

North Carolina's Mercury Reduction Options for Nonpoint Sources

Purpose

The purpose of this document is to outline a variety of options to consider as North Carolina Division of Water Quality establishes a statewide mercury total maximum daily load (TMDL), and in particular how to address the mercury air emissions from North Carolina facilities that play a role in the overall deposition of mercury to water bodies in the state.

Background

Under the Clean Water Act, the Division of Water Quality (DWQ) is required to establish TMDLs for pollutants for which a water body is impaired. In North Carolina, all waters are listed under Section 303(d) as impaired due to the statewide fish consumption advisory for largemouth bass. Therefore, DWQ will establish a statewide mercury TMDL later in 2012 to address discharges of mercury to state waters. According to the technical analysis conducted by DWQ, however, approximately 98 percent of the mercury deposited in North Carolina is due to air emissions. The TMDL can only address sources regulated under the Clean Water Act, such as wastewater treatment plants and industrial wastewater dischargers. As a result, the TMDL alone will not have a significant impact on the amount of mercury reaching state waters. This paper is intended to identify other actions the state could take as part of a broader strategy to reduce mercury pollution.

The Division of Air Quality (DAQ) conducted atmospheric deposition modeling and concluded that approximately 16 percent of the mercury emissions contributing to water quality impairment come from facilities located in North Carolina. Those facilities have significantly reduced mercury air emissions since 2002, which was the year the Clean Smokestacks Act legislation was passed. More reductions are expected as facilities in North Carolina and across the country begin to comply with new federal rules - most notably, USEPA's Mercury and Air Toxics Standards for electric generating units and the recently finalized maximum achievable control technology standards for industrial boilers.

This paper outlines a menu of options for managing sources of mercury air emissions in North Carolina. These options will be discussed in upcoming public meetings, and comments on the options, as well as combinations of options, are encouraged as part of the public comment process. Alternatives to the options presented here are also invited for the state's consideration.

The Department of Environment and Natural Resources (DENR) does not believe that the mercury reduction strategy requires additional mercury air emission reductions from existing industrial facilities in North Carolina. The combination of the co-benefits of mercury emission

reductions from implementation of the 2002 Clean Smokestacks Act, USEPA's Mercury and Air Toxics Standards for electric generating units, and the recently finalized maximum achievable control technology standards for industrial boilers, will result in an overall 70 percent reduction in total mercury and an 81 percent reduction in emissions of deposition prone mercury. Since North Carolina facilities contribute only 16 percent to the overall mercury deposition in the state, the department does not believe that existing industrial facilities should be required to achieve further reductions.

Options

1. Develop a statewide comprehensive mercury strategy. North Carolina has undertaken a number of initiatives to reduce mercury in the environment. These initiatives are discussed in detail in Chapter 8, Reasonable Assurance, of the draft North Carolina Mercury TMDL. The strategy could include measures to reduce mercury in the environment, such as expanding the state's commitment to use of alternative energy sources, such as solar and wind power. DAQ could work with the Division of Waste Management to explore whether it is feasible to require sorting and separation of mercury-containing materials to the extent possible at steel facilities, municipal waste combustors and hospital, medical, and infectious waste incinerators. The strategy should also include actions to encourage the U.S. Environmental Protection Agency to press for national and international action to address mercury emissions originating outside the state.
2. Consider filing a petition under Section 319(g) of the Clean Water Act to focus attention on sources of mercury air emissions located outside of North Carolina. Section 319 (g) allows a state to petition EPA to convene a conference when out of state sources are significant contributors to water pollution in the given state. The purpose of the conference is to develop an agreement among the states to reduce the level of pollution resulting from nonpoint sources and to improve the water quality in the State that filed the petition.
3. Establish a statewide emission reduction credit program for North Carolina so that credits for mercury emission reductions not required by state and federal rules could be purchased by any new facility or by an existing facility increasing its mercury emissions. This option would require action to cap current mercury emissions unless the increases could be offset by the purchase and retirement of mercury emission reduction credits. This option is similar to the way emissions increases for criteria pollutants are handled under the nonattainment area new source review permitting program.
4. Establish a case-by-case technology evaluation as part of the permitting requirements for any new facilities or modifications to existing facilities resulting in increases in mercury emissions.

5. Establish a cap-and-trade program that would apply to existing facilities and any new facilities. This program would work similar to the nitrogen oxides trading program. A statewide cap on mercury emissions would be established and the existing facilities would be assigned an allocation of emissions based on the baseline operating conditions. A new source set aside pool is typically part of a cap and trade program so that some growth is allowed while the overall environmental benefit is achieved.
6. Another variation on the idea of requiring offsetting reductions for new mercury emissions would be to allow a new facility with mercury emissions to fund an energy efficiency project in the community that would result in less electricity demand, or would create a new source of electricity that has low or zero mercury emissions. Examples could include a lighting project for a neighborhood school, or installation of solar panels on a commercial property.
7. Establish through legislation a mercury mitigation fund that would be used to implement energy efficiency and renewable energy projects that would result in low-to-zero mercury emissions electricity projects.