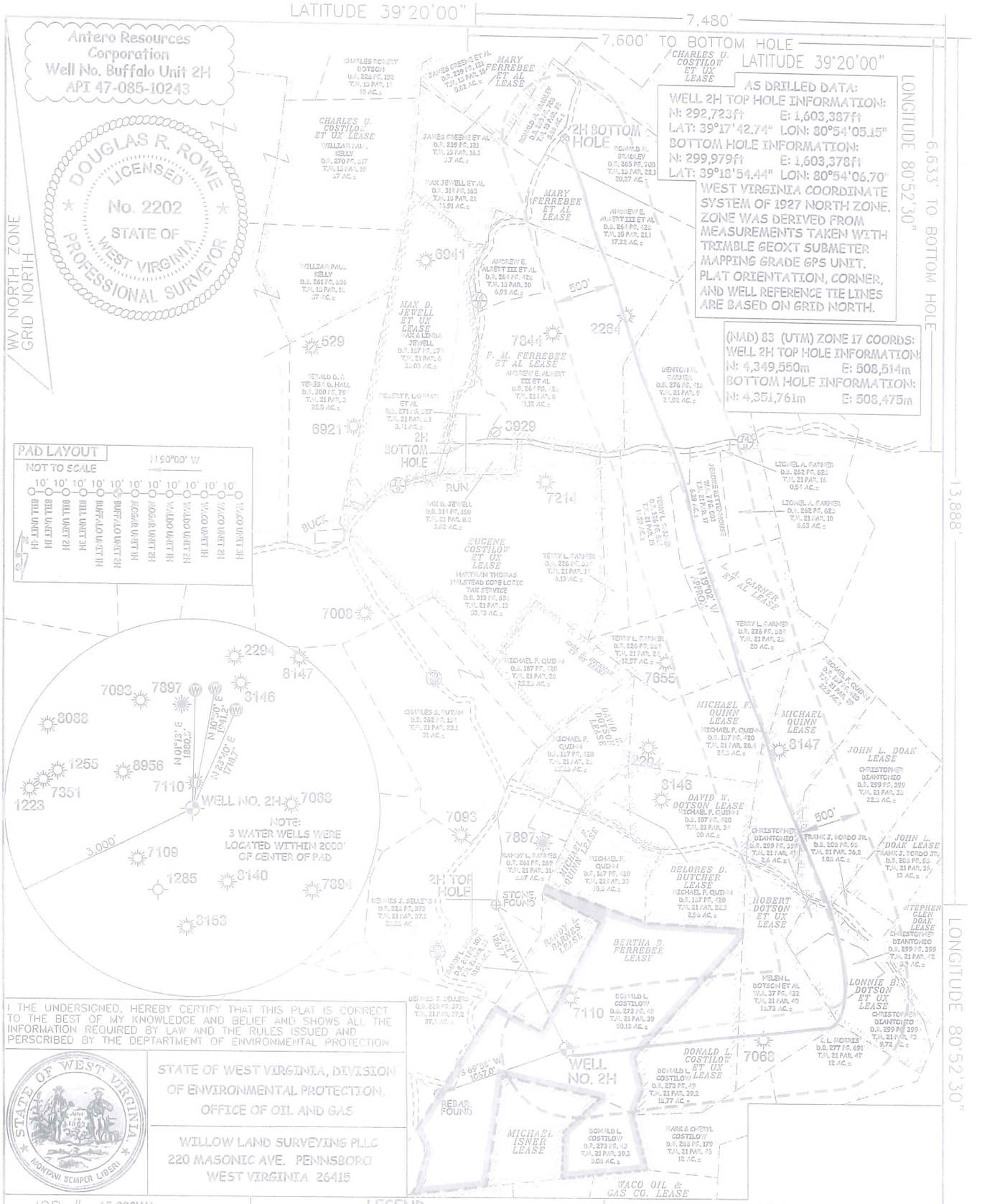
(Inspector's signature): _____ Date: _____
** Include a description of your aeration technique. Aeration Code: _____
*** Al is only reported if the pH is above 9.0.

Category 4
Sampling Results
API No: _____

Parameter	Predischarge Limits	Predischarge Reported	Discharge Limits	Discharge Reported	Units
pH	6-10		6-10		S.U
Settling Time	1		N/A	N/A	Days
Fe	Monitor		Monitor		mg/l
D.O.	Monitor		Monitor		mg/l
Settleable Sol.	Monitor		Monitor		mg/l
Cl*	12,500		12,500		mg/l
Oil	Trace		Trace		Obs.
TOC**			Monitor		mg/l
Oil and Grease			Monitor		mg/l
TSS			Monitor		mg/l
Total Mn	Monitor		Monitor		mg/l
Volume			Monitor		Gal
Flow			Monitor		Gal/min
Activated Carbon (0.175)			N/A	N/A	lb/Bl
Date Site Reclaimed	N/A	N/A			10 days from dis.
Disposal Area			Monitor		Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____ Date: _____



JOB # 15-030WA
DRAWING # BUFFALO2HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
47 — 085 — 10243
STATE COUNTY PERMIT
LOCATION: ELEVATION 1,221' - AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE
SURFACE OWNER DONALD L. COSTILOW ACREAGE 50.13 ACRES +/-
OIL & GAS ROYALTY OWNER BERTHA D. FERREBEE; DONALD L. COSTILOW ET UX; LEASE ACREAGE 67 AC.±; 13.05 AC±;
HOBERT DOTSON ET UX; LONNIE B. DOTSON ET UX; JOHN L. DOAK; MICHAEL QUINN; 19 AC±; 18 AC±; 22.5 AC.±; 22.5 AC.±;
MICHAEL F. QUINN; L.A. GARNER ET AL; F.M. FERREBEE ET AL; MARY FERREBEE ET AL 24.5 AC±; 99 AC±; 56 AC±; 72 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 6,603' TVD 14,138' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

FORM WW-6