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## A positive proposal toward saving our drinking water

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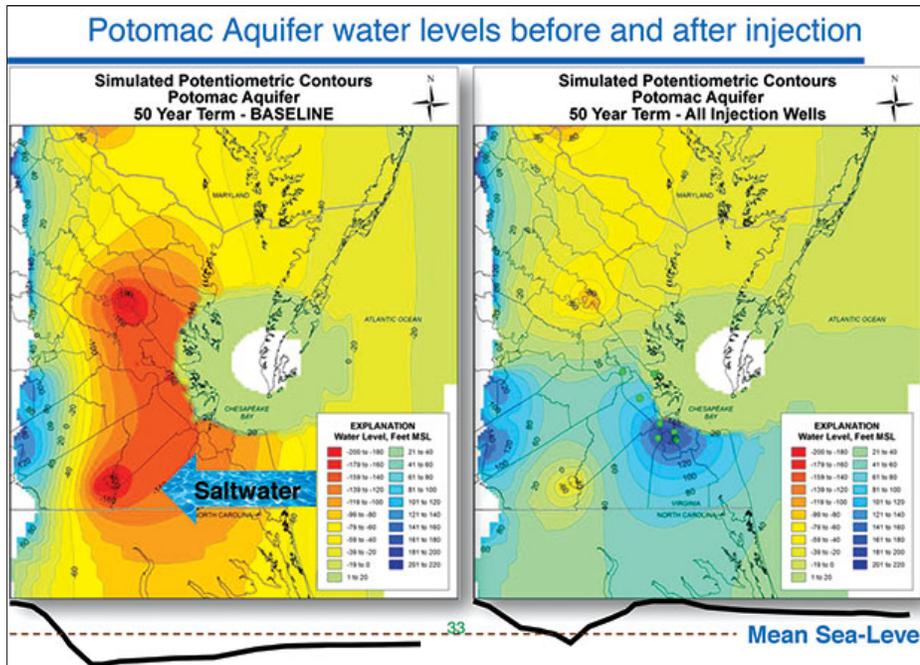
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(Graphic courtesy of Hampton Roads Sanitation District)

by Pete Mansfield

On October 26 the Hampton Roads Sanitation District (HRSD) invited Middlesex County to a presentation representing a possible fix for saving the Potomac Aquifer. I will state without exception that this was by far the best researched and most complete answer to the multiple water-related problems facing eastern Virginia that it has been my privilege to consider. The HRSD graphic at the right, titled "Potomac Aquifer water levels before and after injection," should remove any doubt that this solution will answer the first three of the following four major problems facing eastern Virginia. The fourth problem, Total Maximum Daily Load (TMDL) will be solved as a resultant of the actions taken on the other three.

### 1. Running out of potable (drinkable) water in the Potomac Aquifer.

*Answer:* This plan along with some sensible conservation methods that have already been proposed will not only stop the drain of water from the aquifer, but will actually result in a net positive flow. (Note the change in colors between the "before" and "after injection" from red, indicating a 200-foot depression below sea level, to a green and even blue color on the graphic.)

### 2. Contamination of what good water is left in the aquifer by saltwater intrusion from the Chesapeake Bay.

*Answer:* By injection of an estimated 120 million gallons per day between the Impact Crater fractures of the Chesapeake Bay and the Cones of Depression, we will create a positive pressure gradient which will act as a freshwater barrier to stop further salt intrusion. (Note: the solid black lines shown below the colored potentiometric contours before and after graphs indicate the aquifer head pressure has risen above the mean sea-level, thereby eliminating the saltwater intrusion into the aquifer.)

### 3. Virginia is experiencing twice the sea level rise of any other east coast state.

*Answer:* The problem is coastal Virginia is sinking, a phenomenon known as "land subsidence" that occurs as the level of supporting water in the aquifer drops. Land subsidence is responsible for one

half of the apparent sea level rise. This is a multi-billion dollar problem that is causing our coastal cities to flood more frequently. We cannot reverse land subsidence, but we can at least stop depleting the Potomac Aquifer that is the cause.

**4. The ability to meet EPA’s 2025 TMDL of nutrients entering the Chesapeake Bay.**

*Answer:* At this time, we are not on track to meet this federal mandate, but with this plan in place our discharge of nutrients into our bay waters will be reduced by an amount equal to 25 tons per day of 6-2-0 fertilizer. This is a reduction that will make the very controversial storm-water runoff program look like peanuts—perhaps it might be reconsidered.

What is the cost of a program that answers so many of Virginia’s pressing problems? HRSD suggests at most a cost of 50 cents per 1,000 gallons used—a cost for an average family of about \$2.50 per month.

Are there other plans being considered? Of course, but none even approach the answer to the four requirements and appear to be more of a delaying tactic than trying to answer real, tangible problems. For example, DEQ has considered mandated withdrawal reductions, but only to the tune of about 10% of current withdrawals, and these reductions don’t even equal the future withdrawal commitments DEQ has pledged to honor. Most importantly, if all withdraws were stopped today, saltwater intrusion would continue to contaminate the remaining good water in the aquifer at the present rate. Yes, I do believe it is a delaying tactic. DEQ’s select committee to study the problem will not even have a report until 2018.

I believe that Middlesex County must as expediently as possible make it known that we don’t want more committees or ridiculous ideas standing in the way of the most obvious solution—a solution that has been successful not only in Northern Virginia since the 1970s, but in other states, including California, which has the strictest environmental laws in the country.

Pete Mansfield is the Saluda District representative on the Middlesex County Board of Supervisors and has been at the forefront in finding ways to save the Potomac Aquifer, which supplies drinking water to Middlesex and much of eastern Virginia.

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