



## Delaware River Basin Commission

PO Box 7360  
25 State Police Drive  
West Trenton, New Jersey  
08628-0360

**Carol R. Collier**  
Executive Director

**Robert A. Tudor**  
Deputy Executive Director

### **DRBC WATER MANAGEMENT ADVISORY COMMITTEE MEETING MARCH 24, 2004**

#### **COMMITTEE MEMBERS PRESENT:**

Jan Bowers	Chester County WRA
William Gast	PA Department of Environmental Protection
Joseph Miri	NJ Dept. of Environmental Protection
Bob Anastasia*	U.S. Army Corps of Engineers
Ronald Sloto	U.S. Geological Survey
John Mello	U.S. EPA Region 2
Mary Ellen Noble	Delaware Riverkeeper Network
Bob Molzahn	Water Resources Association
George Kunkel*	Philadelphia Water Department (for Howard Neukrug)
Dave Froehlich	Wissahickon Valley Watershed Association
John Showler	NJ Dept. of Agriculture
Stewart Lovell	Del. Dept. Natural Resources

\*Denotes alternate or non-official member.

#### **DRBC STAFF:**

David Sayers, Planning & Implementation Branch  
Robert Tudor, Deputy Executive Director  
Kenneth Najjar, Planning & Implementation Branch Head  
Jessica Rittler Sanchez, Basin Planner

#### **CALL TO ORDER:**

The meeting was called to order at 9:45 am by Chairwoman Jan Bowers.

#### **REVIEW OF MINUTES / REVIEW AND APPROVAL OF AGENDA**

Due to some members having to leave by noon, the order of the agenda was rearranged with committee approval.

Joe Miri's concerns with the minutes from the July 16<sup>th</sup> meeting (which were tabled during the September 29<sup>th</sup> meeting) have been resolved; revised minutes meeting with Dr. Miri's approval were sent via e-mail to the committee members. Mary Ellen Noble motioned to accept the revised minutes of the July 16<sup>th</sup> meeting. Bill Gast seconded and the motion carried unanimously. The minutes from the September 29<sup>th</sup> meeting were also provided by e-mail to committee members. Bill Gast motioned to accept these minutes. Ron Sloto seconded and the motion carried unanimously.

### **UPDATE ON WMAC MEMBERSHIP**

David Sayers announced that Bob Anastasia from the U.S. Army Corps. of Engineers is temporarily sitting in for Frank Schaefer, who retired. Edith Stevens has agreed to represent the League of Women Voters, a civic organization, although she was not able to attend today's meeting. Bruno Mercuri will be available by telephone and forwards his proxy to the committee chair. Debbie Lord provided her proxy vote to Jan Bowers. Jan suggested an e-mail be sent to committee members stating that when they are not able to attend meetings, they should designate an alternate or send their proxy.

Kurt Rieke informed Mr. Sayers that NYC DEP has not named an official representative for the committee, but he will attend when possible. The only other position currently vacant is that of water utility representative. Mr. Sayers noted that he had still not received confirmation from NJ American, due to their staffing and reorganization issues. There have been a few other names suggested that will be followed up on in the next few weeks.

### **ACCOUNTING FOR WATER USE AND WATER LOSSES**

This issue has been discussed briefly in recent meetings; the purpose of today's discussion is to hear from an expert on this topic, and get feedback from the committee as to whether there is a need for re-evaluating DRBC policy on this issue, which is documented in DRBC Resolution 87-6. This resolution defined unaccounted for water and set a target of 15% unaccounted for water losses for purveyors to achieve. This resolution is about 16 years old and there have been some recent advances in this area. David Sayers introduced George Kunkel from the Philadelphia Water Department (deputizing for Howard Neukrug at this meeting). Over the past nine years Mr. Kunkel has worked closely with the American Water Works Association (AWWA) particularly on water accountability and water loss issues. He chaired the AWWA sub-committee that published a recent report (which had been distributed to members of the WMAC) outlining methods for drinking water utilities to account for the water that they manage and how to evaluate and control losses in their systems.

Mr. Kunkel provided copies of materials relevant to the presentation this included:

- i) The AWWA Committee Report: Applying Worldwide BMPs in Water Loss Control
- ii) List of State Agencies currently involved in applying AWWA Water Accounting and Loss Control methods, including experience in implementing the new methods by the Maryland Department of the Environment
- iii) Copy of the presentation slides

Key points and comments in the presentation included:

- The need for consistent terminology and definitions: consistent definitions are needed for the terms - consumption, loss & use.
- Data availability: Because of the lack of consistent terminology and less than stringent reporting requirements, it is difficult to analyze data with confidence.
- Real losses versus apparent losses: Real losses include physical losses (leakage etc), apparent losses include accounting, billing and metering errors. It's important to distinguish between the two and manage for them accordingly.
- The term "Unaccounted for water" is best avoided. It is not easily defined and has not been consistently applied. Aim should be to account for all (some will be leakage).
- Conservation: Water distribution systems should consider the savings achievable from preventing leakage. Real losses (which can be recovered) may well exceed the target reduction volume during droughts.

- Economic Level of Leakage: A calculation that determines (on a purveyor by purveyor basis) what level of leakage is reasonable, based on the fact that effort to prevent leakage gives diminishing returns.

In summary, Mr. Kunkel suggested that we have a long way to go between where we are now and where the AWWA methodology could take us. The way forward is to partner with utilities – get them to understand the benefits of adopting better auditing practices, including financial savings and more efficient use of the resource. We do not need to consider setting new standards at this point – but promoting a good audit structure is an important first step.

As time was running short at the end of the presentation Jan Bowers suggested that some time be scheduled on the agenda for the next meeting to continue discussion, specifically any impact for DRBC. The Committee agreed and Mr. Kunkel was invited back for the next meeting. Between now and then, the committee is asked to read the materials distributed, including DRBC Resolution 87-6.

#### **UPDATE ON DRBC PROGRAMS:**

##### **i) Water Budgets and Ground Water Availability**

Ron Sloto gave feedback to the Committee on the two joint DRBC / USGS projects looking at selected watershed water budgets and groundwater availability throughout the Basin. The first task was to put together GIS-based geologic coverage for the entire Delaware River Basin. Geology from New York and New Jersey was available digitally. Most of Pennsylvania was digitized from a 1980 map. Delaware had some very recent digital mapping. The maps then had to be put together into a standardized format. The next step was to group the units that were alike geologically and hydrologically. Based on this simplified geology, all the gauging stations that were available were analyzed (based on annual base flow in billion gallons per day per square mile). The stations that looked like they were representative of a single geology were chosen for the assessment. Those that were too large or contained numerous dams or were significantly regulated were eliminated. Some were further eliminated due to various regulations or large diversions, or short periods of record, until the most suitable ones were found. They were then divided by physiographic province.

Once this was done for each of the generalized geological formations, the annual baseflow recurrence approach was used to calculate the 2 year, 5 year, 10 year, 25 year, and 50 year recurrence intervals. The next step was to calculate an estimate of groundwater availability based on the percentage of each rock unit within the basin – for these intervals. The next step (and this is where we are currently with the project) will be to calculate what the groundwater withdrawals are and what the recharge is. Then we will have an estimate of how stressed each sub-basin is in terms of groundwater availability.

Mr. Sloto also gave an update on the Water Budget Project:

Water Budgets for three watersheds in the PA portion of the Basin are being developed: the East Branch of the Brandywine Creek, Wissahickon, and Pocono Creek watersheds. USGS were supplied with the water use and discharge data by the DRBC, which ultimately came from the Pennsylvania databases. For the Brandywine, he was able to supplement with data that was collected from various studies done through the Chester County Water Resource Authority. He contacted Aqua-America, Downingtown Borough Municipal Authority, and the Downingtown Area Regional Authority and received as much data from these parties as possible. The Wissahickon is a very complex watershed with water being imported and exported across the watershed boundaries. The DRBC dataset gave good coverage for this watershed, but what also helped significantly was when the groundwater protected area database was put together. One of

the things attempted during that project was to put together a map of water distribution areas and a map of sewerage areas. This was never published or released because there were concerns over accuracy. The GIS people (at USGS) labeled it as a “cartoon” and would not approve release, but it proved useful. Pocono Creek was a lot simpler in terms of water users, but it is an unengaged watershed, so an adjacent watershed had to be used to create the stream discharge record.

The largest problem with this project, in general, is that the data are sparse; Mr. Sloto reminded the committee that in order to manage water resources effectively, and complete projects such as these with some confidence, it is vital that we put effort into collecting and managing the data. The target date to have these in for review is before the end of September. Ken Najjar added that two additional watersheds are being studied in New Jersey, although progress with those has not been as rapid as with the Pennsylvania watersheds. It was suggested that a representative from NJGS attend the next meeting to discuss progress with both projects in the NJ portion of the Basin.

#### **ii) DRBC Flow assessment spreadsheet**

David Sayers reported on a Spreadsheet-based assessment tool for downloading and analyzing stream flow data. It provides a way of obtaining USGS data in an automated fashion from their website and downloading it using MS Excel. It then runs basic statistical analyses and trend analyses on the data. The way the USGS have their website set up is very standardized and just by typing the gauge station number into the spreadsheet, it automates the rest of the process. It is currently in a draft form, but it could be a useful tool once it is finalized. DRBC staff has run this for every gauged station in the Basin with more than 10 years of flow data; approximately 107 stations in total. The Committee was not sure of the direct application of such a tool. Mr Sayers stated that he raised awareness of this to the committee as a point of interest – it did not require any specific action from the Committee.

#### **iii) Update on SEF Activity**

Mary Ellen Noble gave a report on SEF (Subcommittee on Ecological Flows). The WMAC has had ongoing discussions regarding instream flow needs and how to determine them, how to work them into allocations, and withdrawal scenarios. The Nature Conservancy came to the DRBC advocating a process for the Upper Basin to determine the instream flow needs in reservoir tail waters. The FMTAC is also doing a lot of work on what everyone needs in terms of flow. SEF’s work started in the Upper Basin; in the future SEF will determine the need for the entire Basin. In the meantime, New Jersey is also using a state-of-the-art statistical method for determining some parameters for instream flow needs in New Jersey to get an acceptable range of flows. That work is ongoing and is something SEF will be looking at. SEF hasn’t looked at basin-wide issues yet, but will in the future. The Committee was reminded that Leroy Young of the PA Fish and Boat Commission will most likely not attend future Committee meetings – unless there is a specific fisheries issue that needs to be addressed.

#### **BASIN PLAN UPDATE**

Jessica Sanchez stated that there will be a Watershed Advisory Council meeting on May 7<sup>th</sup>, 2004 to review comments received and revisions to the Plan. After the WAC meeting, the plan will be submitted at the Commission meeting in June for approval.

The biggest comments we’ve received so far are that there isn’t anything in the plan for ports and navigation. There is a place for it, but we have to come up with something to address this. And the other comment was that there was no discussion on climate change and how it should be figured in for long-range planning. Ms. Sanchez stated that she has reviewed a USGS report for

the mid-Atlantic region on climate change and has come up with three different objectives that she will recommend be adopted. There is also an issue that there is nothing specific in the plan for security measures. Additional questions that will need to be fully answered by the Council are: i) What is the process for final approval and by whom, and ii) How does the plan get implemented.

#### **DRBC SUPPLY / DEMAND ASSESSMENTS (KEN NAJJAR / DAVID SAYERS)**

Ken Najjar reported to the Committee that staff has begun an effort to look at water availability and current and projected water demands for the Basin. The Basin Plan has five Key Result Areas designed to work together to integrate water resource management. The focus of this study is under KRA #1, Sustainable Use and Supply. The goals of KRA #1 are, basically, to: balance the demands on the resource, maintain and restore ecological integrity, ensure supplies for current and future demand, and integrated management. The Basin Plan has been a key driver for the current study – to give an idea of where we are, and where we are going in terms of water demand and availability, based on existing information.

David Sayers then made a presentation (using PowerPoint slides) which summarized the findings of the supply / demand assessment. Mr. Sayers reiterated that much of the data was based on 1996 water use records and the projection methodologies were based on work done by DRBC staff in 2000 to compile a Consumptive Use report for the Basin. The current assessment built upon that work and aggregated data by use type, by ground and surface water sources and by withdrawal and consumptive uses. Spatially the data were aggregated on a sub-basin basis consistent with the sub-basins developed for the Basin Planning purposes.

Mr. Sayers provided summaries of current known demands and projected future demands. The water use sector showing the largest projected demand was that of Power Generation. In some sub-basins water use for this sector (which is often already a dominant use type) is predicted to grow by a factor of 3-4, by the end of the planning timeline: 2040. A take home message from this work (which is only in first draft phase) is to re-evaluate the projections for the power generating sector to see if they are plausible. Other dominant use sectors are Public Water Supply and Industry.

Bob Molzahn pointed out that power generating demands have become more difficult to predict since deregulation of the power industry and the rise of smaller independent producers. It is not easy to predict where and when these will locate. Before deregulation, Master Siting Studies were carried out by a consortium of power generators and submitted to DRBC to provide a basis for planning water requirements for this sector. Bob Molzahn offered to discuss with DRBC staff issues related to water demand for this sector.

#### **MEETING ADJOURNED:**

The meeting concluded at 2:25pm. The next meeting is scheduled for 9:30am Tuesday May 25, 2004