An Overview of Ground Water Withdrawal Regulations in the Southeastern Pennsylvania Ground Water Protected Area

Carol R. Collier, P.P., AICP
Executive Director
Delaware River Basin Commission

Delaware River Basin Commission
- 13,539 square mile basin
- Five members:
  - Delaware
  - New Jersey
  - Pennsylvania
  - New York
  - United States
- Manage water resources
- Founded in 1961

1. The Compact provides the authority to the Delaware River Basin Commission.
2. All projects having a substantial effect on the water resources of the Basin shall not be undertaken unless submitted to and approved by the Commission.
3. Furthermore, the Commission may designate 'Priority areas' within the basin where the demands upon water supply base or might create a water shortage.
   * Also provided for in the recently enacted PA Water Resources Legislation

SOUTHEASTERN PENNSYLVANIA GROUND WATER PROTECTED AREA
Established in 1980
- Due to the substantial increase in use of ground water resources in southeastern Pennsylvania in recent decade
- More frequent interference and conflicts among users of the same ground water resource
- Observed water table impacts to flows in perennial streams

Sub-basin Deliquent in Southeastern Pennsylvania
- Geography:
  - 1,200 square miles
  - Five Counties
  - 127 Municipalities
  - 76 Sub-basins

12/21/06
Handout
SOUTHEASTERN PENNSYLVANIA GROUND WATER PROTECTED AREA

Management Issues:

- Provide for the effective management of ground water resources.
- Encourage water conservation.
- Protect the rights of present and future users of water.
- Acquire additional information to more accurately plan and manage water resources.

Results:
A computerized water-use and ground water analysis program.

SOUTHEASTERN PENNSYLVANIA GROUND WATER PROTECTED AREA

Special Requirements:

- Permits required for withdrawals averaging 10,000 gpd or more for any 30-day period
- Advance notice of exploratory drilling
- Hydrologist report with results of extended pump test (not less than 48 hours duration) and monitoring
- Well registration and monitoring
- Conservation requirements
- Compliance with the Commission’s “withdrawal-limits (net subsbasin yield) policy.”

SOUTHEASTERN PENNSYLVANIA GROUND WATER PROTECTED AREA

Subbasin Limits

- Geological Studies Establish Numerical Withdrawal Limits
- 1-in-25 year Average Annual Baseflow Rate
- Two-tiered Approach
  - “Maximum Withdrawal Limit” = 100%
  - “Potentially Stressed” = 75%
- Stressed Sub-basins Requirements

SOUTHEASTERN PENNSYLVANIA GROUND WATER PROTECTED AREA

Eligible programs in potentially stressed subbasins:

1. Conjoint use – 15% avg annual system use from surface water
2. Expanded water conservation
3. Program to control ground water infiltration
4. Artificial recharge or spray irrigation – 60% return to same basin & aquifer
5. Alternative mitigation program

SOUTHEASTERN PENNSYLVANIA GROUND WATER PROTECTED AREA

Procedures for withdrawal limit revisions to afford additional protection for subbasins that are designated

- Pennsylvania “High Quality” or “Exceptional Value” Designated Streams
- “Wild”, “Scenic”, or “Pastoral” Streams
- Consistent with More Stringent Requirements in Integrated Resource Plans

SOUTHEASTERN PENNSYLVANIA GROUND WATER PROTECTED AREA

Integrated Resource Planning

- IRP framework and experiences are applicable to PA Act 220 CWPA provisions
  - Similar requirements to CARPs
  - Currently being tested through Swamps-Scioto pilot project
  - Should improve understanding of how to carry on multi-municipal comprehensive water supply planning in Pennsylvania
Neshaminy Creek Basin

<table>
<thead>
<tr>
<th>Sub-basin</th>
<th>Potentially Stressed (mgd)</th>
<th>Withdrawal Limit (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Stem Neshaminy West Branch</td>
<td>1,064</td>
<td>1,825</td>
</tr>
<tr>
<td>Main Stem Neshaminy North Branch</td>
<td>246</td>
<td>250</td>
</tr>
<tr>
<td>Mill Creek</td>
<td>710</td>
<td>940</td>
</tr>
<tr>
<td>Little Neshaminy Watermain</td>
<td>869</td>
<td>1,165</td>
</tr>
<tr>
<td>Little Neshaminy Upper</td>
<td>545</td>
<td>671</td>
</tr>
<tr>
<td>Little Neshaminy Lower</td>
<td>562</td>
<td>279</td>
</tr>
<tr>
<td>Little Neshaminy Watermain</td>
<td>1,019</td>
<td>2,230</td>
</tr>
<tr>
<td>Mill Creek</td>
<td>1,174</td>
<td>1,505</td>
</tr>
<tr>
<td>Magothy Creek</td>
<td>546</td>
<td>765</td>
</tr>
<tr>
<td>New Hope Creek</td>
<td>265</td>
<td>207</td>
</tr>
<tr>
<td>Cock Creek</td>
<td>694</td>
<td>404</td>
</tr>
<tr>
<td>Ironwood Creek</td>
<td>369</td>
<td>444</td>
</tr>
<tr>
<td>Main Stem Lower Neshaminy</td>
<td>3,028</td>
<td>4,604</td>
</tr>
</tbody>
</table>

Potentially Stressed Sub-basins

Ground Water Evaluations for Pennsylvania and Northern Delaware as a Percentage of the Potentially Stressed Limit

A study of ground water availability for the entire Delaware Basin was conducted by the U.S. Geological Survey in 2006.

This publication can be found at http://pubs.usgs.gov/ogw/publist/2006/155.

Latest Developments/Recent DRBC Efforts

- 2005 Scope of Work for GWPA Status Report
- Assess ground water withdrawals
- Assess hydrologic conditions
- Assess relative subbasin stress
- Assess interconnections
- Assess streamflow conditions in gauged watersheds
- Summarize ground water allocations
- Develop data collection system for continuous updating
  - Tailored, in part, to Act 220 reporting information
- Regulatory Issues
  - Future Use
  - Use in Allocation
  - Reallocation / Trading

DRBC WEB SITE:
www.drbc.net