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Pollutant trading advice: Run with it

By APRIL GRIPPO

As dischargers anxiously await the development of nearly 2,000 total maximum daily loads in Florida, there is increased interest in pollutant trading and its role in creating market-based incentives for implementation of cost-effective strategies in the TMDL program. This simple and useful tool for complying with water pollution control policy is shaping up to become a valuable remedy for existing dischargers facing reductions.

TMDLs developed for impaired water bodies may require substantial reductions in point and non-point source discharges to meet future wasteload allocations. Following a fair initial allocation of a permitted level of a pollutant, wastewater dischargers could trade pollution reduction credits and reduce overall pollutant abatement costs. In many cases, pollutant trading will be the cost-effective alternative to expensive capital investments in plant upgrades.

Preparing for motion

Proponents of trading have followed the success of other environmental trading programs. Participants in the wetlands banking program restore or create wetlands, then sell to wetlands fill permit recipients who are required to offer compensation as a condition of receiving the permit. Trading also has been an important element of the nation's air quality program for years, but pollutant trading is a relatively new and untested approach in the water quality program. However, the point and non-point source nature of water discharges, water quality goals and standards, and hydrologic divisions make fashioning an effluent trading program quite different from an emissions trading program.

EPA issued an Effluent Trading in Watersheds Policy and Draft Framework for Watershed-Based Trading in 1996. Following that, the agency funded a limited number of demonstration trading projects, including the Chesapeake Bay Program, believing that the lessons and methods from these programs would be valuable in other efforts to restore water quality. While some attention was given to these projects, pollutant trading did not advance as expected.

In May, EPA renewed its support for the development of a market-based trading system with a proposed water quality trading policy. This policy encourages states to develop trading programs that implement Clean Water Act requirements in more flexible ways. Programs are intended to be consistent within existing regulatory frameworks, including National Pollution Discharge Elimination Systems regulations and TMDLs.

Crawling along

As TMDL implementation and associated enforcement begins; pollutant trading is expected to increase substantially. Trading systems will allow discharge sources to exchange pollutant control obligations to reach compliance with reduction requirements. Under a typical scenario, sources with low treatment costs and the ability to reduce their effluent beyond required amounts will convert their additional reductions into credits that can be sold to dischargers whose reductions and treatment costs are higher.

Point sources may trade with other point sources in order to make required reductions or allow new or increased discharges. A recent trade in Virginia accommodated industrial expansion when a Publicly Owned Treatment Works agreed to decrease total dissolved solids. This reduction facilitated an upgrade of a POTW discharging into the same stream.

Another successful strategy for point source dischargers is collaboration within a stakeholder association to cooperatively meet loading allocations set by the state. Instead of individual nitrogen and phosphorus limits for each discharger, the Tar-Pamlico Association in North Carolina shares an overall nutrient discharge cap. The association enforces the cap by allocating nitrogen and phosphorus discharge limits among its members. If the collective annual nutrient caps are exceeded, the association's agreement with the state stipulates that a set fee for every excess kg of nutrients will be placed into a fund. That fund then enables farmers to pay for best management practices that reduce nutrients. The association has been successful in keeping nutrient loading well within the set discharge limits in spite of overall growth in the basin.

Standing tall in Florida

With EPA's recent renewal of support for pollutant trading, dischargers are watching to see how they might benefit from this flexible approach to restoring water quality. Based on 50% participation in trading, the EPA estimates that $700 million to $7.5 billion in control costs could be avoided in the U.S., if states adopted pollutant trading among point source, non-point source and pre-treating dischargers. According to the Census Bureau, Florida accounts for 2% of the country's annual total expenditures on water pollution control. Trading could save Floridians $50 million to $100 million, while improving the water quality of rivers and lakes.

Florida's 2002 Watershed Restoration Act allows for pollutant trading or economically based agreements as a means for implementing TMDLs. Modeling reduction scenarios for the St. Johns River may utilize an informal form of trading. In place of costly upgrades, point source dischargers facing nutrient reductions could fund non-point source BMPs or purchase reductions from overachievers who reduce discharges beyond required levels.

Pitfalls and hurdles

Scenarios involving trading will be evaluated on an individual basis. Some situations will not be appropriate for trading, such as a stream impaired for toxics by a single discharger, as only actual reductions in the effluent discharge will prevent exceedances in acute toxicity concentrations. In other cases, competition for economic development may make municipalities less likely to participate in trading systems.

When evaluating trading feasibility, many factors must be considered. Pollutant trading is of greater benefit in freshwater, one-dimensional static streams with no tidal influences. Systems with increased variability may complicate trading arrangements. In estuarine systems, dischargers are often located far from each other, and these more complicated systems do not easily lend themselves to trading. In some cases, a detailed modeling analysis will be required in advance of a trade. Plus, a cost-benefit analysis should be performed to determine the cost savings of trading over achieving the required reductions through facility upgrades.

Mixing zone effects depend in part on spatial, temporal, and chemical differences between trading partners' loads. Before trading between dischargers, the system's dynamics, topography, and flow must be examined. Because there is variation in assimilative capacities from one segment to another, trades in dissimilar systems may not be successful in achieving acceptable water quality.

Accelerating the pace

While everyone agrees that the goal of pollutant trading—to implement TMDLs in an economically sensible manner—makes sense, no one has yet created a clear road map for how we get there. EPA's recent support of trading indicates that more dischargers will soon look at taking advantage of this concept.

Pollutant trading offers new prospects for achieving more reductions for every dollar spent. With the array of control options provided under trading, including less expensive choices to make loading reductions, sources often achieve reductions more quickly and in greater amounts than without trading. The key to trading success is knowing when and how it can work. Point source dischargers have a unique opportunity to move ahead of the curve and adopt such an approach.

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