

# Annual Report: Water Resources Protection and Management Act Implementation

West Virginia Department of Environmental  
Protection

Water Use Section

November 15, 2010

# Contents of Today's Report

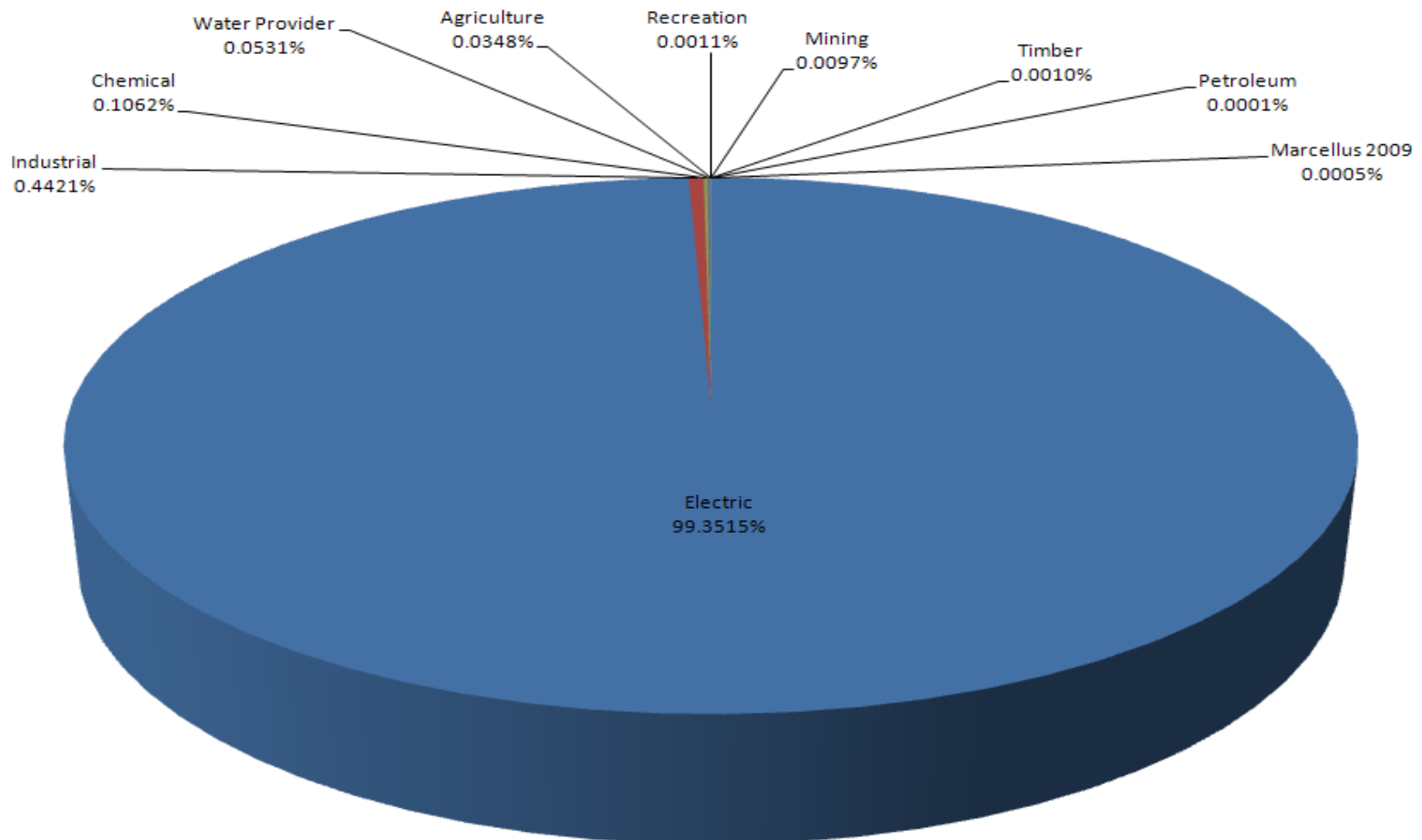
- Large quantity user registration/certification
- Marcellus water tracking
- Water withdrawal guidance tool
- Flood inundation maps – preliminary work
- Biologic stream flow study
- Meetings with stakeholders in 16 watersheds
- Trained planners in water management techniques
- 2010-2011 work plan

# Large Quantity User Registration / Certification

- Completed the 2009 certification/registration
- Resolved numerous database problems as they were discovered
- Built queries for extracting data from the database and creating reports
- For the first time, confidence level is very high concerning overall accuracy of the data

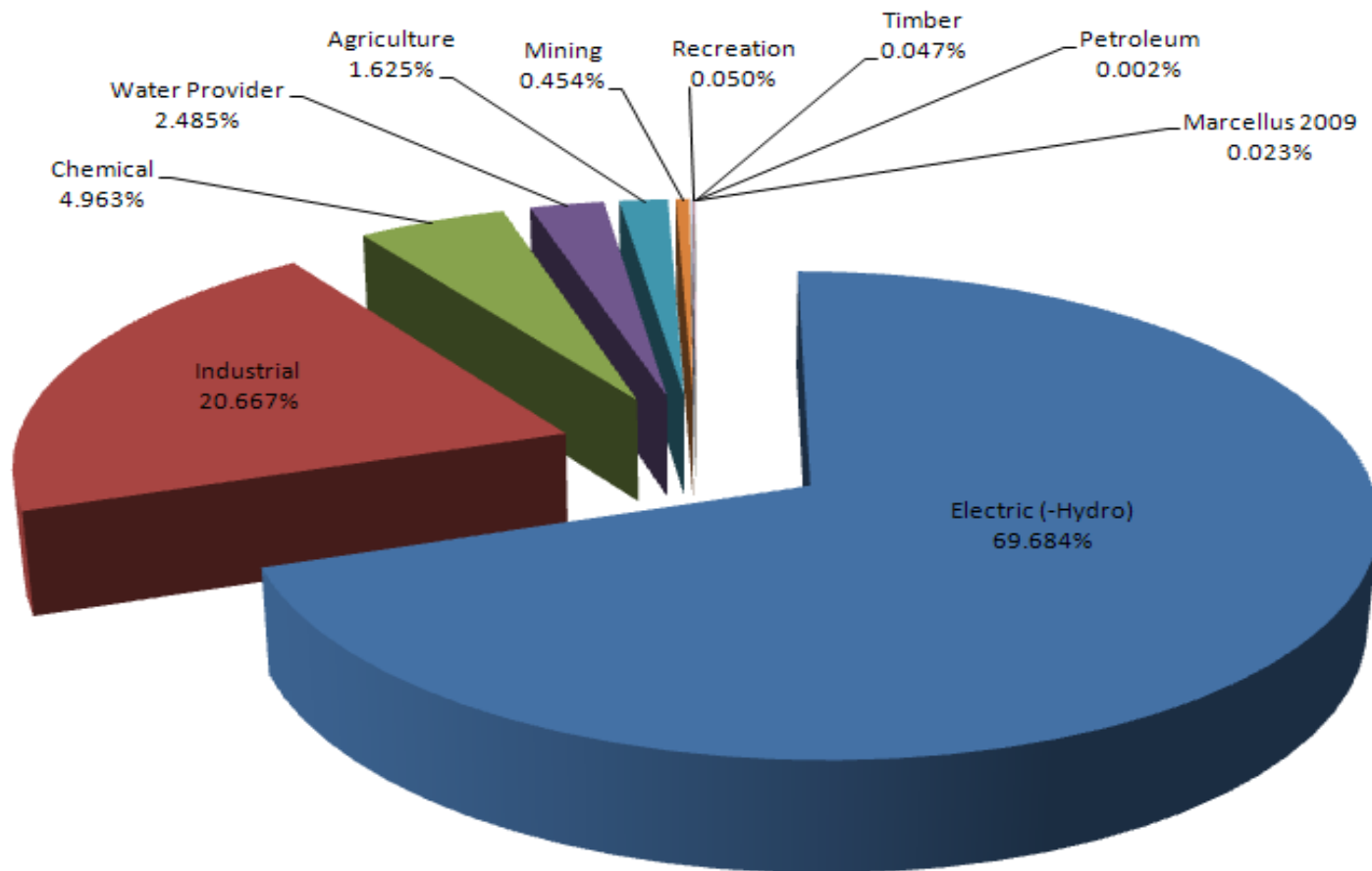
# 2009 Water Usage + Hydro-electric and Thermal-electric

2009 WEST VIRGINIA WATER USE BY PERCENT INCLUDING HYDROELECTRIC PLANT FLOWTHROUGH



# 2009 Water Usage + Thermal-electric

## 2009 WEST VIRGINIA WATER USE BY PERCENT EXCLUDING HYDROELECTRIC FLOWTHROUGH



# Marcellus Water Tracking

- 2009 permitted 426
- 2009 completed 125 estimated 625 million gallons (5 million per well)
- 2010 permitted 322, completed 28

# Marcellus Water Tracking (continued)

Company Information - Windows Internet Explorer

http://cegas.marshall.edu:5127/Default.aspx

File Edit View Favorites Tools Help

Google Search Bookmarks Check Translate AutoFill Sign In

Company Information

Logout Test005

### Company Information

Company Name:

Address:

City:

State:

Zip:

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Last Name:

First Name:

Middle Initial:

Title:

Telephone Number:   
*format: xxx-xxx-xxxx*

Telephone Ext.:

Fax Number:   
*format: xxx-xxx-xxxx*

E-mail Address:

Confirm Email Address:

Save company and contact information.



## Welcome to the Hydrofracturing Water Use Reporting and Registration Site

If you used over 750,000 gallons of water to hydrofrac a well, you must report your water use to the West Virginia Department of Environmental Protection. It does not matter what formation you were fracturing, just that you used over 750,000 gallons of water in the well. To make the reporting process as easy as possible, we suggest you follow these steps:

- Carefully read these instructions, noting the types of information you will be required to enter.
- This instruction manual should be printed in order to assemble the information before beginning the reporting process. If you have to stop mid-entry, a save function has been provided as explained in this instruction manual, failure to follow these instructions will result in loss of the previously entered information.

- Obtain a user ID and password from the West Virginia Department of Environmental Protection's Water Use Section. Contact information is given at the end of these instructions. Blank screen shots are available on the West Virginia Department of Environmental Protection's Water Use Section home page.
- Only one user ID will be given to each company. If different people enter data, they must all use the same user ID and password. Two users from the same company may not use the site at the same time.
- For purposes of this report, flowback frac water is defined as being either 50% of the original injected water, or the water recovered during the first 30 days of flowback, whichever comes first.
- Enter the site by going to:  
<http://cegas.marshall/wvfracwater/>



# Marcellus Water Tracking (2010 results)

- WVGES shows 22 wells completed in 2010
- 28 wells were reported to WVDEP
- 156.5 million gallons withdrawn in 2010
- 16 million gallons recovered (10.2%)
  - 2 million gallons disposed in UIC wells
  - 13 million gallons reused in a new well
  - 1 million gallons disposed at treatment plant

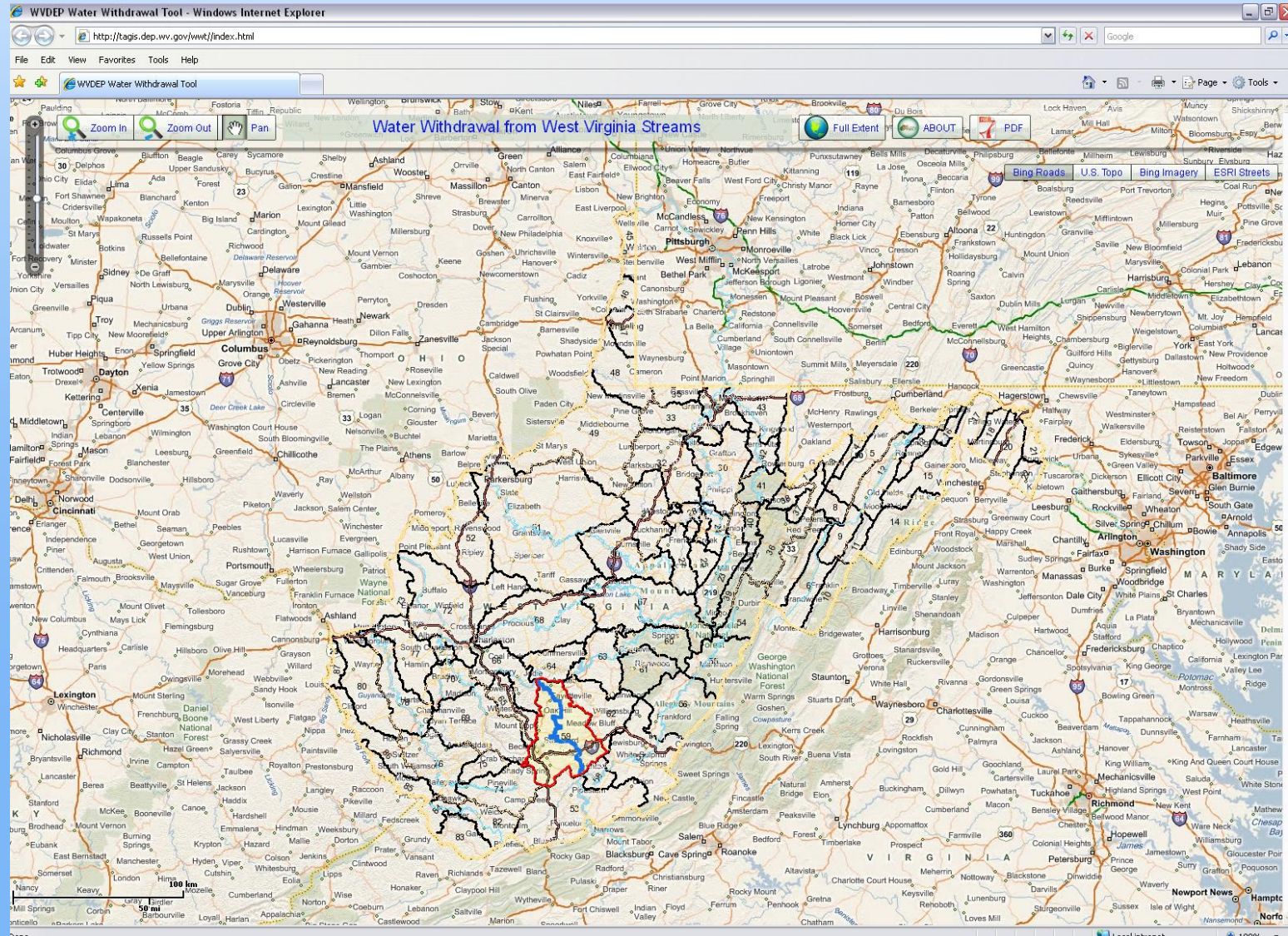




**DEP Cabinet Secretary Randy Huffman (far left), stands with award winners Jenny Todd, Neil Chakrabarty and Jerry Forren during the West Virginia Excellence in Information Technology awards ceremony. Mike Shank, another winner, is not pictured.**



# Water Withdrawal Guidance Tool





# Water Withdrawal Guidance Tool (continued)

**Summary of all available data for this site**

**Discharge, cubic feet per second**  
 Most recent instantaneous value: 1,590 09-24-2010 11:30 EDT

USGS 03185400 NEW RIVER AT THURMOND, WV

▲ Median daily statistic (29 years)    — Discharge

Create [presentation-quality](#) / [stand-alone](#) graph

Daily discharge statistics, in cfs, for Sep 24 based on 29 years of record [more](#)

Min (1999)	20th percentile	Most Recent Instantaneous Value Sep 24	Median	80th percentile	Mean	Max (1989)
1160	1450	1590	2110	2940	4870	47600

West Virginia Streams

Full Extent    ABOUT    PDF

Bing Roads    U.S. Topo    Bing Imagery    ESRI Streets

**NEW RIVER AT THURMOND, WV**

Current Value : 1590 cfs Taken at 09-24-2010 Time: 11:09-AM

Using best professional judgment, you should be able to withdraw water from New River

[USGS Gauge Web Site](#)

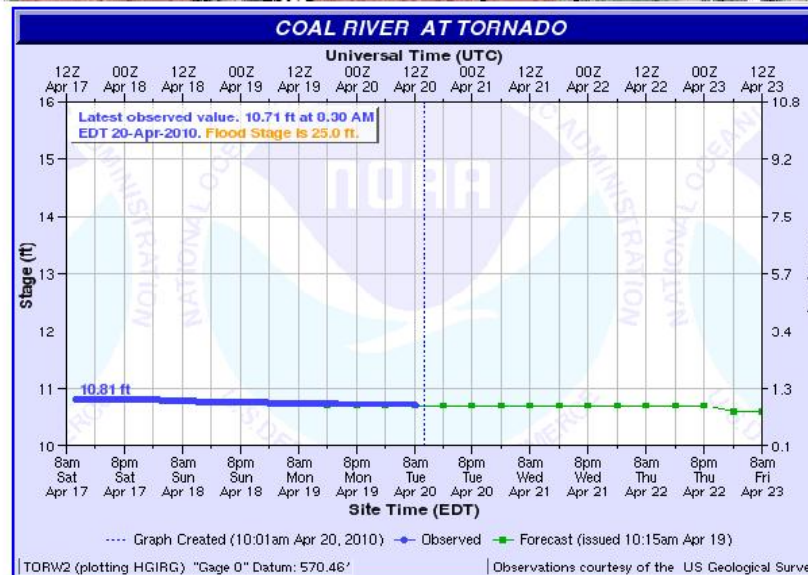
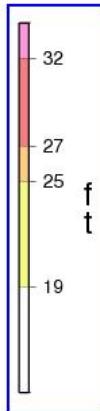
# Flood Inundation Mapping

- ACoE funding originally made available to DHSEM
- DHSEM was unable to meet the “in-kind services” required by the grant
- DEP is doing work that may qualify for the “in-kind” portion of the grant



# Current National Weather Service Map

Text-version



# Flood Inundation Mapping (continued)

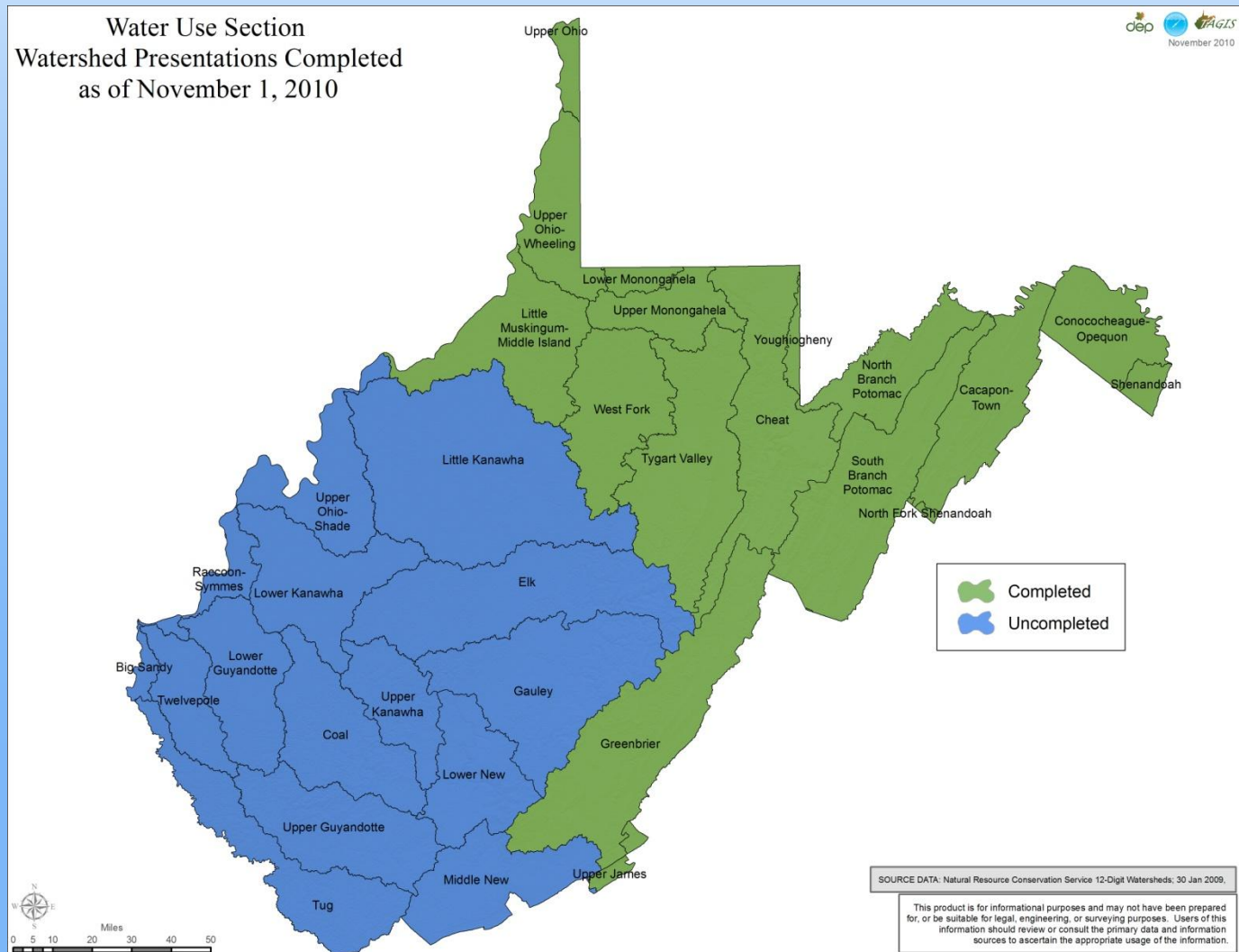
- If the agreement can be consummated, 44 National Weather Service forecast sites will be mapped
- A detailed model will be developed for areas with sufficient data quality
- The model will be replicated at other areas as sufficient data becomes available

# Biological Stream Flow Study

- ▣ Contracted with USGS
- ▣ DEP macro-invertebrate data
- ▣ USGS stream flow statistics
- ▣ DNR fish data
- ▣ Literature review nearly complete
- ▣ Plan to classify minimum allowable stream flows based on biological needs

# Watershed stakeholder meetings

1/2  
State  
Complete





# Water management training

- Classes were developed and taught by members of the Interstate Commission on the Potomac River Basin
- A class was held in Beckley, Morgantown and Moorefield
- 21 people were trained
- The class will be modified to make it available on the internet



# Questions?

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# Future Work Plan



# Future Work Plan

- To be accomplished:
  - Address nomadic water withdrawals
  - Develop version 3 of the Water Withdrawal Guidance Tool
  - Write the first draft of the Water Plan
  - Complete existing projects
    - Mine Pool Atlas
    - Survey and analysis of aquatic species
    - Map groundwater using well logs

# “Nomadic” Water Withdrawals

- Do not consume a large volume of water in relation to all other water uses, BUT water withdrawals are from smaller streams where the impact is greater
- This is a developing issue – one we have spent a great deal of time on during the past year
- Developed the Water Withdrawal Guidance Tool and the Frac Water Registration Form

# “Nomadic” Water Withdrawals (continued)

- The current tools need to be enforceable
- However, each alternative has complex ramifications and reveals significant concerns regarding implementation
- The DEP is attempting to draft language for consideration by the legislature to address these issues

# Excess Water in Lakes?

- During dry periods many lakes have excess water stored.
- Withdrawals from lakes at low flow periods would reduce stress on smaller streams
- ACoE does not permit withdrawal from their lakes or tributaries on their property
- DEP and DNR representatives have met with ACoE personnel to begin dialogue on this issue.

# Water Withdrawal Guidance Tool

## Version 3

- Projected improvements to the tool:
  - Do not highlight the headwaters of each stream
  - Classify streams according to the flow needed to support the biologic community
  - Provide extra protection for streams that host threatened or endangered species
  - Search function



# Completion of Existing Projects

- Mine Pool Atlas – completion projected next year
- Survey and analysis of aquatic species – anticipated completion next year
- Groundwater mapping – new contract with Marshall University to digitize existing maps and examine and map well data

# Questions?



west virginia department of environmental protection

