

## FEATURE ARTICLE

A LOOK BACK: TWENTY YEARS OF THE CLEAN WATER ACT'S  
WHOLE EFFLUENT TOXICITY BIOMONITORING PROGRAM

By Lydia González Gromatzky

Since the inception of the Clean Water Act (CWA) whole effluent toxicity (WET) biomonitoring program about 20 years ago, there has been considerable controversy and debate related to both its elements and implementation. As defined by the U.S. Environmental Protection Agency (EPA), WET is the aggregate toxic effect of an effluent measured by a toxicity test. Over the years, the need to explain and clarify the WET program has resulted in the issuance of a considerable number of EPA guidance documents and policy statements. Yet, fundamental issues relating to the validity and reliability of test methods used, the setting and enforcement of those permit limits and the effect of EPA guidance on the states' implementation of WET programs continue to be debated and, at times, litigated.

In February of this year, an industry group asked the U.S. Supreme Court to review a decision by the U.S. Court of Appeals for the Sixth Circuit upholding EPA's disapproval of proposed Indiana and Ohio WET testing procedures. EPA rejected Indiana's proposed regulatory scheme concluding that Indiana's averaging of toxicity would result in fewer WET permit limits and consequently, would be less protective than EPA requirements. Ohio's proposed methods, which included a "weight of the evidence" approach for imposing WET permit limits, were also rejected as less restrictive than federal rules. The states countered that their regulatory schemes should be viewed as a whole and that EPA had failed to consider the more protective elements of their rules. However, using a deferential standard of review, the Sixth Circuit upheld EPA's disapproval of the proposed methods.

This litigation, while raising certain issues unique to the Great Lake states, which are subject to the Great Lakes Critical Program Act and implementing regulations allowing EPA to impose its own standards if these states fail to establish regulations consistent with EPA requirements, is indicative of the still unresolved issues related to the WET program. WET testing itself is a straightforward concept in theory. In practice, however, many legitimate issues arise, not only relating to the accuracy and reliability of the test (live organisms are inherently diverse), but also the correlation of test results to actual receiving stream conditions. In addition, the myriad of technical, policy and legal issues associated with determining not only how, when and what biomonitoring will be imposed, but also what regulatory consequences are appropriate continue to simmer. Add to this mix, the tension between national consistency and state flexibility, reflected in recent events in Texas, and the straightforward WET concept becomes increasingly complex.

### Basic Elements

A WET test, a form of biomonitoring, is a way of measuring directly any adverse effects of the effluent as a whole rather than predicting effects on a chemical-specific basis. WET tests are conducted by exposing aquatic organisms (e.g., the freshwater flea or fathead minnow) to different concentrations of an effluent sample. The test organisms are then observed to determine how many survive or to determine if growth or reproduction is affected. The goal is to evaluate the combined effects of all the chemicals in the sample and predict any potential toxic impact on the receiving stream.

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### Statutory and Regulatory Basis

The CWA establishes a goal to prohibit toxic pollutants in toxic amounts. Under § 303, states must establish water quality standards subject to EPA approval. As provided by the National Pollutant Discharge Elimination System (NPDES) permitting program, effluent discharge permits must include those conditions necessary to protect water quality standards. When a discharge causes or has the reasonable potential to cause an exceedance of state water quality criteria, the permit must contain effluent limits for whole effluent toxicity. Federal rules provide that when determining whether the reasonable potential threshold is met, the permitting authority shall use procedures which account for existing controls on sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing and where appropriate, the dilution of the effluent in the receiving stream. Federal and state differences in interpreting, and industry concerns over reasonable potential thresholds have been at the core of various controversies described below.

### Regulatory History

EPA did not adopt rules establishing the test methods to be used, a critical component of the WET program, until 1995. But EPA had initiated development of the WET program many years before. EPA had first included biological testing of effluent as a component of its proposed consolidated permit rules in 1980. In 1984, EPA issued its "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants" stating its intention to use a strategy including biological methods to address toxic pollutants from industrial and municipal sources. Five years later, EPA first defined the term "whole effluent toxicity" and adopted regulations setting forth the procedures for determining when water-quality based effluent limitations would be required in NPDES permits. During this time period, a number of policy statements and technical guidance documents were also issued by EPA addressing a variety of aspects of the WET program. The issuance of such guidance has continued to the present day. The WET program thus has developed in a somewhat piecemeal fashion.

The 1995 WET test method rulemaking provided an opportunity for industry to provide input to EPA on this significant program component, but the end result

did not allay the often expressed industry concerns about the reliability and accuracy of WET tests. The promulgation of the rule was challenged. Under a settlement of that action, EPA conducted interlaboratory variability studies to evaluate whether the test methods were such that they would generate consistently reliable results, prepared a WET test method variability guidance document and a WET test methods guidance document. Then, in 2002, EPA moved forward with promulgation of revised WET test methods.

This revised rule was also challenged, however. Among other claims, the petitioners, Edison Electric Institute and various municipal and industrial wastewater dischargers, contended that EPA did not adhere to its procedures and criteria for ensuring scientific validity of the test methods and that the WET test methods resulted in an unacceptably high number of false positives. In December of 2004, the D.C. Circuit Court of Appeals issued its decision rejecting the petitioners' arguments and finding that, although the test method was not without flaws, perfection was not the standard against which EPA action would be judged. The court also emphasized that there is an important distinction to be made between a challenge to the validity of a test method and a challenge to actual test results. The court noted that it was deciding only the validity of the test method and that its opinion did not foreclose consideration of the validity of a particular test result in the permitting or enforcement context.

While this holding preserves the ability of a respondent to contest a particular test result, such a challenge may take years and a significant expenditure of resources. Moreover, this potential for violations and penalties has been at the crux of the controversy that this program has engendered. While EPA has issued clarifying policies reinforcing the concept of enforcement discretion for penalties particularly when there has been only a single violation of a WET test, the fact remains that a test failure is considered a permit violation. Naturally, this is of significant and continuing concern for NPDES permittees.

In response to the continuing issues raised by stakeholders regarding the WET program, on December 28, 2004, EPA released its "Draft National Whole Effluent Toxicity (WET) Implementation Guidance Under the NPDES Program," the latest guidance document in a program where policy statements and technical guidance have proliferated. EPA's stated goals in issuing this guidance include promoting national consistency with-

in the existing NPDES WET program and emphasizing the need for compliance with its reasonable potential regulations. In this draft document, EPA “strongly encourages” authorized states to implement its guidance and suggests that states may need to modify their current procedures to do so. The regulated community’s responses set forth, among others, the following arguments: (1) flexibility in the manner in which states currently implement WET programs should be retained; (2) EPA’s reasonable potential method should be changed because the statistical procedure used results in overly conservative projections; and (3) a tiered approach for implementing WET limits should be adopted such that a permittee would be protected from the imposition of penalties if diligently pursuing the causes for a WET test failure. Conversely, however, a public interest group commented that, in its view, the guidance would result in a failure to include WET limits in permits for which these limits were necessary to protect the environment. Generally, comments provided by certain states emphasized the importance of retaining flexibility for WET implementation.

### Role of States under the Clean Water Act

EPA has not adopted § 304(a) water criteria guidance for whole effluent toxicity, but even if it had, states may rely on other scientifically defensible methods. Over the years, states authorized to administer the NPDES program have established their own WET programs subject to EPA oversight. These WET programs vary from state to state and include different requirements relating to, among other things, the types of discharges to which testing applies, the test organisms to be used, the frequency of WET testing and biological and statistical endpoints.

### Texas Wet Program

The Texas Commission on Environmental Quality (TCEQ) administers the NPDES permitting program and has developed a WET program which is set forth in its adopted water quality standards and implementation procedures. The Texas Surface Water Quality Standards (TSWQS) provide that surface waters will not be toxic to aquatic life. Texas has also incorporated by reference the federal rule providing for the imposition of a WET limit upon a finding that a discharge causes, or has a reasonable potential to cause an exceedance of water quality criteria. This does not mean, however,

that Texas and EPA have reached consensus on the appropriate implementation of a WET program.

The latest disagreement comes from the new EPA Region 6 position that sub-lethal effects (such as, effects on growth and reproduction) must be the subject of WET limits. Notably, to date, TCEQ, following EPA Region 6 standard practices and consistent with the TCEQ implementation procedures which were approved by EPA, has not required WET limits for sub-lethal effects. Recently, EPA Region 6 filed comments in response to TCEQ’s proposed revision of the TSWQS and implementation procedures stating that EPA believes it is necessary for TCEQ to revise its WET permitting procedures to begin incorporating WET limits for sub-lethal effects. In other recent correspondence, EPA Region 6 has requested that TCEQ provide a status update to EPA on the “WET revision initiative” to establish WET limits for sub-lethal effects. This same request was made of other Region 6 states. In addition, earlier this year, EPA Region 6 held a workshop announcing upcoming revisions to Region 6 WET program requirements. These EPA Region 6 communications reflect a new announced assertion by EPA Region 6 that compliance with federal regulations requires establishment of WET limits for sub-lethal effects. What remains to be seen is how this will ultimately affect the Texas WET program.

TCEQ’s written response to the EPA Region 6 correspondence emphasizes that TCEQ intends to evaluate the new EPA Region 6 strategy in the context of the pending revision of the TSWQS and implementation procedures and that it anticipates that this process will still be ongoing during most of next year. In prior comments on EPA’s “Draft WET Implementation Guidance,” TCEQ expressed concern that the proposed guidance “might result in as many as 50 percent of the applicable permits having enforceable WET limits,” and observed that enforceable limits do not necessarily improve the process for identifying and addressing toxicity. Noting that Texas implementation procedures are subject to a formal public comment process and approval by EPA, TCEQ recommended that EPA observe the flexibility allowed by the implementation procedures rather than impose any guidance on states as a “de facto rule.”

The more flexible TCEQ approach is reflected in the events that have unfolded in a recent TCEQ permitting decision related to a river authority’s request for renewal of its wastewater permit for which the

primary contested issue was the proposed inclusion of a WET permit limit. In this matter, involving a long and complex permit application history dating back to 1997, the primary contested issue was the proposed inclusion of a WET limit in the permit. The applicant had engaged in extensive WET testing and had previously experienced WET test failures. EPA requested the inclusion of a WET limit in the permit, TCEQ staff added the limit, and the applicant objected. Persuaded by evidence presented by the applicant relating to, among other things, the flaws associated with the WET tests conducted, and finding that the evidence failed to show that the applicant's discharges have the reasonable potential to cause or contribute to instream toxicity, the TCEQ Commissioners issued the permit without a WET limit. In response, and noting its specific objection to the permit for its failure to include appropriate requirements to address lethal toxicity and monitor for persistent sub-lethal failures, EPA Region

6 notified TCEQ that EPA did not consider that the permit was a valid NPDES permit under the Clean Water Act. EPA further stated that under the terms of delegation agreement between EPA and Texas, exclusive authority to issue the NPDES permit would pass to EPA. By all indications, this is the first instance since NPDES delegation to Texas in 1998 that EPA has invoked this authority.

### Conclusion

The tension of national consistency versus state flexibility is but one of the complications associated with the implementation of the WET program. The convergence of legitimate scientific, legal and policy issues continue to pose significant challenges for regulators to the present day. Meanwhile, frustrations do not diminish for the regulated community, which faces the potentially significant expenditure of time and resources to comply with the program, including its imperfections.

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