

**OBSERVATIONS ON THE NORTHERN NECK REGIONAL WATER PLAN**  
**FOR THE NORTHUMBERLAND COUNTY BOARD OF SUPERVISORS**  
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**STATEMENT**

The residents of the Northern Neck use roughly 1.3 billion gallons of fresh water a year. This is enough water to fill a line of tanker trucks stretching from Heathsville to Lottsburg. More than 95 percent of the water is obtained from natural, underground reservoirs known to geologists as artesian aquifers. Because this water is being pumped out of the aquifers much faster than it is being replenished by nature, the regional groundwater supply is steadily shrinking. In technical terms, the aquifer system is in a chronic state of *overdraft*. To make matters worse, there are currently no limits on the quantity of groundwater that can be withdrawn from the aquifer system of the Northern Neck. Imagine a bank account in which an unlimited number of persons is making substantial withdrawals but nobody is making deposits.

Residents of the Northern Neck have been pumping water from the aquifer system of the Virginia Coastal Plain for more than 100 years, and the groundwater supply is showing clear signs of trouble. Artesian water levels throughout the Northern Neck are falling at a rate of 1.0 to 1.5 feet a year. (In other parts of the Virginia Coastal Plain, water levels have been falling at rates of 3.0 feet a year or more.) Groundwater levels are now so low in some regions of the Virginia Coastal Plain (e.g., Hanover County, New Kent County, Hampton Roads) that approval of further groundwater withdrawal permits by the Department of Environmental Quality is at risk. The long-term and persistent decline of water levels is the result of a steady loss of groundwater from the aquifers. Unless the problem of groundwater overdraft is addressed decisively, the residents of the Northern Neck, together with residents of all of the Virginia Coastal Plain, will face serious and costly consequences.

A recent report of the Hampton Roads Planning District Commission described the situation in the following manner:

" . . . if current withdrawal rates continue or increase, the groundwater users will likely experience the cumulative impacts of declining water levels. Impacts could include: domestic wells going dry; construction of more private wells at deeper depths and larger pump capacities; political and public pressure on utilities to extend public water and sewer systems; litigation against State agencies, public utilities, and large private groundwater users; and shortage of groundwater to support new businesses or business expansion outside of public water system service areas."

These painful results will be the price of inaction.

For more than a decade, the Northern Neck Planning District Commission has worked energetically to meet the challenges of protecting the water supply. The Regional Water Supply Plan before you this evening represents its latest effort. This report is not perfect and it will not be the last word regarding our water supply issues; nevertheless, it is a vital step forward and I urge the Board of Supervisors to adopt it.

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**SUPPLEMENTARY EVALUATION**

Above I stated that the water supply plan is not perfect and will not be the last word. I wish to stress here that the NNPDC report contains some notable flaws which must be addressed and corrected before moving forward to the next step to protect regional the water supply.

1. First and foremost, the report is not a plan. At a minimum, a plan should consist of goals and objectives, actions and resources needed to achieve the goals, and assessment measures. Instead, the report is chiefly a) an incomplete and imprecise inventory of current water sources and water use, b) rough projections of future water use, and c) some conventional actions that could be employed to reduce water use.

2. The report does not address an important--maybe the most important--issue, namely, what is an adequate water supply and how do we ensure its protection? It speaks to future water demand--although very crudely--but says nothing about the cause-and-effect relationship between water withdrawals and available supply. A brutal truth is that aggressive groundwater withdrawals are reducing the supply of groundwater on the Northern Neck. Although more than 90 percent of all water withdrawals on the Northern Neck come from groundwater, the report is silent on the storage supply of the regional aquifers--except to note in passing that the artesian aquifers are replenished only very slowly. If the regional water supply is to be protected for future generations, then planners must come to grips with the effects of water withdrawals on supply.

3. The data in the report that describe water use on the Northern Neck should not be accepted as either precise or reliable. One serious problem is what the report terms "data gaps." "The NNPDC received approximately 25% return on the water supply surveys designed to support this WSP." [p. 36] Additionally, "Of the approximately 25% of surveys returned, much of the requested data were not provided by the water supplier." [p. 38] Of the 96 community water sources identified during the study, "[w]ater supply planning data was [sic] readily available for [only] 43 community systems. . . ." [p. 42] Furthermore, there are no collected data regarding water withdrawals from many non-community and domestic water sources (private wells). Such sources may account for as much as 50 percent of the total estimated 1,500 million gallons per year. Another problem is erroneous data. For example, the report's population data for Lancaster County [p. 105ff] is not consistent with U.S. Census sources, resulting in overestimates of the number of county residents.

4. In addition to erroneous data, population projections are dubious. They are based on questionable assumptions and crude methodology. For example, although according to U. S. census data the population of Lancaster County grew by approximately 2,000 persons between 1960 and 2000 (about 5% per decade), the report projects a decline in the County's population of 1.0% per decade through the year 2017. This projection is a straight-line extrapolation from an estimated 1% decline in population between 2000 and 2007. [p. 107] More significantly, the same kind of straight-line projection over 100 years is utilized to forecast the future populations of the other counties of the Northern Neck. This methodology lacks the proper statistical sophistication to yield an accurate picture of future population growth on the Northern Neck.

5. Values of future regional water demand in the Water Supply Plan are similarly clumsy and should be judged as no more than rough estimates. Water demand projections for the Northern Neck were arrived at by multiplying a value termed the *per capita water use factor* (75 gpd/person) by the estimated population of a given year. The resulting values are accurate only if the average water use per person remains constant at 75 gpd/p for nearly 100 years and the dubious population projections are valid. Neither of these assumptions seem reasonable.

6. Because all freshwater withdrawals of the region come from groundwater, effective water supply planning will require knowledge of the proportional quantities of groundwater that are stored in and pumped from specific aquifers. In other words, which aquifers are the most productive and valuable. The report is silent on this topic. Moreover, because only the surficial (water-table) aquifer is readily recharged by precipitation (and, thus, a renewable resource), the report needs to describe the size of the groundwater supply of the surficial aquifer and current (and anticipated) withdrawal rates.

7. Finally, a major failing of the report is the absence of any kind of assessment of the harm to the populace and economy of the Northern Neck if the groundwater supply continues to shrink without attention and corrective action. Without an assessment of the damaging socioeconomic consequences of future water demand, how can appropriate mitigating actions be planned? [To be fair, the governing Virginia regulations (9 VAC 25-780) do not require local governments to include such an assessment in the local Water Supply Plan.]

In conclusion, the Regional Water Supply Plan for the Northern Neck represents not the final word on the water supply of Lancaster, Northumberland, Richmond, and Westmoreland Counties but, instead, a rather wobbly, but essential, early step. It is not, as I have stated, perfect. But in the words of wise but long dead philosopher, let's not let the perfect be the enemy of the good.