



---

**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

August 13, 2015

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-2101035, issued to EQT PRODUCTION COMPANY, 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 penalties 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: 1681

Farm Name: KEITH, J. W.

**API Well Number: 47-2101035**

**Permit Type: Plugging**

Date Issued: 08/13/2015

**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.

Form WW-4 (B)  
Permit Copy  
(Rev 2/01)

Date: July 21, 2015  
Operator's Well  
Well No. 656531 (Ketih #1681)  
API Well No.: 47 021 - 01035

**STATE OF WEST VIRGINIA  
DIVISION 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 \_\_\_\_\_ X \_\_\_\_\_ Or Underground storage \_\_\_\_\_ Deep \_\_\_\_\_ Shallow X
- 5) Elevation: 1044 ft. Watershed: Duck Creek  
Location: Glenville County: Gilmer Quadrangle: Glenville  
District: \_\_\_\_\_
- 6) Well Operator EQT Production Company 7) Designated Agent: Rex C. Ray  
Address: 120 Professional Place Address: 120 Professional Place  
Bridgeport, WV 26330 Bridgeport, WV 26330
- 8) Oil & Gas Danny Mullins 9) Plugging Contractor:  
Name: 124 Big Trace Fork Road 220 Jack Acres Name: HydroCarbon Well Service  
Address: Harts, WV 25624 Buckhannon WV Address: PO BOX 995  
Buckhannon, WV 26201

- 10) Work Order: The work order for the manner of plugging this well is as follows:  
**See Attachment for details and procedures.**

**OFFICE USE ONLY**

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

Work order approved by inspector

Danny Mullins

Date 8-4-15

## PLUGGING PROGNOSIS

Keith, J.W. #1-1681(656531)  
 Gilmer. Co. WV  
 District, Glenville  
 API # 47-021-01035  
 BY: R.Green  
 DATE: 02/17/15

**CURRENT STATUS:**

10" @ 238' 8 1/4" @ 961'

8 1/4" @ 961'

6 5/8" @ 1954' (on packer set @ 1790')

TD @ 2150'

Elevation @ 983'

★ 6 5/8" PERFORATED FROM 1810' TO 1798'.

Fresh Water @ 95'

Salt Water @ None reported

Coal @ None reported

Gas Shows @ 1621', 1799', 2081'

Oil Shows @ none reported

1. Notify State Inspector, **Danny Mullins, 304-932-6844**, 24 hrs. Prior to commencing operations.
2. TIH to 2081', set 200' C1A cement plug 2081' to 1881' (Big Injun gas @ 2081', 6 5/8" casing seat).
3. TOOH tbg to 1881', gel hole 1881' to 1781' TOOH tbg.
4. Free point 6 5/8" casing, cut casing @ free point, (est @ 1790') TOOH casing.
5. Set 100' C1A cement plug 50' in/out of cut, perforate all salt water, fresh water, coal, oil and gas shows below cut. Do not omit any plugs.
6. TOOH tbg 1740', gel hole 1740' to 1621'.
7. TOOH tbg to 1621', set 100' C1A cement plug 1621' to 1521' (gas show @ 1621').
8. TOOH tbg to 1521', gel hole 1521' to 1033'.
9. TOOH tbg to 1033', set 100' C1A cement plug 1033' to 933', (8 1/4" casing seat, elevation). TOOH tbg.
10. Free point 8 1/4" casing, cut casing @ free point, (est @ 850'), TOOH casing.
11. Set 100' C1A cement plug 50' in/ out of casing cut, perforate all fresh water, salt water, coal, oil and gas shows below cut. Do not omit any plugs.
12. TOOH tbg to 800' gel hole 800' to 500'.
13. TOOH tbg to 500', set 100' C1A cement plug 500' to 400'. (safety plug)
14. TOOH tbg to 400', gel hole 400' to 300'.
15. TOOH tbg to 300', set 300' C1A cement plug 300' to surface. (10" casing seat, fresh water)
16. Erect monument with API#.
17. Reclaim location, road to WV-DEP specifications.

★ SPOT GEL BEFORE SETTING FIRST CEMENT PLUG.

★ COVER PERFORATIONS WITH C1A CEMENT PLUG. ( "1810' - 1710' )

Office of Oil and Gas

JUL 24 2015

WV Department of  
 Environmental Protection

J. Keith #1681

47-021-01035

2101035P

Geol. Dept. Mines Division
Date 12/20/56



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION 2

656531

RECEIVED  
JUL 1 1955  
UNITED CARBON CO.  
GEOLOGICAL DEPT.

73 Glenville

### WELL RECORD

Permit No. GI-1035 Oil or Gas Well Gas (KIND)

Company CARNEGIE NATURAL GAS COMPANY  
 Address 1015 Frick Bldg., Pittsburgh 19, Pa.  
 Farm James W. Keith et al Acres 120  
 Location (waters) Duck Creek  
 Well No. 1 - 1681 Elev. 983'  
 District Glenville County Gilmer  
 The surface of tract is owned in fee by Dor Langford  
Rt. #1, Box #6 Address Glenville, W. Va.  
 Mineral rights are owned by James W. Keith et al  
& A.J. Keith Address Sand Fork, W. Va.  
 Drilling commenced August 9th 1955  
 Drilling completed October 6th 1955  
 Date Shot 9-26-55 From 2031 To 2032  
 With Hydro-fracture  
 Open Flow /10ths Water in Inch  
/10ths Merc. in Inch  
 Volume 189,000 Cu. Ft.  
 Rock Pressure 595 lbs. 48 hrs.  
 Oil bbbls. per 24 hrs.  
 Fresh water 95 feet  
 Salt water feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			Anchor
10	238	238	Size of 7" x 8-5/8"
8 1/2	961	961	Depth set 1790
6 1/2	1954	1954	
5 3/16			
8			Perf. top 1798
2			Perf. bottom 1810
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED \_\_\_\_\_ SIZE \_\_\_\_\_ No. Ft. \_\_\_\_\_ Date \_\_\_\_\_  
 COAL WAS ENCOUNTERED AT \_\_\_\_\_ FEET \_\_\_\_\_ INCHES  
 \_\_\_\_\_ FEET \_\_\_\_\_ INCHES \_\_\_\_\_ FEET \_\_\_\_\_ INCHES  
 \_\_\_\_\_ FEET \_\_\_\_\_ INCHES \_\_\_\_\_ FEET \_\_\_\_\_ INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Clay	Red	Soft	0	20			
Lime	Gray	Hard	20	35			
Clay	Red	Soft	35	47			
Sand		Hard	47	85			
Slate	White	Soft	85	98	Fresh water	95	
Lime	White	Hard	98	108			
Slate		Soft	108	115			
Red Rock	Red	Soft	115	120			
Slate	White	Soft	120	132			
Red Rock	Red	Soft	132	145			
Slate	Gray	Hard	145	241			
Slate	Dark	Soft	241	260			
Shells			260	349			
Red Rock			349	395			
Lime		Hard	395	410			
Red Rock		Soft	410	425			
Slate	White		425	445			
Red Rock		Soft	445	502			
Slate			502	522			
Red Rock			522	545			
Slate	White		545	598			
Lime		Hard	598	610			
Shells			610	645			
Red Rock			645	652			
Slate			652	720			
Pink Rock			720	730			
Slate			730	775			
Sand	White	Soft	775	794			
Shells			794	830			
Lime		Hard	830	871			
Sand	White	Hard	871	932			
Slate			932	945			
Sand	White	Hard	945	974			
Slate		Shelly	974	990			
Sand			990	1011			
Slate			1011	1027			
Sand	White	Soft	1027	1105			
Slate	Black		1105	1114			
Sand	Dark	Soft	1114	1188			



Little Dunkard  
 Big Dunkard  
**RECEIVED**  
 Office of Oil and Gas  
 Gas Sand  
 1st Salt Sand

Formation	Color	Hard or Soft	Top 2	Bottom	Oil, Gas or Water	Depth Found	Remarks	
Slate	Black	Soft	1188	1210				
Lime			1210	1225				
Sand			1225	1254				
Slate Shls.			1254	1434			2nd Salt Sand	
Sand			1434	1460				
Slate Shls.			1460	1618			3rd Salt Sand	
Sand			1618	1702				
Slate Shls.			1702	1781		Gas show	1621-26'	4th Salt Sand
Sand			1781	1812		Gas	1799-1810'	Maxon Sand
Lime			Broken	1812	1845			
Sand				1845	1850			
Red Rock				1850	1858			
Slate				1858	1877			
Lime				1877	1898			
Sand				1898	1928		Break at 1903'	Little Lime Blue Monday
Slate	Dark	Soft	1928	1930				
Lime			1930	1985			Big Lime	
Sand			1985	1992				
Lime			1992	2000			Big Lime	
Sand			2000	2110		Gas show	2081-92'	Big Injun
Slate	Blue							
			Total Depth	2150				

RECEIVED  
Office of Oil and Gas

Date November 23, 1955

APPROVED CARNEGIE NATURAL GAS COMPANY, Owner

JUL 24 1955  
WV Department of  
Environmental Protection

1) Date: July 21, 2015  
2) Operator's Well Number  
656531 (Ketih #1681)  
3) API Well No.: 47 021 - 01035  
State County Permit

**STATE OF WEST VIRGINIA - BUREAU OF ENVIRONMENT**  
**DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL & GAS**  
**NOTICE AND APPLICATION TO PLUG AND ABANDON WELL**

4) Surface Owner(s) to be served:  
(a) Name Parker E. and Wilma Tallhamer  
Address 3568 Spruce Run Road  
Glennville, WV 26351  
  
(b) Name \_\_\_\_\_  
Address \_\_\_\_\_  
  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_  
  
6) Inspector Danny Mullins  
Address 124 Big Trace Fork Road  
Harts, WV 25524  
Telephone (304) 932-6844

5) (a) Coal Operator:  
Name None  
Address \_\_\_\_\_  
  
(b) Coal Owner(s) with Declaration  
Name J. W. Keith Estate  
C/O Jacky Persinger, Trustee  
Address P. O. Box 129  
Sand Fork, WV 26430-0129  
Name \_\_\_\_\_  
Address See Attachment.  
  
(c) Coal Lessee with Declaration  
Name None  
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 Division 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: EQT Production Company  
By: Victoria J. Roark  
Its: Permitting Supervisor  
Address: PO Box 280  
Bridgeport, WV 26330  
Telephone: (304) 848-0076

Subscribed and sworn before me this 21st day of July, 2015  
Misty S. Christie Notary Public  
My Commission Expires: 2/20/18

The Office of Oil & Gas processes your personal information, such as name, address and phone number, as 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 [depprivacyoffice@wv.gov](mailto:depprivacyoffice@wv.gov)



JUL 24 2015

WV Department of  
Environmental Protection

WW2-A

**Additional Coal Owners**

Wilma Tallhamer  
3568 Spruce Run Road  
Glennville, WV 26351-8197

Susan Acord  
3774 Sanford Drive  
Brunswick, OH 44212-2603

Sheryl Kathleen Angel  
4950 Walther Road  
Kettering, OH 45429-1944

Nedra K. Downs  
1682 Lexington Drive  
Lancaster, OH 43130-1215

Janet L. Madru  
138 Scioto Street  
Chillicothe, OH 45601-2633

Raetta Willodene Lawson  
981 Ulmer Road Lot 121  
Frostproof, FL 33843-3551

ET Bluegrass Appolo Divison  
P. O. Box 2347  
Charleston, WV 25328

RECEIVED  
Office of Oil and Gas

JUL 24 2015

WV Department of  
Environmental Protection

**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL & GAS  
CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM  
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE**

Operator Name: EQT PRODUCTION COMPANY OP ID: \_\_\_\_\_

Watershed: Duck Creek Quadrangle: Glenville

Elevation: 1044 ft. County: Gilmer District: Glenville

Description of anticipated Pit Waste: Formation Fluids

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes\_\_\_ NoX

Will synthetic liner be used in the pit? Yes Is so, what ml.? 10 ml

Proposed Disposal Method for Treated Pit Wastes:

- Land Application
- Underground Injection - UIC Permit Number \_\_\_\_\_
- Reuse (at API Number) \_\_\_\_\_
- Offsite Disposal Permit #. \_\_\_\_\_
- Other: Explain \_\_\_\_\_

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. \_\_\_\_\_

If oil based, what type? Synthetic, petroleum, etc. \_\_\_\_\_

Additives to be used? \_\_\_\_\_

Will closed loop system be used? \_\_\_\_\_

Drill Cuttings disposal method? Leave in pit, landfill, remove offsite, etc. \_\_\_\_\_

If left in pit and plan to solidify what medium will be used? Cement, Lime, sawdust \_\_\_\_\_

Landfill or offsite name/permit number? \_\_\_\_\_

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 Division of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any terms 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 *Victoria Roark*

Company Official (Typed or Printed) Victoria Roark

Company Official Title Permitting Supervisor-WV

Subscribed and sworn before me this 21<sup>st</sup> day of July, 2015

*Misty S. Christie* Notary Public  
2/20/12

My Commission Expires \_\_\_\_\_

RECEIVED  
Office of Oil and Gas

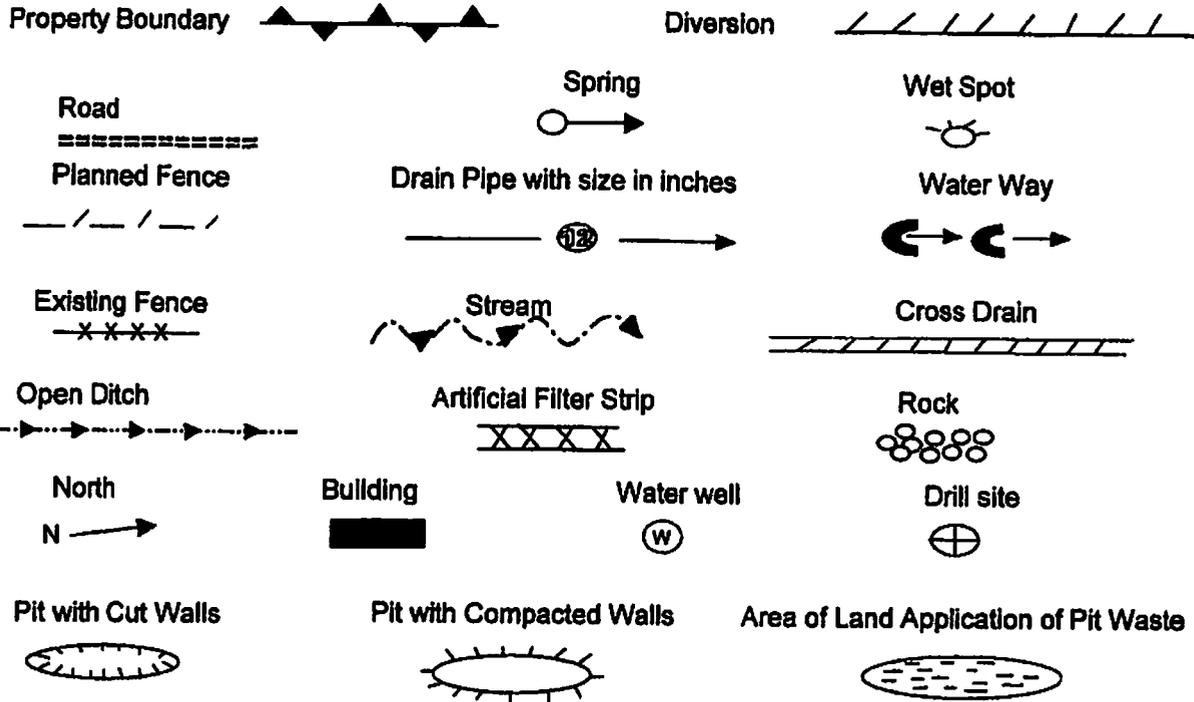
JUL 24 2015



WV Department of  
Environmental Protection

**OPERATOR'S WELL NO.:**  
658531 (Kath #1681)

**LEGEND**



Proposed Revegetation Treatment: Acres Disturbed: 1± 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 2 Tons/acre or hydroseed.

**SEED MIXTURES**

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Red Fescue	40	Red Fescue	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

**ATTACH:**  
 Drawing(s) of road, location, pit and proposed area for land application.  
 Photocopies section of involved 7.5' topographic sheet.

Plan approved by: \_\_\_\_\_

Comments: \_\_\_\_\_

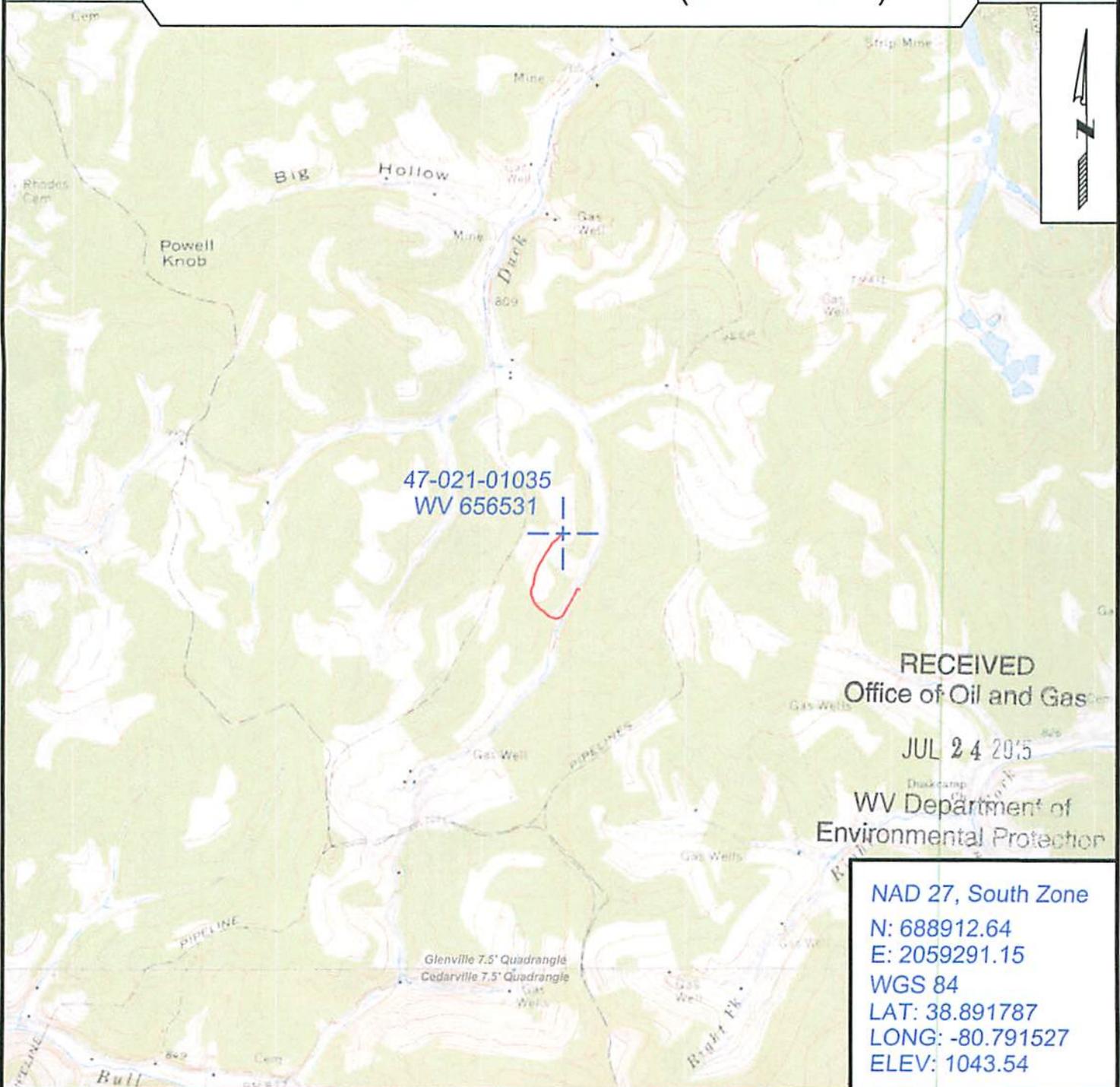
Title: \_\_\_\_\_ Date: \_\_\_\_\_  
 Field Reviewed?        Yes        No

2101035 P

Topo Quad: Glenville 7.5' Scale: 1" = 2000'  
 County: Gilmer Date: July 6, 2015  
 District: Glenville Project No: 25-19-00-07

47-021-01035 WV 656531 (Keith #1681)

Topo



47-021-01035  
WV 656531

RECEIVED  
Office of Oil and Gas

JUL 24 2015

WV Department of  
Environmental Protection

NAD 27, South Zone  
 N: 688912.64  
 E: 2059291.15  
 WGS 84  
 LAT: 38.891787  
 LONG: -80.791527  
 ELEV: 1043.54



SURVEYING AND MAPPING SERVICES PERFORMED BY:  
**ALLEGHENY SURVEYS, INC.**  
 1-800-482-8606  
 237 Birch River Road  
 Birch River, WV 26610  
 PH: (304) 649-8606  
 FAX: (304) 649-8608

PREPARED FOR:  
**EQT Production Company**  
 P.O. Box 280  
 Bridgeport, WV 26330

2101035P

WW-7  
8-30-06



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

API: 47-021-01035 WELL NO.: WV 656531 (Keith #1681)

FARM NAME: James W. Keith, et al.

RESPONSIBLE PARTY NAME: EQT Production Company

COUNTY: Gilmer DISTRICT: Glenville

QUADRANGLE: Glenville 7.5'

SURFACE OWNER: Parker and Wilma Tallhamer

ROYALTY OWNER: J. W. Keith Estate, et al.

UTM GPS NORTHING: 4304789

UTM GPS EASTING: 518080 GPS ELEVATION: 318 m (1044 ft)

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  ; Post Processed Differential   
Real-Time Differential   
Mapping Grade GPS  ; Post Processed Differential   
Real-Time Differential
- 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.

*Steph O'Brien*  
Signature

PS # 2180  
Title

7/8/15  
Date

RECEIVED  
Office of Oil and Gas  
JUL 24 2015  
WV Department of  
Environmental Protection

2101035P

Topo Quad: Glenville 7.5' Scale: 1" = 2000'

County: Gilmer Date: July 6, 2015

District: Glenville Project No: 25-19-00-07

Water

47-021-01035 WV 656531 (Keith #1681)

No Potential Water Samples within 1000'



47-021-01035  
WV 656531

RECEIVED  
Office of Oil and Gas

JUL 24 2015

WV Department of  
Environmental Protection

NAD 27, South Zone  
N: 688912.64  
E: 2059291.15  
WGS 84  
LAT: 38.891787  
LONG: -80.791527  
ELEV: 1043.54



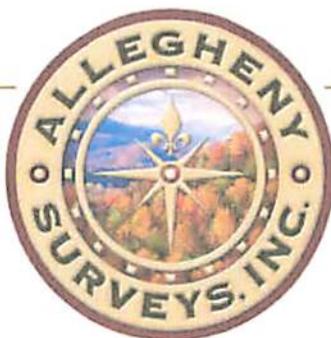
SURVEYING AND MAPPING SERVICES PERFORMED BY:  
**ALLEGHENY SURVEYS, INC.**

1-800-482-8606  
237 Birch River Road  
Birch River, WV 26610  
PH: (304) 649-8606  
FAX: (304) 649-8608

PREPARED FOR:

**EQT Production Company**

P.O. Box 280  
Bridgeport, WV 26330



### POTENTIAL WATER SAMPLE DATA SHEET

CLIENT: EQT PRODUCTION COMPANY  
LEASE NAME AND WELL No. Keith #1681 - WV 656531 - API No. 47-021-01035

#### POTENTIAL SAMPLE LOCATIONS

There appears to be no known water samples within the required 1000' of the existing well WV 656531.

RECEIVED  
Office of Oil and Gas

JUL 24 2015

WV Department of  
Environmental Protection

**BIRCH RIVER OFFICE**  
237 Birch River Road  
Birch River, WV 26610  
*phone:* 304-649-8606  
*fax:* 304-649-8608

**BRIDGEPORT OFFICE**  
172 Thompson Drive  
Bridgeport, WV 26330  
*phone:* 304-848-5035  
*fax:* 304-848-5037

**ALUM CREEK OFFICE**  
P.O. Box 108 • 1413 Childress Rd  
Alum Creek, WV 25003  
*phone:* 304-756-2949  
*fax:* 304-756-2948

**RANSON OFFICE**  
401 South Fairfax Blvd, Suite 3  
Ranson, WV 25438  
*phone:* 304-724-5008  
*fax:* 304-724-5010