

Annual Report
to the
Joint Legislative Oversight
Commission on State Water Resources

Implementation Progress
West Virginia Water Resources Protection
and Management Act

Prepared by

The Department of Environmental Protection

Division of Water and Waste Management

Water Use Section

November 17, 2008

TOPICS

- Registration Database and Web Site
- Groundwater Monitoring Wells
- Stream Gauges
- Marcellus Shale Drilling
- Mine Pools
- Lincoln County Project
- State Plan
- Guidance for Community Plans
- Continued Certification

Registration Database

- Several databases existed
- Contract was executed with Marshall University's Center for Environmental, Geotechnical and Applied Sciences (CEGAS) in May, 2008
 - Combine databases (completed)
 - Resolve discrepancies (completed)
 - Act as the “data warehouse” (ongoing)
 - Develop a website (under development)

	Lists	Detail
Facility	Facilities	Industrial/Comm. Water Providers
Water_Intake	Ground Water	Detail/Monthly
	Surface Water	Detail/Monthly
	Purchased Water	
Water_Discharge	Private Reserve	Detail/Monthly
	Public Lake	Detail/Monthly
	POTW	Detail/Monthly
	Stream	Detail/Monthly
	UIW SS	Detail/Monthly
	Other	Detail/Monthly
Combined	Water Use Points	Detail/Monthly

10



Page Size Adjustment: Set rows of list data to be displayed per page (based upon connection speed and personal preference).

This is water survey data



CEGAS

WV-DEP

West Virginia Water Resource Protection Act

Water Survey Data - final 2006

CegasHome | SurveyHome | Facilities | WaterUsePoints |

Indus./Comm. Facility Detail :

Facility Name: Aggregates Quarry

Indus./Comm.

Facility ID: 3460

Address: U.S. Route 33 West

P.O. Box 1602

Phone: (304) 636-6095

Elkins

WV

26241

County: Randolph

Number of Employees: 27

Contact Person: Rose Riggs

(304) 636-6095

rriggs@jfallenco.com

NAICS CODE: NA

SIC CODE: 1611

PWSID:

NPDES CODE: WVG022522

Type of Water Use: Industrial

Mineral Extraction Use: Quarry

Daily Max. Potential to Withdraw: 80,809

Monthly Max. Potential to Withdraw: 1,697,000

Projected maximum Monthly Potential to Withdraw (in 5 years): 1,700,000

Describe stream flow conditions that impact withdrawal rates:

None have occurred to date.

Describe seasonal conditions that impact withdrawal rates:

Dec., Jan., Feb., and March - the quarry does not typically operate or they have limited needs for dust suppression.

Water conservation practices implemented (past 5 years):

No

Estimated monthly water savings due to conservation practices:

Coal fired electric generators - facility nominal design capacity per day:

Do you purchase water from a provider?

Ground Water Intake Detail :

 WaterProviders and Ind/Comm

 Select Facility
Facility Name: Aggregates Quarry

Indus./Comm.

Facility ID: 3460

Address: U.S. Route 33 West
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 Select Intake (ID, Location)
Aquifer Source: Mississippian

Type of Rock: Limestone/Dolomite

GroundWater Intake ID: 3471

Method: Calculated

Well Depth: 0

Location: 3471

Watershed(GIS based)HUC-8Digit,ACC,CAT: 5020001 Monongahela

Tygart Valley, West Virginia

Determined: The amount of water was estimated based upon an assumed use of 20,000 gpd (Apr., Oct. & Nov.) and 40,000 gpd (May - Sept.) Which was also based on the fact when the well was down we had to fill water tanks by water truck and this was track

2003	Monthly Water
1	0
2	0
3	0
4	440,000
5	880,000
6	840,000
7	920,000
8	840,000
9	880,000
10	780,000
11	504,000
12	8,000

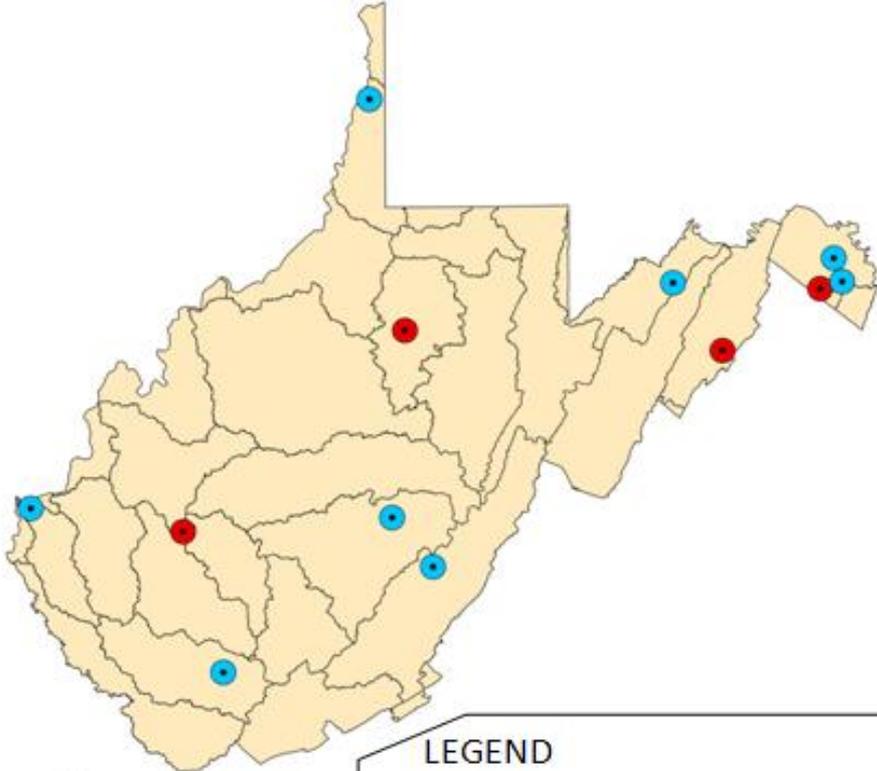
2004	Monthly Water
1	0
2	0
3	0
4	440,000
5	800,000
6	880,000
7	880,000
8	880,000
9	880,000
10	420,000
11	440,000
12	0

2005	Monthly Water
4	420,000
5	800,000
6	880,000
7	840,000
8	920,000
9	880,000
10	420,000
11	440,000

Groundwater Monitoring Wells

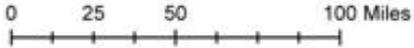
- In 2006, there were eight wells in the network, only six had telemetry.
- Four existing suitable wells were located, and monitoring and satellite telemetry equipment was installed on all wells.
- Currently, there are twelve wells in the network, all with telemetry.
- The DEP executed an Inter-agency Agreement with USGS to electronically log five of the existing monitoring wells in FFY 2009.

Ground Water Monitoring Wells as of October 2008

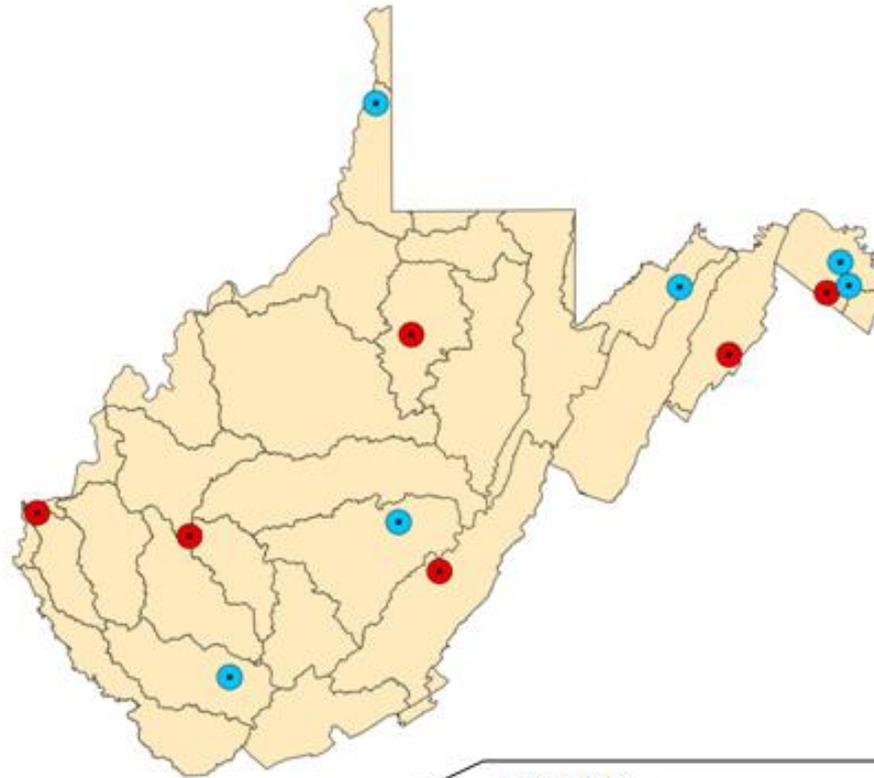


LEGEND

- Monitoring wells before 1996
- Monitoring wells after 1996



Well Telemetry as of 2008



LEGEND



Telemetry after 1996



Telemetry before 1996



Ground-Water Watch

Site Number: 392200078532001 - Min-0173



 [Ground-Water Watch Help Page](#)

DESCRIPTION:

Latitude 39°21'59.9", Longitude 78°53'19.9" NAD83
 Mineral County, West Virginia, Hydrologic Unit 02070002
 Well depth: 240 feet
 Hole depth: 240 feet
 Land surface altitude: 779.39feet above sea level NAVD88.
 Well completed in "Valley and Ridge aquifers" (N500VLYRDG) national aquifer.
 Well completed in "MARCELLUS SHALE" (341MRCL) local aquifer

AVAILABLE DATA FROM NWISWeb:

[Real-time](#)
[Daily Data](#)
[Field ground-water-level measurements](#)
[Field/Lab water-quality samples](#)

Additional Data Sources

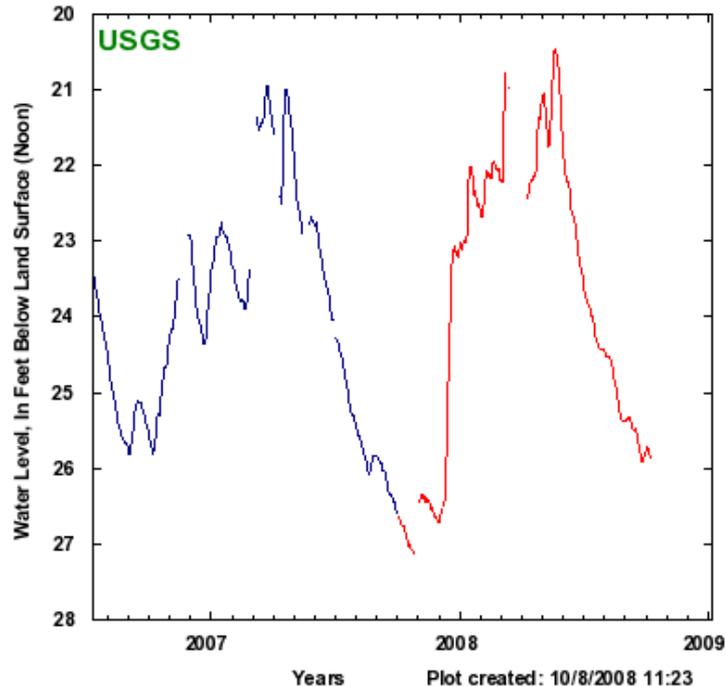
	Begin Date	End Date	Count
Annual Water Data Report (pdf) **offsite**	2006	2007	2

OPERATION:

Record for this site is maintained by the USGS West Virginia Water Science Center
 Email questions about this site to [West Virginia Water-Data Inquiries](#)

Daily Ground-Water Data

392200078532001 - Min-0173



[Approved Daily Data](#)
 [Provisional Daily Data](#)
 [Historical Daily Median](#)
 Range of [Historical Daily Min & Max](#)

Most recent **Provisional** daily data value: **25.87** on 10/07/08

Summary Statistics for Period of Continuous Record

Depth to water level, feet below land surface

Approved Daily Values Data Used in Analysis

Begin Date	End Date	Days	% Complete
10/01/04	09/30/07	1,048	95



Daily Data Options



View latest data from NWISWeb



View data in calendar format



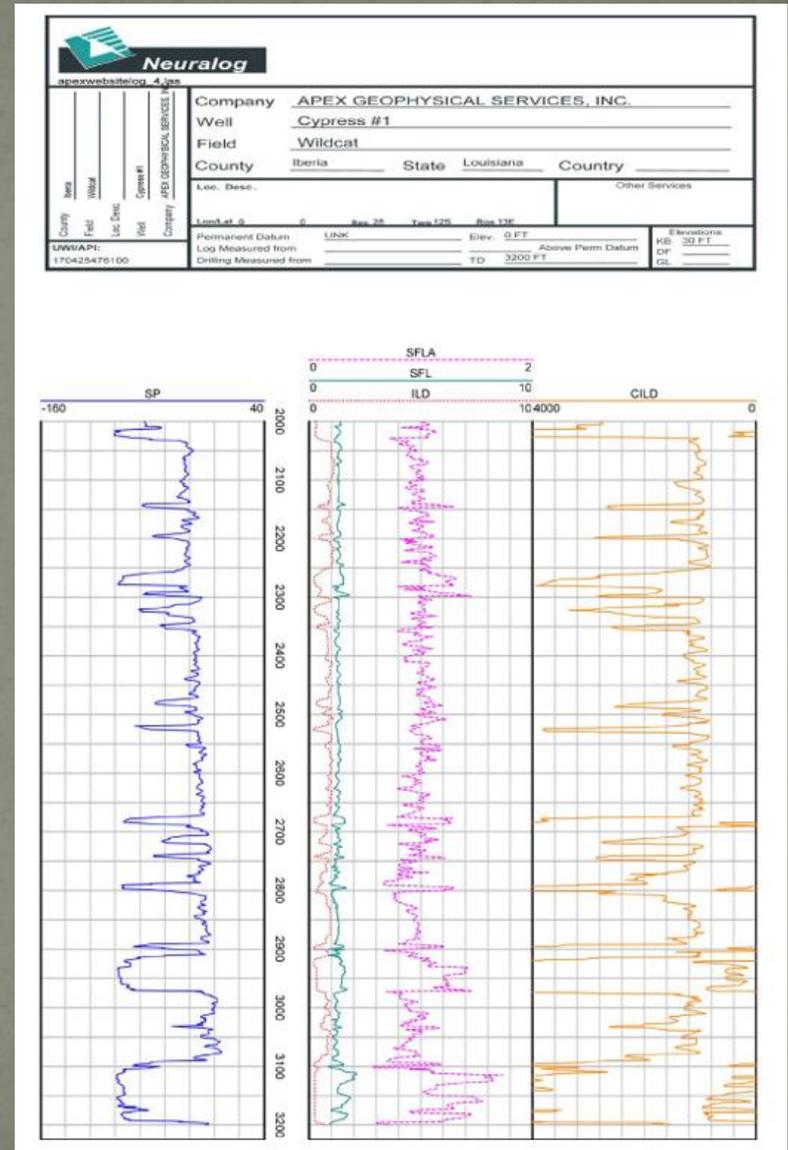
Download data in text format



View daily medians

Well Logging

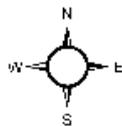
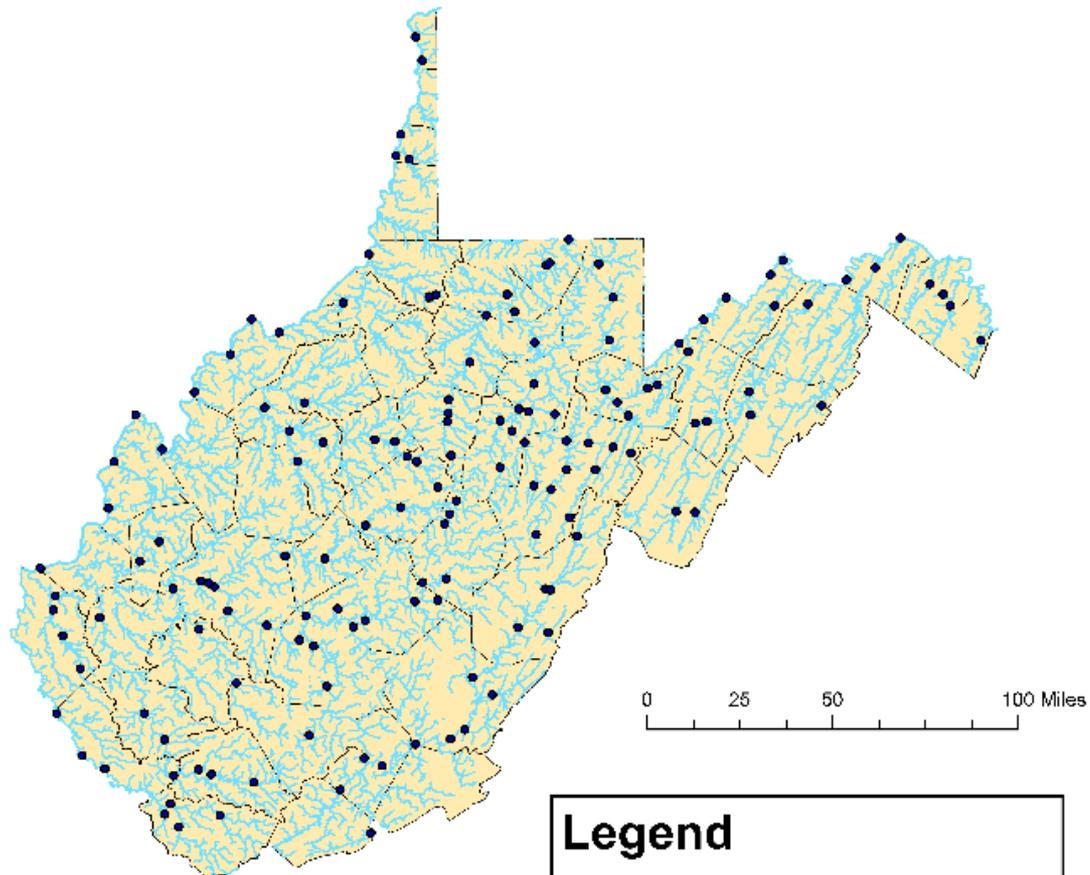
- Logging wells will identify exactly where the water is entering the well bore.
- This is essential for the delineation of an aquifer.



Stream Gauges

- The 2006 report identified areas in the western part of the state in need of stream gauges.
- In October 2008, the DEP entered into an agreement with the USGS to install and maintain two additional gauges in the western part of the state.
 - Middle Island Creek at Little
 - South Fork Hughes River at Macfarlan

All Stream Gauges



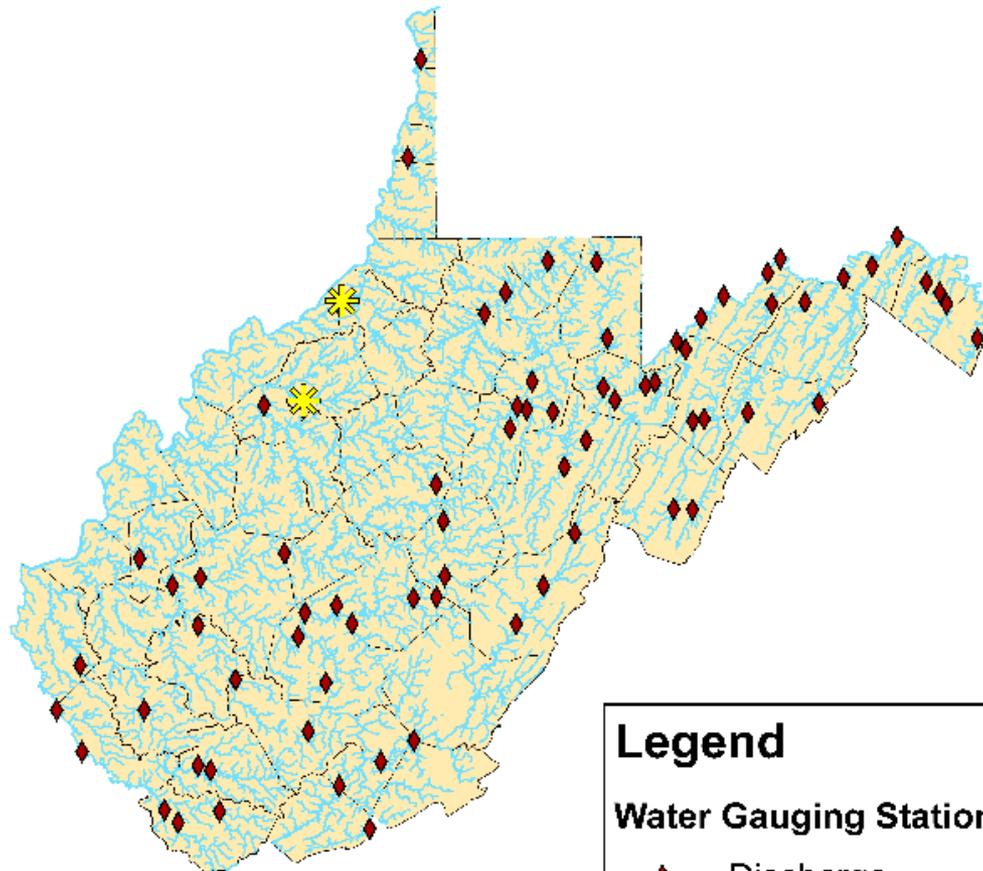
Legend

• Water Gauging Stations

■ county

— Stream

Discharge Stream Gauges



Legend

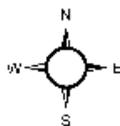
Water Gauging Stations

◆ Discharge

✱ Proposed

■ county

— Stream



0 25 50 100 Miles

Marcellus Shale

- New technology opens new gas play in most of state
- Wells in this formation require large amounts of water for completion
- Process is commonly called “slick water fracking”
- Water use is between 1,000,000 and 6,000,000 gallons of water per well

Marcellus Shale

- At DEP's invitation, the Appalachian Shale Water Conservation and Management Committee made a presentation on the Marcellus Shale on August 26.
- DEP representatives were invited to attend the ASWCMC meeting on the following two days.
- A meeting to discuss water reporting and registration issues took place on October 1st .

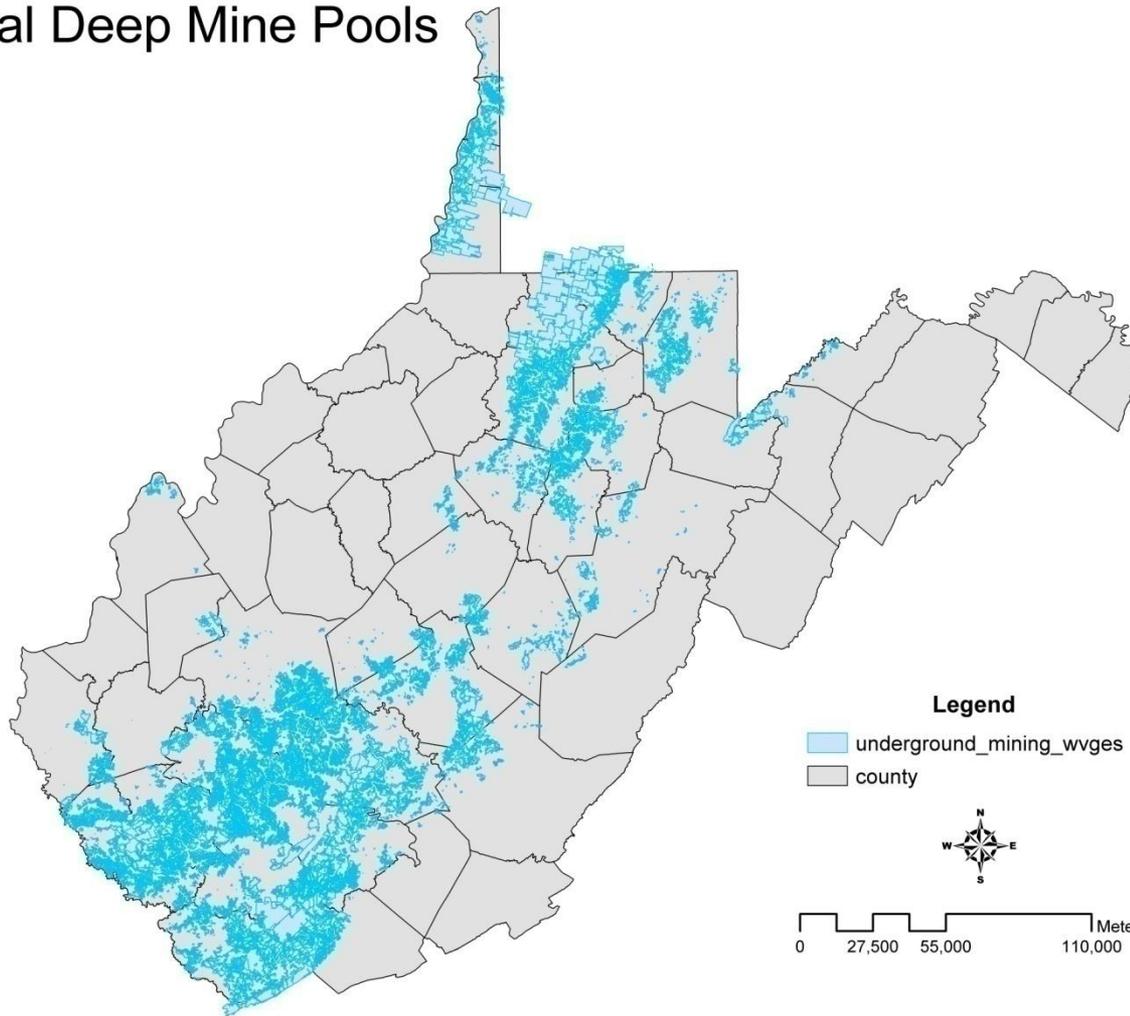
Reporting Requirements – Marcellus Shale

- The nature of the withdrawals makes utilization of the current reporting procedures impractical.
- The IOGA and WVONGA volunteered to conduct surveys of their members.
- The surveys were completed on October 31st.
- A new policy and report form are currently under development by the DEP.

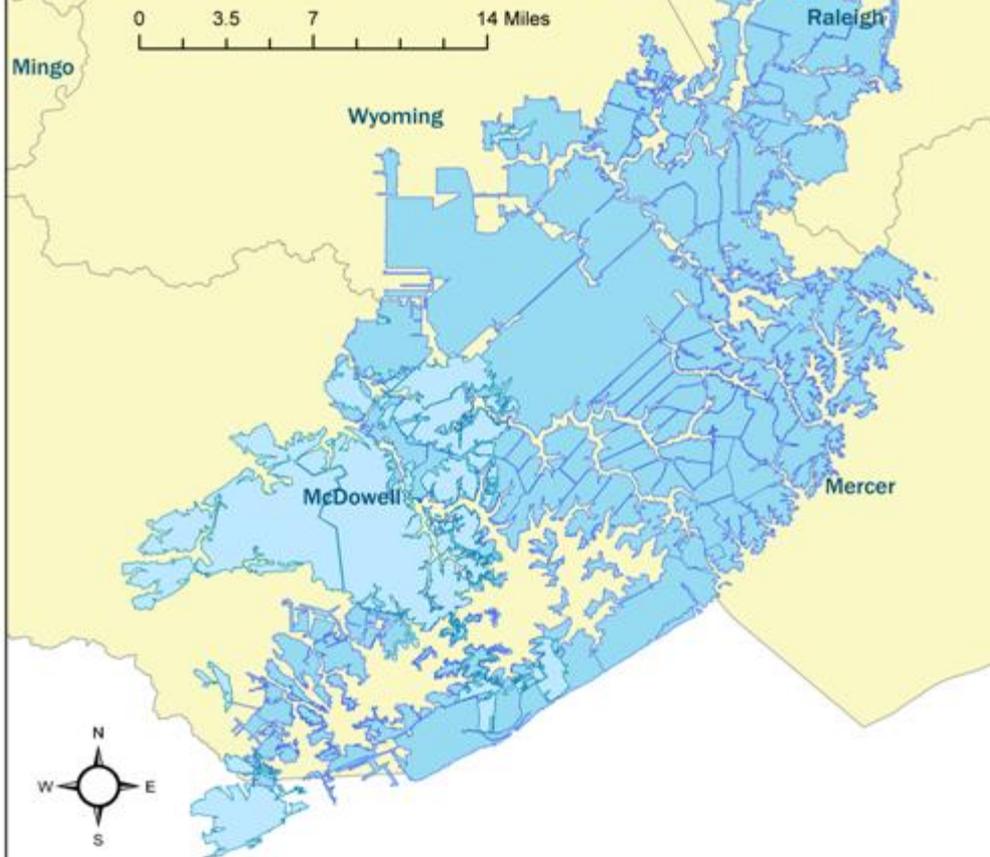
Mine Pools

- Some information exists on mine pools
 - West Virginia Geologic and Economic Survey
 - West Virginia University
 - Department of Health
 - DEP Office of Mining and Reclamation
 - United States Geological Survey
- This information must be brought together, reconciled and evaluated.

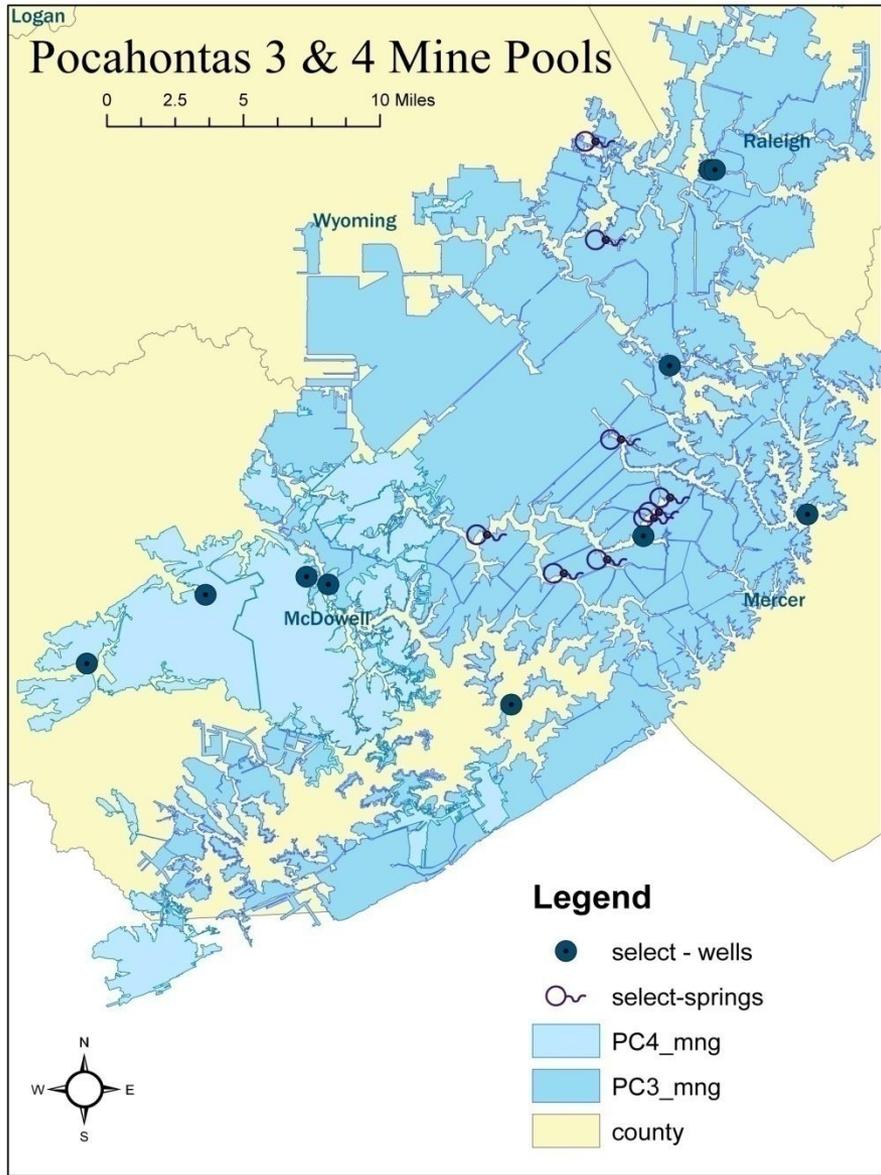
Potential Deep Mine Pools



Pocahontas 3 & 4 Mine Pools



	Total Acres	Average Thickness (ft)	Acre Feet of Pool	Estimated Pool Storage (billion gallons)
Pocahontas 3 pool	211,742	5	264,677	86.2
Pocahontas 4 pool	49,847	4.5	56,078	18.3



Lincoln County Water Wells

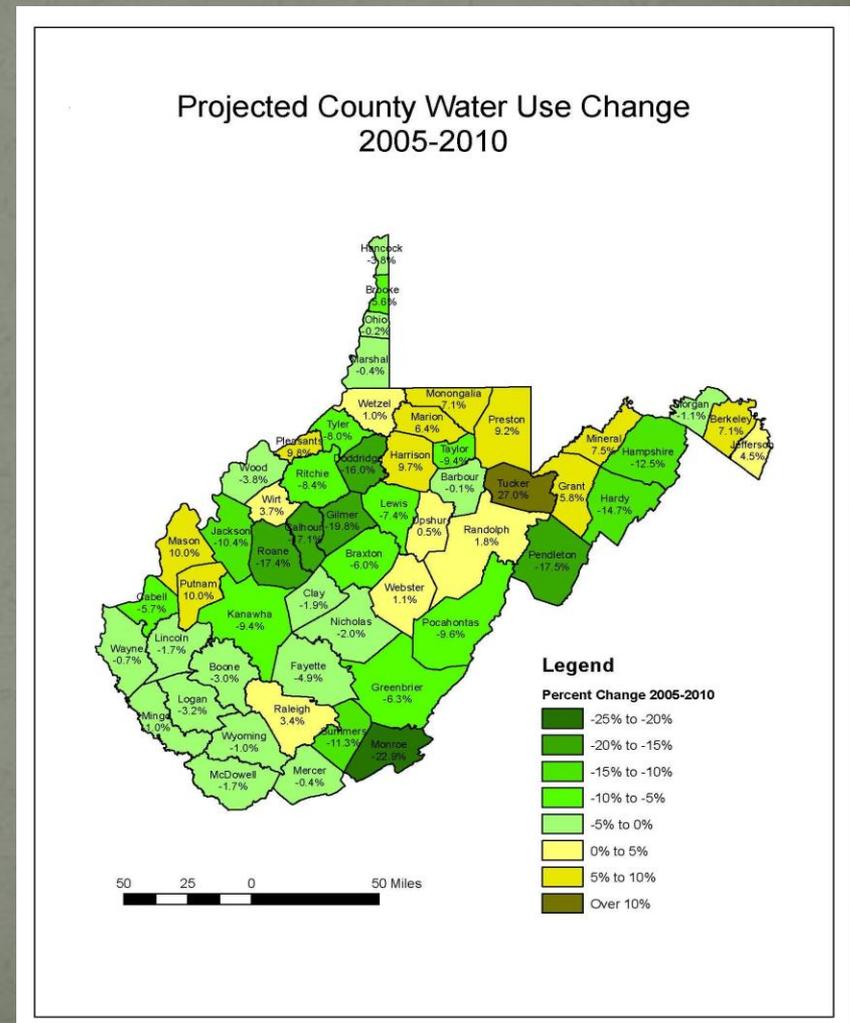
- Each water well drilled has a completion report on file with the local Health Department.
- These reports include a driller's log, which describes the lithology encountered.
- It is not known if these logs are of sufficient quality and consistency to be useful for aquifer mapping.
- The DEP initiated a project to evaluate the usefulness of these logs .

Lincoln County Water Wells

- The location of the wells is not easily determined. Current methods include:
 - Merging files and maps from the Department of Taxation with County Health Department files; and
 - Physically pulling, copying and evaluating drillers' logs in the study area.
- The project is in the early stages of development.

State Plan Development

- The state is divided into four areas based, in part, on increases in water use as predicted in the 2006 report.
- Plans will be developed for each watershed in an area.
- Training will be provided for community and other representatives.



Guidance for Community Plans

- Two organizations have expressed interest in developing water management plans.
 - The Greater Cumberland Committee (Mineral County and adjacent areas in Maryland)
 - Pocahontas County Commission
- The DEP is currently developing guidelines for organizations that wish to pursue plan development.

Homeland Security and PSDs

- Homeland Security considers the release of the latitude and longitude of public water supplies to be in violation of WV Code §22-26-4(b)(3).
- Therefore, the DEP will not release this data. Community planners must obtain information regarding public water supplies from the Department of Health.

Certification

- Each year large quantity users must certify their water use did not change by more than ten percent of their base-line average.
- If it did not, they simply certify that fact. If it changed by more than ten percent, they must re-register.
- Staffing and other problems have delayed certification implementation.
- Estimated implementation of the certification program is first quarter, 2009.



dep

west virginia department of environmental protection