



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Monday, January 22, 2018
WELL WORK PERMIT
Vertical / Plugging

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for 3
47-033-03255-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: 3
Farm Name: BURNSIDE/BLAKE
U.S. WELL NUMBER: 47-033-03255-00-00
Vertical / Plugging
Date Issued: 1/22/2018

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.
4. This well is under a consent order and must be plugged under the terms of that agreement.

WW-4B
Rev. 2/01

1) Date October 4, 2017
2) Operator's
Well No. Well #3
3) API Well No. 47-003 - 03255

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil ___/ Gas X/ Liquid injection ___/ Waste disposal ___/
(If "Gas, Production ___ or Underground storage ___) Deep ___/ ShallowX

5) Location: Elevation 1096' Watershed Simpson Creek
District Simpson County Harrison Quadrangle Clarksburg 7.5'

6) Well Operator Antero Resources Corporation 7) Designated Agent CT Corporation System - Dianna Stamper
Address 1615 Wynkoop Street Address 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

8) Oil and Gas Inspector to be notified Name Sam Ward
Address 601 57th Street, SE
Charleston, WV 25304
9) Plugging Contractor Name N/A - Antero will plug well
Address _____

10) Work Order: The work order for the manner of plugging this well is as follows:

*Please see attached Work Order.

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Office of Oil and Gas

Notification must be given to the district oil and gas inspector 24 hours before permit work can commence.

NOV 09 2017

WV Department of
Environmental Protection

Work order approved by inspector

Sam A. Ward

Date

10/26/2017

December 13, 2017

BBJ #1 & BBJ #3 Additional Data for Plug & Abandonment

- Traffic Control will be utilized at major intersections to reduce Antero's impact on the neighborhood and people's day to day activities
- Street parking will have to be managed in order to allow trucks access to the well pads through the designated routes
- Because of the proximity to occupied dwellings, no natural gas will be flared at surface. The well will be Top-Killed by pumping 8.7 ppg to 9.3 ppg completion fluid down the well.
- If mud is present, street sweepers will be utilized on city streets to keep the roads clean.
- All rig operations and excavation work will be performed during daylight hours to reduce noise and light.

BBJ-3
Harrison County, WV
API #47-033-03255



Antero Resources
 1615 Wynkoop St.
 Denver, CO 80202
Office: 303.357.7310
Fax: 303.357.7315

Objective: Plug and Abandon Wellbore.

Pipe Schedule:

1. 8-5/8" 28# set (8.017" ID) @ 1,164'. Cemented to surface. Elevation: 1,130'
2. 4-1/2" 10.5# (4.502" ID) set @ 4,554' with estimated TOC @ 1,863' (To Be Confirmed)
3. 1 1/2" tubing loose @ 4,526'.

Oil and Gas Zones:

1. Big Lime: 1,360'-1,415'
2. Big Injun: 1,415'-1,515'
3. Speechley: perms from 3,008'-3,108'
4. Balltown: 3,400' – 3,460'; perms from 3,446'-3,668'
5. Riley: 4,135' – 4,160'
6. Benson: 4,325'-4,350'; perms from 4,291'-4,482'

Procedure:

1. Check and record all casing/annular pressures into Wellview.
2. Coordinate and schedule casing jacks.
3. Notify WVDEP prior to commencing work, for plug witnessing (Harrison County Inspector).
4. Move in and rig up flat tank and frac tank (No pits will be utilized).
5. Move in rig up service unit.
6. NU BOPE and test— check and report surface pressure including bradenhead pressure.
7. Kill well prior to pulling tubing
8. Pull and lay down 1 1/2" tubing
9. RU wireline and lubricator.
10. Make gauge ring run to @ 4,500'
11. POOH. Note fluid depth tagged.
12. MIRU logging crew.
13. Load Hole with 6% gel.
14. Run CBL from 4,500' to surface.
15. Locate TOC around 4.5" casing.
16. Discuss results with completions engineers before proceeding.
17. TIH with 2 3/8" tubing to 4,500'.
18. MIRU cement services. Mix and pump 46 sacks for balanced plug from 4,000'-4,500'. (Class A cement + 2% CaCl₂, 20% excess included; yield = 1.18 ft³/sk, WR=5.2 gal/sk)
 - a. Displace to balance plug
 - b. Slowly pull out of cement plug.
 - c. Reverse circulate tubing clear of cement
19. Pull up to 3,700'
20. MIRU cement services. Mix and pump 37 sacks for balanced plug from 3,300'-3,700'. (Class A cement + 2% CaCl₂, 20% excess included; yield = 1.18 ft³/sk, WR=5.2 gal/sk)
 - a. Displace to balance plug
 - b. Slowly pull out of cement plug.
 - c. Reverse circulate tubing clear of cement
21. Pull up to 3,200'
22. MIRU cement services. Mix and pump 28 sacks for a 300' balanced plug from 2,900'-3,200'. (Class A cement + 2% CaCl₂, 20% excess included; yield = 1.18 ft³/sk, WR=5.2 gal/sk)
 - a. Displace to balance plug
 - b. Slowly pull out of cement plug.
 - c. Reverse circulate tubing clear of cement
 - d. WOC and tag TOC @ 2,900'
23. POOH with tubing.
24. Lubricate and RIH W/ CIBP and set @ 2,900'.
25. POOH w/ wireline.
26. Pressure test CIBP to 500 psi
27. RIH wireline and run free point above TOC in 4.5" casing
 - a. Chemical cut at ~1,850' (exact depth determined via freepoint and CBL)
 - b. RU casing jacks and POOH – LD 4.5" casing.
28. TIH with 2 3/8" tubing to 2,899 (1' above CIBP)

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10/26/2017

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29. MIRU cement services. Mix and pump 10 sacks for 100' balanced plug from 2,799'-2,899'. (Class A cement + 2% CaCl₂, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
 - a. Displace to balance plug
 - b. Slowly pull out of cement plug.
 - c. Reverse circulate tubing clear of cement
30. Pull up to 1,950' (100' below casing cut).
31. Mix and pump 31 sacks for balanced plug from 1,750'-1,950' (Class A cement + 2% CaCl₂, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk).
 - a. Displace to balance plug
 - b. Slowly pull out of cement plug.
 - c. Reverse circulate tubing clear of cement
32. Pull up to 1,600'
33. Mix and pump 66 sacks for balanced plug from 1,300'-1,600' (Class A cement + 2% CaCl₂, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk).
 - a. Displace to balance plug
 - b. Slowly pull out of cement plug.
 - c. Reverse circulate tubing clear of cement
34. Pull up to 1,250'
35. Mix and pump 58 sacks for balanced plug from 1,050'-1,250' (Class A cement + 2% CaCl₂, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk).
 - a. Displace to balance plug
 - b. Slowly pull out of cement plug.
 - c. Reverse circulate tubing clear of cement
 - d. WOC
 - e. RIH and tag TOC @ 1,050'
 - f. If TOC is deeper than 1,050', mix and spot cement so TOC is a minimum of 1,050'
36. Pull up to 450'
37. Mix and pump 161 sacks from 450'-surface (Class A cement + 2% CaCl₂, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
38. TOOH
39. Wait on cement 8hrs.
40. Weld on P&A monument that extends 30 inches above the surface with well name and API number. (API No.: 47-033-03255)

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Wellbore Diagram

8/23/2017

Elev.: 1,130'

Spud: 10/18/1985

400' plug from 0-400'

Coal Seams (182'-185') - Not Perf'd

Coal Seams (370'-374') - Not Perf'd

8 5/8" Conductor Casing
Set @ 1,164'
Cemented to Surface

200' plug from 1,050'-1,250'
Across bottom of 8 5/8"

200' plug from 1,340'-1,540'

Big Lime (1,360' - 1,415') - Not Perf'd

Big Injun (1,415' - 1,515') - Not Perf'd

100' plug from 1,800'-1,900'
Across casing cut

Cut Casing @ ~1,850'

← Estimated TOC @ 1,863'

6-1/4" hole size

CIBP @ 3,150'
topped w/ Plug 2,950'-3,150'

Spechley Unkown Thickness

Perfs from: 3,008 - 3,108'

400' plug from 3,300'-3,700'

Balltown (3,400' - 3,460')

Perfs from: 3,446-3,668'

Riley (4,135' - 4,160') - Not Perf'd

500' plug from 4,000'-4,500'

Benson (4,325' - 4,350')

Perfs from: 4,291'-4,482'

4-1/2" 10.5# Production Casing
Set @ 4554' w/ 590 sks

TD @ 4,605'

Antero Resources Corporation

BBJ-3

API: 47-033-03255

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Select County: **(033) Harrison** | Select datatypes: (Check All)
 Enter Permit #: **03255**
 Location Production Plugging
 Owner/Completion Stratigraphy Sample
 Pay/Show/Water Logs Btm Hole Loc

[Table Descriptions](#)
[County Code Translations](#)
[Permit-Numbering Series](#)
[Lease Notes](#)
[Points of Information](#)
[Circle map](#)
[WVGES Main](#)
["Pipeline-Plus" New](#)

WV Geological & Economic Survey

Well: County = 33 Permit = 03255

Report Time: Monday, November 20, 2017 6:58:20 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_16	LAT_DD	LON_DD	UTME	UTMN
4703303255	Harrison	3255	Simpson	Clarksburg	Clarksburg	39.300911	-80.255303	563348.7	4350427.2

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4703303255	10/25/1985	Original Loc	Completed	R & B Enterprises	B&I-3					Johnson, Glenn H. (Johnson Product'g Co)			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	G_BEF	G_AFT	O_BEF	O_AFT	NGL_BEF	NGL_AFT	P_BEF	TI_BEF	P_AFT	TI_AFT	BH_P_BEF	BH
4703303255	10/25/1985	10/18/1985	1130	Kelly Bushing	Brgprt-Pmytwm	Benson	Benson	Development Well	Development Well	Gas	Rotary	Fractured	4605		4605	200	253	0	0		0	0	685	72		

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4703303255	10/25/1985	Water	Fresh Water	Vertical			50						0
4703303255	10/25/1985	Water	Fresh Water	Vertical			530						0
4703303255	10/25/1985	Water	Fresh Water	Vertical			825						0
4703303255	10/25/1985	Pay	Gas	Vertical	3008	Speechley	3108	Speechley	0	0			
4703303255	10/25/1985	Pay	Gas	Vertical	3446	Baltown	3653	Baltown	0	0			
4703303255	10/25/1985	Pay	Gas	Vertical	4291	Riley	4482	Benson	0	0			

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRO_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703303255	Jackson Development Co., Inc.	1986	7,068	0	553	1,257	911	744	563	579	563	522	506	441	427
4703303255	Johnson Energy Co.	1987	4,116	356	371	303	365	365	347	320	686	265	344	324	350
4703303255	Johnson Energy Co.	1988	3,428	523	288	248	263	277	279	271	282	264	260	231	242
4703303255	Johnson Energy Co.	1989	3,103	248	267	246	261	265	274	255	283	248	247	259	239
4703303255	Johnson Energy Co.	1990	2,801	231	242	208	242	226	246	243	260	248	204	236	209
4703303255	Johnson Energy Co.	1991	2,470	210	248	173	213	218	233	215	190	215	182	217	156
4703303255	Johnson Energy Co.	1992	2,329	171	162	206	199	190	213	209	217	205	195	190	172
4703303255	Johnson Energy Co.	1993	2,267	195	185	196	205	192	190	183	193	190	180	183	175
4703303255	Johnson Energy Co.	1994	2,032	160	164	146	171	175	179	190	184	206	45	202	210
4703303255	Mountain V Oil and Gas, Inc.	1995	529								164	165	149	151	
4703303255	Mountain V Oil and Gas, Inc.	1996	2,131	182	196	198	185	168	139	154	208	173	175	177	176
4703303255	Mountain V Oil and Gas, Inc.	1997	1,781	170	175	181	168	184	84	92	104	144	188	146	145
4703303255	Mountain V Oil and Gas, Inc.	1998	1,781	160	130	130	120	128	132	148	141	128	148	204	192
4703303255	Mountain V Oil and Gas, Inc.	1999	1,743	192	148	160	172	124	37	130	152	176	139	188	155
4703303255	Mountain V Oil and Gas, Inc.	2000	1,817	143	141	168	138	173	150	154	169	157	149	142	123
4703303255	Mountain V Oil and Gas, Inc.	2001	1,658	107	124	168	139	158	116	154	160	154	159	150	159
4703303255	Mountain V Oil and Gas, Inc.	2002	1,366	139	97	112	112	102	123	104	106	111	131	126	103
4703303255	Mountain V Oil and Gas, Inc.	2003	916	125	106	87	51	85	55	35	51	58	99	90	74
4703303255	Mountain V Oil and Gas, Inc.	2004	1,344	68	75	89	86	83	127	140	152	142	134	115	119
4703303255	Mountain V Oil and Gas, Inc.	2005	1,692	147	126	124	114	140	146	157	159	150	150	141	138
4703303255	Mountain V Oil and Gas, Inc.	2006	979	138	121	143	141	145	142	149	0	0	0	0	0
4703303255	North Coast Energy Eastern	2006	709	0	0	0	0	0	0	0	138	143	155	136	137
4703303255	EXCO - North Coast Energy Eastern, Inc.	2007	1,720	126	125	142	138	162	150	152	155	150	149	131	140
4703303255	EXCO Resources (WV), Inc.	2008	1,816	136	123	140	100	104	144	165	140	139	148	137	140
4703303255	EXCO Resources (WV), Inc.	2009	1,453	124	106	135	139	139	141	140	142	138	123	6	120
4703303255	EXCO Resources (WV), Inc.	2010	1,544	86	144	138	150	145	146	153	147	136	144	131	124
4703303255	EXCO Resources (PA), LLC	2011	1,594	120	110	136	132	144	133	145	146	133	139	124	132
4703303255	EXCO Resources (PA), LLC	2012	1,505	125	70	73	141	148	143	142	145	135	131	128	124
4703303255	Antero Resources Corporation	2013	1,082	118	111	378	136	133	143	63	0	0	0	0	0
4703303255	Antero Resources Corporation	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2016	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRO_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703303255	Jackson Development Co., Inc.	1986	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1988	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1989	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1990	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1991	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1992	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1993	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1994	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Johnson Energy Co.	1995	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	2000	0	0	0	0	0	0	0	0	0	0	0	0	0

3303255P

4703303255	Mountain V Oil and Gas, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Mountain V Oil and Gas, Inc.	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	North Coast Energy Eastern	2006	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	EXCO - North Coast Energy Eastern, Inc.	2007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	EXCO Resources (WV), Inc.	2008	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	EXCO Resources (WV), Inc.	2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	EXCO Resources (WV), Inc.	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	EXCO Resources (PA), LLC	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	EXCO Resources (PA), LLC	2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2016	0																	

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703303255	Antero Resources Corporation	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303255	Antero Resources Corporation	2016	0												

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703303255	Antero Resources Corporation	2016	0												

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703303255	Original Loc	unidentified coal	Well Record	182	Reasonable	3	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	unidentified coal	Well Record	370	Reasonable	4	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Allegheny coal (udf)	CBM: Drillers Pick	805	Reasonable	3	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Little Lime	Well Record	1305	Reasonable	30	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Greenbrier Group	Well Record	1360	Reasonable	155	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Big Lime	Well Record	1360	Reasonable	55	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Big Injun (Gmbr)	Well Record	1415	Reasonable	100	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Hampshire Grp	WVGES Staff Geologist	1865	Reasonable	0	Qstble Pick	1130	Kelly Bushing
4703303255	Original Loc	Baltown	Well Record	3400	Reasonable	60	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Riley	Well Record	4135	Reasonable	25	Reasonable	1130	Kelly Bushing
4703303255	Original Loc	Benson	Well Record	4325	Reasonable	25	Reasonable	1130	Kelly Bushing

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

3303255P



FEAC
IV-35
(Rev 8-81)

MAR 18 1986

State of West Virginia
Department of Mines
Oil and Gas Division

Date 12-30-85
Operator's Well No. BBJ-3
Farm Burnside/Blake
API No. 47 - 033 - 3255

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil / Gas / Liquid Injection / Waste Disposal
(IF "Gas," Production / Underground Storage / Deep / Shallow)

LOCATION: Elevation: 1,120' Watershed Simpson Creek
District: Simpson County Harrison Quadrangle Clarksburg

Glenn H. Johnson
COMPANY DBA Johnson Energy Co.
ADDRESS P.O. Box 298, Buckhannon, WV 26201
DESIGNATED AGENT Barbara Byrd
ADDRESS P.O. Box 298, Buckhannon, WV 26201
SURFACE OWNER B&B Enterprises, Inc.
ADDRESS 130 W. Main St., Bridgeport WV 26330
MINERAL RIGHTS OWNER B&B Enterprises, Inc.
ADDRESS 130 W. Main St., Bridgeport WV 26330
OIL AND GAS INSPECTOR FOR THIS WORK Steve Casey
ADDRESS Rt. 2, Box 232-D, Jane Lew, WV 26378
PERMIT ISSUED September 18, 1985
DRILLING COMMENCED October 18, 1985
DRILLING COMPLETED October 25, 1985
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	1163.95	1163.95	270 Sk.
7			
5 1/2			
4 1/2	4,664.00	4,554.00	590 Sk.
3			
2 1/4	4,526.00	4,526.00	Loose
Liners used			

GEOLOGICAL TARGET FORMATION Benson Depth 4,500 feet
Depth of completed well 4,605 feet Rotary / Cable Tools
Water strata depth: Fresh 50 feet; Salt 0 feet
Coal seam depths: 182' - 200' - 805' Is coal being mined in the area?

OPEN FLOW DATA
Producing formation Speechley, Balltown, Riley, Benson Pay zone depth 47605 feet
Gas: Initial open flow 200,000 Mcf/d Oil: Initial open flow Bbl/d
Final open flow 253,000 Mcf/d Final open flow Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 685 psig (surface measurement) after 72 hours shut in
(If applicable due to multiple completion--)
Second producing formation Pay zone depth feet
Gas: Initial open flow Mcf/d Oil: Initial open flow Bbl/d
Final open flow Mcf/d Oil: Final open flow Bbl/d
Time of open flow between initial and final tests hours
Static rock pressure psig (surface measurement) after hours shut in

(Continue on reverse side)

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FORM IV-35
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

10-29-85: Halliburton Hydraulic Water Stimulation (Three Phase Frac)
 20/40 Sand: 1,100 Sk.
 80/100 Sand: 225 Sk.

Perforations: 4482'- 4291' First Stage Wenson-Riley Sand 9 Shots
 3668'- 3446' Second Stage Balltown Sand 8 Shots
 3108'-3008' Third Stage Speechley Sand 9 Shots

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
KB - GL			0	10	
Clay			10	30	
Sand & Shale			30	50	Damp @ 50 Ft.
Red Rock & Sahel			50	85	
Sand			85	110	
Sand & Shale			110	182	
Coal			182	185	
Sand & Shale			185	205	
Red Rock & Shale			205	260	
Sand			260	340	
Sand & Shale			340	370	
Coal			370	374	
Sand & Shale			374	620	
Sand			620	655	1/2" Stream @ 630'
Sand & Shale			655	805	
Coal			805	808	
Sand & Shale			808	820	
Sand			820	850	1/2" Stream @ 825'
Sand & Shale			850	1,010	
Red Rock & Shale			1,010	1,050	
Sand & Shale			1,050	1,100	
Shale & Red Rock			1,100	1,305	
Little Lime			1,305	1,335	
Sand & Shale			1,335	1,360	
Big Lime			1,360	1,415	
Injun Sand			1,415	1,515	
Sand & Shale			1,515	1,830	Check Gas @ 1,542' No Show
Sand, Shale & Red Rock			1,830	1,890	
Sand & Shale			1,890	1,950	
Sand			1,950	1,990	
Sand & Shale			1,990	2,380	Check Gas @ 2,079' No Show
Sand			2,380	2,420	
Sand & Shale			2,420	2,745	Check Gas @ 2,428' No Show
Sand			2,745	2,810	Check Gas @ 2,618' No Show
Sand & Shale			2,810	3,400	Check Gas @ 2,808' 6/10-1" P w/w
Balltown			3,400	3,460	Check Gas @ 3,122' 12/10-1" P w/w
Sand & Shale			3,460	4,135	Check Gas @ 3,563' 16/10-1" P w/w

(Continued to Page Two)

(Attach separate sheets as necessary)

Glenn H. Johnson
 DBA Johnson Energy Co.
 Well Operator

By: *Glenn H. Johnson*
 Date: 12-20-85

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Note: Regulation 2.02(l) provides as follows:
 "The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

FORM IV-35
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Page Two
BBJ-3
47-033-3255

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Riley			4,135	4,160	
Sand & Shale			4,160	4,325	Check Gas @ 4,192' 10/10-1" P w/w
Benson ?			4,325	4,350	
Sand & Shale			4,350	4,460	Check Gas @ 4,448' 10/10-1" P w/w
Sand			4,460	4,490	
Sand & Shale		TD	4,490	4,605	Check Gas @ 4,605' 10/10-1" P w/w Check Gas @ D.C. 6/10-1" P w/w

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Environmental Protection

(Attach separate sheets as necessary)

Glenn H. Johnson
DBA Johnson Energy Co.
Well Operator

By: *[Signature]*
Date: 12-10-82

Note: Regulation 8.83(f) provides as follows:
"The terms 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."

IV-9 REVERSE
(REV 8-81)
801

Miss Utility No. _____
Date called _____

ATTACH OR PHOTOCOPY SECTION OF INVOLVED TOPOGRAPHIC MAP. QUADRANGLE Clarksburg

LEGEND

Well Site ⊕ 19A930

Access Road 952

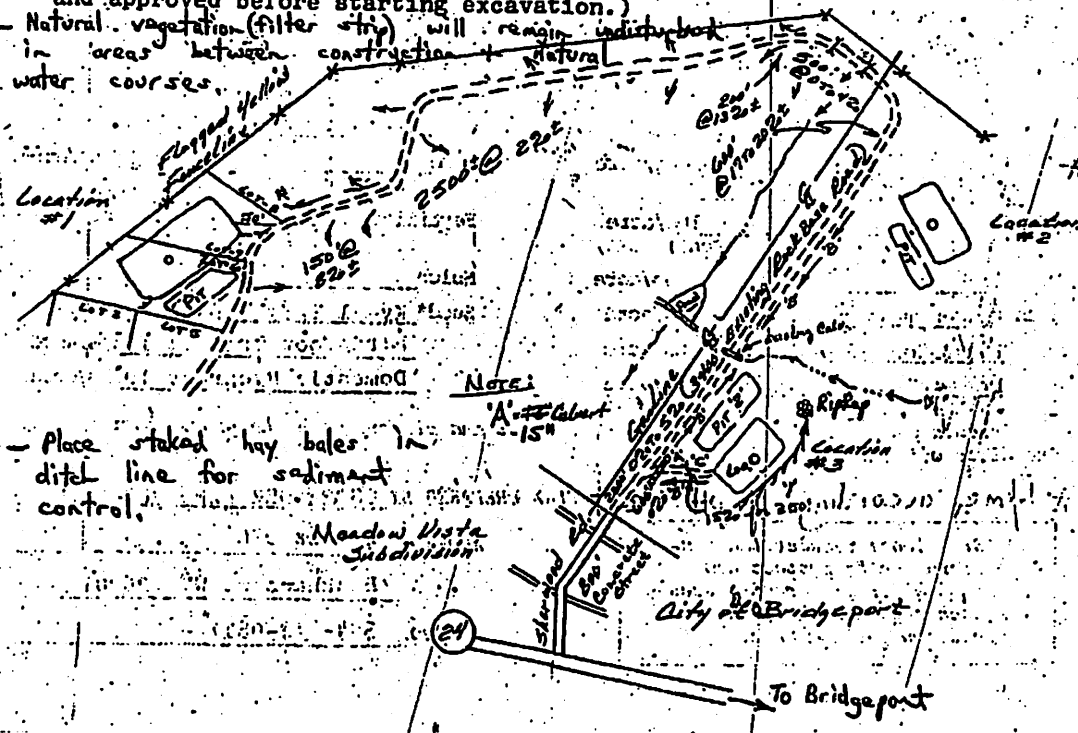


Sketch to include well location, existing access road, roads to be constructed, wellsite, drilling pits and necessary structures numbered or lettered to correspond with the first part of this plan. Include all natural drainage.

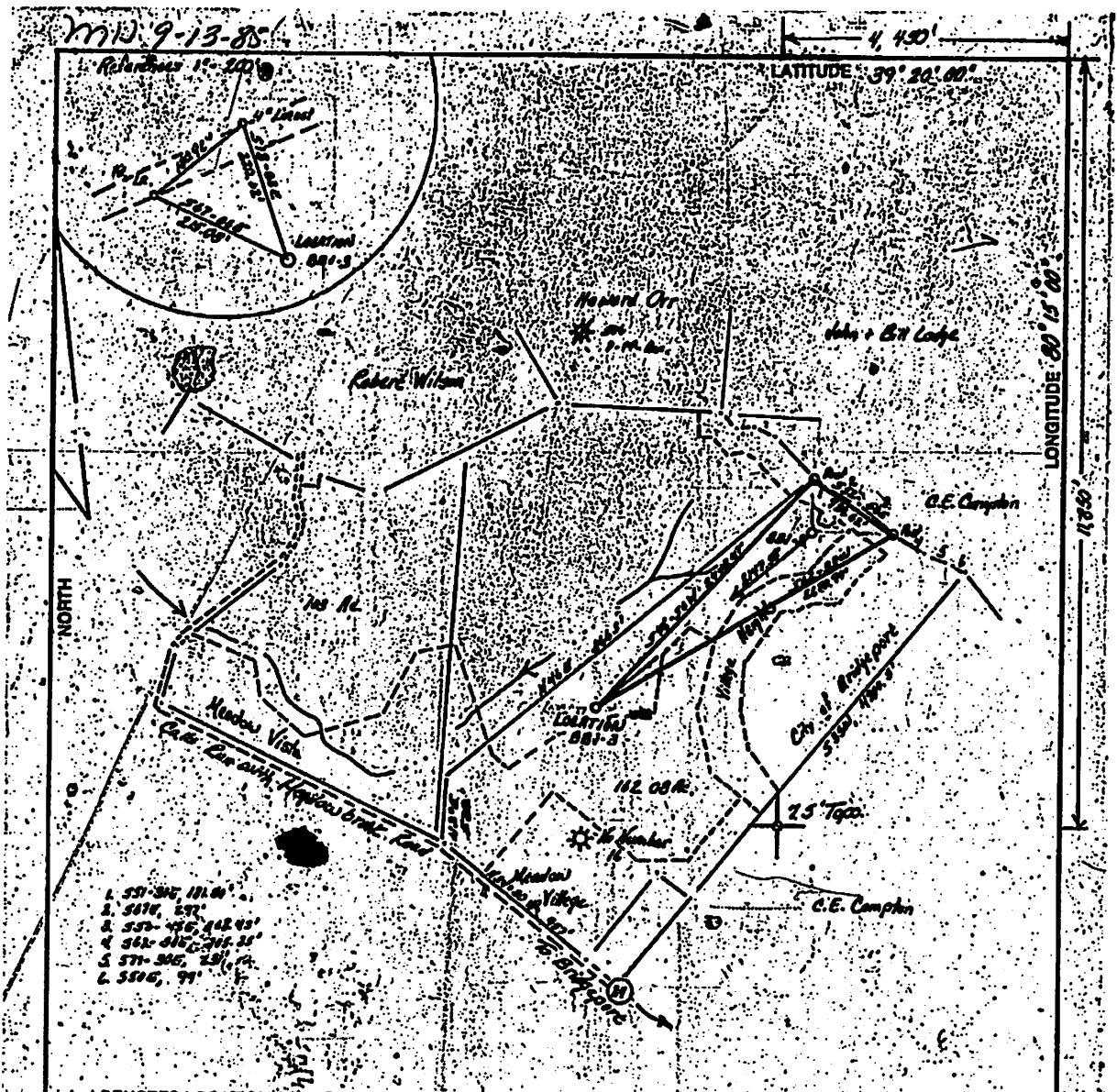
LEGEND

Property boundary ————	Water Velocity Barrier ————
Road = = = = =	Diversion ————
Existing fence — x — x —	Spring ○ →
Planned fence — / — / —	Wet spot ♀
Stream ————	Building ■
Open ditch ————	Drain pipe — ○ — ○ —
	Waterway ⇄ = = = =

- TOP SOIL TO BE STOCKPILED for use in reclamation work.
- ALL CUTS TO BE ON A 2:1-SLOPE UNLESS IN ROCK.
- PIT: Impervious material or pit liner.
- Access Road, location and structures subject to change between company and landowner. (If changed the revised reclamation plan will be submitted and approved before starting excavation.)
- Natural vegetation (filter strip) will remain undisturbed in areas between construction and natural water courses.



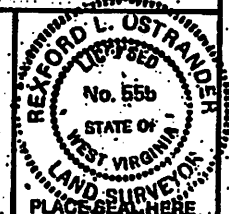
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(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE NO. 788-D
 DRAWING NO. 85-02
 SCALE 1" = 100'
 MINIMUM DEGREE OF ACCURACY 1" = 200'
 PROVEN SOURCE OF ELEVATION USGS AN 942' at Smith Run, USGS Clarkburg, Ga.

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF MINES.
 (SIGNED) Reford L. Ostrander
 R.P.E. I.L.S. 535
Buckhannon, W. Va.



STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
OIL AND GAS DIVISION

DATE Feb 10 1985
 OPERATOR'S WELL NO. 841-3
 API WELL NO. 47-039-3255
 STATE: 039 COUNTY: 3255 *PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS," PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 110' WATERSHED Simpson Creek
 DISTRICT Simpson COUNTY Harrison
 QUADRANGLE Clarkburg

SURFACE OWNER A. A. Finkbeiner, Inc. ACREAGE .32
 OIL & GAS ROYALTY OWNER Byrdie M. Warrick Banister LEASE ACREAGE 142.08
 LEASE NO. 12946

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

PLUG AND ABANDON CLEAN OUT AND REPLUG
 TARGET FORMATION Beason ESTIMATED DEPTH 4500
 WELL OPERATOR John H. Johnson, DBA DESIGNATED AGENT Barbara Bird
 ADDRESS John H. Johnson Energy Co. P.O. Box 212 ADDRESS Buckhannon, W. Va. 26001

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WV Department of Environmental Protection

HARRISON COUNTY NAME: 3255 PERMIT

FORM IV-9 (2-78) S.T. HALL

WW-4A
Revised 6-07

1) Date: October 4, 2017
2) Operator's Well Number
Well #3
3) API Well No.: 47 - 033 - 03255

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>David C. & Kimberly Snodgrass</u>	Name <u>NO DECLARATIONS ON RECORD WITH COUNTY</u>
Address <u>164 Sherwood Drive</u>	Address _____
<u>Bridgeport, WV</u>	_____
(b) Name <u>6 ADDITIONAL NOTICES SENT TO ADJACENT SURFACE OWNERS. (SEE ATTACHED MAIL RECEIPTS)</u>	(b) Coal Owner(s) with Declaration
Address _____	Name <u>NO DECLARATIONS ON RECORD WITH COUNTY</u>
_____	Address _____
(c) Name <u>*All other surface owners with existing access road</u>	Name _____
Address <u>disturbance are off-lease and not required to be notified.</u>	Address _____
_____	_____
6) Inspector <u>Sam Ward</u>	(c) Coal Lessee with Declaration
Address <u>601 57th Street SE</u>	Name <u>NO DECLARATIONS ON RECORD WITH COUNTY</u>
<u>Charleston, WV 25304</u>	Address _____
Telephone <u>304-389-7583</u>	_____

TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.



Well Operator Antero Resources Corporation
 By: Kevin Kilstrom
 Its: Sr Vice President of Production
 Address 1615 Wynkoop Street
Denver, CO 80202
 Telephone 303-357-7310

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Office of Oil and Gas
OCT 05 2017
WV Department of Environmental Protection

Subscribed and sworn before me this 4th day of October 2017
Shelby Marie Johnson Notary Public
My Commission Expires 7/8/2020

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

3303255 P



STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name Antero Resources Corporation OP Code 494507062

Watershed Simpson Creek Quadrangle Clarksburg 7.5'

Elevation 1096' County Harrison District Simpson

Description of anticipated Pit Waste: No pit will be used at this site (All fluids will be stored in tanks and either reused or hauled off site.)

Will a synthetic liner be used in the pit? N/A

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC Permit # will be provided on Form WR-34)
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain Northwestern Landfill Permit #SWF-1025/ WV0109410)

*SDW
10/26/2017*

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Other (Explain _____)
- Swabbing
- Plugging

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto 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 or imprisonment.

Company Official Signature *Gretchen Kohler*

Company Official (Typed Name) Gretchen Kohler

Company Official Title Senior Environmental & Regulatory Manager

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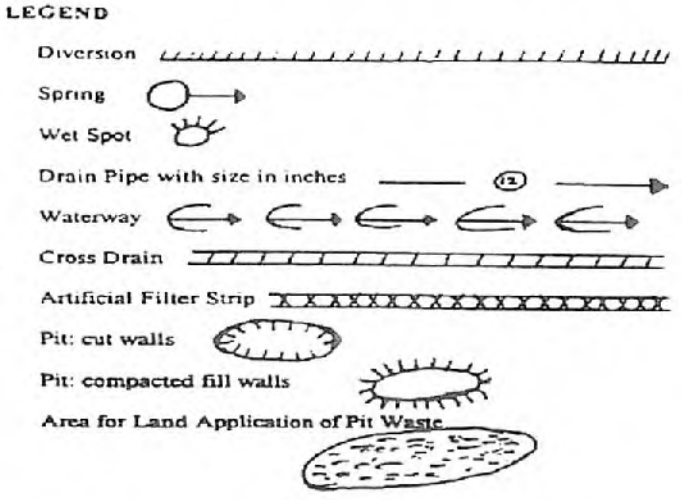
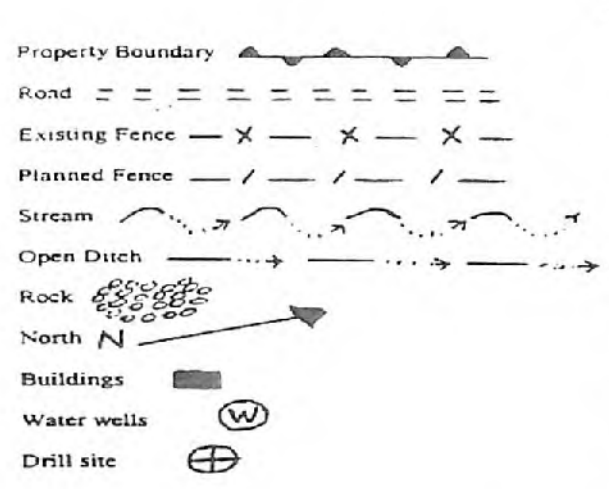
Subscribed and sworn before me this 4 day of October, 2017

S Joe

Notary Public

My commission expires 7/8/2020





Proposed Revegetation Treatment: Acres Disturbed 0.67 acres Prevegetation pH _____

Lime 2-3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch 2-3 Tons/acre (Hay, straw or wood fiber (will be used where needed))

Seed Mixtures

Seed Type	Area I	lbs/acre
Annual Ryegrass		40
Field Bromegrass		40

Seed Type	Area II	lbs/acre
Crownvetch		10-15
Tall Fescue		30

Please reference Table IV-3 on page 5 of the Well #3 Well Plugging Plan

Please reference Table IV-4A on page 5 of the Well #3 Well Plugging Plan

*or type of grass seed requested by surface owner

*or type of grass seed requested by surface owner

Attach: Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: _____

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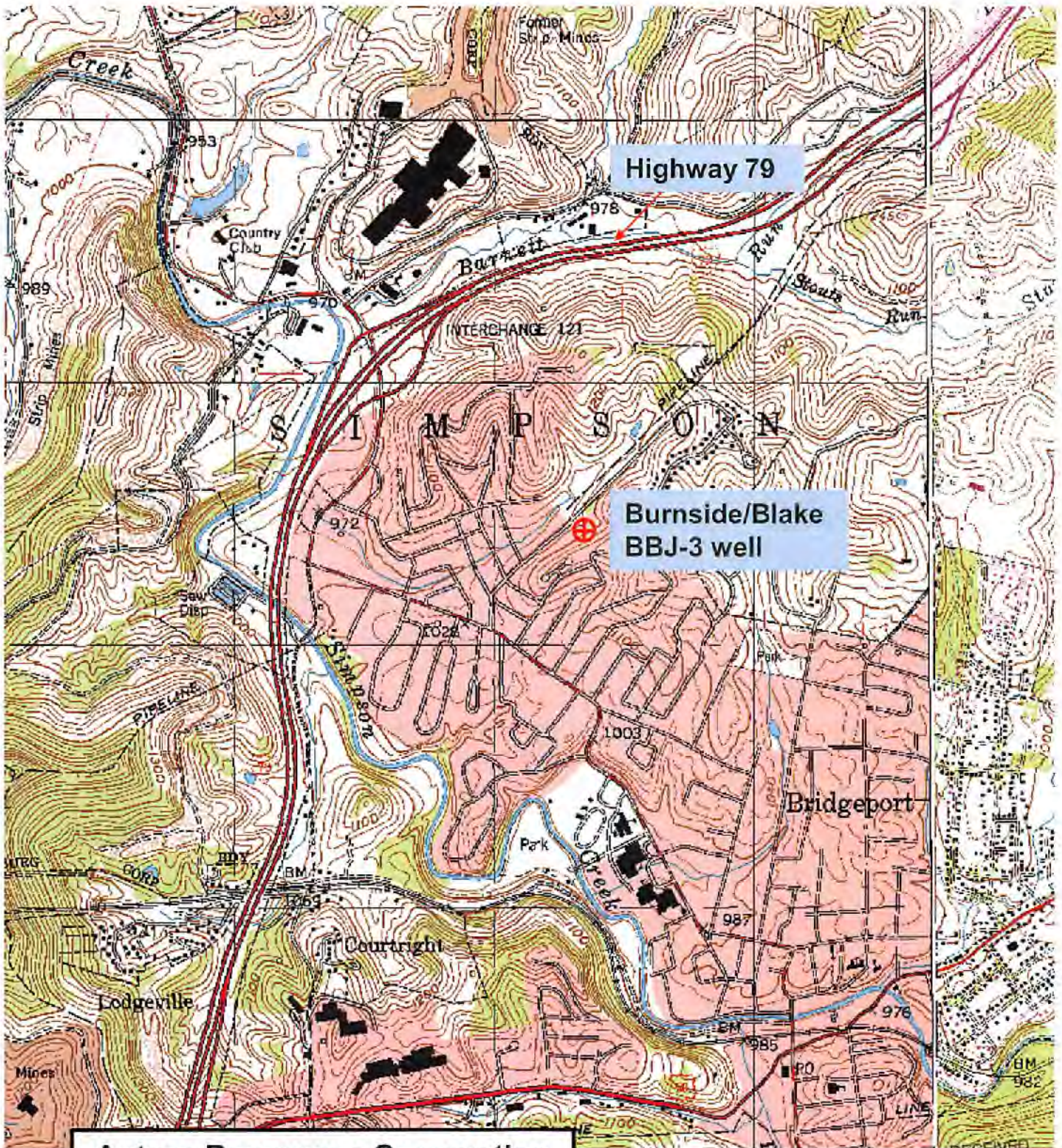
NOV 09 2017

WV Department of Environmental Protection

Title: BOG Inspector

Date: 10/26/2017

Field Reviewed? () Yes (X) No



Antero Resources Corporation
 Appalachian Basin
 Well #3
 Harrison County

Quadrangle: Clarksburg 7.5'
 Watershed: Simpson Creek
 District: Simpson
 Date: 10-03-2017

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 WV Department of
 Environmental Protection

WW-7
8-30-06



West Virginia Department of Environmental Protection
Office of Oil and Gas

WELL LOCATION FORM: GPS

API: 47-033-03255 WELL NO.: 3

FARM NAME: Burnside/Blake

RESPONSIBLE PARTY NAME: Antero Resources Corporation

COUNTY: Harrison DISTRICT: Simpson

QUADRANGLE: Clarksburg

SURFACE OWNER: DAVID C. & KIMBERLY SNOOGRASS

ROYALTY OWNER: Antero Resources Corporation

UTM GPS NORTHING: 4350413.80 m (1096')

UTM GPS EASTING: 563317.40 m GPS ELEVATION: 333.94 m

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS : Post Processed Differential _____

Real-Time Differential

Mapping Grade GPS : Post Processed Differential _____

Real-Time Differential

4. Letter size copy of the topography map showing the well location.

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

Mary [Signature]
Signature

Permitting Supervisor
Title

10/4/17
Date

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Office of Oil and Gas

OCT 05 2017

WV Department of
Environmental Protection