



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 BBJ-1
47-033-03256-00-00

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: BBJ-1
Farm Name: BURNSIDE/BLAKE
U.S. WELL NUMBER: 47-033-03256-00-00
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. BBJ-1
3) API Well No. 47-033 - 03256

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 ___ / Shallow X

5) Location: Elevation 1209' *Per survey EPW* 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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Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector Sam D 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-01
Harrison County, WV
API #47-033-03256



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" 24# set @ 1,246'. Cemented to surface.
2. 4-1/2" 10.5# set @ 4,615' with estimated TOC @ 1,924' (To Be Confirmed)
3. 1 1/2" tubing loose @ 4,515'.

Elevation: 1,215'

Oil and Gas Zones:

1. Greenbrier Group: 1,460'-1,645'
2. Fifth Sandstone Formation: perms from 2,556'-2,564'
3. Speechly: Unknown Thickness; perms from 3,226'-3,236'
4. Balltown: 3,560' - 3,620'
5. Riley: 4,180' - 4,230'
6. Benson: 4,535'-4,545'; perms from 4,328'-4,553'

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 @ 4,600'
11. POOH. Note fluid depth tagged.
12. MIRU logging crew.
13. Load Hole with 6% gel.
14. Run CBL from 4,600' 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 4,600'.
18. MIRU cement services. Mix and pump 55 sacks for a 600' balanced plug from 4,000'-4,600'. (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
19. Pull up to 3,640'
20. Mix and pump 19 sacks for a 200' balanced plug from 3,440'-3,640'. (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 3,290'
22. Mix and pump 10 sacks for 100' balanced plug from 3,190'-3,290'. (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
23. Pull up to ~~3,290'~~ 2,650'.
24. Mix and pump 19 sacks for 200' balanced plug from 2,450'-2,650'. (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 @ 2,450'
25. POOH with tubing.
26. Lubricate and RIH W/ CIBP and set @ 2,450'.

SDEU
10/26/2017

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27. POOH w/ wireline.
28. Pressure test CIBP to 500 psi
29. RIH wireline and run free point above TOC in 4.5" casing
 - a. Chemical cut at ~1,915' (exact depth determined via freepoint and CBL)
 - b. RU casing jacks and POOH – LD 4.5" casing.
30. TIH with 2 3/8" tubing to 2,449' (1' above CIBP)
31. MIRU cement services. Mix and pump 10 sacks for balanced plug from 2,450'-2,550'. (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 2,015 (100' below casing cut)
33. Mix and pump 31 sacks for balanced plug from 1,815'-2,015' (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. Mix and pump 66 sacks for balanced plug from 1,400'-1,700' (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
35. Pull up to 1,350'
36. Mix and pump 59 sacks for balanced plug from 1,150'-1,350' (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 @ 1,150'
 - e. If TOC is deeper than 1,150', mix and spot cement so TOC is a minimum depth of 1,150'.
37. Pull up to 400'
38. Mix and pump 146 sacks from surface-400' (Class A cement + 2% CaCl₂, 20% excess included; yield = 1.18 ft³/sk, WR=5.2 gal/sk)
39. TOOH
40. Wait on cement 8hrs.
41. Weld on a P&A monument that extends thirty inches above the surface with well name and API number. (API No.: 47-033-03256).

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Wellbore Diagram

8/23/2017

Elev.: 1,215'

Spud: 11/1/1985

8 5/8" Conductor Casing
Set @ 1,246'
Cemented to Surface

300' plug from 1,400'-1,700'

100' plug from 1,865'-1,965'
Across casing cut

6.25 Estimated Hole Size

CIBP @ 2,650'
topped w/ Plug 2,450'-2,550'

100' plug from 3,190'-3,290'

200' plug from 3,440'-3,640'

600' plug from 4,000'-4,600'

400' plug from Surface-400'

Coal Seams (298-320)

200' plug from 1,150'-1,350'
Across bottom of 8 5/8"

Greenbrier Group (1,460' - 1,645') - Not Perf'd

Cut Casing @ ~1,915'

TOC @ 1,924'

Unkown Formation

Perfs from: 2,556 - 2564'

Unkown Formation

Perfs from: 3,226 - 3236'

Balltown (3,560' - 3,620')- Not Perf'd

Riley (4,180' - 4,230')- Not Perf'd

Benson (4,535' - 4,545')

Perfs from: 4,326-4,553'

4-1/2" 10.5# Production Casing
Set @ 4615' w/ 590 sks

TD @ 4,705'

Antero Resources Corporation

BBJ-01

API: 47-033-03256

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PERC



IV-35 (Rev. 8-81)

MAR 18 1985

State of West Virginia Department of Mines Oil and Gas Division

Date 12.30.85 Operator's Well No. BBJ-1 Farm Meadow View, Inc. API No. 47-033-3256

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

WELL TYPE: Oil / Gas X / Liquid Injection / Waste Disposal / (If "Gas," Production X / Underground Storage / Deep / Shallow X /) LOCATION: Elevation: 1,205' Watershed Simpson Creek District: Simpson County Harrison Quadrangle Clarksburg

COMPANY Glenn H. Johnson 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 Meadow View, Inc ADDRESS 1400 Johnson Ave., Bridgeport, WV 26330 MINERAL RIGHTS OWNER Meadow View, Inc & Others ADDRESS 1400 Johnson Ave., Bridgeport, WV 26330 OIL AND GAS INSPECTOR FOR THIS WORK Steve Casey Rt. 2, Box 232-D Jane Lew, WV 26378

PERMIT ISSUED October 8, 1985 DRILLING COMMENCED October 26, 1985 DRILLING COMPLETED November 1, 1985

IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Table with 4 columns: Casing Tubing Size, Used in Drilling, Left in Well, Cement fill up Cu. ft. Rows include sizes 20-16, 13-10, 9 5/8, 8 5/8, 7, 5 1/2, 4 1/2, 3, 2 1/2, and Liners used.

GEOLOGICAL TARGET FORMATION Benson Depth 4,500 feet Depth of completed well 4,705 feet Rotary / Cable Tools Water strata depth: Fresh 80 feet; Salt 0 feet Coal seam depths: 305 Is coal being mined in the area? No

OPEN FLOW DATA Producing formation Fifth, Speechley, Benson-Riley Pay zone depth 4,705 feet Gas: Initial open flow 215,000 Mcf/d Oil: Initial open flow Final open flow 146,000 Mcf/d 12/10ths thru 2" tested with water Time of open flow between initial and final tests 72 hours Static rock pressure 330 psig (surface measurement) after 72 hours shut in (If applicable due to multiple completion--)

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HARR 3256

(Continue on reverse side)

FORM IV-35
(REVERSE)

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

Halliburton Water Stimulation (Three Phase Frac)
November 18, 1985
20/40 Bulk Frac Sand: 859 Skts.

Perforations: 4,328' - 4,553' 10 Shots
3,225' - 3,235' 12 Shots
2,556' - 2,564' 12 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	
Top Soil			10	20	
Sand & Shale			20	80	Hole Wet 80'
Red Rock & Shale			80	140	App. 1/2" Stream
Sand			140	170	
Shale & Red Rock			170	305	
Coal			305	308	
Sand & Shale & Red Rock			308	470	
Sand & Shale			470	560	
Shale			560	740	
Sand			740	850	App. 1/2" Stream @ 780'
Sand & Shale			850	990	
Sand			990	1,030	
Sand & Shale			1,030	1,190	
Red Rock & Shale			1,190	1,460	
Lime & Injun			1,460	1,645	
Sand & Shale			1,645	1,910	Check Gas @ 1,665' No Show
Sand			1,910	2,020	
Sand & Shale			1,950	2,020	
Sand			2,020	2,120	
Sand & Shale			2,120	2,460	
Sand			2,460	2,480	
Sand & Shale			2,480	3,105	
Sand			3,105	3,135	
Sand & Shale			3,135	3,315	Check Gas @ 3,155' No Show
Sand			3,315	3,370	
Sand & Shale			3,370	3,560	
Balltown			3,560	3,620	
Sand & Shale			3,620	4,180	Check Gas @ 3,631' 1" P w/w
Riley			4,180	4,230	
Sand & Shale			4,230	4,390	Check Gas @ 4,260' 1" P w/w
Dark Sand			4,390	4,405	
Sand & Shale			4,405	4,535	
Dark Sand			4,535	4,545	
Sand & Shale			4,545	4,705	Check Gas @ 4,577' 10/10-1" P w/w Check Gas @ Collars 10/10-1" P w/w
TD					

(Attach separate sheets as necessary)

Glenn H. Johnson
DEB Johnson Energy Co.
Well Operator

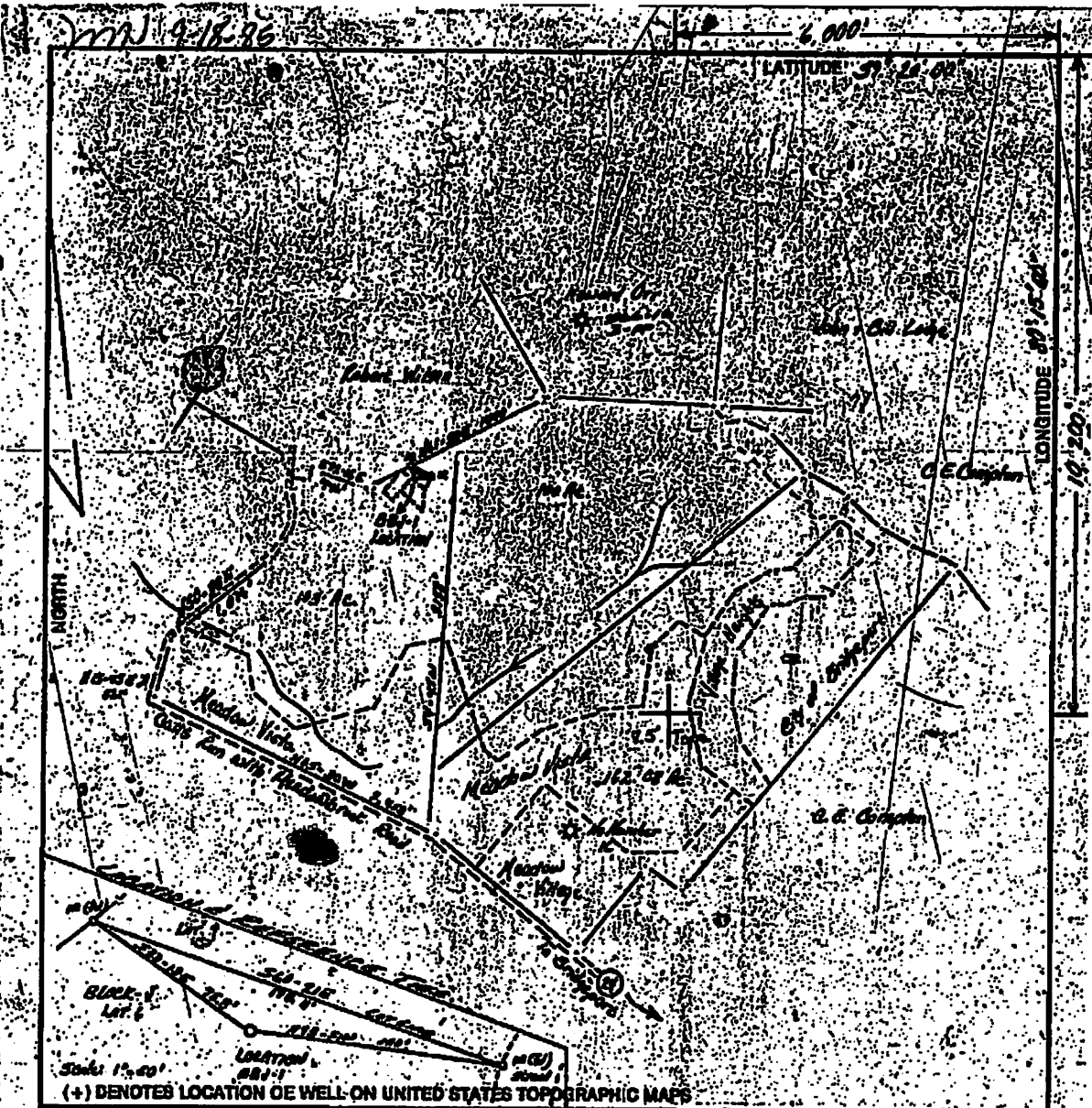
By: *[Signature]*
Date: 12-30-85

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



FILE NO. 189.0
 DRAWING NO. 85-01
 SCALE 1" = 200'
 MINIMUM DEGREE OF ACCURACY 1 in 200
 PROVEN SOURCE OF ELEVATION USGS BM 944 at South Run 11345 Martinsburg Road

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) Rexford L. Ostrander
 RPE I.L.S. 555
 Martinsburg, W. Va.



STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

DATE Sept 18 19 85
 OPERATOR'S WELL NO. AA-1
 API WELL NO. 47-038-3256
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1105 WATERSHED Shannon Creek
 DISTRICT Sagehen COUNTY Harrison
 QUADRANGLE Charleston

SURFACE OWNER: Headon Visual Serv ACREAGE 1.02 A.
 OIL & GAS ROYALTY OWNER: Rayl. R. R. & et al. LEASE ACREAGE 1.02 A.
 LEASE NO. _____

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 Banana ESTIMATED DEPTH 4100'
 WELL OPERATOR Rayl. R. R. & et al. DESIGNATED AGENT Barbara R. R.
 ADDRESS 10 Box 604 Charleston, W. Va. 25304 ADDRESS PO Box 280 Beckley, W. Va. 26200

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FORM 641 (8-79)

COUNTY NAME PERMIT 3256

IV 9 REVERSE
(REV 8-81)

Miss Utility No. _____
Date called: _____

ATTACH OR PHOTOCOPY SECTION OF
INVOLVED TOPOGRAPHIC MAP.
QUADRANGLE Clarksburg

LEGEND

Well site

Access Road

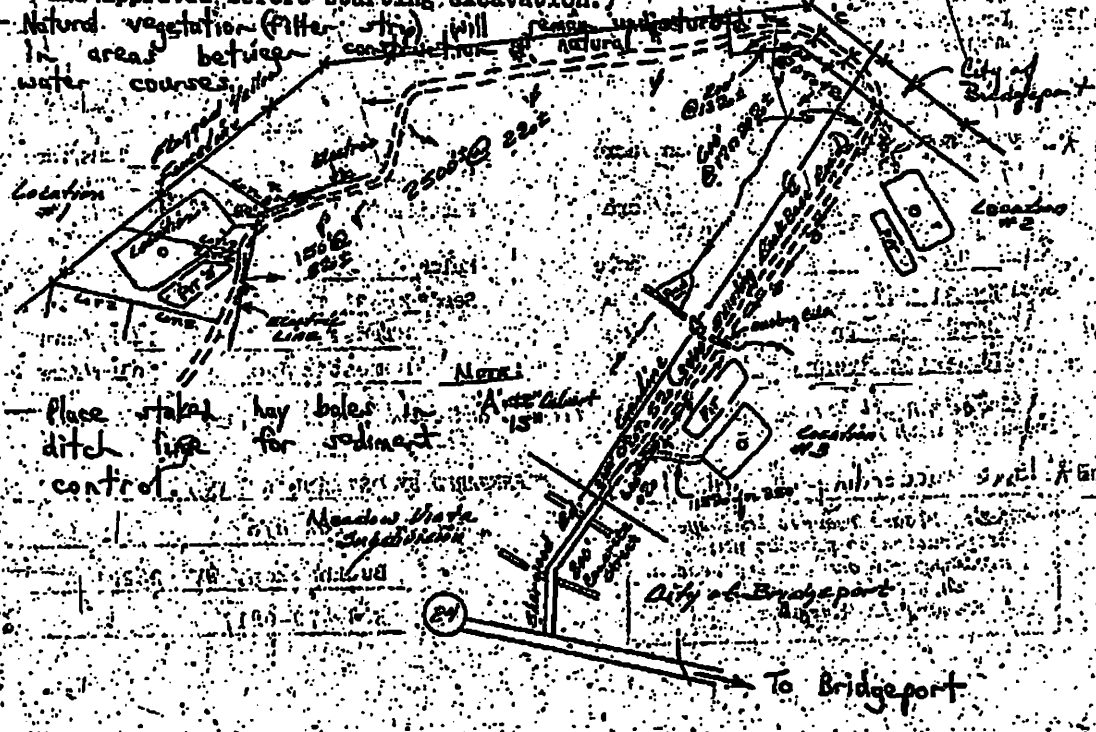


Sketch to include well location, existing access road, roads to be constructed, well site, drilling pits and necessary structures numbered or lettered to correspond with the first part of this plan. Include all natural drainage.

LEGEND

Property boundary	Water Velocity Barrier
Road	Diversion
Existing fence	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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Select County: (033) Harrison Select datatypes: (Check All)

Enter Permit #: 03256

Location Production Plugging
 Owner/Completion Stratigraphy Sample
 Pay/ShowWater Logs Btm Hole Loc

Get Data Reset

- [Table Descriptions](#)
- [County Code Translations](#)
- [Permit-Numbering Series](#)
- [Usage Notes](#)
- [Contact Information](#)
- [Disclaimer](#)
- [WVGES Main](#)
- ["Pipeline-Plus" New](#)

WV Geological & Economic Survey:

Well: County = 33 Permit = 03256

Report Time: Monday, January 22, 2018 1:54:32 PM

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4703303256	Harrison	3256	Simpson	Clarksburg	Clarksburg	39.30512	-80.270903	562862	4350890.3

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
4703303256	11/1/1985	Original Loc	Completed	Meadow View Inc			BBJ1			Johnson, Glenn H. (Johnson Produc'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_BEFF	G_AFT	O_BEFF	O_AFT	NQ
4703303256	11/1/1985	10/26/1985	1215	Kelly Bushing	Brprnt-Prntvwn	Benson	Benson	Development Well	Development Well	Gas Rotary Fractured	4705		4705	215	146	0	0	

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEFF	G_AFT	O_BEFF	O_AFT	WATER_QNTY
4703303256	11/1/1985	Water	Fresh Water	Vertical			80						0
4703303256	11/1/1985	Water	Fresh Water	Vertical			780						0
4703303256	11/1/1985	Pay	Gas	Vertical	2556	Fifth	2564	Fifth	0	0			0
4703303256	11/1/1985	Pay	Gas	Vertical	3226	Speechley	3236	Speechley	0	0			0
4703303256	11/1/1985	Pay	Gas	Vertical	4328	Riley	4553	Benson	0	0			0

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703303256	Jackson Development Co., Inc.	1986	7,777	0	0	0	0	1,929	1,439	1,016	731	648	755	639	620
4703303256	Johnson Energy Co.	1987	6,604	565	537	496	523	558	505	505	998	482	503	470	462
4703303256	Johnson Energy Co.	1988	4,991	439	425	400	427	419	415	427	435	428	405	383	388
4703303256	Johnson Energy Co.	1989	5,169	383	382	357	361	359	394	1,049	441	378	353	381	331
4703303256	Johnson Energy Co.	1990	4,214	344	361	316	340	337	374	361	365	370	376	342	328
4703303256	Johnson Energy Co.	1991	3,928	354	312	291	337	327	346	336	348	328	317	318	314
4703303256	Johnson Energy Co.	1992	3,636	247	285	307	308	318	310	312	331	313	314	305	286
4703303256	Johnson Energy Co.	1993	3,469	293	282	258	292	300	299	219	345	324	293	289	275
4703303256	Johnson Energy Co.	1994	3,272	281	264	257	287	286	285	294	292	293	85	302	346
4703303256	Mountain V Oil and Gas, Inc.	1995	1,123								299	289	260	275	
4703303256	Mountain V Oil and Gas, Inc.	1996	4,199	277	276	419	436	386	352	390	368	330	342	314	309
4703303256	Mountain V Oil and Gas, Inc.	1997	3,425	271	270	299	297	286	288	276	296	288	294	277	283
4703303256	Mountain V Oil and Gas, Inc.	1998	3,321	289	256	273	279	288	288	296	296	260	288	260	248
4703303256	Mountain V Oil and Gas, Inc.	1999	3,094	251	235	194	252	269	306	310	279	231	244	278	195
4703303256	Mountain V Oil and Gas, Inc.	2000	3,167	309	253	269	242	281	277	281	273	251	222	237	272
4703303256	Mountain V Oil and Gas, Inc.	2001	3,136	228	225	267	240	229	300	297	282	274	279	261	254
4703303256	Mountain V Oil and Gas, Inc.	2002	3,363	287	238	297	304	299	265	256	294	279	296	298	250
4703303256	Mountain V Oil and Gas, Inc.	2003	3,226	267	274	298	274	253	286	272	273	262	265	254	248
4703303256	Mountain V Oil and Gas, Inc.	2004	3,042	247	213	215	260	302	228	206	262	269	298	282	260
4703303256	Mountain V Oil and Gas, Inc.	2005	3,112	274	224	250	244	251	260	279	280	270	268	256	256
4703303256	Mountain V Oil and Gas, Inc.	2006	1,796	259	237	257	251	269	257	266	0	0	0	0	0
4703303256	North Coast Energy Eastern	2006	1,318	0	0	0	0	0	0	274	260	275	253	256	
4703303256	EXCO - North Coast Energy Eastern, Inc.	2007	3,073	248	229	258	247	266	259	264	267	263	265	254	253
4703303256	EXCO Resources (WW), Inc.	2008	2,871	242	228	252	245	248	222	208	239	255	264	240	228
4703303256	EXCO Resources (WW), Inc.	2009	2,533	223	205	230	239	233	239	252	248	248	227	14	175
4703303256	EXCO Resources (WW), Inc.	2010	3,145	291	261	275	276	241	174	320	299	268	255	240	245
4703303256	EXCO Resources (WW), Inc.	2011	2,766	237	221	244	240	252	241	111	307	232	231	218	232
4703303256	EXCO Resources (WW), Inc.	2012	2,987	171	150	566	285	236	225	207	238	241	237	211	220
4703303256	Antero Resources Corporation	2013	237	201	36	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	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	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703303256	Jackson Development Co., Inc.	1986	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1988	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1989	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1990	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1991	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1992	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1993	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Johnson Energy Co.	1994	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	1995	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	1998	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	1999	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Mountain V Oil and Gas, Inc.	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	North Coast Energy Eastern	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	EXCO - North Coast Energy Eastern, Inc.	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	EXCO Resources (WW), Inc.	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	EXCO Resources (WW), Inc.	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	EXCO Resources (WW), Inc.	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	EXCO Resources (WW), Inc.	2011	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	EXCO Resources (WW), Inc.	2012	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2016	0	0	0	0	0	0	0	0	0	0	0	0	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
4703303256	Antero Resources Corporation	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4703303256	Antero Resources Corporation	2016	0	0	0	0	0	0	0	0	0	0	0	0	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
4703303256	Antero Resources Corporation	2016	0												

Stratigraphy Information:

</

WW-4A
Revised 6-07

1) Date: October 4, 2017
2) Operator's Well Number
BBJ-1

3) API Well No.: 47 - 033 - 03256

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>Khan T. and Laverne Kessleman</u>	Name <u>NO DECLARATIONS ON RECORD WITH COUNTY</u>
Address <u>47 Overlook Drive</u>	Address _____
<u>Bridgeport, WV 26330</u>	_____
(b) Name <u>3 ADDITIONAL NOTICES TO</u>	(b) Coal Owner(s) with Declaration
Address <u>ADJACENT SURFACE OWNERS</u>	Name <u>NO DECLARATIONS ON RECORD WITH COUNTY</u>
<u>SEWT. (SEE ATTACHED</u>	Address _____
<u>MAIL RECEIPTS.)</u>	_____
(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 reverse 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

Subscribed and sworn before me this 4 day of October 2017
[Signature] Notary Public
My Commission Expires 7/8/2020

RECEIVED
Office of Oil and Gas
NOV 09 2017
WV Department of
Environmental Protection

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 denprivacyofficer@wv.gov.

3303256A

WW-9
Rev. 5/08

Page _____ of _____
API Number 47 - 033 - 03256
Operator's Well No. BBJ-1

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 1209' 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

*SDW
10/26/2017*

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)
Northwestern Landfill Permit #SWF-1025/
WV0109410
- Other (Explain _____)

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

Subscribed and sworn before me this 4 day of October, 20 17

Signature of Notary Public

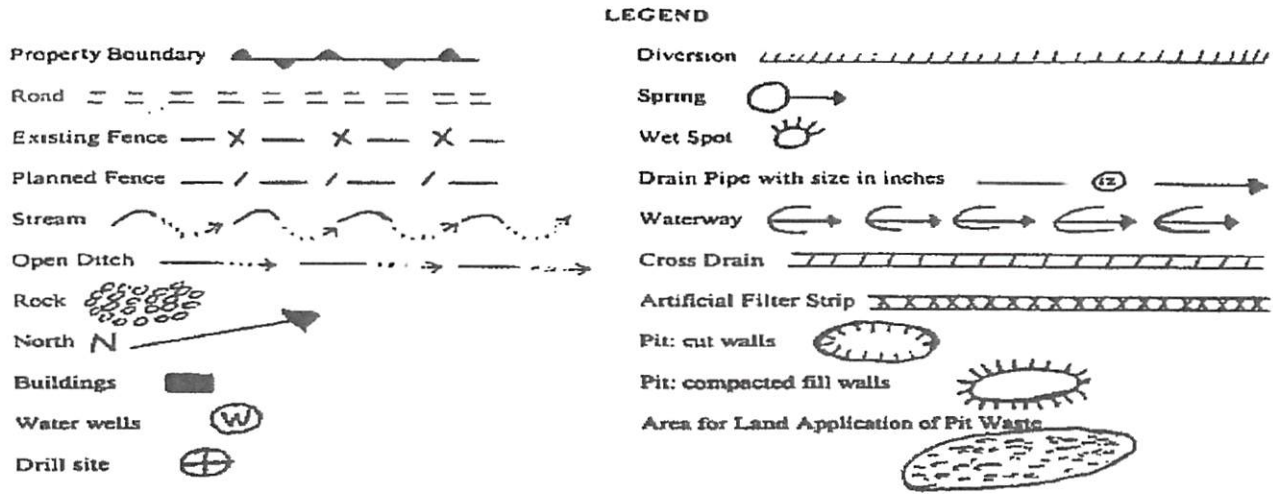
Notary Public

My commission expires 7/8/2020



Form WW-9

Operator's Well No. BBJ-1



Proposed Revegetation Treatment: Acres Disturbed 0.51 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

Please reference Table IV-3 on page 5 of the BBJ-1 Well Plugging Plan

*or type of grass seed requested by surface owner

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

Please reference Table IV-4A on page 5 of the BBJ-1 Well Plugging Plan

*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: Sue D Ward II

Comments: _____

RECEIVED
Office of Oil and Gas

NOV 09 2017

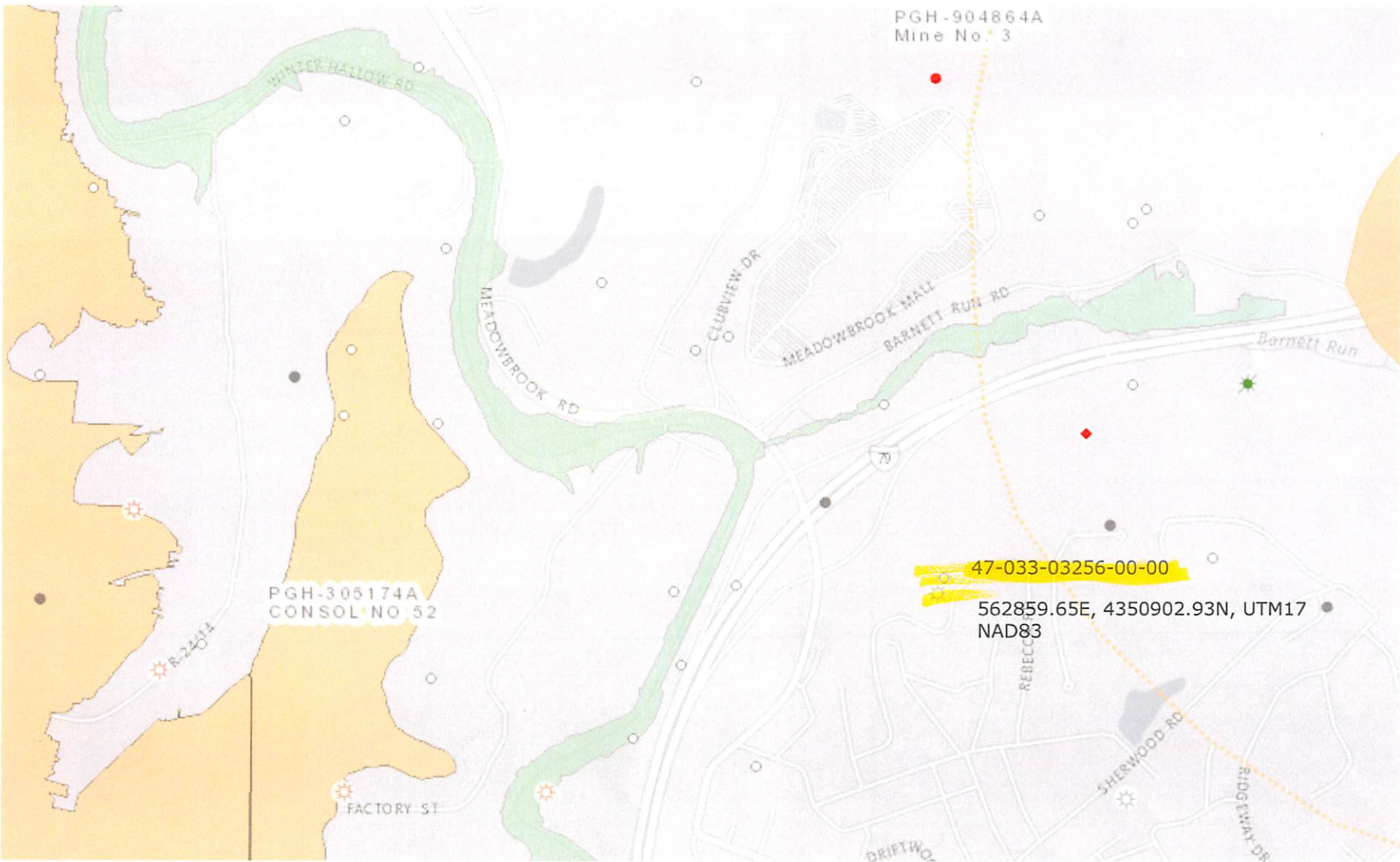
Title: OOG Inspector

Date: 10/26/2017

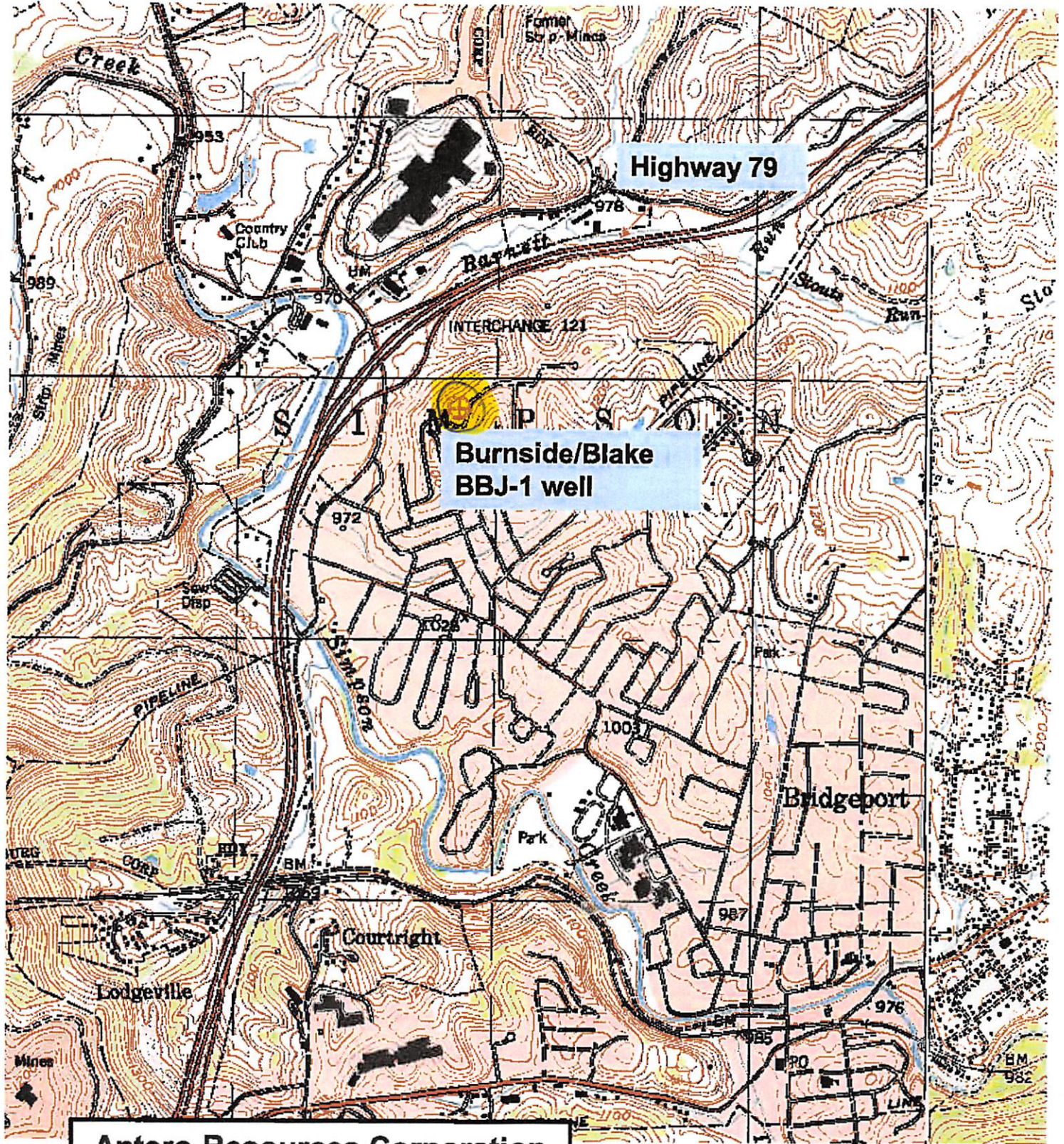
WV Department of
Environmental Protection

Field Reviewed? () Yes (X) No

3303256P







Antero Resources Corporation
 Appalachian Basin
 BBJ-1
 Harrison County

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

RECEIVED
 Office of Oil and Gas
 NOV 09 2017
 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: 47-033-03256 WELL NO.: BBJ-1

FARM NAME: Burnside/Blake

RESPONSIBLE PARTY NAME: Antero Resources Corporation

COUNTY: Harrison DISTRICT: Simpson

QUADRANGLE: Clarksburg

SURFACE OWNER: Khan T & Laverne R Kesselman

ROYALTY OWNER: Antero Resources Corporation

UTM GPS NORTHING: 4350902.93 m (1208')

UTM GPS EASTING: 562859.65 m GPS ELEVATION: 368.35 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:

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

Survey grade GPS X: Post Processed Differential _____
Real-Time Differential X

Mapping Grade GPS X: Post Processed Differential _____
Real-Time Differential X

- 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.

Matt Smith
Signature

Permitting Supervisor
Title

10/4/17 NOV 09 2017
Date WV Department of Environmental Protection

RECEIVED
Office of Oil and Gas