

**A REPORT TO**  
**THE HONORABLE MARK R. WARNER, GOVERNOR,**  
**AND**  
**THE GENERAL ASSEMBLY OF VIRGINIA**

**STATUS OF VIRGINIA'S WATER RESOURCES**  
**A Report on Virginia's Water Supply Planning Activities**

**Department of Environmental Quality**  
**COMMONWEALTH OF VIRGINIA**

**October 2004**



# COMMONWEALTH of VIRGINIA

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December 22, 2004

### MEMORANDUM:

TO: The Honorable Mark R. Warner  
  
The Honorable Charles R. Hawkins, Chair  
Senate Agriculture, Conservation and Natural Resources Committee  
  
The Honorable M. Kirkland Cox, Chair  
House Agriculture, Chesapeake and Natural Resources Committee

FROM: Robert G. Burnley 

SUBJECT: Annual Status of Virginia's Water Resources Report

In accordance with Chapter 3.2 of Title 62.1 of the *Code of Virginia*, the Department of Environmental Quality has completed its annual report on the status of the State's water resources, including ground water.

The Department of Environmental Quality is committed to ensuring that adequate and safe drinking water is available to all citizens of the Commonwealth and protecting the beneficial uses of our state waters. The primary objective of this report is to document the status of Commonwealth's waters and to document the Department's water supply and resource planning accomplishments.

This report is being made available at [www.deq.state.va.us/regulations/legislation](http://www.deq.state.va.us/regulations/legislation). If you need further information or would like a hard copy of this report, please contact Rick Linker at 804-698-4195.

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## I. Introduction

The Commonwealth of Virginia is rich in water resources, both in terms of quantity and diversity. However, this resource cannot be taken for granted. The Commonwealth and its localities must work together to manage and protect our water resources to meet long term human and environmental needs. Improved coordination of drought response and water resources management activities at the local, regional and state levels are essential to guaranteeing the adequacy of Virginia's water supplies to meet the needs of Virginia's citizens in an environmentally sound manner. This report, submitted to the Governor and the Virginia General Assembly in accordance with Chapter 3.2 of Title 62.1 of the Code of Virginia, describes the status of the Commonwealth's water sources, both surface and ground water. Section VI, entitled "Water Supply and Resource Planning" summarizes progress on the Commonwealth's Water Supply Planning Initiative.

## II. Water Resources Data

A summary of Virginia's water resources is provided in **Table 1**. Virginia has an estimated 50,537 miles of streams and rivers divided into nine major basins (**Figure 1**). Annual statewide rainfall averages almost 43 inches. The total combined flow of all freshwater streams in the state is estimated at about 25 billion gallons per day. The 248 publicly owned lakes in the Commonwealth have a combined area of 162,230 acres. Additionally, many thousands of other small, privately owned, lakes and ponds are distributed throughout the state. Other significant water features of Virginia include approximately 236,900 acres of tidal and coastal wetlands, 808,000 acres of freshwater wetlands, 120 miles of Atlantic Ocean coastline, and more than 2,500 square miles of estuaries.

## Table 1. Virginia's Water Resources Data

**State Population (2003 Estimate)** - 7,386,330

**State Surface Area** - 40,741 square miles

**Major River Basins:**

Potomac/Shenandoah  
Rappahannock  
York  
James  
Chesapeake Bay/Small Coastal  
Chowan River/Albemarle Sound  
Roanoke  
New  
Tennessee/Big Sandy

**Perennial River Miles (freshwater)** - 50,537 miles

**Publicly Owned Lakes and Reservoirs**

Larger than 5,000 acres	5	109,838 acres
Smaller than 5,000 acres	<u>243</u>	<u>52,392</u> acres
Total	248	162,230 acres

**Freshwater Wetlands** - 808,000 acres

**Tidal and Coastal Wetlands** - 236,900 acres

**Estuary** - 2,557 Square Miles

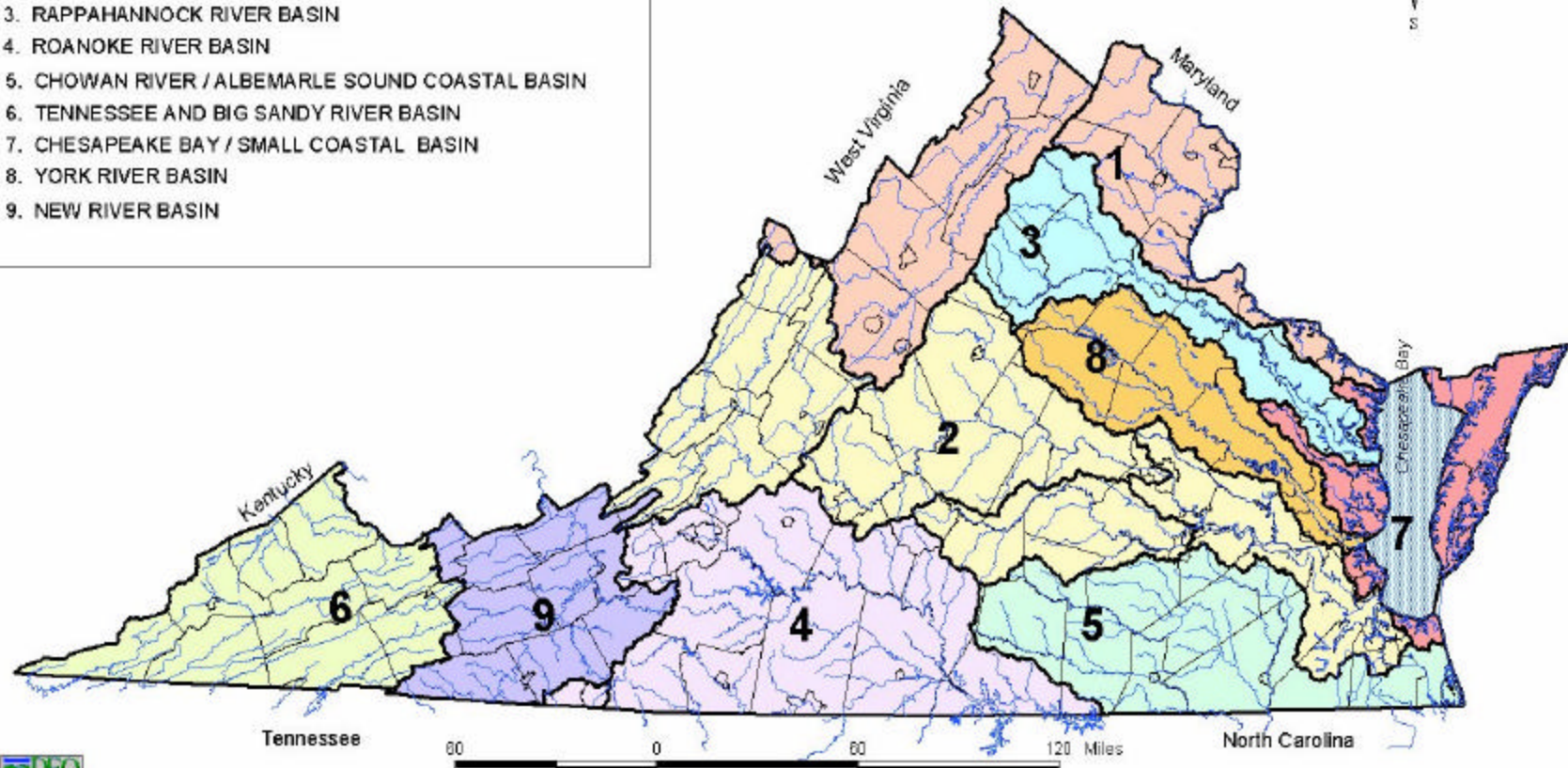
**Atlantic Ocean Coastline** - 120 Miles

**Statewide Average Annual Rainfall** - 42.8 inches

**Average Freshwater Discharge of All Rivers** - Approximately 25 billion gallons per day

Figure 1. MAJOR DRAINAGE BASINS IN VIRGINIA

ID	BASIN
1.	POTOMAC AND SHENANDOAH RIVER BASIN
2.	JAMES RIVER BASIN
3.	RAPPAHANNOCK RIVER BASIN
4.	ROANOKE RIVER BASIN
5.	CHOWAN RIVER / ALBEMARLE SOUND COASTAL BASIN
6.	TENNESSEE AND BIG SANDY RIVER BASIN
7.	CHESAPEAKE BAY / SMALL COASTAL BASIN
8.	YORK RIVER BASIN
9.	NEW RIVER BASIN



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### III. Hydrologic Data Gathering

#### A. Surface Water

The Department of Environmental Quality (DEQ) and the U.S. Geological Survey (USGS) are the primary agencies responsible for collecting hydrologic data in Virginia. The two agencies have worked cooperatively since 1925, except for a period between 1957 and 1967 when they operated independently. Virginia is one of only four states with a cooperative agreement with the USGS. The other three are California, Colorado and Illinois. Individually, the agencies carry out their own agendas in the collection of hydrologic data. Together, they provide a comprehensive picture of hydrologic affairs in the Commonwealth.

To collect systematic hydrologic data on surface water levels, flow volumes, and other streamflow data, the DEQ operates 67 continuous-record stream gaging stations all of which are being updated to real time recording of flows using satellite technology and more than 90 miscellaneous measurement sites. The continuous-record gages are located primarily on larger, free-flowing streams whereas the DEQ miscellaneous measurement sites are in support of the TMDL program. The USGS operates 94 continuous-record gages and more than 100 miscellaneous measurement sites in Virginia. The USGS collects water quality data at 11 continuous-record gaging stations. The USGS also operates 13 gages that provide stage (surface level height) data for lakes and reservoirs. The flow, lake level, water quality, and miscellaneous measurement data are published in *Volume 1, Water Resources Data – Virginia*, an annual report cooperatively prepared by the DEQ and the USGS. The gages farthest downstream in each major river basin are used to summarize or index the hydrologic condition of the Commonwealth for any given water year. Water years run from October 1 through September 30.

In dramatic contrast to 2002, 2003 was one of the wettest on record with stream flow remaining above normal throughout the year. Ground water levels returned to normal levels and reservoirs were filled to capacity. Hurricane Isabel struck Virginia in September of 2003 dumping rain on already saturated soils. This caused flooding, downed trees and power outages lasting nearly two weeks for some Virginians.

#### B. Ground Water

The DEQ collects data on ground water level at 183 wells. During the last year, ground water levels in 13 of these wells were converted to real time measurements using satellite technology. The USGS collects similar data at 84 wells, with water quality data being collected at 62 of those wells. These data are published in *Volume 2 of the Annual Water Resources Data Report*, which is cooperatively prepared by the DEQ and the USGS. The water level data collected by the DEQ contributes to a long-term ground water modeling project with the USGS. This cooperative project is designed to improve ground water modeling abilities in the Virginia Coastal Plain.

Three major areas where improved information is needed are saltwater intrusion, ground water interactions with surface water near the fall zone, and the existing hydrogeologic framework and flow model in the Middle Peninsula and Northern Neck

areas. The hydrogeologic framework in the Middle Peninsula and Northern Neck has been refined and field investigation of these three areas where improved information is needed continued through FY04. This effort is necessary to predict more accurately the impact that withdrawal of ground water has on existing ground water management areas and to evaluate the need to establish additional ground water management areas in the Coastal Plain. Wells in the counties of Buchanan, Buckingham, Clarke, Fairfax, Loudoun, Louisa, Montgomery, Rockingham, and Westmoreland and in the cities of Colonial Heights and Suffolk were monitored as examples of the hydrologic condition of the Commonwealth's unconfined water table aquifers. Wells in James City and Isle of Wight Counties are used to monitor water levels in the deep confined Coastal Plain aquifers. These index wells are considered representative of large areas of the Commonwealth with similar geologic, climatologic, and physiographic characteristics. Data on ground water levels was collected by monthly tape measurements to water surfaces or by continuous data recorders. The water levels in water table wells were generally below average for most of the water year (U.S. Geological Survey, Water Resources Data-Virginia Water Year 2001, Volume 2, Water-Data Report VA-01-2, page 3). Water levels in the confined Middle Potomac and Upper Potomac aquifers, however, continued their steady decline due to recent increases in withdrawals. Slight fluctuations to the contrary are due to variations in pumping schedules (U.S. Geological Survey, Water Resources Data- Virginia Water Year 2001, Volume 2, Water-Data Report VA-01-2, page 5).

#### **IV. Water Withdrawals**

The Virginia Water Withdrawal Reporting Regulation (9 VAC 25-200-10 et seq.) requires that individuals or facilities that withdraw water at volumes greater than 10,000 gallons per day (one million gallons per month for crop irrigators) must measure and report annually to DEQ the monthly volume of water withdrawn. The Virginia Water Use Data System (VWUDS) database contains withdrawal data collected for 20 years under this regulation.

A summary of the water withdrawal data for the years 1999 through 2003 is presented in **Table 2**. The data are aggregated by category of use and by source type. Withdrawals by hydroelectric power generating facilities are exempt from reporting requirements and are not included in this report.

During 2003, VWUDS recorded a total average water withdrawal of 8,039 million gallons per day (mgd) for offstream water uses. **Figure 1** shows the distribution of water withdrawals by category of use, excluding withdrawals associated with hydroelectric power generation. The major electric power generating plants in Virginia utilize withdrawals as once-through cooling water. Currently, approximately 90 to 95 percent of the water withdrawn for electric power generation in Virginia is returned to the source. Newer power plants, however, usually use cooling towers that consume more water than the older plants.

**Table 2** and **Figure 1** represent water withdrawals by category covered by the water withdrawal reporting regulation. Withdrawals of less than 10,000 gpd are exempt from the reporting requirements and are not included in the table or figure.

The relative contribution of surface and ground water sources to non-power generation withdrawals is illustrated in **Figure 3**. The figure shows that large water demands are



primarily met by surface water sources. Users of ground water sources outnumber surface water users; however, the amount of ground water withdrawn from aquifers is less than is withdrawn from streams and reservoirs.

The most recent water use report by the USGS, titled "Estimated Use of Water in the United States in 2000" estimated that 75 percent of Virginia's population is served by public water supply systems and 25 percent is supplied through private wells. Surface water sources supply 88 percent of the public water, and ground water sources supply the remaining 12 percent. The 2000 publication is the latest in print.

**Table 3** lists the top 50 individual water users, ranked by the amount of their 2003 withdrawals. The top seven water users were electric power generators. Excluding electric power facilities, public water supply systems were the largest consumers of water in the Commonwealth, accounting for 54 percent of the remaining withdrawals. The second largest consumer of water in Virginia is manufacturing, which accounted for 38 percent of withdrawals after electric power facilities are excluded (see **Figure 2**).

**Table 2**  
**Virginia Water Withdrawal Summary (1999 - 2003)**  
**(Million Gallons per Day - MGD)**

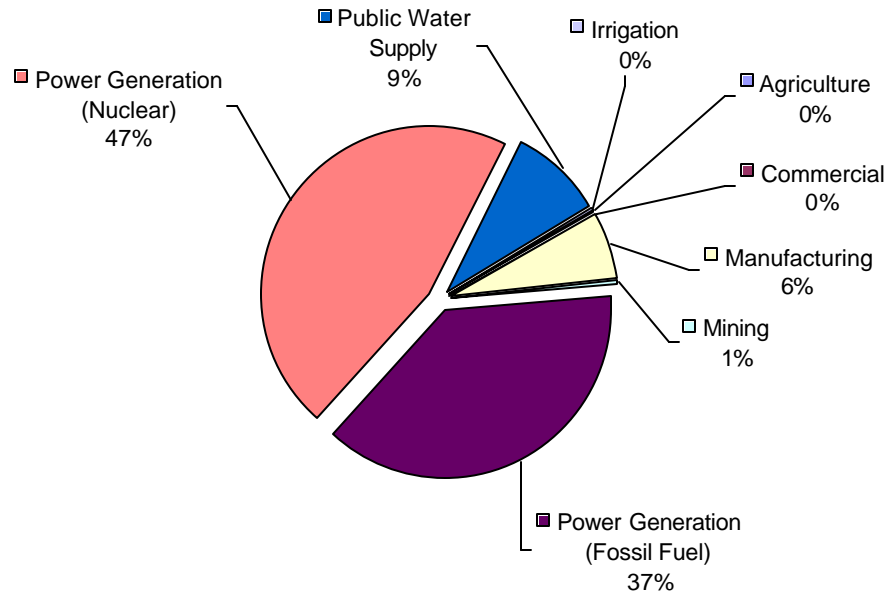
	<u>Category</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>
<b>Ground Water</b>	<b>Agr</b>	13.68	14.7	13.09	13.17	16.2
	<b>Com</b>	6.61	7.52	8.56	10.21	6.57
	<b>Man</b>	100.43	102.33	96.07	93.83	99.9
	<b>Min</b>	5.55	5.66	6.06	1.37	2.27
	<b>PF</b>	0.95	1.15	1.01	0.87	1.77
	<b>PN</b>	0.39	0.35	0.37	0.31	0.26
	<b>PWS</b>	66.76	64.28	68.69	76.88	69.13
	<b>Irr</b>	9.75	15.5	10.84	18.49	10.53
	<b>Subtotal(GW)</b>	204.12	211.49	204.69	215.13	206.63
	<b>Surface Water</b>	<b>Agr</b>	4.8	4.58	4.52	4.58
<b>Com</b>		10.82	7.77	10.87	10.13	4.86
<b>Man</b>		441.38	419.12	390.63	436.68	398.81
<b>Min</b>		38.81	38.39	32.24	29.99	13.63
<b>PF*</b>		3234.52	3405.22	3421.28	3015.45	3058.54
<b>PN*</b>		4074.85	4092.35	3717.92	4070.66	3682.97
<b>PWS</b>		680.15	657.7	736.77	756.29	662.93
<b>Irr</b>		12.23	7.77	10.52	9.63	5.39
<b>Subtotal(SW)</b>		8497.56	8632.9	8324.75	8333.41	7832.34
<b>Combined Totals</b>						
	<b>Grand Total</b>	8702	8844	8529	8549	8039
	<b>Total Excluding Power</b>	1391	1345	1389	1461	1295

**Legend**

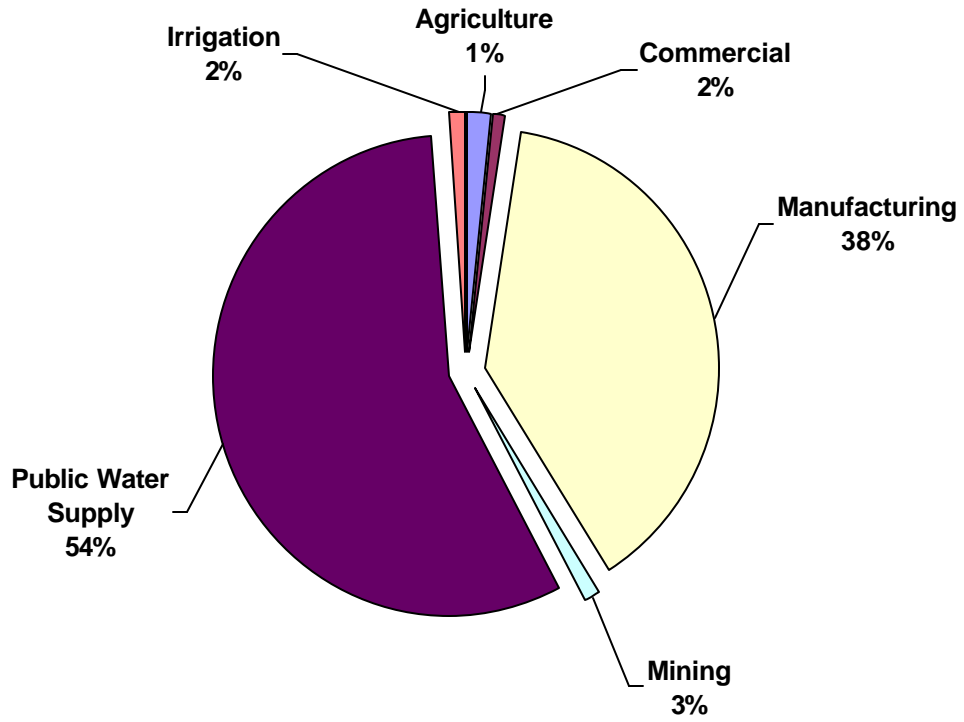
GW – Ground Water	Min - Mining
SW - Surface Water	PF - Power, Fossil
Agr - Agriculture	PN - Power, Nuclear
Com - Commercial	PWS - Public Water Supply
Man - Manufacturing	Irr - Irrigation

\* Approximately 90-95% of withdrawal is returned to the source.

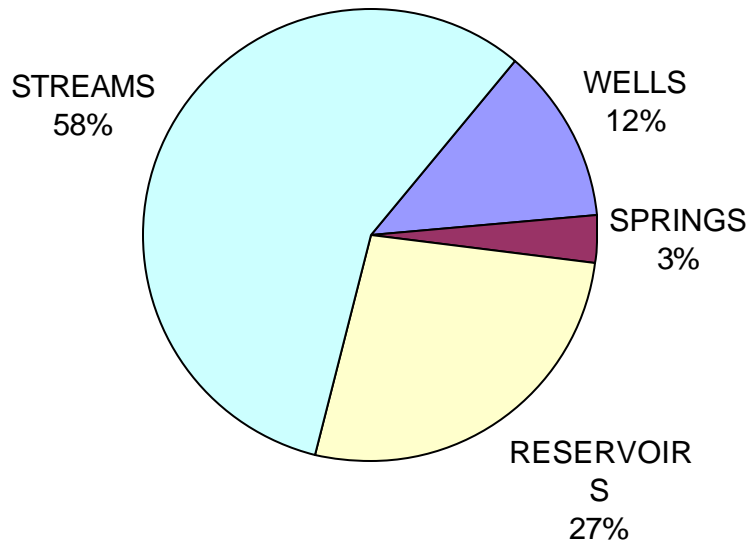
**Figure 1.**  
**2003 Water Withdrawals By Category**  
**(8039 mgd)**



**Figure 2.**  
**2003 Water Withdrawals By Category**  
**(Excluding Power Generation)**  
**(1295 mgd)**



**FIGURE 3. 2003 WATER  
WITHDRAWAL BY SOURCE TYPE  
(1295 mgd)  
(Excluding Power Generation)**



**TABLE 3. TOP 50 WATER WITHDRAWERS DURING 2003**

<b>OWNER NAME</b>	<b>SYSTEM</b>	<b>TOTAL</b>	<b>CATEGOR</b>
DOMINION GENERATION	NORTH ANNA NUCLEAR POWER PLANT	1942.49	PN
DOMINION GENERATION	SURRY NUCLEAR POWER PLANT	1740.75	PN
DOMINION GENERATION	YORKTOWN FOSSIL POWER PLANT	960.92	PF
DOMINION GENERATION	CHESTERFIELD POWER STATION	858.61	PF
DOMINION GENERATION	CHESAPEAKE ENERGY CENTER	468.74	PF
MIRANT POTOMAC RIVER LLC	POTOMAC RIVER GENERATION STAT	341.00	PF
AMERICAN ELECTRIC POWER	GLEN LYN POWER PLANT	266.12	PF
UNITED STATES GOVERNMENT	WASHINGTON AQUEDUCT DIVISION	162.31	PWS
DOMINION GENERATION	BREMO BLUFF POWER PLANT	130.73	PF
HONEYWELL INTERNATIONAL INC	HOPEWELL PLANT	120.59	MAN
RICHMOND, CITY OF	RICHMOND, CITY	83.69	PWS
FAIRFAX COUNTY WATER AUTHORITY	POTOMAC RIVER	80.98	PWS
NORFOLK, CITY OF	NORFOLK	69.93	PWS
CINERGY SOLUTIONS OF NARROWS	CELCO PLANT	63.20	MAN
GIANT YORKTOWN INC	YORKTOWN REFINERY	56.81	MAN
FAIRFAX COUNTY WATER AUTHORITY	OCCOQUAN	54.33	PWS
MEADWESTVACO CORPORATION	COVINGTON PLANT	41.09	MAN
INTERNATIONAL PAPER CORP	FRANKLIN PLANT	34.95	MAN
DUPONT E I DE NEMOURS & CO.	SPRUANCE PLANT	31.50	MAN
NEWPORT NEWS, CITY OF	NEWPORT NEWS	28.30	PWS
APPOMATTOX R WATER AUTHORITY	LAKE CHESDIN	25.07	PWS
NEWPORT NEWS, CITY OF	NEWPORT NEWS	24.52	PWS
HONEYWELL INTERNATIONAL INC	CHESTERFIELD PLANT	21.47	MAN
NEWPORT NEWS, CITY OF	NEWPORT NEWS	20.54	PWS
VIRGINIA AMERICAN WATER	HOPEWELL DISTRICT	19.86	PWS
PORTSMOUTH, CITY OF	PORTSMOUTH	19.82	PWS
AMERICAN ELECTRIC POWER CO	CLINCH RIVER POWER PLANT	17.82	PF
ROANOKE, CITY OF	ROANOKE, CITY OF	13.80	PWS
UNITED STATES GOVERNMENT	RADFORD AMMUNITIONS PLANT	13.62	MAN
CHESAPEAKE, CITY OF	CHESAPEAKE	12.33	PWS
SMURFIT-STONE CONTAINER CORP	HOPEWELL PLANT	11.92	MAN
MANASSAS, CITY OF	MANASSAS	11.56	PWS
VIRGINIA, COMMONWEALTH OF	COURSEY SPRING FISH STATION	11.08	AGR
ROANOKE COUNTY	SPRING HOLLOW RESERVOIR	10.81	PWS
LYNCHBURG, CITY OF	LYNCHBURG	10.09	PWS
DOMINION/OLD DOMINION EL	CLOVER POWER STATION	10.09	PF
RIVANNA WATER & SEWER AUTH.	ALCSA & CHARLOTTESVILLE	9.25	PWS
MERCK & CO.	ELKTON PLANT	8.82	MAN
STAFFORD COUNTY	STAFFORD COUNTY	8.68	PWS
GEORGIA-PACIFIC CORPORATION	BIG ISLAND PLANT	8.63	MAN
WINCHESTER, CITY OF	WINCHESTER	8.19	PWS
VIRGINIA BEACH, CITY OF	VIRGINIA BEACH	8.19	PWS
CHESTERFIELD COUNTY	CHESTERFIELD COUNTY	8.06	PWS
DANVILLE, CITY OF	DANVILLE-MUNICIPAL	7.68	PWS
BLACKSBURG-C'BURG-VPI WTR AUTH	BLACKSBURG-CHRISTIANSBURG-VPI	7.07	PWS
HARRISONBURG, CITY OF	HARRISONBURG	6.51	PWS
GRIEF BROS. CORPORATION	RIVERVILLE MILL	6.39	MAN
SPOTSYLVANIA COUNTY	MOTTS RUN WTP	6.22	PWS
NEWPORT NEWS SHIPBUILDING	NEWPORT NEWS SHIPBUILDING	6.07	MAN
WASHINGTON COUNTY SERVICE AUTH	WASHINGTON COUNTY	6.07	PWS

\*PF=FOSSIL POWER, PN=NUCLEAR POWER, PWS= PUBLIC WATER SUPPLY, MAN= MANUFACTURING, MIN=MINING, AGR=AGRICULTURE

## **V. Drought Conditions**

Due to significant rainfall since September 2002, drought conditions have been eliminated throughout the Commonwealth. The US Drought Monitor for January 7, 2003 indicates that no areas in Virginia are experiencing drought conditions at this time.

The Virginia Drought Assessment and Response Plan was completed and will guide the Commonwealth's actions in responding to future droughts. The implementation of this plan began in 2003 with the conversion of 13 ground water monitoring stations and all surface water gaging stations to real time satellite data transmission and the production of a near real time precipitation monitoring network in cooperation with the Virginia Climatology Office. These two projects will greatly improve the Commonwealth's ability to quickly assess the advancement of future droughts.

## **VI. Water Supply and Resource Planning**

Informed management of Virginia's water resources is crucial to the health and welfare of Virginia's citizens and environment and continued economic prosperity. In recognition of the importance of water supply planning and water resources management, Governor Warner launched the Virginia Water Supply Initiative. The core of this Initiative is improved state support for and coordination of local and regional water supply planning.

To begin the development of this water supply planning effort, the Secretary of Natural Resources, in coordination with the State Water Commission and the Virginia Department of Health, formed the Water Policy Technical Advisory Committee (Water Policy TAC) in 2003. The work of this group led to the passage of SB 1221 (2003). DEQ worked with the Water Policy TAC to draft criteria for the development of future local and regional plans and a preliminary state water resources plan. In September 2004, the Water Policy TAC completed its work on a draft regulation for local and regional water supply plans. This draft regulation was presented to the State Water Commission in November 2004 and the State Water Control Board approved it for public comment in December 2004. It will be published for public review and comment during the winter and spring of 2005.

A summary of the requirements of the draft regulation follows:

- The regulation establishes a planning process and criteria that local governments will use in the development of the local and regional plans.
- Local and regional plans will address current and forecasted needs and identify options or plans for meeting those needs.
- All counties, cities and towns must submit a plan to the board, individually or as part of a region. Local governments and community water systems are to coordinate and cooperate with each other in the development of the plan.
- Local governments are required to submit their plan to the board within 3 to 6 years according to a staggered schedule based on population. Regional groups have 6 years to submit a plan.
- DEQ will review all local and regional plans to determine compliance with this regulation and consistency with the State Water Resources Plan.

- Localities must review their plans every five years to assess adequacy and submit significant changes to the State Water Control Board for review.

While the Water Policy TAC discussed a variety of issues (and this is not an exhaustive list), they did not address all of them in the draft regulation. Some of these issues are better address through means other than the planning regulation and still others may not be able to be addressed in a satisfactory manner by DEQ without additional authority.

- Inter-basin transfer. The TAC was unable to come to a resolution on how the plans should consider inter-basin transfers and whether any changes are needed to state policy. Ultimately this was seen as a larger policy issue than the TAC could resolve and no changes were recommenced.
- Incentives for regional approaches and alternative sources such as desalination. Incentives were seen by most of the TAC as issues of time and money. Technical and financial assistance was perceived as an incentive by many in the TAC. In addition, the regulation provides time incentives for regional solutions. Others defined incentives in terms of how the planning will impact the ability to get a project permitted. DEQ anticipates that some of these concerns may be addressed through amendments to the Virginia Water Protection permit program.
- Cumulative impacts to beneficial uses. Some TAC members expressed concerns that state agencies generally consider ad-hoc impacts but need to look more closely at the combination of both existing and proposed impacts from water withdrawals. This may be addressed in greater detail through the state water resources plan and will be discussed during the pending amendments to the Virginia Water Protection Permit regulation.
- Clarity of demand projections. While the TAC concluded that there is probably not a one-size-fits-all method for projecting future water demands, most agreed that using established, accepted methodologies can improve state understanding and support for local plans and projects.
- Opportunities to improve the permit process. All members of the TAC agreed that improvement in the permitting process for water supply projects is needed. However, this issue was outside the scope of the water supply planning regulation. Changes to state law or to the permitting regulations administered by DEQ and MRC would be required.
- State “advocacy” of local projects. The term “state advocacy” and how people defined it was the subject of much discussion. DEQ believes that the water supply planning regulation and State Water Resources Plan will provide a significant measure of state advocacy especially for local water supply projects that result from the planning effort required by the regulation. Others are interested in further advocacy on the part of the state. This type of advocacy, however, was beyond the scope of what the State Water Control Board could grant through the promulgation of the water supply planning regulation.



DEQ is also developing a State Water Resources Plan. A framework was submitted to the General Assembly last year. The following is a summary of what will be included in the final plan and how that information will be developed. DEQ will develop the plan in 3 parts:

- Part 1 – Policy, guidance and data for planning. This part of the plan will include basic planning information and data such as historic use, climate, geology, etc. It will also provide guidance on how to comply with the planning regulation, including suggested “best practices.” Finally, this part of the plan will include a statement of water planning policy and principles.
- Part 2 – Basin summaries of submitted water plans. This part of the plan will include a compilation of existing information on water resources. It will also contain the compilation of local and regional water plans. DEQ plans to organize this information by locality and river basin.
- Part 3 – An annual status report. DEQ plans to incorporate an expanded version of this report into the plan every year.

## **VII. Conclusions and Recommendations**

Comprehensive water supply planning is critical to ensuring the adequacy of drinking water supplies for current and future needs. The Virginia Water Supply Initiative lays the groundwork for managing Virginia’s Water Resources for decades to come.

DEQ believes that there are significant state-wide benefits to having improved water supply and water resource planning. It is critical for the state to develop a comprehensive understanding of our ground water and surface water resources and of how much water is being used now and into the future. Without this information DEQ cannot ensure that ground water and surface water resources are used in a way that protects the environmental resources and meets human water needs now and in the future. In addition, advance discussion of issues relating to the development of future water supplies should increase understanding of local needs and environmental impacts. Such advance discussion will obviate the need to address these issues at the permitting stage thus avoiding costly changes to project design. Over time, it will become clearer when multiple localities are planning future withdrawals on the same source of water or when water use is reaching a critical level. This knowledge can be a means to foster dialogue among localities, investigate feasibility of alternative sources, and promote regional solutions. And finally, by developing a drought response plan consistent with these proposed regulations, localities will be poised to act when drought conditions warrant actions.

DEQ believes that there are also significant local benefits to having improved water supply and water resource planning. It is beneficial for a locality to obtain information about environmental impacts early in the planning process. Such information allows a locality to modify their options while minimizing costly engineering changes later in project development. With an understanding of what environmental issues, relative costs, and local needs are associated with each source and alternative, a clearer cost-benefit analysis can be made on what alternative to pursue. Finally, providing clear evidence that a locality has planned for its future water needs and these needs have been sanctioned by the state will be a powerful economic development tool.

The Water Policy TAC has also concluded that in order for the Commonwealth's goals for effective water supply planning to be met, the state needs to provide assistance to localities in the following areas:

- Technical and financial assistance to localities to complete water supply planning analysis.
- Additional data and information on the status and availability of ground water.
- Additional information and analysis on the availability of surface waters and in-stream flow requirements.

To begin implementing these recommendations, the Governor's FY06 budget includes \$700,000 for local and regional technical assistance grants (continued financial assistance will be needed each year thereafter for local and regional grants), and for development of ground water data for use in local and regional planning efforts.

The Water Policy TAC identified the potential need to address a number of permit issues, including, implementation of a formal Pre-Application Scoping Process for water supply projects, clarification of the requirements for Cumulative Impact Assessment for water supply projects, clarification of the requirements for Alternatives Analysis for water supply projects, and investigation of ways to streamline the permit process for water supply projects.

DEQ intends to continue working on these permit issues. A notice of intended regulatory action for amendments to the Virginia Water Protection Permit Regulation has been submitted and DEQ will begin working with a technical advisory committee to evaluate these issues in early 2005.