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

West Virginia Department of Environmental Protection
Water Use Section
December 6, 2016

By:
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Program Manager
Water Use Section
Plan History


On March 8, 2008, Senate Bill 641 passed amending the Act and renaming it the Water Resources Protection and Management Act (The Act).

The Water Use Section was created in July 2008 to accomplish the additional requirements of the Act.

The West Virginia Water Resources Management Plan was submitted on November 22, 2013 and was adopted as part of Senate Bill 373.
Why collect water use data?

• The Act identified the need for the protection and conservation of our state’s water resources.
• It recognizes that a comprehensive assessment of the availability and use of our states water will benefit the citizens of West Virginia: WV Code §22-26.
West Virginia Water Facts

- We average 44 inches of precipitation per year

- The record precipitation event in WV is 19.5” in 2 hours at Rockport in July of 1889 (Last June’s event was 10” in 8 hours)

- Maximum storage of lakes - 1 trillion gallons

- Estimated mine pool storage - 1.5 trillion gallons

- Large Quantity Users withdraw approximately 828 billion gallons each year (not including Hydroelectric)

- Based on USGS consumptive use coefficient's, 7.5% of the LQU water is consumed (most likely higher)

- We have 54,961 total stream miles in our state
Average Annual Precipitation Map

Map Key
Precipitation Range (inches/year)
- 31 - 36
- 37 - 42
- 43 - 48
- 49 - 54
- 55 - 60
- 61 - 67
- 68 - 73

Source: NOAA Climate Image Library

Moist air → wind → rain → dry air → rain shadow → evaporation

Rainfall areas are shown in blue shades, with darker shades indicating higher precipitation levels.
Large Quantity Users (LQU) Survey now collected on-line

- During 2015 we abandoned the out of date Paper LQU Survey and utilized the DEP Electronic Submission System to allow the LQU’s to report their total water usage and other required information on-line.
- This system has proved to be more efficient, easier to use and has been well received by the LQU community.
2015 LQU Water Use

WEST VIRGINIA
2015 Water Use in Gallons minus Hydroelectric

- Agriculture/Aquaculture, 7,025,741,192
- Chemical, 141,306,248,100
- Industrial, 13,985,524,835
- Mining, 17,704,204,406
- Oil & Gas / Frac, 2,624,152,041
- Petroleum, 271,726,104
- Public water supply, 68,767,496,213
- Recreation, 1,072,686,214
- Bottled Water, 3,823,376
- Timber, 1,136,499,871

- Thermoelectric (Coal), 574,261,967,441
# 2015 LQU Water Use

<table>
<thead>
<tr>
<th>REPORTING_YEAR</th>
<th>FACILITY_TYPE_DESC</th>
<th>Total Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Agriculture/Aquaculture</td>
<td>7,025,741,192</td>
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<tr>
<td>2015</td>
<td>Chemical</td>
<td>141,306,248,100</td>
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<tr>
<td>2015</td>
<td>Hydroelectric</td>
<td>132,142,618,278,591</td>
</tr>
</tbody>
</table>

Total Gallons Withdrawn 2015: 8,281,600,069,793
Total Gallons Consumed 2015: 64,188,679,585
Consumptive Use: 7.5%
Consumptive Use (-Thermoelectric): 5.8%
2015 WV Bottled Water in Gal/year

- SWEET SPRINGS VALLEY WATER COMPANY 1,700,000
- BERKELEY CLUB BEVERAGES INC. 743,376
- GREEN ACRES REGIONAL CENTER INC 800,000
- UNITED DAIRY, INC. (CHARLESTON) 364,000
- WEST VIRGINIA PRIDE OF THE MOUNTAINS CO 200,000
- CAPON SPRINGS & FARMS, INC. 16,000

Total 3,823,376

Allegheny Lodge Enterprises, LLC is Closed.
Tyler Mountain Water now bottled in Oakland PA.
New O&G Fracture Water Database

- Capture actual monthly water withdrawal totals from each unique withdrawal location
- Alleviate redundancy to increase reporting compliance. O&G operators are already required to submit some data to fracfocus.org
- Data will be available on calendar year 2016
Horizontal Well
Water Management Plans (WMP’s)

• In 2015, this Section reviewed and approved 114 Unique WMP’s, which included 582 individual wells.
  – 88 unique WMP’s for 469 wells in 2014

• 60 WMP’s were modifications to existing WMP’s in 2015.
  – 36 modifications in 2014

• Totals for 2016 are expected to be about the same as 2015.
Other Projects and Studies Underway

• Geophysical Well Logging - Groundwater Aquifer Study
• Consumptive Use Study
• Mine Pool Study – location, quantity, quality and sustainability
• Aboveground Storage Tank
  – ZCC, ZPC and SWPA’s
  – Extensive coordination with BPH
• Water Conservation Award went to Highland Hospital who Recycles 700,000 gallons of Laundry Water per year.
• Stream Time of Travel Study (contemplated)
Water Withdrawal Tool

Current Value: 4290 cfs Taken at: 09-03-2015 Time: 10:09 AM

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

USGS Gauge Web Site

Notice
Be advised this guidance tool is less strict than thresholds incorporated into the water management plan for Oil and Gas Permits. Approved water management plans include safety margins to account for uncertainties related to ungauged streams. Safety margins also increase based on the distance between the gauge and the potential withdrawal locations.
WVWRMP Mapping Tool

Google search: wvwaterplan and click the Blue Button
Overlap multiple GIS Layers
New NHD24 Stream Layer
Downloadable shape files are available for individuals, companies, consultants and economic development professionals.
Stream Gage Funding

- It costs about 2.9 million per year to fully fund our states stream gage network.

- The cost is currently supported by five four state agencies, the ACoE, the USGS and some private industries.

- The four state agencies contribute $282,000 to fund the core gaging network.

- DNR, DEP and BPH worked hard to plug the WVCA 125k funding gap.

- Although 2017 Funding has been secured, is was only due to significant effort. Every year is a funding challenge.

- All of our water resource science and web tools are dependent on data collected by this Stream Gaging network.
GW Monitoring Network
Funded by DEP’s GW Section and Federal Match
November 22, 2016

The Honorable Patrick Morrisey
Office of the Attorney General
State Capitol Complex
Building 1, Room E-26
Charleston, WV 25305

Dear Attorney General Morrisey:

We are writing in response to your letter concerning West Virginia’s water withdrawals from the Potomac River. Maryland officials have long acknowledged that West Virginia has the same rights on the Potomac River as those described by the Supreme Court in *Virginia v. Maryland*. Since that case was decided in 2003, the Maryland Department of the Environment
QUESTIONS?

WV department of environmental protection
-Promoting a healthy environment