

WVDEP

Office of Oil & Gas



west virginia department of environmental protection  
*Promoting a Healthy Environment*

# UIC Disposal Wells

- **52** active non-commercial wells
- **14** active commercial wells





# Earthquake Epicenters of West Virginia

## 1824 through 2010

### Epicenters Map

This publication represents the collection of best available data compiled by the West Virginia Geological and Economic Survey. It is not intended to be used for legal purposes. The survey and collection of data are subject to change without notice. The publisher is not responsible for any errors or omissions in this publication. The publisher is not responsible for any errors or omissions in this publication.

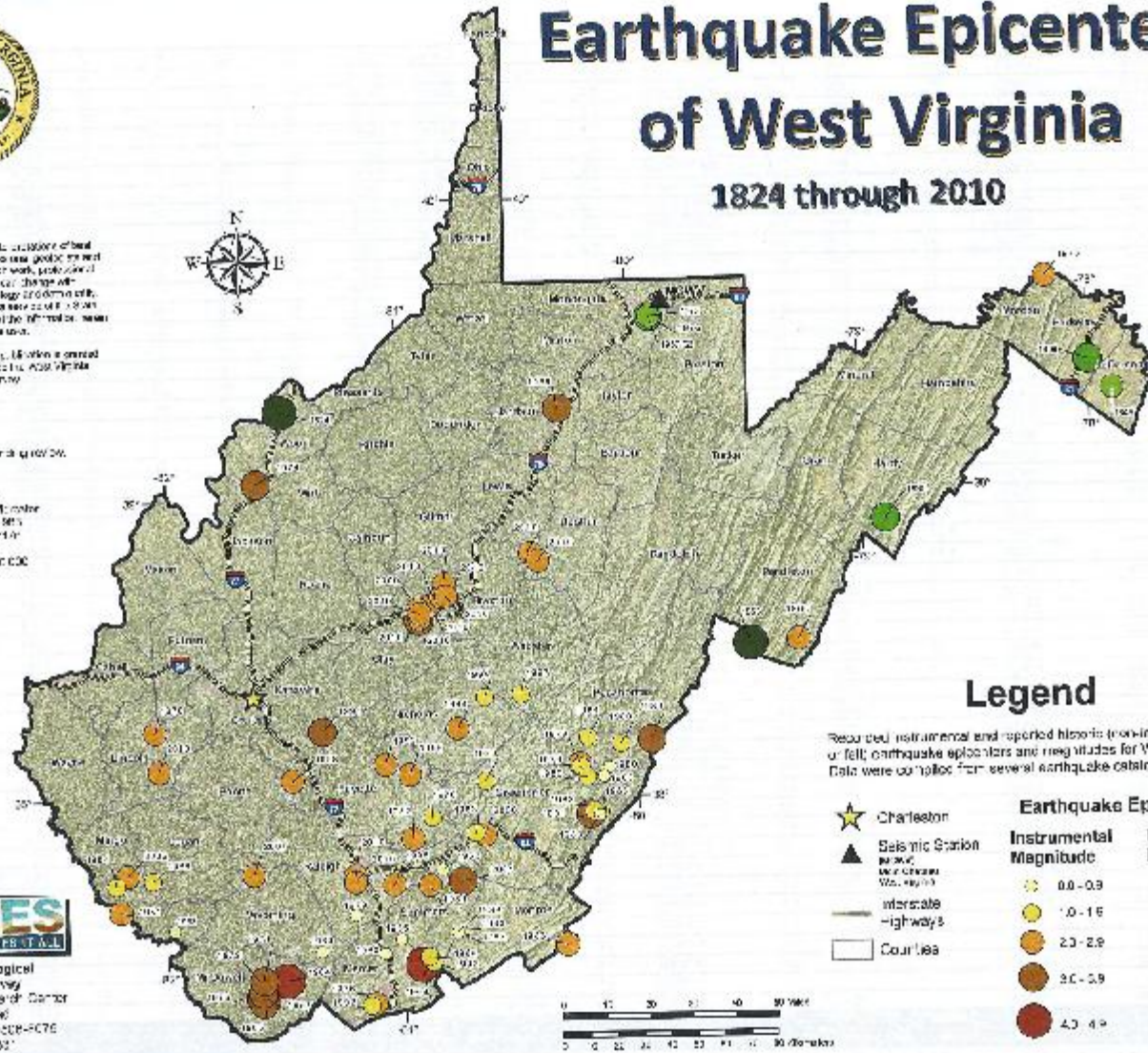
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Map Date: 09/26/2011  
Map Scale: 1:100,000

Map Date: 09/26/2011  
Project: WV Geological and Economic Survey  
Horizontal Datum: NAD 83  
Coordinate System: UTM  
Map Scale: 1:100,000  
Scale: 1" = 1.609347 km



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### Legend

Revised instrumental and reported historic (non-instrumental or felt) earthquake epicenters and magnitudes for West Virginia. Data were compiled from several earthquake catalog sources.

★ Charleston	<b>Earthquake Epicenters</b>	
▲ Seismic Station WV-001 WV-002 WV-003	<b>Instrumental Magnitude</b>	<b>Historic Magnitude</b>
— Interstate	● 0.0-0.9	● 0.0-0.9
— Highway	● 1.0-1.9	● 1.0-1.9
□ Counties	● 2.0-2.9	● 2.0-2.9
	● 3.0-3.9	● 3.0-3.9
	● 4.0-4.9	● 4.0-4.9





# UIC

- 2010 there was multiple seismic events within Braxton County in central West Virginia.
- Initiating an evaluation of the UIC well within that area.



# Seismic Epicenters - Braxton County, West Virginia



## Legend

- Earthquake Epicenters
- Cities, Pop. Over 2,500
- Highways**
- Interstates
- US
- State
- Lakes and Major Rivers
- 1:250,000 1:750,000 Quad

Map Form: m  
 Date as of: January 11, 2012  
 Prepared: January 11, 2012  
 MapScale: 1:250,000  
 Units: 8.5 x 11 sheet

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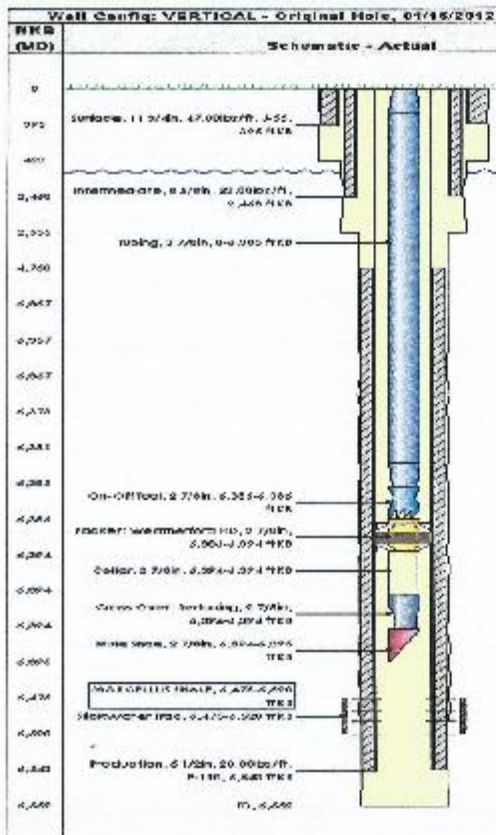


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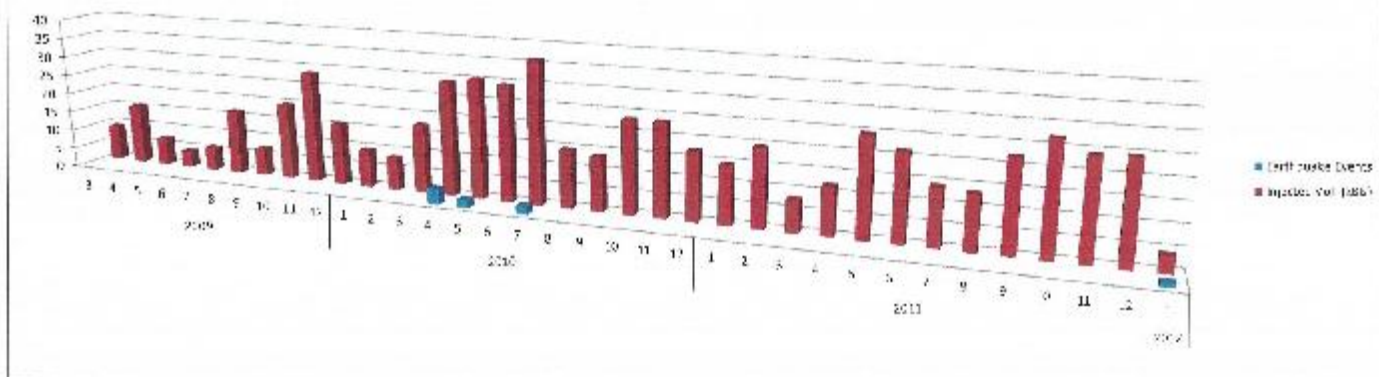


# Wellbore Diagram

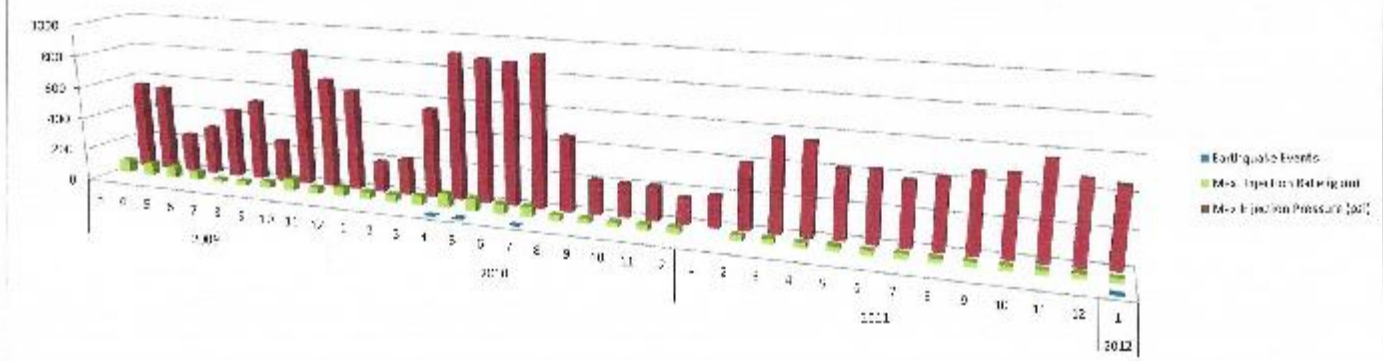


- » Well TD @ 6,552'
- » Marcellus Shale 6,472'- 6,525'
- » 180 Perforations 6,475'- 6,520'
- » 11-3/4" Surface Csg set to 395'
- » Cement to Surface
- » 8-5/8" Intermediate Csg set to 2,468'
- » Cement to Surface
- » 5.5" 20 lb/ft P-110 Production Csg set to 6,543'
- » Bonded Cement to 4,750'
- » 2-7/8" tbg set @ 6,395' w/ WTF packer set @ 6,386'

Braxton Co. UIC (2D072539)  
 Injected Volumes vs. Earthquake Events



**Braxton Co. UIC (2D072539)**  
**Injection Pressure and Rate vs. Earthquake Events**





# UIC

Recently with interest in Marcellus development an increased interest has been placed on the permitting and disposal of fluids into commercial wells.



# Conclusions

