REPORT OF THE

# STATE WATER COMMISSION

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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# REPORT OF THE
# STATE WATER COMMISSION

**to**

**The Honorable James Gilmore, Governor**
**and**
**the General Assembly of Virginia**
**Richmond, Virginia**

## I. AUTHORITY FOR STUDY

The State Water Commission is a permanent agency of the Commonwealth directed by statute to (i) study all qualitative and quantitative water supply and allocation problems in the Commonwealth, (ii) coordinate the legislative recommendations of other state entities responsible for water supply and allocation issues, and (iii) report annually its findings and recommendations to the Governor and the General Assembly (Va. Code § 9-145.8). During 1998, the Commission was requested by the General Assembly to study four water supply issues. Pursuant to House Joint Resolution No. 272, the Commission examined the Commonwealth's efforts to provide complete indoor plumbing facilities for low-income residences. The Commission continued its two year-study of innovative technologies and other options for providing a safe, reliable and affordable drinking water supply for southwestern Virginia. At the request of officials of the City of Norfolk, the Commission reviewed certain provisions of the Ground Water Management Act which affect the City's authority to withdraw ground water. Lastly, the 1998 Session requested the Commission to study ways of making optimal use of Virginia's water resources (HJR 236). The Commission's findings and conclusions on this topic are included in a separate report.

## II. COMMISSION DELIBERATIONS

### A. Study Of The Availability Of Grants To Address State-Identified Plumbing Needs (HJR 272)

## 1. Historical Perspective

The 1998 Session of the General Assembly passed House Joint Resolution No. 272 which directed the State Water Commission to study the availability of grants from federal, state and private sources to address state-identified indoor plumbing needs. The resolution points out that thousands of lower-income Virginians live in housing that lacks the most basic water and wastewater facilities. More specifically, approximately 46,000 Virginia households live daily with incomplete indoor plumbing facilities. The resolution notes that despite model programs initiated by the Virginia Housing Study Commission, administered in conjunction with local, federal and other funds, the need far exceeds available funds. Responding to the legislature's request, the State Water Commission reviewed Virginia's indoor plumbing needs. It invited state officials who are familiar with the problem to discuss current efforts to provide indoor plumbing and to recommend funding options for meeting the needs of lower-income Virginians.

Mr. Bill Shelton, Director of the Department of Housing and Community Development, presented an historical perspective of the indoor plumbing problem in Virginia and his agency's efforts to respond to the need for complete indoor plumbing facilities. Beginning in 1940, the censuses of housing have documented the number of units lacking complete plumbing facilities. The number of housing units lacking such facilities peaked in 1950 at approximately 432,000 units—nearly half of the total housing units then in the Commonwealth. By 1990, both the number and percentage of these units had declined significantly. According to Mr. Shelton, the improvement was due to several factors:

- Rapid economic and population growth since World War II which led to the creation of hundreds of thousands of new housing units;
- Virginia's population has become increasingly urbanized and suburbanized;
- Public agencies and private developers/redevelopers have demolished thousands of units of substandard housing;
- The Uniform Statewide Building Code has effectively prevented the creation of new substandard units; and
- The activities of public agencies and nonprofit organizations have supplemented the housing market in upgrading existing housing—particularly for lower-income Virginians.

However, Virginia's relative position among the other states actually slipped from 1940 to 1980. While the housing stock has improved in Virginia, in many other states and in the nation as a whole it got better at a faster rate. This is illustrated by the fact that in 1940 Virginia ranked eighteenth among the states in the number of units lacking

complete plumbing facilities; by 1970, it was fourth. Similarly, Virginia had the fifteenth highest percentage of housing units lacking complete plumbing in 1940 but was tied for ninth place in 1980. This trend was reflected in the census statistics which showed that, in 1940, Virginia had 2.5 percent of the nation's units lacking complete plumbing and by 1980 the state's percentage of incomplete units increased to 4.34 percent of the units nationally. Progress has been made, beginning with the 1980's. According to Mr. Shelton, Virginia has improved its rank among the states in terms of both the number and percent of units lacking complete indoor plumbing.

**2. Virginia's Programs**

In 1972, the Virginia Housing Study Commission reported that more than 60 percent of Virginians lived in substandard housing and there was a need to attract private capital to address those needs. In response to the Commission's report, the General Assembly created the Virginia Housing Development Authority (VHDA). VHDA's mission is to stimulate the construction and rehabilitation of affordable housing and to encourage the investment of private capital in mortgage loans. Since its creation, the Authority has made over 108,000 loans to first-time home buyers at below-market rates and has financed the construction or preservation of over 58,000 affordable apartments. During FY 1998, more than 5,400 families were assisted in the purchase of a home and 6,100 affordable rental units were constructed or preserved. Over the next five years, VHDA expects to fund mortgage loans for over 31,000 single family homes and over 34,000 affordable apartments.

With specific regard to the upgrading of indoor plumbing, VHDA records indicate that since 1985, 4,200 units have been renovated to include bathrooms. However, recently a new policy has been instituted that focuses on restoring and preserving the housing stock. No longer does the agency simply upgrade the bathroom; rather, the entire housing unit is upgraded. This ensures that residents will remain in the unit and not subsequently abandon it because of other problems such as poor heating or a leaking roof.

VHDA raises all its funds through the sale of notes and bonds in the private capital markets. The funds generated through this type of investment are used to finance low-interest mortgage loans for housing serving low and moderate income individuals and families. The Authority is self-supporting. Its loan reserves and operating costs are paid from revenues generated by the repayments of its loans. VHDA bonds are not an obligations or debts of the Commonwealth but are an obligation of VHDA only. The Authority must maintain adequate reserves as defined by bond rating agencies, in order to remain self-supporting and raise capital at favorable interest rates. To the extent possible, VHDA has invested required reserves in mortgage loans in order to fulfill its mission of meeting the housing needs of Virginia. Over time, VHDA has been able to generate reserves in excess of those required by individual bond resolutions.

Ms. Nancy Ambler, Executive Director of the Virginia Housing Study Commission, discussed options for funding indoor plumbing. In 1997, the General Assembly passed House Joint Resolution No. 554 which requested the Housing Study Commission to study the feasibility of establishing an indoor plumbing assistance program for low-income Virginians, capitalized through voluntary utility invoice-generated contributions. The study found that:

- More than 46,000 Virginia households live daily with incomplete indoor plumbing;

- In addition to the need for basic indoor plumbing facilities, thousands of Virginia households also face short-term water-related needs, such as a non-functional well pump, a dry or contaminated well, or the inability to pay a connection fee for public water service;

- Due to increased costs triggered by additional federal regulations, there is also a growing demand for assistance in paying for public water services. Moreover, there is consensus among water industry professionals and regulatory agency officials that water rates for small water systems will continue to rise, in some cases dramatically. Even now, many small water systems are not recovering their costs;

- Small water systems clients, typical of rural Virginians, are often older residents on fixed incomes, and the demographic trend for the foreseeable future in rural Virginia will continue to shift to an older population. The intersection of rising water bills and a growing low- to moderate-income population on fixed incomes suggests that the demand for financial assistance will grow in the future;

- Despite model programs initiated by the Housing Study Commission and administered in conjunction with local, federal, and other funds, the need for assistance far exceeds available funds. (A total of nearly $7.1 million, including $3.1 million in state funding, was available through the FY 97 Virginia Indoor Plumbing/Rehab Program.); and

- The Virginia Power EnergyShare Program, on which an indoor plumbing assistance voluntary contribution program could be modeled, provided assistance totaling about $1.0 million last year. It is unrealistic to expect that net revenue of a new fund would exceed that amount in the next few years, particularly in the context of steadily decreasing voluntary contributions to the state Tax Check-Off for Housing Program.

The following were among the Commission's recommendations:

- Establish a voluntary contribution for indoor plumbing assistance program, to be administered by the Virginia Water Project;

- Request the Virginia Congressional delegations to advocate for additional federal funding, particularly grant moneys, for the U.S. Department of Agriculture's Rural Development indoor plumbing and housing rehabilitation programs;

- Allocate between $5 and $10 million annually in additional state funds for indoor plumbing, and restoration of the Virginia Housing Partnership Fund's allocation for housing rehabilitation; and

- Request the Virginia Resources Authority (HJR 272 as introduced) to assess the level, if any, of VRA capital reserve funds which could be allocated to state-identified indoor plumbing needs.

Ms. Ambler pointed out that this final recommendation, requesting the Virginia Resources Authority to determine to what extent that agency's capital reserve funds could be allocated to finance indoor plumbing, was the basis for asking the State Water Commission to study the availability of grants to address state-identified plumbing needs. Ms. Ambler suggested that there is precedent for a state authority to allocate a portion of its capital reserves to another fund for the purpose of addressing indoor plumbing needs. The Virginia Housing Development Authority is an example of this occurring. Since 1991, it has engaged independent consultants to identify the level of its capital reserves that can reasonably be transferred to its Virginia Housing Fund.

Mr. John Ritchie, Jr., Executive Director of the Virginia Housing Development Authority, discussed the operation of the Fund, and how it might serve as a model for the Virginia Resources Authority to allocate some of its moneys to pay for indoor plumbing for low-income residents. In 1987, in response to declining federal support for housing programs, VHDA set aside $45 million of its General Fund to create the Virginia Housing Fund. This new fund is a special, flexible loan fund though which VHDA invests reserves in housing for very-low-income families and persons with special needs, under more favorable terms and condition than is possible with bond financing. To date, VHDA has set aside over $131 million to capitalize the Virginia Housing Fund, which is approximately 60 percent of VHDA's general fund, and expects to set aside an additional $20 million annually over the next five years. The VHDA has used the Virginia Housing Fund to provide:

- $92.5 million for home ownership programs for very-low-income families;
- $32.6 million in loans for rental housing for very-low-income families; and
- $28.3 million in loans serving elderly, homeless and individuals with mental disabilities. (Appendix B)

The Virginia Housing Fund loans are part of the reserves through which VHDA maintains its general obligation credit rating. All bonds sold by VHDA are general obligations of the Authority and are secured by both the reserves in the bond resolution and the overall reserves maintained by VHDA, including its General Fund.

If a special fund similar to the Virginia Housing Fund was to be created by the Virginia Resources Authority, the question faced by the establishment of such a new fund, according to Mr. Ritchie, is the same question faced by his agency when it created the Virginia Housing Fund, that being, how much can be placed in the fund and not damage the Virginia Resources Authority's credit rating. Cash flow requirements limit the amount of the General Fund that VHDA can set aside to capitalize the Virginia Housing Fund. Ratings agencies require that a portion of the General Fund be retained in cash/liquid investments. However, not all of the remainder can be invested in the Virginia Housing Fund because bondholders view the Virginia Housing Fund's loans as providing significantly less security for their bonds than government securities or regular VHDA mortgage loans. This is because Virginia Housing Fund's loans (i) generate less cash flow than regular mortgages to secure bonds, due to their lower interest rate and higher risk, because of the population served; (ii) are highly illiquid; and (iii) face the risk of being sold at significant losses should the need arise to convert them into cash. Every five years VHDA relies on outside financial consultants to evaluate the agency's cash flow needs, the quality of the loans made, and the management of VHDA as part of its determination of what amount can be set aside for the Virginia Housing Fund without causing an undue adverse effect on the financial position of the Authority. This is the basis for the Authority's Board setting aside $20 million per year for deposit in the VHF over the next five years.

The Virginia Housing Fund provides two type of assistance: (i) direct loans serving low-income and special needs populations and (ii) support for single-family-home bond issues so that VHDA can provide special low-interest rates or second mortgages for down payment assistance. These two types of assistance are provided instead of grants in order to maintain VHDA's reserve levels and credit ratings, and to optimize both the amount of overall financing and the amount of financing for very-low-income housing that VHDA is able to provide. Providing loans and bond support substantially increases the total amount of assistance that the Virginia Housing Fund can provide compared to what would be possible if assistance were provided in the form of grants. Also, loans allow funds to be recycled, thereby increasing the amount of

assistance which can be provided. Mr. Ritchie noted that special loan funds such as the Virginia Housing Fund can be used in partnership with subsidies available through the Department of Housing and Community Development, federal agencies, and non-profit organizations to address some of the state-identified indoor plumbing needs. Specifically, special loan funds can help finance replacement housing for persons lacking complete indoor plumbing and housing improvements where the cost is feasible.

Mr. Ritchie suggested that while special loan funds can be used to address some water-related needs, experience indicates these are significant limitations to the use of low-interest loans to address indoor plumbing needs. He noted in conclusion that, based on past state and local efforts to address indoor plumbing and water needs, the following has been learned:

- Effective programs must rely on deep public or private subsidies in addition to mortgage credit;

- Some needs can be met only with subsidies, where incomes are too low to allow for any use of debt;

- The greater the subsidies, the more resources must be taken away from other efforts to address low-income housing need; and

- The resource trade-offs involved are now greater than ever. The most readily addressed indoor plumbing and water needs have now been met. The remaining needs are the most intractable and costly to resolve.

The Commission invited Virginia Resources Authority officials to respond to the Ms. Ambler's recommendation that a study should be conducted to determine the feasibility of establishing a special loan fund within the Virginia Resources Authority, modeled after VHDA's Virginia Housing Fund, for financing indoor plumbing for low-income households. Janet Aylor, Director of Finance for the Virginia Resources Authority, sought to correct what she characterized as misperceptions regarding the Virginia Resources Authority's operation versus VHDA's program. She explained that the Virginia Resources Authority does not issue bonds based on any general obligation of the Authority. All of its bonds are backed by the moral obligation of the Commonwealth and, as such, all lines are secured by capital reserve funds. The Virginia Resources Authority's capital reserve fund is dedicated to the particular bond issue and is the mechanism by which the moral obligation of the Commonwealth is assured. If there were to be a default on an Authority bond, the agency would draw on its capital reserve fund and the Governor would request funds in the budget to replenish the capital reserve fund. Unfortunately, according to Ms. Aylor, the Authority has only about three percent of the general fund reserves that VHDA has. The reserves that the Authority does have have been accumulated during the course of its 14 years of existence. Borrowers,

including local governments, are charged a fee which is placed in the reserve fund and the interest generated by the reserves is dedicated to its operating budget. Thus, VRA reserves are not close to the magnitude of VHDA's and consequently VRA does not have the capacity to finance a program similar to the Virginia Housing Fund.

## B. Examining Innovative Technologies And Other Options (HJR 592)

During the 1997 Session the General Assembly passed House Joint Resolution No. 592 requesting the State Water Commission, with the assistance of the Virginia Water Resources Research Center (VWRRC) at Virginia Polytechnic Institute and State University, to study for two years innovative technologies and other options for providing safe, reliable and affordable domestic water supplies to individual households and small communities in southwestern Virginia. Last year, researchers with the VWRRC described for the Commission three strategies (rainfall harvesting storage system, water hauling, and extraction coal-seam water) that they believed held some promise for providing a safe, reliable water supply for isolated households and communities in the southwest Virginia counties of Buchanan, Dickenson, Lee, Russell, Scott, Tazewell, and Wise.[1]

### 1. Findings

Dr. Tamim Younos, Associate Director of the VWRCC, presented the findings of their two-year study of water supply options. The study to determine the feasibility of using rainfall harvesting systems to provide drinking water focused on the potential for catching rainwater in a constructed reservoir within a watershed close to a mountain ridge community. In this approach, water would be pumped up the incline to the top of the ridge, stored in a ridge-top holding tank, and distributed by means of pipelines to the ridge-top households. Some type of water treatment would be incorporated as well. The study concluded that a community-scale rainfall reservoir-collection and storage system was not an economically viable technology, as it would cost more than extending a public water line. On the other hand, VWRRC-led studies did indicate that individual home collection and storage systems (cisterns) would be an attractive option. Despite the widespread use of cisterns in coalfield communities, however, little information was available about the water quality or the reliability of individual home cisterns as a water source. A subsequent study examined cistern use, properties, and management in the isolated communities of southwest Virginia. The conclusion was that these types of systems could be a viable option for securing water sources in ridge-top communities. The study developed guidelines for proper cistern use and maintenance in southwest Virginia. These guidelines are applicable anywhere in Virginia where rainfall harvesting and storage can be used as a temporary drinking water source and/or for alternative water uses such as livestock watering, lawn watering, or car washing.

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[1] Funding to support the VWRRC studies was provided by the Powell River Project, Southeast Rural Community Assistance Project, Inc. (Virginia Water Project), Service-Learning Center at VPI-SU, and the VWRRC.

Dr. Younos and the team of researchers also conducted an economic analysis of water hauling. He noted that while two planning districts in southwest Virginia are working on a cooperative plan to extend public water mains to unserved areas, due to cost and the small number of households to be served, there are many communities where public water mains cannot or will not be constructed in the foreseeable future. One alternative to building distribution mains is to haul treated water to these isolated small communities. Such a large-scale water-hauling system requires a tanker truck to carry a large quantity of treated drinking water to a community storage tank, from which the water is distributed to individual households by connecting pipes or individual tanks to be installed at each household. The VWRRC-supported study designed and then employed a computer model to evaluate the economic feasibility of alternative scenarios for water hauling and distribution to small communities. The model was used to evaluate the costs of water hauling options for Trammel Gap in Dickenson County and for several hypothetical scenarios designed to represent a range of conditions in the region. The conclusion was that there were conditions where water hauling could be a cost-effective way to provide drinking water, provided funding sources could be identified to assist with start-up costs. This model and the conclusions reached were developed for southwest Virginia, but may have statewide applicability.

A study of the third option, the use of coal-seam water extraction as a source of drinking water, has not been completed. In areas where mining has ended, recharge from precipitation is believed to percolate into the open mine cavity and pool on the mine floor. The objective of this study is to conduct a comprehensive analysis of the hydrology, water quality of water treatment options, and legal and institutional issues related to developing mine cavity water for drinking water supplies.

Dr. Younos found that in several coalfield communities, the availability of a good quality ground water source is limited by the geology of the area and, in some instances, by interference with the groundwater systems from past mining activities. Meanwhile, extending public water lines is costly due to high elevation and rough terrain. Households in these communities might receive water by means of rainfall harvesting and cistern storage, large-scale water hauling, and developing coal mine-cavity water. While the VWRRC did not directly address whether water hauling and cistern use should serve as a replacement for conventional water systems, it does appear that these alternative systems could serve many of the isolated communities that are currently in need of water.

### 2. Recommendations

The conclusion Dr. Shabman and his colleagues drew from these studies is that a creative mix of individual cistern supply, water hauling, and possible use of mine-cavity water would meet the drinking water needs of isolated communities at an affordable cost. To assure the provision of safe and adequate water supplies to isolated coalfield communities, they recommended the following:

Recommendation #1: *Design a regional water-hauling program. The Public Service Authorities (PSAs) from each coalfield county should join in a joint committee that, in consultation with their respective boards of supervisors, planning district commissions (PDC), and the Virginia Department of Health, and with technical support from the VWRRC, should report to the General Assembly on the regulatory changes and financial assistance programs that would be needed for the PSAs to haul water to isolated communities at affordable costs for PSA customers.*

The economic analysis of water hauling found that water hauling to a single household or a single small community is costly. The major cost of water hauling is the fixed cost for the truck and driver, but for any single community the truck remains idle for much of the time. These fixed costs can be spread and reduced if PSAs, perhaps in a multi-county area, develop a water-hauling program that will absorb and distribute these costs. Presently, the PSAs have access to treated water but do not distribute water by hauling, except during the drought time. The Cumberland Plateau Planning District Commission has practiced water hauling within the four counties where the original truck was purchased with funds from four counties and external funding, but more trucks are needed to serve a larger number of communities. A commitment to employ this distribution option, financed through possible state grants and loan programs, would reduce costs and would make water hauling by PSAs and PDCs financially sustainable. A report of the committee to the State Water Commission should describe the regulatory changes and financial assistance programs that would be needed if PSAs and PDCs were to deliver water to isolated communities at costs comparable to other customers.

Recommendation #2: *Provide technical support to programs that enhance water supply for households in isolated communities in southwest Virginia and in the Commonwealth. A coalfield community drinking water specialist position should be located at the Southwest District Cooperative Extension Office in Abingdon. The responsibilities of the specialist would be the following:*

- *To assist individual households in determining their drinking water quantity and quality needs and to conduct education programs on the requirements and costs of installation, maintenance and proper use of cistern systems, wells or individual water hauling; and*

- *In cooperation with the VWRRC, to provide administrative support and technical assistance to the regional committee studying and recommending a water hauling strategy for isolated communities.*

Many individual households in coalfield counties will depend on rooftop rainfall harvesting and cistern storage for the foreseeable future, and cistern use will remain a viable option for several other communities that at present rely on water hauling. The VWRRC study indicated that, with proper maintenance, rooftop rainwater collection and cistern storage of rainwater can be a safe and reliable source of drinking water. However,

assistance for cistern maintenance and design does not fall within the jurisdiction of the public service authority or the Virginia Department of Health. So, when using a private water well, cistern users need to be informed and educated about proper installation and maintenance of cistern systems. The drinking water specialist would be responsible for providing this service to homeowners. Also, the responsibility for water hauling does not now fall to the PSAs. The PSAs' efforts to develop a strategy for water hauling would be enhanced by the water specialist's executive and technical leadership.

The findings of the studies on cisterns and water hauling may apply in other areas of the Commonwealth. The VWRRC suggests that it should conduct a study to determine the extent that other isolated communities are experiencing similar drinking water supply problems (due to well contamination or other reasons) and assess whether water hauling and cistern options might be applied in those areas where problems are identified.

Recommendation #3: *Develop guidelines for use of mine-cavity water. A task force that includes representatives from the mining industry, Virginia Department of Health, Virginia Department of Mining and Minerals and Energy, and PDCs and PSAs of the affected counties should report to the General Assembly on the potential for developing and using mine-cavity water in southwest Virginia. The task force activities would be coordinated by the VWRRC. The task force should prepare guidelines for use of such water and, depending on the task force's findings, recommend legislative action to facilitate developing mine-cavity water.*

Developing mine-cavity water should continue to receive consideration. Preliminary research suggests that some mined areas store and yield water of adequate quantity and quality for drinking water supply. Development and use of mine-cavity water has been successful in West Virginia for several decades. In southwest Virginia, mine-cavity water is currently used at Coeburn (Wise County) and the City of Norton as a back-up water source for their surface water treatment plant, as well as at Trammel (Dickenson County). Several issues remain to be resolved if this significant resource is going to be developed in southwest Virginia: (i) documentation and mapping of available mine-cavity water resources; (ii) water analysis to determine cost-effectiveness of water treatment techniques; (iii) water rights issues between existing owners and potential water developers; and (iv) guidelines for liability issues and issuance of permits.

Recommendation #4: *Make funding commitments that will support technical assistance services.* Compared to many other regions in Virginia, the coalfield counties have the highest fiscal stress and the least ability to afford water projects. It is recommended that the PDCs and PSAs work closely with the Virginia Department of Health to explore means of financial support for alternative water systems such as water hauling. Funds of $75,000 per year should be made available through the VWRRC for implementation of the recommendation. The funds would be transferred to the Southwest District Cooperative Extension office to support the "household water specialist" position. Funds would be available for salary, benefits, space, and operational support.

The position should be established for a period of three years. At the end of the three-year trial period, the position and program should be reviewed, evaluated, and considered for possible continuation. Funds retained by the VWRRC would allow it to fulfill its commitment to the following areas: technical support to the household water specialist; the regional task force on water hauling; assistance with coordinating the activities of the mine-cavity water task force; and the assessment of statewide water problems in isolated communities.

The State Water Commission recognizes the problems that small, isolated communities face in obtaining a safe, reliable and affordable drinking water supply. The options discussed by Dr. Younos and the recommendations made by Dr. Shabman represent an initial step in seeking solutions to the water supply problems experienced by those Virginians living in isolated regions of the Commonwealth. The Commission therefore endorses the VWRRC recommendations and supports their implementation.

## C. Ground Water Management Act Regulations

As part of its ongoing oversight of the implementation of the Ground Water Management Act of 1992, the Commission spent part of its September meeting reviewing a set of ground water regulations that had been proposed by the State Water Control Board. The City of Norfolk contended that these regulations contained language that was inconsistent with statutory requirements in the Act. This dispute between the City and the Board was the result of different interpretations of amendments that were made to the Act in 1994.

### 1. Background

The Ground Water Management Act 1992 was proposed by the State Water Commission as a replacement for the Groundwater Act of 1973. The purpose of both laws was to provide for the establishment of rights to use ground water in areas where the resource is scarce. These areas are designated as groundwater management areas by the State Water Control Board, and since 1976 there have been two groundwater management areas in Virginia.

Under the 1973 law, there were two ways of establishing withdrawal rights in a groundwater management area. The first was for those who were already using ground water when a groundwater management area was established. These users had to file a registration statement with the Board which would entitle them to a certificate of ground water right, allowing them to continue to withdraw the amount they had been using. Thereafter, anyone who intended to begin a new withdrawal or enlarge an existing withdrawal had to apply for a permit. These permits were generally issued for the requested amount unless the withdrawal would interfere with the rights of a prior user. Both "certificate rights" and permits were of indefinite duration. (§§ 62.1-44.99 and 62.1-44.100; repealed by 1992 Acts of Assembly, Chapter 812.)

The result of this scheme was an over-allocation of the resource in southeastern Virginia. In 1989, the United States Geological Survey (USGS) completed a ground water modeling study which showed that if 167 million gallons a day (mgd) were used in that region, the result would be a decline in ground water levels, increased potential for salt water intrusion, and dewatering of confined aquifers. As of 1991, certificates had been issued for 212 mgd and permits had been issued for another 31 mgd, for a total of 243. While actual use was about 95 mgd, the total authorized withdrawal was 45 percent greater than the largest withdrawal evaluated by USGS.

A chief concern when the State Water Commission rewrote the law in 1992 was how to re-establish the rights of existing users while at the same time allowing the Board greater control over use in groundwater management areas, so as to prevent the consequences of over-use that had been identified in the USGS study. The new law accomplished this by (i) requiring holders of existing certificates and permits to apply for new permits and (ii) providing a method by which the permitted withdrawal limit would be calculated. Under this method, users could choose any 12-month period within a specified five-year period; the amount withdrawn during that 12-month period, together with any savings that could be demonstrated to have been achieved through water conservation, would be the yearly amount authorized by the new permit. All permits would have a fixed term, which could not exceed 10 years.

In 1994, the Act was amended at the request of the City of Norfolk. The City was concerned because the method by which its permitted withdrawal limit was to be calculated under the Act would not take into account the City's need to increase ground water withdrawals in a drought year such as 1981-82. As a result, the Commission proposed legislation which amended § 62.1-260 A as follows:

> Persons holding a certificate of ground water right or a permit to withdraw ground water issued prior to July 1, 1991, in the Eastern Virginia or Eastern Shore Groundwater Management Areas and currently withdrawing ground water pursuant to said certificate or permit shall file an application for a ground water withdrawal permit on or before December 31, 1992, in order to obtain a permit for withdrawals. The Board shall issue ground water withdrawal permits for the total amount of ground water withdrawn during any consecutive twelve-month period between July 1, 1987, and June 30, 1992, together with such savings as can be demonstrated to have been achieved through water conservation; however, with respect to a political subdivision, an authority serving a political subdivision or a community waterworks regulated by the Department of Health, the permit shall be issued for the total amount of ground water withdrawn during any consecutive twelve-month period between July 1, 1980, and June 30, 1992, together with such savings as can be demonstrated to have been achieved through water conservation.

According to Department of Environmental Quality (DEQ) staff, this new language was applicable to approximately seven persons who had been permit or certificate holders under the Groundwater Act of 1973. Of these, only the City of Norfolk received a significantly higher permitted amount during the first term of the new permits (16 mgd) than would have otherwise been the case (4 mgd).

**2. The Dispute**

In February 1998, the State Water Control Board proposed to amend the ground water management regulations. Among other things, the proposed regulations incorporated the 1994 changes to the Act into a section describing how permit limits would be calculated for the first term of the new permits. The provision to which Norfolk objected pertained to the calculation of permit limits when permits are reissued at the end of that first ten-year permit term. This provision required that, in reissuing a permit, the Board would consider the same criteria that are considered when a permit applicant is seeking to initiate a new withdrawal or expand an existing withdrawal. These criteria include the projected impact on the underlying aquifers and a demonstration that the amount requested is the smallest amount necessary to support the proposed beneficial use of the water. Norfolk's contention was that its permit limit should not be calculated this way, but instead be the same as it was for the first permit, based on the calculation that was established by the 1994 amendment to § 62.1-260 A.

The commission was asked to determine whether the General Assembly intended when it amended the Act in 1994 that (i) Norfolk would be entitled to 16 mgd as long as the City had a withdrawal permit, or (ii) the special method of calculating Norfolk's permit limit would govern only the first term of the permit. The director of the Norfolk Department of Utilities and the Director of the Commonwealth's Department of Environmental Quality described their views to the Commission.

The Norfolk representative emphasized that Norfolk's water supply system is a "conjunctive use system," which means that the system relies primarily on surface water, but uses well water as a back-up for the system's safe yield. Under normal conditions, the system uses 80 percent surface water and 20 percent ground water. Ground water is normally pumped for only three months per year. He argued that conjunctive use conserves ground water, and objected to the application of a "use it or lose it" philosophy to such a system. Because the regulations guarantee public water suppliers an amount no less than the amount used to support human consumptive uses during 12 consecutive months of the previous term of the permit, Norfolk could be encouraged to pump ground water despite the availability of surface water in order to ensure a higher permit limit during the next term.

The Norfolk representative also stated that, even though large amounts of ground water are withdrawn from Norfolk's wells only during periods of drought, Norfolk's wells are different than drought relief wells because they regularly supplement surface water use. In addition, he provided a letter from the District Engineer of the U. S. Army

Corps of Engineers describing the role of Norfolk's use of ground water within the Corps' study of water supply needs for Hampton Roads and permit decisions with regard to the Lake Gaston pipeline. (Appendix C)

The DEQ representative pointed out that in the legislation that changed the Act in 1994, a second amendment directed the Board, in evaluating permit applications as to impacts on the resource, to use the average actual historical use of a system such as Norfolk's rather than the permitted amount. That is, when a permit is requested from the Board, the Board is to assume that Norfolk is using 4 mgd rather than 16 mgd. If Norfolk were to actually withdraw 16 mgd, over-allocation of the resource could result because other permits would be based on the assumption that only 4 mgd were being used by Norfolk.

The DEQ representative also noted that the Act contains a provision allowing operators of public water systems to obtain permits for drought relief wells which allow ground water to be used when mandatory water use restrictions are being implemented according to the user's water conservation and management plan. Further, the Act requires the Board to consider alternate or innovative uses, including conjunctive uses. DEQ's position is that the Board should be able to evaluate the ground water resource when the permit comes up for renewal, and make its decision as to the permit limits on that basis. As DEQ interprets the Act, § 62.1-260 addresses only the first round of permits issued after the 1992 law was enacted, and permits newly issued or reissued thereafter should be governed by the rest of the Act's provisions, all of which seek to protect finite ground water resources for all who utilize them.

A motion was made that the Commission communicate to the State Water Control Board a suggestion that the regulations be amended to reflect Norfolk's interpretation of the Act. The motion died for lack of a second.

Respectfully submitted,

Senator Charles J. Colgan, Chairman
Delegate J. Paul Councill, Jr., Vice Chairman
Senator William T. Bolling
Senator Madison E. Marye
Senator Stanley C. Walker
Senator Martin E. Williams
Delegate Watkins M. Abbitt, Jr.
Delegate Glenn R. Croshaw
Delegate Alan A. Diamonstein
Delegate James H. Dillard II
Delegate William P. Robinson, Jr.
Delegate A. Victor Thomas
Delegate Clifton A. Woodrum
The Honorable Charles W. Ahrend
John C. VanHoy

# III. APPENDICES

# APPENDIX A

## HOUSE JOINT RESOLUTION NO. 592

*Directing the State Water Commission, with the assistance of the Virginia Water Resources Research Center at Virginia Polytechnic Institute and State University, to study for two years innovative technologies and other options for providing safe, reliable, and affordable domestic water supplies to individual households and small communities in southwestern Virginia.*

Agreed to by the House of Delegates, February 20, 1997
Agreed to by the Senate, February 19, 1997

WHEREAS, a safe, reliable, and affordable supply of drinking water should be available to all Virginians; and

WHEREAS, according to a recent study, Water Supply in the Virginia Coalfield Counties: Status, Technical Options, Assessing Rate Impacts, "water supply is especially important in the southwest Virginia coalfield counties, where surface and groundwater resources are limited, where community water supplies do not serve most rural households, and where private wells and springs have been impacted by resource extraction industries and agriculture"; and

WHEREAS, in 1990 fewer than one-half of the households in the coalfield region were served by public water systems; and

WHEREAS, water is so precious to this region that existing supplies should be preserved by water conservation techniques and source protection, including watershed, well head, and spring management; and

WHEREAS, recent testing data found E. Coli contamination and unacceptably high levels of iron, manganese, sodium, sulfates, and chlorides in many of the household wells and springs; and

WHEREAS, treatment cost for individual households to remove such contaminants as iron and sulfur can exceed fifty dollars per month, and even with such treatment the quality of the domestic water is at best marginal; and

WHEREAS, groundwater as a water source is not only a concern from a water quality standpoint, but local groundwater sources are also unreliable because of poor water-bearing aquifers and their susceptibility to drought, and because of land use impacts; and

WHEREAS, the most conventional alternative for providing public water supplies to these unserved households and small communities is extending water lines from existing surface water systems; and

WHEREAS, such extensions can be prohibitively expensive because of distance and terrain; and

WHEREAS, unconventional sources such as coal seam aquifers and mine cavities, along with emerging collection and storage technologies such as rainwater harvesting, represent possible alternatives for meeting the drinking water needs of the small communities in southwestern Virginia; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the State Water Commission, with the assistance of the Virginia Water Resources Research Center at Virginia Polytechnic Institute and State University, be directed to study for two years innovative technologies and other options for providing safe, reliable, and affordable domestic water supplies to individual households and small communities in southwestern Virginia. The study shall consider such innovative technologies as water harvesting and cistern storage, small surface reservoirs, and cost-effective treatment, including the development of small package-system models.

All agencies of the Commonwealth shall provide assistance to the State Water Commission for this

study, upon request.

The State Water Commission shall complete its work in time to submit its findings and recommendations to the Governor and the 1999 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

# Set Asides of Virginia Housing Fund Monies Through FY 98

| | | |
|---|---|---|
| **Financing of Housing For Very Low Income Families** | | |
| Bond Support Funds for Home Purchase Loans | $61.8 million | 40% |
| Home Purchase Loans | $24.9 million | 16% |
| Home Construction and Rehabiliation Loans | $5.8 million | 4% |
| **Total Homeownership Assistance** | **$92.5 million** | **60%** |
| Multifamily Rental Housing Loans | $32.6 million | 21% |
| **Total Rental Housing Assistance** | **$32.6 million** | **21%** |
| **TOTAL HOUSING ASSISTANCE FOR VERY LOW INCOME FAMILIES** | **$125.2 million** | **82%** |
| **Financing of Housing for Special Needs Populations** | | |
| Reverse Mortgages for Elderly Homeowners | $2.6 million | 2% |
| Financing of Rental Housing for Elderly Persons | $11.6 million | 8% |
| **Total Elderly Housing Assistance** | **$14.2 million** | **9%** |
| Financing of Emergency Shelters / Transitional Housing / SROs | $3.0 million | 2% |
| **Total Housing Assistance for Homeless Persons** | **$3.0 million** | **2%** |
| Financing of Community-Based Supportive Housing | $11.1 million | 7% |
| **Total Housing Assistance for Persons with Mental Disabilities** | **$11.1 million** | **7%** |
| **TOTAL HOUSING ASSISTANCE FOR SPECIAL NEEDS POPULATIONS** | **$28.3 million** | **18%** |
| **Total Housing Assistance** | | |
| **TOTAL SET-ASIDES OF FUNDS** | **$153.4 million** | **100%** |

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

August 20, 1998

Regulatory Branch

Mr. Louis L. Guy, Jr.
Director, Department of Utilities
City of Norfolk
P.O. Box 1080
Norfolk, Virginia 23501

Dear Mr. Guy:

This is in response to your July 24, 1998 letter regarding proposed Virginia Groundwater Management Act regulations. In your letter, and in subsequent conversations with my staff, you have requested our views as to the effects of certain of these proposals.

Let me begin by emphasizing that the Norfolk District has neither the legal authority nor the desire to second guess the Commonwealth of Virginia's management of its groundwater resources. As you know, though, we do have considerable experience with water supply planning and water supply projects in Southeastern Virginia.

Congress authorized the Norfolk District to study the water supply needs of the Hampton Roads area, a lengthy and detailed effort which culminated with the 1984 publication of our "Feasibility Report and Final Environmental Impact Statement, Water Supply Study, Hampton Roads, Virginia". Assessing existing supplies was an integral part of forecasting regional water deficits, and in doing so we specifically included the 16 million gallon per day (MGD) rated capacity of Norfolk's four wells located in Suffolk.

Our conclusions as to future water supply deficits were based in large part on reactions of the local communities' water systems to the 1980-81 drought of record, which the Feasibility Report describes:

> Levels in Norfolk's reservoirs continued to fall and by the end of September had reached the 50 percent level. The city responded by adopting a rationing program which allocated customers 75% of their normal usage. This action achieved the desired results of reducing demand by 25 percent, but reservoir levels did not improve. In early November when city officials began to talk of adopting an allocation of 50 percent of normal usage, a number of concerns were raised. Navy officials felt that 25 percent reduction in demand was the maximum they could achieve without affecting

operational readiness and state health officials were concerned that in achieving a 50 percent reduction, low pressures could develop in some parts of the system making it vulnerable to the influx of bacteria. Since the 50 percent allocation was not adopted, there is no data to determine whether the 50 percent reduction would have been achieved or what the impacts might have been.

The Feasibility Report notes that "yields from the four Norfolk wells were very near the rated capacity of 16 MGD for most of the 1980-81 drought (maximum 12-month pumpage average 15.3 MGD)." Without the contribution from these wells, more drastic actions would have had to been taken during that drought and the Feasibility Report would have projected a correspondingly higher 2030 deficit.

Also in 1984, the Norfolk District issued a permit to the City of Virginia Beach for its Lake Gaston Pipeline project. Virginia Beach based its need on its projected 2030 local demand, plus additional increments for the Cities of Chesapeake and Franklin, and Isle of Wight County. The State of North Carolina (and others) brought litigation against the Corps over that permit in United States District Court for the Eastern District of North Carolina. In 1987 that Court found that the Norfolk District's review of the permit was inadequate in two areas, one of which had to do with the extent of Virginia Beach's water need. On remand, we reviewed Virginia Beach's need using a regional deficit approach similar to the one used in our 1984 Feasibility Report. Again, we factored in the supply from Norfolk's four wells. Both the U.S. District Court and the U.S. Court of Appeals for the Fourth Circuit subsequently concurred with our assessment that Virginia Beach's need for 60 MGD was reasonable. Had we not included the 16 MGD contribution from Norfolk's wells, we would have found that the 60 MGD Lake Gaston project was insufficient to carry the region through the 2030 planning horizon.

Currently, the availability of up to 60 MGD from the Lake Gaston Pipeline allows the water systems of Southside Hampton Roads substantial operational flexibility, and it is my understanding that you have decided to typically "rest" your four wells until they are needed. If they were to be eliminated, though, or greatly reduced in reliable capacity, Southside Hampton Roads would reach its safe yield before 2030 unless equivalent supplies are tapped or else more severe measures to curtail demand are implemented.

If I or my staff can be of any further assistance, please do not hesitate to ask.

Sincerely,

Robert H. Reardon, Jr.
Colonel, U.S. Army
District Engineer