

**Testimony of
John Hanger, Secretary
Department of Environmental Protection
Before the Senate
Environmental Resources and Energy Committee
And the
Agriculture and Rural Affairs Committee
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Chairpersons Brubaker, O’Pake, White, and Musto and members of the committees, thank you for the opportunity to appear before you to discuss Pennsylvania’s efforts to comply with the U.S. Environmental Protection Agency’s (EPA’s) expectations for the Chesapeake Bay Total Maximum Daily Load (TMDL).

Pennsylvania is committed to protecting and enhancing our streams and watersheds. The efforts here at home will in turn help in further restoring the Chesapeake Bay by 2025.

Over the years, progress has been made to reduce nitrogen and phosphorus pollution of the local waters in the Pennsylvania watershed. Specifically, Pennsylvania has achieved 46 percent of the total nitrogen reductions needed and 64 percent of the total phosphorus reductions needed. This is real progress, but more needs to be done. Another 30.9 million pounds of nitrogen and 1 million pounds of phosphorus must be reduced by 2025.

To meet the 2025 goal, our approach is based on three core elements. Those elements are milestone implementation and tracking; supporting the implementation of advanced technologies and nutrient trading; and enhancing common sense compliance efforts. These elements will provide the foundation for the development of Pennsylvania’s Chesapeake Watershed Implementation Plan as required by the EPA.

Pennsylvania’s plan will be designed to meet load allocations established by EPA’s Chesapeake Bay TMDL, scheduled for publication in December 2010. This deadline presents a challenging schedule for Pennsylvania to develop its Plan for submission to EPA by November 2010. To help meet this deadline, the department will use EPA contractual support through TetraTech for completion of technical tasks related to EPA’s Chesapeake Watershed model. Final watershed model results necessary to develop the plan have yet to be shared by EPA to the states.

To guide the development of the plan, DEP will engage stakeholders in a process similar to that undertaken in 2006 to refine our Chesapeake Bay Tributary strategy. Stakeholders representing wastewater treatment facilities, agriculture, land development, municipal officials, environmental and conservation groups, as well as legislators were convened to advance Pennsylvania’s Point Source Compliance Plan and Nutrient Trading Program. Reconvening this group to devise our efforts in developing this Watershed Implementation Plan is scheduled for March 31, 2010 and the chairs of the Senate and House committees on agriculture, environment and local government have been invited. We also continue to engage with the department’s Chesapeake Bay Advisory Committee which meets quarterly.

Milestone Implementation and Tracking

The first key element of our strategy for reaching Pennsylvania's nutrient reduction goals involves the development of challenging, but attainable 2-year milestones. These milestones will help focus program efforts and provide for short-term accountability for meeting our goals. Simply put, these milestones are our means to measure incremental improvement and they provide a roadmap of changes we need to make in this process.

The first milestone period is actually three years, 2009 through 2011. It is estimated that the management practices targeted for implementation during this period will reduce nitrogen loads to Chesapeake Bay by 7.3 million pounds per year and phosphorus loads by 300,000 pounds per year. Attainment of the reductions will require a collective effort of agriculture, land development, and wastewater treatment facilities.

Again, some significant progress has already been made. As of 2008, Pennsylvania agriculture has generated about 55 percent of all the nitrogen reductions credited to agriculture for all of the states in the Chesapeake watershed. Similarly by 2011, 40 wastewater treatment facilities are scheduled to have completed nutrient reduction upgrades. Bottom line, we are making progress.

EPA has set a goal of implementing sufficient Best Management Practices (BMPs) by 2017 to reach 60 percent of the TMDL nutrient and sediment allocations. All BMPs needed to reach the TMDL allocations are to be in place by 2025. EPA has estimated that Pennsylvania nitrogen reductions through 2008 attributed to agriculture, land development and wastewater treatment facilities have totaled 29.3 million pounds per year. This leaves 29.8 million pounds per year of nitrogen to be reduced within these sectors.

We will use these 2-year milestones through 2025 as part of our required Watershed Implementation Plan to reach these additional reductions.

An important component of demonstrating to EPA that we are reaching the TMDL allocations will be accounting for all best management practices that are implemented within Pennsylvania's Chesapeake Bay watershed. Virtually all reported BMPs to date are associated primarily with a federal or state grant program.

Currently, information on BMP implementation is acquired from 13 state programs, four federal programs and one advocacy group (American Farmland Trust). There is no established mechanism for reporting privately funded BMPs. Privately funded BMPs could represent a potentially significant source of unaccounted practices, particularly for agriculture. What this means to Pennsylvania is that the Chesapeake Bay Model may only be reflecting a portion of what is happening on the ground.

At this time, DEP has funded BMP tracking pilot projects with Lancaster and Bradford County Conservations Districts to explore the possibility of doing county "sweeps" for BMP information. Methods to increase BMP tracking include: on-the-job farm visits; targeted farm visits; distributing questionnaires at agriculture events; phone surveys; and aerial surveys. It is anticipated that results of these pilot projects will be transferable to the other conservation districts in Pennsylvania.

The department and the State Conservation Commission are also working with United States Department of Agriculture's National Agricultural Statistics Service (NASS) to better account for cover crops and no-tillage farming within Pennsylvania. Efforts are focused on adding additional questions to NASS' county estimates yearly questionnaire. NASS' reputation for statistical creditability will add to the robustness of the results.

DEP has developed a non-point source BMP repository to store all the non-point source BMP information that will be collected. This repository will include all information on agricultural and development BMPs not associated with wastewater treatment facilities. DEP is in the process of populating the repository with information from state programs. The repository has been structured so that individuals or environmental groups will be able to enter BMP information which they privately implement apart from state or federal programs. The repository is connected to an internet node that will allow BMP implementation data to be electronically transferred to EPA. The EPA has indicated that it will only accept electronically transferred data starting with the 2010 data call in November.

To summarize, our Watershed Implementation Plan has to be reflective of what Pennsylvanians are achieving on the ground. We will be working with our Pennsylvania partners to find solutions to track and report our activities beyond the federal and state cost share dollars.

New Technology and Nutrient Trading

The second key element of our strategy for reaching Pennsylvania's nutrient reduction goals involves the implementation of new technologies and supporting these efforts through the sale of environmental credits and energy products.

DEP is working with the Pennsylvania Department of Agriculture and a number of companies looking to install various technologies such as co-generation on dairy, poultry and hog operations. Many of these technologies can produce electricity and marketable soil amendments; reduce methane emissions; and generate renewable energy, nutrient reduction and carbon credits that can then be sold. Projects of this nature can support three priorities in the Chesapeake Bay region: maintaining a vibrant farming economy; restoring and protecting the water quality of Pennsylvania streams and the Chesapeake Bay; and providing crucial economic development benefits to rural businesses and communities.

DEP has been promoting the establishment of enhanced regional digesters that digest manure, produce electricity and substantially reduce nutrients reaching Pennsylvania waters and the Chesapeake Bay. Some digesters will not substantially change the nutrient content of manure, which is why the department has begun looking more closely at the versions with enhanced technology.

Two specific examples of technology projects that DEP has been involved with include the Energy Works' Energy and Nutrient Recovery Facility scheduled to be constructed in Adams County, and the Cove Area Regional Digester (CARD) that is planned for the Blair/Bedford County area.

Energy Works will receive and process egg layer manure within a fully enclosed building. Recovered energy would then be converted to electricity, with surplus beyond facility needs sold to the grid. Water quality benefits would be derived by capturing and converting compounds of nitrogen and recycling the product in feed products. DEP staff recently approved a protocol for calculating nutrient reduction credits for this facility.

As described by the project partners, CARD is the first of its kind regional methane digester (servicing two counties covering 10-12 square miles), which not only has the ability to create renewable energy, but whose principal purpose is to process manure and remove nitrogen and phosphorous compounds. Through its patented water treatment process, CARD can successfully remove nutrients and discharge nearly potable water back into the watershed. This project can also generate additional value added products, such as nutrient reduction credits, electricity generation, biosolid collection and possibly carbon credits. The department's staff is reviewing a proposal for the calculation of nutrient reduction credits from this facility.

Implementing these types of technologies has the promise to significantly reduce nutrients. DEP has estimated, using figures provided by CARD, that if 42 enhanced digesters were built in 40 counties, about 27 million pounds of nitrogen load could be reduced with the added benefit of carbon-free renewable energy.

Regardless - the many benefits these advanced technologies can produce, there is one limiting factor for all, financing. CARD could cost approximately \$32 million to construct and \$16 million to operate, but the operational expense would mostly be paid by the revenue generated from the sale of multiple environmental credits and biosolids collection. The federal government must play a constructive role in advancing these new technologies and tools. The department has recommended that an EPA Technology Development Fund be created to support development of regional enhanced methane digesters, septic system de-nitrification technologies, and other innovative technologies. The suggested amount for this fund is \$2 billion.

Concurrently, we continue to work with Pennsylvania stakeholders to enhance our own Nutrient Trading program. With the assistance of the department's partners, we have been able to build a model program that has generated interest across the country. The department has been receiving calls from federal legislative and executive branch staff that are interested in using the Pennsylvania program as a model for a regional interstate trading program. A regional program would have the potential to further open the trading market, which would be of great interest to the commonwealth.

To help facilitate the nutrient trading market, we are working with PennVEST to create a Bank and Exchange that would buy and sell nutrient reduction credits. The department has also proposed regulations (Chapter 96), with a comment period that closed March 15. These regulations would codify the department's existing policy and provide clear and certain standards for the program.

There has been on-going participation in the program. Eight contracts have been signed. One of the most significant occurrences was the recent announcement in December 2009 that the

Harrisburg Authority would pursue nutrient trading as part its compliance plan. The authority's National Pollutant Discharge Elimination System permit calls for the authority to begin purchasing nitrogen and phosphorous credits in 2011. By purchasing nutrient credits, the authority estimates that it will save \$28 million over the next 20 years, which will save ratepayers an estimated \$48 per year on sewer service charges.

While these are excellent examples of the effectiveness of the Nutrient Trading program, DEP is interested in continuing to promote its utilization and increasing participation in the program.

Compliance

DEP is developing a nonpoint source compliance effort focused on two major sectors: agriculture and stormwater. DEP is addressing agriculture first through development of a Chesapeake Bay Agricultural Water Quality Initiative that is composed of four elements:

- *Expand technical assistance and outreach:* An objective of this initiative is to bring farmers into baseline regulatory compliance through the enhancement of efforts to better inform farmers of their regulatory obligations and the ramifications of noncompliance.
- *Continue Existing Regulatory Programs:* This piece continues the identification, permitting and inspections of Concentrated Animal Feeding Operations (CAFOs) and the inspection of concentrated animal operations (CAOs) and the necessary follow-up to ensure compliance. In addition, the department and county conservations districts will continue to respond to complaints, spills and accidents, as appropriate.
- *Evaluate and modify regulatory or administrative tools as needed:* The department will continue to look for ways to fill agricultural compliance gaps if needed. Two key examples of this are the revisions to our Chapter 102 Erosion and Sedimentation Control regulations and revisions to the Manure Management Manual.
- *Targeted Watershed Approach to achieve agricultural compliance:* This component consists of identification of small manageable sized watersheds that are impaired by agriculture. The approach will utilize an individual farm assessment protocol to identify the current status of operations on that farm, as well as gaps in compliance with regulatory requirements and other water quality degrading conditions. DEP and other partners such as EPA, State Conservation Commission and County Conservation Districts will evaluate these assessments and implement the most appropriate course of action to achieve compliance in a timely manner. Financial assistance as well as compliance and technical assistance resources will be prioritized by DEP and partner agencies to achieve compliance.

An example of this effort is being conducted in the Watson Run watershed in Lancaster County. EPA has conducted the farm assessments and now the department, EPA, and the Lancaster County Conservation District are working to implement the next steps to achieve compliance.

As for stormwater, DEP is moving on several fronts to strengthen compliance. First, construction and post-construction stormwater management is being prominently addressed in the proposed

revisions to Chapter 102, erosion and sedimentation regulations. The department is also developing the next-generation general permit for Municipal Separate Storm Sewer System (MS4) communities. The permit will have enhanced BMP requirements for MS4 communities that discharge to impaired water covered under a TMDL.

On the point source side of the equation, Pennsylvania's Chesapeake Bay Tributary Strategy, published in December 2004, calls for the majority of reductions to be achieved by the implementation of nonpoint source BMPs. Specifically, 86 percent of the nitrogen and 78 percent of the phosphorus reductions must be achieved through agricultural and urban BMPs. Point sources, such as municipal wastewater treatment plants and industrial facilities, generate 14 percent of the nitrogen load and 22 percent of the phosphorous load and are responsible for achieving reductions based on their contribution to the overall load going to the Chesapeake Bay.

To achieve targeted point source reductions to the Bay, DEP formed a Point Source Workgroup with the Pennsylvania Municipal Authorities Association as the co-chairman. The workgroup proposed an allocation strategy to determine individual cap loads for the 183 largest point source sewage discharges in the Bay watershed.

DEP ultimately adopted this allocation and permitting strategy. The primary concept in the strategy was to create a level playing field for all of the municipalities. This was done by having each facility meet cap loads based on their design flow with a total nitrogen concentration of 6 milligrams per liter (mg/L) and total phosphorus concentration of 0.8 mg/L. There have been some concerns raised on Pennsylvania being forced to the limit of technology with our sewage treatment plants. We will stand behind the strategy we agreed to in the past. We think it is the most cost effective and reasonable approach.

A Compliance Plan for Industrial Waste Discharges to the Chesapeake Bay was developed in January, 2010 after DEP held three meetings with the 30 significant industrial dischargers from October 2007 through February 2008. The plan for these facilities was to keep them at their current load plus 10 percent for future growth.

Conclusion

And the department's commitment and investments are paying off. With funding assistance from the department, the Susquehanna River Basin Commission has been monitoring nutrient and sediment loads at sites within the Susquehanna River basin. Flow adjusted trend analysis of the data collected between 1985 and 2008 generally indicate significant decreases in nutrients and sediment at these sites. Here are two examples:

- Susquehanna River at Marietta: This station includes 95 percent of the Susquehanna River Basin. Nitrogen is down an average of 28 percent, phosphorous is down an average of 23 percent and sediment is down an average of 40 percent.
- Conestoga River: Nitrogen is down an average of 20 percent, phosphorus is down an average of 50 percent 16-24 percent and sediment is down an average of 70 percent.

These results demonstrate the commonwealth's commitment to restore Pennsylvania's waters and, consequently, the Chesapeake Bay.

Although EPA deadlines for the completion of the Chesapeake Bay TMDL and state Watershed Implementation Plans are aggressive, DEP is committed to engage with Pennsylvania stakeholders to develop a plan that equitably distributes the responsibility for meeting our cap load allocations. Ultimately, it is up to all of us to take those actions necessary to protect and restore Pennsylvania streams and rivers and the Chesapeake Bay. I look forward to working with the members of the General Assembly through your participation on the Chesapeake Implementation Plan Management Team, the Chesapeake Bay Commission, and other forums as appropriate.