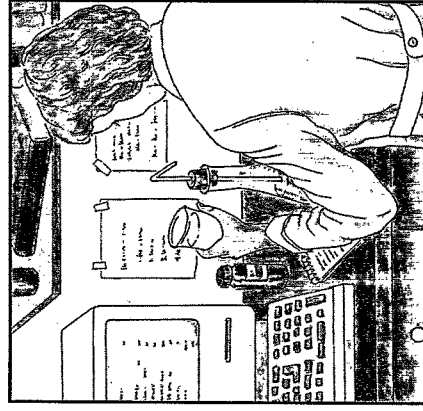


standards. The total amount of a pollutant discharged by all sources cannot exceed this quantity less a "margin of safety" to allow for uncertainties in the analysis. Because the combined effects of sources are complex and vary widely, scientists often use computerized water quality models to help predict how reductions in discharges will affect water quality.

Implementing Water Quality-Based Controls

If point sources are contributing more of a specific pollutant than the TMDL allows, some or all dischargers must reduce the amount of that pollutant in their discharges. If nonpoint sources are contributing too much, then control measures to reduce runoff at some sites may be put in place through state and local authorities and programs. Pollution prevention, treatment technology, cost effectiveness, and the feasibility of meeting the control limits all affect final decisions regarding the necessary reductions.



Usually, water quality-based controls improve water quality by reducing the amount of pollutants from point and nonpoint source dischargers. In some cases, however, they can control problems that are not related to these sources. For example, the loss of aquatic vegetation, excessive sediment build-up, and physical alterations of stream banks or shorelines can all cause the violation of water quality standards. In such situations, the use of these controls can effectively enhance water quality.

Continued Monitoring and Citizen Involvement

Every two years, states reassess the quality of their surface waters and prepare state-wide water quality reports for EPA. Among other things, these reports list the waters that are candidates for water quality-based controls. Local citizen monitoring groups, as well as concerned individuals, often aid states by collecting water quality data and by helping to identify waters that may be candidates for these more stringent controls. Continued involvement by everyone, along with regular monitoring, ensure the protection of our surface waters, as well as preservation of fish and wildlife habitats.



For additional information on water quality-based controls or other Office of Water programs, you may contact:

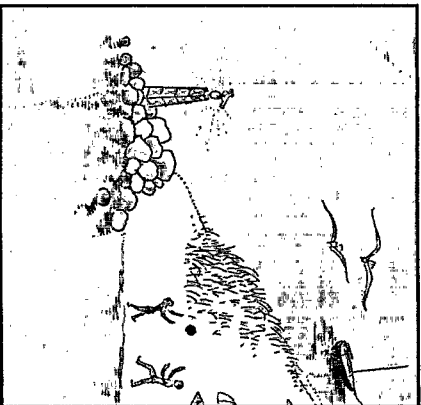
U.S. Environmental Protection Agency
Water Resource Center (RC-4100)
401 M Street, SW, Washington, D.C. 20460
(202) 260-7786

EPA Protecting Our Nation's Waters Through Water Quality-Based Controls



Protecting Water Quality

The U.S. Environmental Protection Agency (EPA) and all state and local governments are charged with protecting the quality of our rivers, lakes, streams, wetlands, and oceans. Laws such as the Clean Water Act protect both human health and the environment in two ways: they limit the amount of pollution allowed to enter our surface waters and they restrict the alteration of fish and wildlife habitats.



In accordance with the Clean Water Act, EPA or state governments issue permits to industries and municipalities that limit the amount of pollution that they may discharge. Routine monitoring ensures permit limits are not exceeded. If they are, then the responsible discharger must take immediate steps to stop the violations, and the states or EPA may impose stiff penalties.

Under current laws and regulations, there are two methods for controlling the amount of pollution that may be discharged into surface waters: technology-based controls and water quality-based controls.

Technology-Based Controls

EPA develops national guidelines or performance standards for entire industrial categories according to the best pollution control technology available for that industry. These guidelines are used by the states or EPA to develop discharge permits that they issue to individual dischargers. When guidelines are not in place for a particular industry, discharge limits are developed on a case-by-case basis.

Water Quality-Based Controls

Sometimes technology-based controls are not sufficient to protect a particular body of water. As a result, water quality standards are not always met. This could happen for several reasons. While individual facilities may have installed technology-based controls, the combined effect of many point source dischargers (such as factories, mills, sewage treatment plants, storm sewer outfalls) can cause in-stream water quality standards to be exceeded.

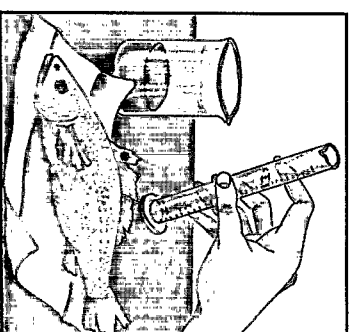


In addition, nonpoint source discharges (such as rainwater runoff from construction sites, farming areas, suburban areas, or cities) can also offset the effectiveness of technology-based controls. Any of these factors, alone or in combination with others, make it necessary for the state to place more stringent water-quality based controls on some or all dischargers.

Assessing Sources of Pollution

In developing water quality-based controls, regulators analyze all sources of discharges within the watershed that are affecting water quality. They study the physical and chemical properties of each discharge and the combined effects of all discharges on water quality. These effects are reviewed against the water quality standards that have been set by the state for each body of water.

Determining Water Quality-Based Limits



After assessing pollution discharges from individual sources, researchers determine a Total Maximum Daily Load (TMDL) for each pollutant that is exceeding the water quality standard. The TMDL is an estimate of the amount of a pollutant that can be discharged into a particular body of water in one day without violating water quality