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

Earl Ray Tomblin , Governor
Randy C. Huffman , Cabinet Secretary
www.dep.wv.gov

Thursday, October 27, 2016
WELL WORK PERMIT
Coal Bed Methane Well / Plugging

ARP MOUNTAINEER PRODUCTION, LLC
PARK PLACE CORPORATE CENTER ONE
1000 COMMERCE DRIVE 4TH FLOOR
PITTSBURGH, PA 15275

Re: Permit approval for WW-2
47-081-01147-00-00

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: WW-2
Farm Name: W. POCAHONTAS PROPERTIES
U.S. WELL NUMBER: 47-081-01147-00-00
Coal Bed Methane Well / Plugging
Date Issued: 10/27/2016

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PERMIT CONDITIONS

COALBED METHANE WELLS

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. If this well is associated with a mine through by a coal operator, then the plugging methodology (work order) must have Mine Safety and Health Administration (MSHA) approval.

8101147P

WW-4B
Rev. 2/01

1) Date July 12th, 2016
2) Operator's Well No. WW-2
3) API Well No. 47-81-01147

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____

5) Location: Elevation 2,054.30 Watershed Paint Creek
District Town County Raleigh Quadrangle Eccles

6) Well Operator ARP Mountaineer Production, LLC
Address Park Place Corporate Centre One
1000 Commerce Drive 4th Floor, Pittsburg, PA 15275

7) Designated Agent CT Corporation System
Address 5400 D Big Tyler Road
Charleston, West Virginia 25313

8) Oil and Gas Inspector to be notified
Name Gary Kennedy
Address 252 Circle Avenue
Rainelle WV 25962

9) Plugging Contractor
Name C&J Energy Services
Address 580 Hawthorne
Norton, VA 24273

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

Move in rig up work-over rig, Lower tubing and tag bottom, TD 1078' Loggers Depth.

If fill is encountered, clean to as deep as reasonably achievable below lowermost coal.

RIH with 2-3/8" tubing set off of bottom + or - two feet. Spot balanced plug using 25% excess in cement, totaling 50cu.ft of expanding cement.

★SEE EXPANDING CEMENT ADDENDUM ★

TOOH w/tubing to be above cement plug, WOC for 4hrs minimum

RIH w/tubing, tag cement at or near 678', finish circulating cement to the surface w/25% excess, using 80cu.ft of expanding cement

Install permanent marker and reclaim location to WVDEP specifications

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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 Gary Kennedy Date 9/7/16

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EXPANDING CEMENT ADDENDUM

C&J Energy Services, LTD.

1650 Hackers Creek
Jane Lew, WV 26378
Oil Field Solutions and Services

Well Data

Pilot JWV16-096

Date:	October 13, 2016	*BHST:*	60 [F]
Client:	Atlas	*BHCT:*	60 [F]
Well Name:	Generic P&A		
Field:	0		
Service Point	Black Lick, PA		
Job Type:	Plug		
Depth:	[ft]		
TVD:	[ft]		
Prepared By:	Neal Johnson		

Slurry Contents

50:50 CJ010-74:CJ920 + 10% CJ111 (BWOW) + 2% CJ020 + 5 LB/SK CJ611

Cement/Blend/Salt	Lot Number	Concentration	Volume	Mass	
CJ920		47 LB/SK		351.31	[grams]
CJ010-74		37 LB/SK		276.57	[grams]
CJ111		10 %BWOW		31.19	[grams]
Additives	**Lot Number**	**Concentration**	**Volume**	**Mass**	
CJ020		2 %BWOB		12.558	[grams]
CJ611		5 LB/SK		37.374	[grams]
			Total Dry Blend =	709.002105	[grams]
Liquids	**Location**	**Concentration**	**Volume**	**Mass**	
Water			312.87 [mL]	311.92	[grams]

Slurry Properties

Density:	14.2 [PPG]	Porosity:	55 [%]
Yield:	1.29 [cuft/sk]	Mix Water:	5.02 [gal/sk]

Expansion Test

Time Elapsed	*Diameter (in.)*
0 hrs	0.44355
72 hrs	0.45770
96 hrs	0.45820
120 hrs	0.45825
Percent Circumferential Expansion	
0.134 %	

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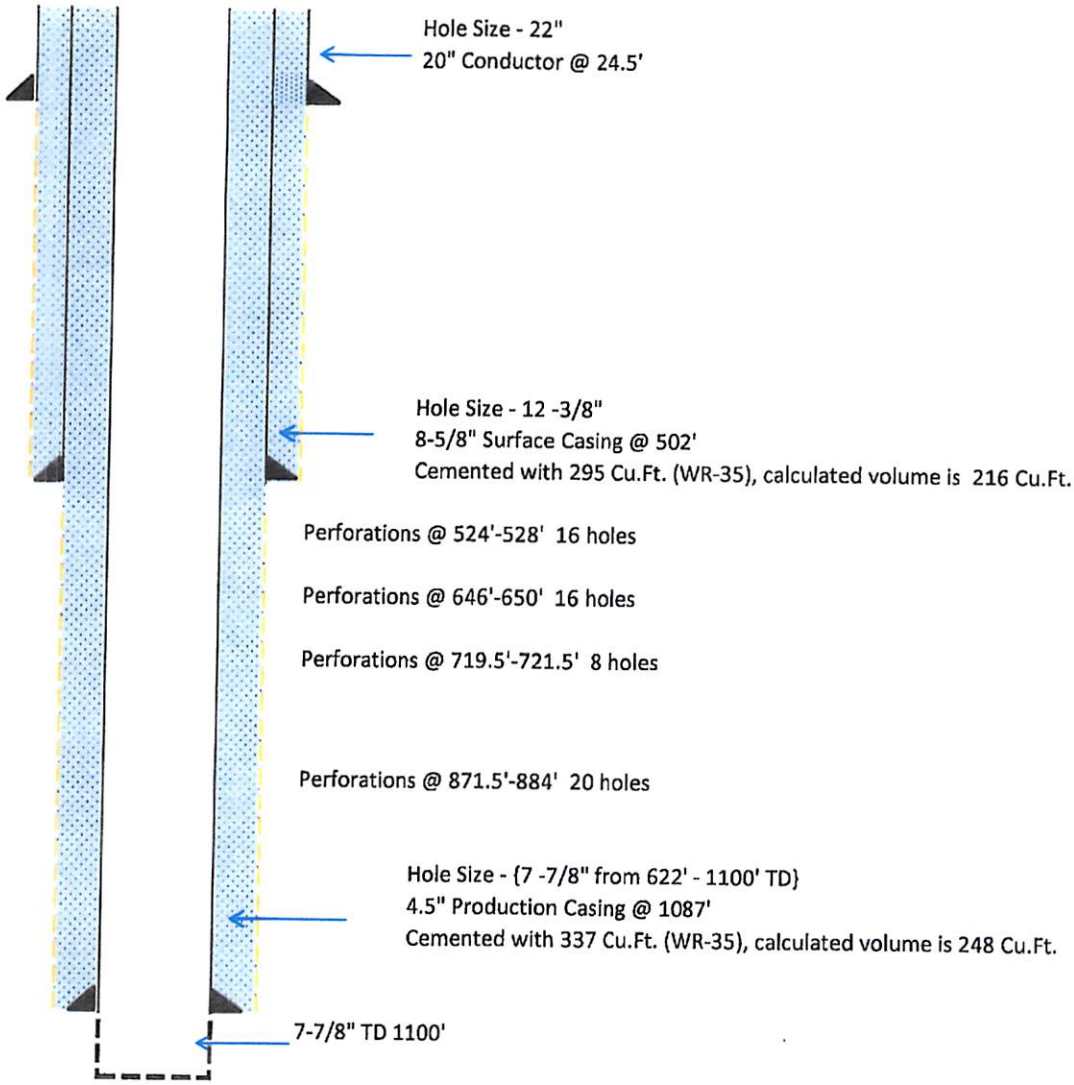
WW-2
Plug and Abandon Schematic
API # 47-081-01147



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8101147P

WR-35
Rev (5-01)

DATE: August 10, 2004
API #: 47-81-01147 C

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: Western Pocahontas Operator Well No.: WW-2

LOCATION: Elevation: 2047.0 Quadrangle: Eccles

District: Town County: Raleigh
Latitude: 8167 Feet South of 37 Deg. 50 Min. 00 Sec.
Longitude 2767 Feet West of 81 Deg. 17 Min. 30 Sec.

Company:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
	8.625	502	502	319-DNC
Address: One Boar's Head Pointe	4.5	1087	1087	224-CTS
Charlottesville, VA 22903				
Agent: Allen Mueller				
Inspector: Rodney Dillon				
Date Permit Issued: March 24, 2000				
Date Well Work Commenced: April 10, 2000				
Date Well Work Completed: May 31, 2000				
Verbal Plugging:				
Date Permission granted on:				
Rotary X Cable Rig Horn				
Total Depth (feet): 1100'				
Fresh Water Depth (ft.): 40' – 50'				
Salt Water Depth (ft.): N.A.				
Is coal being mined in area (N/Y)? Yes				
Coal Depths (ft.): 246-253, 287-302, 524-528, 647-648, 720-721, 871-884				

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OPEN FLOW DATA

Producing formation Poca 2,3,6,9 & Beckley coals Pay zone depth (ft) 524-884
Gas: Initial open flow N.A. MCF/d Oil: Initial open flow N.A. Bbl/d
Final open flow 0 MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests N.A. Hours
Static rock Pressure 0 psig (surface pressure) after N.A. Hours

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AUG 11 2004
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Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed: _____
By: John F. Sinclair VP-Exploration
Date: 8/10/04

Eccles 3

8101147P

Well: WW-2 Permit No: 47-81-1147C
District: Town County: Raleigh

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

11/12/98 Ran 4-1/2" casing w/ frac baffles @ 561, 693, & 760

12/03/98 Perforated coal 871.5-884 w/ 23 - 2-1/8 charges
Did not frac

Formation	Top	Bottom	Remarks
Shale	0	40	
Sand	40	50	Water 1/2"
Sand and Shale	50	68	
Sand	68	78	
Shale	78	85	
Sand	85	190	
Shale	190	246	
Coal	246	253	Mined
Sand and Shale	253	272	
Sand	272	297	
Coal	297	302	
Sand and Shale	302	325	
Sand	325	428	
Shale	428	435	
Sand	435	492	
Shale	492	524	
Coal	524	528	
Sand and Shale	528	570	
Sand	570	610	
Sand and Shale	610	647	
Coal	647	648	
Shale	648	653	
Sand	653	666	
Sand and Shale	666	683	
Sand	683	694	
Sand and Shale	694	710	
Sand	710	720	
Coal	720	721	
Sand and Shale	721	871	
Coal	871	884	
Sand and Shale	884	904	
Sand	904	912	
Sand and Shale	912	942	
Shale	942	1031	
Sand	1031	1085	
Shale	1085	1100	
TD		1100	

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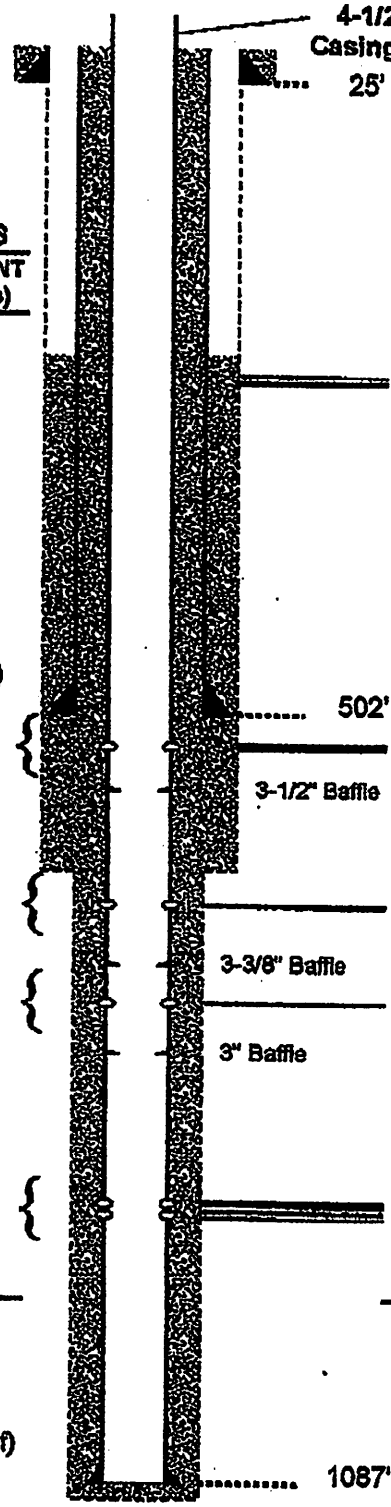
WELL WW-2 AS-DRILLED CONFIGURATION DIAGRAM

Latitude: 8,167' S of 37°50'00"
Longitude: 2,767' W of 81°15'00"

Elevations: Ground - 2,047.0'
KB - 2,052.0'



STIMULATION TREATMENT PLANS

TRTMT. NO.	STIM TYPE	VOLUME (US gal.)	PROPPANT (pounds)
#4	WATER/SAND	20,000	20,000
#3	WATER/SAND	15,000	15,000
#2	WATER/SAND	10,000	10,000
#1	WATER/SAND	35,000	35,000
TOTAL		80,000	80,000

COAL SEAM

SEAM NAME	DEPTH (feet)	NET THICK (feet)
Sewell	246'-253'	4.8'
Beckley	524'-528'	3.7'
Poc. 9	646'-650'	3.0'
Poc.6	720'-721'	1.3'
Poc. 3	871'-875'	3.9'
Poc. 1&2	878'-884'	3.2'
Total Completed Coal		15.1'
(Total Coal for Well		19.9')

Vertical Scale

0	0.0
25	
50	12.5
75	25.0
100	
125 ft	37.5 m

All depths from GL

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81 01147P

WW-4A
Revised 6-07

1) Date: 7-28-2016
2) Operator's Well Number
WW-2

3) API Well No.: 47 - 81 - 01147

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: ✓
(a) Name: Western Pocahontas Properties
Address: 5260 Irwin Road
Hunting West Virginia 25705

(b) Name:
Address:

(c) Name:
Address:

6) Inspector: Gary Kennedy
Address: 252 Circle Avenue
Rainelle WV 25962
Telephone: 304-382-8402

5) (a) Coal Operator ✓
Name: ICG Beckley LLC
Address: 2221 Old Eccles Road
Eccles WV 25836

(b) Coal Owner(s) with Declaration ✓
Name: Western Pocahontas Properties
Address: 5260 Irwin Road
Hunting West Virginia 25705

Name:
Address:

(c) Coal Lessee with Declaration ✓
Name: ICG Beckley LLC
Address: 2221 Old Eccles Road
Eccles WV 25836

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: ARP Mountaineer Production, LLC
By: Douglas S Byers DOUGLAS S BYERS
Its: Manager Environmental Regulatory Affairs
Address: Atlas Resource Partners, LP Park Place Corporate Center One
1000 Commerce Drive 4th Floor Pittsburgh PA 15275
Telephone: 412-489-0311

Subscribed and sworn before me this 28th day of July 2016
Tammy L Rapp Notary Public
My Commission Expires 12-27-18

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Tammy L. Rapp, Notary Public
North Fayette Twp., Allegheny County
My Commission Expires Dec. 27, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

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 deprivacyoffice@wv.gov.

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WW-9
(2/15)

API Number 47 - 81 - 01147
Operator's Well No. WW-2

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name ARP Mountaineer Production, LLC OP Code _____

Watershed (HUC 10) Paint Creek Quadrangle Eccles

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes ☐ No ☑

Will a pit be used? Yes ☑ No ☑ R.S.

If so, please describe anticipated pit waste: Water and Cement to be collected into a skidded 80 bbl open top tank

Will a synthetic liner be used in the pit? Yes ☐ No ☑ If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- ■ Land Application
- ____ Underground Injection (UIC Permit Number _____)
- ____ Reuse (at API Number _____)
- ____ Off Site Disposal (Supply form WW-9 for disposal location)
- ____ Other (Explain _____

Will closed loop system be used? If so, describe: _____

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. _____

-If oil based, what type? Synthetic, petroleum, etc. _____

Additives to be used in drilling medium? _____

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. _____

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? _____

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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 D J S Byers

Company Official (Typed Name) DOUGLAS S. BYERS

Company Official Title Manager ENVIRONMENTAL & REGULATORY AFFAIRS

Subscribed and sworn before me this 28TH day of July, 2016

Tammy L Rapp Notary

My commission expires 12-27-18

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Tammy L. Rapp, Notary Public
North Fayette Twp., Allegheny County
My Commission Expires Dec. 27, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

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Form WW-9

Operator's Well No. WW-2

ARP Mountaineer Production, LLC

Proposed Revegetation Treatment: Acres Disturbed 0.5 Prevegetation pH 5-6.5

Lime 2 Tons/acre or to correct to pH 6

Fertilizer type 10-20-20 or equivalent

Fertilizer amount 500 lbs/acre

Mulch Hay/Straw Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue or Orchard Grass	40		
Annual Rye Grass	5		

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Comments:

Title: Inspector Date: 9/7/16

Field Reviewed? (✓) Yes ( ) No

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API Number 47 - 81 - 01147
Operator's Well No. WW 2

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

Operator Name: ARP Mountaineer Production, LLC

Watershed (HUC 10): Paint Creek Quad: Eccles

Farm Name: WESTERN POCAHONTAS PROPERTIES

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

Waste water that is collected into the portable tank will be treated and ground disbursed using a 2" portable gasoline powered trash pump.

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

While in operation, the portable 2" gasoline powered trash pump will be placed inside containment eliminating chances for potential spillage of gasoline onto the surface.

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

Closest water body 640' +/- South to Paint Creek.

WELL HEAD PROTECTION AREA NOT APPLICABLE.

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4. Summarize all activities at your facility that are already regulated for groundwater protection.

Not applicable.

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

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WW-9- GPP
Rev. 5/16

API Number 47 - 81 - 01147
Operator's Well No. WW 2

Not Applicable

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No wastes will be used for deicing, ice control, structural fills, road base or other uses.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

All employees will be trained on their responsibility to ensure groundwater protection. Current job procedures provide direction on how to prevent ground water contamination through proper work practices.

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

During the plugging activity the site will be inspected to ensure that all elements and equipment of the sites ground water protection program are in place, properly functioning, and appropriately managed.

Signature: Jeff Cooper

Date: 8-30-2016

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81 01147 P

47-81-01147

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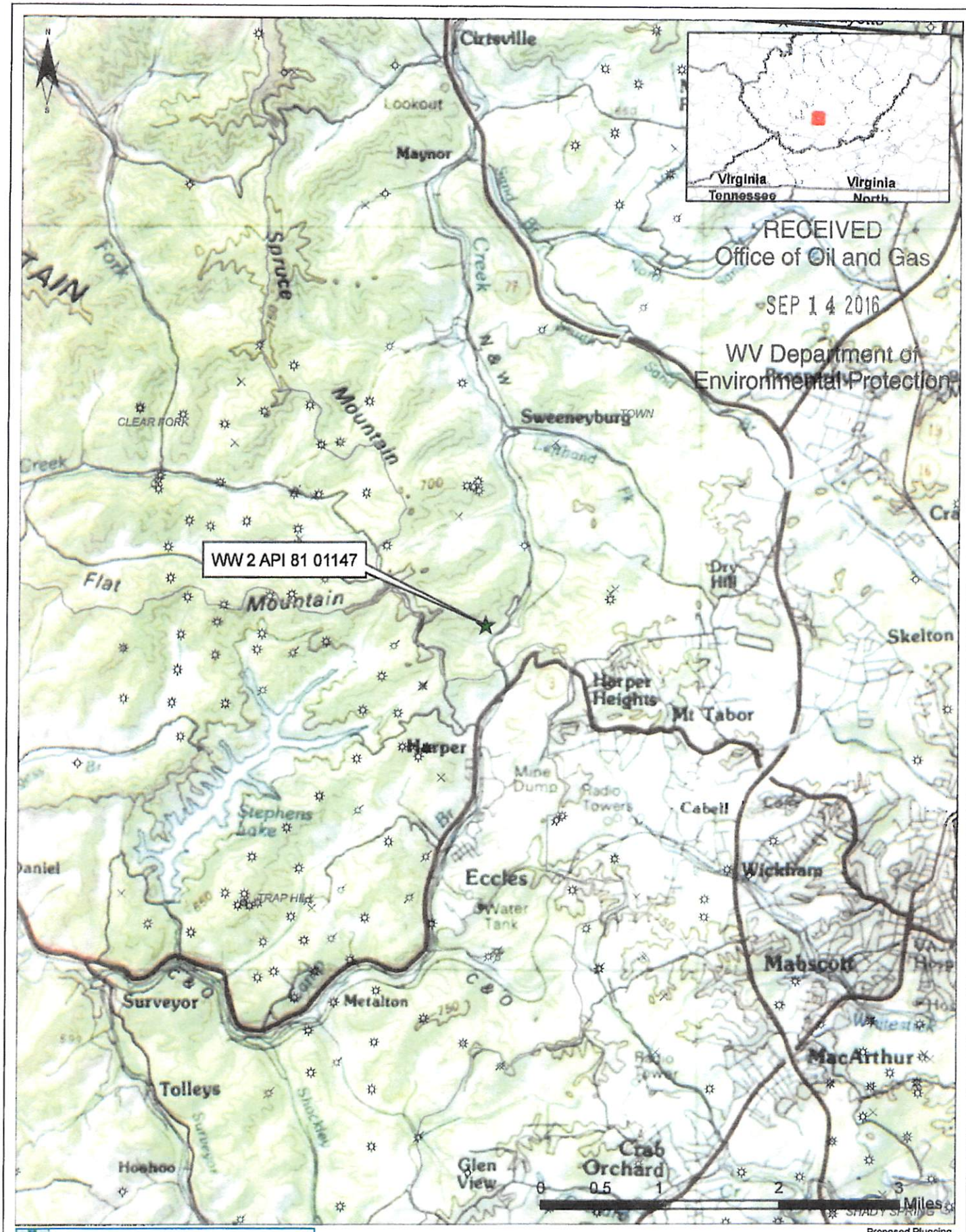

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Atlas Resource Partners, L.P.

WW 2 API 81 01147

Proposed Plugging
Well:WW 2 API 81 01147
General Location Map
Date 3/2/2016

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WW-7
8-30-06

West Virginia Department of Environmental Protection
Office of Oil and Gas
WELL LOCATION FORM: GPS

API: 81-01147 WELL NO.: WW 2

FARM NAME: Western Pocahontas Properties

RESPONSIBLE PARTY NAME: ARP Mountaineer Production, LLC

COUNTY: Raleigh DISTRICT: Town

QUADRANGLE: Eccles

SURFACE OWNER: Western Pocahontas Properties, L.P.

ROYALTY OWNER: Western Pocahontas Properties, L.P.

UTM GPS NORTHING: 4184853.58

UTM GPS EASTING: 477158.83 GPS ELEVATION: 2052.03

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 X: Post Processed Differential X

Real-Time Differential ____

Mapping Grade GPS X: Post Processed Differential ____

Real-Time Differential X

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.

Rocky Atkins — Signature

Regulatory Compliance Specialist — Title

7-12-2016 — Date