west virginia department of environmental protection

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

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

July 29, 2015

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-2300035, issued to CARRIZO (MARCELLUS) WV LLC, 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 all 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.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalities being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: ALLEGHENY MINING CORP. 1H
Farm Name: ALLISON, BLUCHER F. - TRUST
API Well Number: 47-2300035
Permit Type: Plugging
Date Issued: 07/29/2015

Promoting a healthy environment.

2300035P

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.

2300035P

WW-4B
Rev. 2/01

1) Date March 17, 2015
2) Operator's Well No. Allegheny Mining Corp 1H
3) API Well No. 47- 23 - 00035

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 3,204 Watershed Abram Creek
District Union County Grant Quadrangle Greenland Gap 7.5

6) Well Operator Carrizo(Marcellus) WV, LLC
Address 500 Dallas St #2300
Houston, TX 77002

7) Designated Agent CT Corporation
Address 5400 D Big Tyler Rd
Charleston, WV 25313

8) Oil and Gas Inspector to be notified
Name Bill Hatfield
Address ____
304 767-1828

9) Plugging Contractor
Name unknown
Address ____

10) Work Order: The work order for the manner of plugging this well is as follows:
Note: Estimated kickoff on horizonal hole was at 9350 ft.
1. Gel 5 1/2 Casing and set bottom hole plug inside 5 1/2 casing at 9000ft - 8800ft - 200ft Plug. Plug may be set by pumping down or ran tubing and set plug.
2. Wait 12-24 hrs. and check top of plug for right depth, if ok continue plugging and if not reset plug.
3. Run free point on 3 1/2 casing and cut at free point. (Estimated cement top on 5 1/2 casing is at 4167 ft.)
4. Check fluid level and set 150ft. plug at cut and pull casing.
5. Check fluid level and run tubing to 3375 ft. and set cement plug 3375ft.-3225ft. and pull tubing to 400ft.
6. Set cement plug 400ft-300ft.-150ft plug and pull tubing to 100ft.
7. Set cement plug 100ft to surface and erect monument and API no. on well and reclaim well site.
Note: 13 3/8 and 9 5/8 casings are cemented to surface.

RECEIVED
Office of Oil and Gas
APR 20 2015

Received
MAR 18 2015

WV Department of
Environmental Protection

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

Office of Oil and Gas
WV Dept. of Environmental Protection

Work order approved by inspector Bryan O'Hern Date 3-18-15

23000 35P

REVISED

WR-35
Rev (9-11)

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

DATE: 01/10/2013
API #: 47-023-00035

Farm name: ALLEGHENY MINING CORP. Operator Well No.: 1H

LOCATION: Elevation: 3,204' GL Quadrangle: GRENNLAND GAP 7.5

District: UNION County: GRANT
Latitude: 800 Feet South of 39 Deg. 12 Min. 30 Sec.
Longitude 7460 Feet West of 79 Deg. 12 Min. 30 Sec.

Company: CARRIZO (MARCELLUS) WV LLC

Address: 500 DALLAS, SUITE 2300	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
HOUSTON, TX 77002	13-3/8"	398'	398'	552 cft
Agent:	9-5/8"	3,288'	3,288'	1362 cft
Inspector:	5-1/2"	13,466'	13,466'	2558 cft
Date Permit Issued: 10/26/11				
Date Well Work Commenced: 01/09/12				
Date Well Work Completed: 5/26/12				
Verbal Plugging:				
Date Permission granted on:				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 10,271'				
Total Measured Depth (ft): 13,476'				
Fresh Water Depth (ft.): 100'				
Salt Water Depth (ft.): NA				
Is coal being mined in area (N/Y)? NO				
Coal Depths (ft.):				
Void(s) encountered (N/Y) Depth(s) NONE				

≈ TOC 7573'

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation MARCELLUS SHALE Pay zone depth (ft) 9,800
Gas: Initial open flow 635 MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow 754 MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests 48 Hours
Static rock Pressure 1000 psig (surface pressure) after _____ Hours

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

Received
Office of Oil & Gas
JAN 11 2013

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Carol A. Pruitt
Signature

01/10/13
Date

2300035P

Were core samples taken? Yes_____ No X Were cuttings caught during drilling? Yes X No_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list DENSITY, RESISTIVITY, SONIC & ECS LOGS

NOTE: IN THE AREA BELOW 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 THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

PERFORATED AND FRAC'D 12 STAGES FROM 10,273' (md) - 13,342' (md) WITH
3,889,600 LBS SAND AND 96,904 BBLS FLUID

Plug Back Details Including Plug Type and Depth(s): KICK-OFF PLUG: 272 SACKS CLASS A
9,974' - 10,202'

Formations Encountered: Surface:	Top Depth /	Bottom Depth
DK GREY SILTSTONE	0	600
GREY SANDSTONE	600	1100
RED/BROWN SHALE	1100	1900
DK GREY LIMESTONE	1900	2300
DK GREY SILTSTONE	2300	3500
DK GREY SHALE	3500	4450
LT GREY SANDSTONE	4450	4600
LT GREY SILTSTONE	4600	4900
DK GREY SHALE	4900	5500
LT GREY SILTSTONE	5500	5700
DK GREY SHALE	5700	9358
TULLY LIMESTONE	9358	9371
HAMILTON SHALE	9371	9800
UPPER MARCELLUS SHALE	9800	9843
CHERRY VALLEY LIMESTONE	9843	9895
LOWER MARCELLUS SHALE	9895	9963
ONONDAGO	9963	10090
ORISKANY SANDSTONE	10090	

2300035P

WW-4A
Revised 6-07

1) Date: 3/17/15
2) Operator's Well Number
Allegheny Mining Corp. 1H
3) API Well No.: 47 - 23 - 00035

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: Ruby K Allison, Trustee
Address: H.C. - 76 Box 380
Mt. Storm, WV 26739

(b) Name:
Address:

(c) Name:
Address:

6) Inspector: Bill Hatfield
Address:

Telephone: 304 767-1828

5) (a) Coal Operator
Name: F.S.S. Coal Holdings, Inc.
Address: PO Box 121
Friedenes, PA 15541

(b) Coal Owner(s) with Declaration
Name:
Address:

Name:
Address:

(c) Coal Lessee with Declaration
Name:
Address:

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.

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
REGINA ESTEP
P.O. Box 69
Elkview, WV 25071
My Commission Expires July 30, 2017

Well Operator: Carrizo (Marcellus) WV, LLC
By: Carlos W. Huckaby
Its: Consultant
Address: 223 Pinch Ridge Road
Elkview, WV 25071
Telephone: 304 561-4435

Received
MAR 18 2015

Subscribed and sworn before me this 18th day of March 2015
Regina Estep Notary Public
My Commission Expires 7.30.2017

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 depprivacyoffier@wv.gov.

Office of Oil and Gas
WV Dept. of Environmental Protection
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APR 20 2015
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2300035P

WW-9
Rev. 5/08

Page 1 of 1
API Number 47 - 23 - 00035
Operator's Well No. Allegheny Mining Corp 1H

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 Carrizo (Marcellus) WV, LLC. OP Code _____

Watershed Abram Creek Quadrangle Greenland Gap 7.5'

Elevation 3,204 County Grant District Union

Description of anticipated Pit Waste: Water gel and cement

Will a synthetic liner be used in the pit? yes.

Proposed Disposal Method For Treated Pit Wastes:

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

Proposed Work For Which Pit Will Be Used:

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

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.

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APR 24 2015
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Company Official Signature Carlos W. Hively

Company Official (Typed Name) Carlos W. Hively

Company Official Title Consultant

Received
MAR 18 2015
Office of Oil and Gas
WV Dept. of Environmental Protection

Subscribed and sworn before me this 18th day of March, 2015

Regina Estep Notory Public

My commission expires 7-30-2017

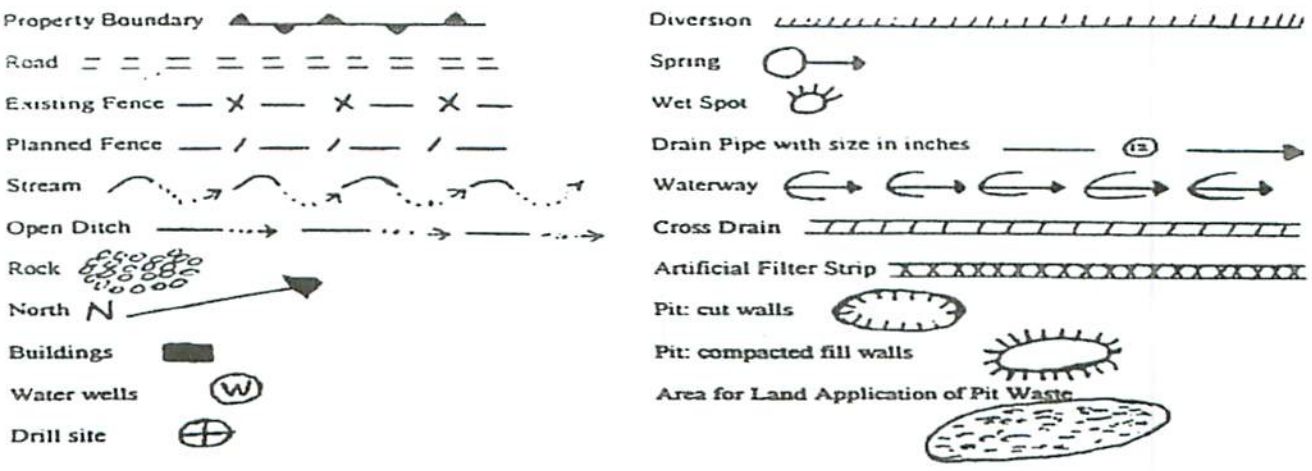
OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
REGINA ESTEP
P.O. Box 69
Elkview, WV 25071
My Commission Expires July 30, 2017

2300035P

Form WW-9

Operator's Well No Allegheny Mining Corp. 1H

LEGEND



Proposed Revegetation Treatment: Acres Disturbed 1.5 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 1/3 ton lbs/acre (500 lbs minimum)

Mulch Hay 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Ky-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

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

Photocopied section of involved 7.5' topographic sheet.

Received
MAR 18 2015

Plan Approved by: Bryan O'Hara

Comments: _____

Office of Oil and Gas
WV Dept. of Environmental Protection

Title: Oil & Gas Inspector Date: 3-18-15

Field Reviewed? (X) Yes ( ) No

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APR 20 2015
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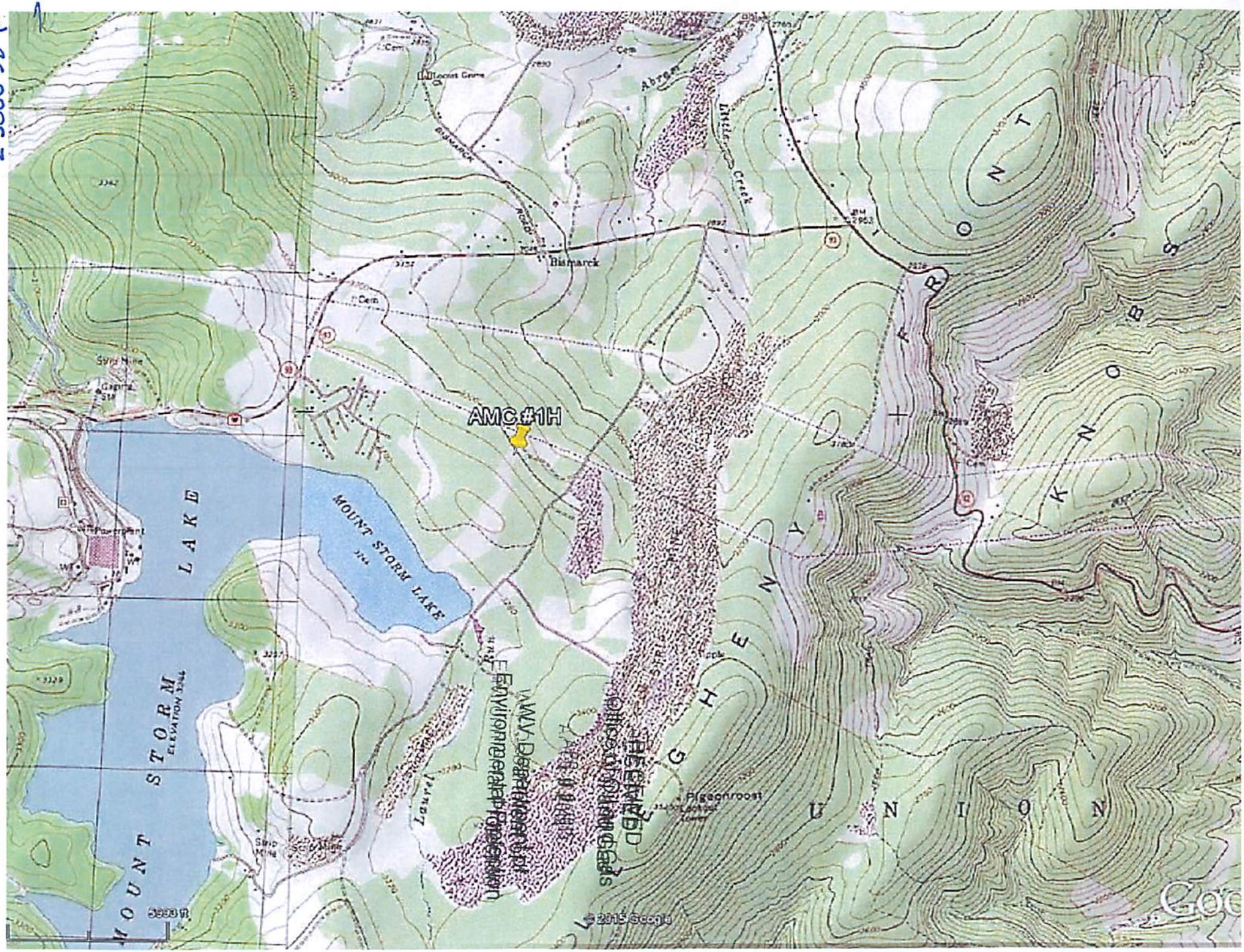
2300035P



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APR 11 2015
WV Department of
Environmental Protection

23000 35P
CK # 04497
$100.00

WW-7
8-30-06

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

API: 47-023-00035 WELL NO.: 1H

FARM NAME: ALLEGHENY MINING CORP.

RESPONSIBLE PARTY NAME: CARRIZO (MARCELLUS) WV LLC

COUNTY: GRANT DISTRICT: UNION

QUADRANGLE: GREENLAND GAP 7.5'

SURFACE OWNER: BLUCHER F. ALLISON TRUST

ROYALTY OWNER: ALLEGHENY MINING CORP.

UTM GPS NORTHING: 4,341,145

UTM GPS EASTING: 652,410 GPS ELEVATION: 3,209'

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 ____: Post Processed Differential _____

Real-Time Differential _____

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APR 09 2015
WV Department of
Environmental Protection

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.

Signature AGENT Title 4/13/15 Date