

December 14, 1999

U.S. Environmental Protection Agency, Region 4  
Water Management Division  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303

Attention: Ms. Yvonne Martin  
Water Quality Planning and Assessment Branch

Dear Ms. Martin:

The Georgia Industry Environmental Coalition<sup>1</sup> (GIEC) appreciates the opportunity to provide comments to Region 4 of the U.S. Environmental Protection Agency (EPA) on 20 proposed Total Maximum Daily Loads (TMDLs) for 13 water segments in Georgia, which were published for public comment on November 8, 1999.

Since GIEC has not reviewed TMDLs previously prepared by EPA, this review identifies our concerns with the TMDL process and provides our comments on the adequacy of the models to defensibly develop the specific TMDLs. [GIEC has previously reviewed and commented on two TMDLs prepared by the Georgia Environmental Protection Division (Georgia EPD)].

#### **TMDL PROCESS**

As stated in the TDML documents published by EPA Region 4 on November 8<sup>th</sup>, a TMDL is required for waters identified on Georgia's 303(d) list. The TMDL is "established at levels necessary to implement the applicable water quality standards with consideration given to seasonal variations and a margin of safety." Based on our understanding of the schedules resulting from the Sierra Club vs. EPA & Hankinson decision, the TMDLs are being developed at a pace that does not allow for the implementation of sound science, cost/benefit principles and shareholder participation. The following is a summary of the primary concerns of GIEC with respect to the TMDL process that is presently being used by EPA Region 4:

- The listing process is often based on very few data points, many times a single sample.
- There appears to be an inability to remove a water segment from the 303(d) list in spite of additional data supporting such action.

---

<sup>1</sup> GIEC is a not-for-profit membership organization of environmentally-regulated businesses in Georgia. Its members form a diverse group of industries, representing over 30 companies and 19 SIC codes, with the shared belief that environmental regulations should, and can, be both protective and cost efficient. The mission of GIEC is to serve as a technically-based advocate for Georgia industry by promoting environmental regulations and policies founded on protection of human health and the environment, sound science and cost/benefit principles. It is not GIEC's purpose to engage in political advocacy at either the state or national level.

- TMDLs were developed on water bodies even though EPA stated that impairment was "ruled out by recent sampling data".
- The TMDLs were generally developed using desktop models without sufficient data to calibrate and verify those models or to justify the target standard (e.g., non-human fecal coliform standard).
- The TMDLs were developed without the knowledge and participation of potentially affected dischargers. Excluding affected dischargers in the TMDL development process increases the likelihood of undesirable consequences for all stakeholders.
- If TMDL "scenarios" developed by EPA are based on incomplete or incorrect information, the only course available seems to be to rebut the TMDL through a request for an administrative hearing. A formal administrative hearing can be an inefficient use of resources as a first step in a dispute resolution process.
- EPA used steady state models that provide results that can be directly compared to the daily average components of the water quality standards. These steady state models, however, do not provide results that can be compared to the instantaneous components of the standards. Steady state models do not fully account for allowable excursions below/above the daily average standard and, thus, may have a tendency to inaccurately predict impairment of standards (e.g., the dissolved oxygen (DO) standard specifies a daily average 5.0 mg/l and never below 4.0 mg/l; fecal coliform standard specifies a geometric mean of a minimum of 4 samples in 30 days).
- The TMDL implementation plans were based on existing standards and water segment use classification. The TMDL process should evaluate the appropriateness of changes to the use classification, as well as to the standards.
- The TMDL implementation plans seem to impact only point sources. This is in marked contrast to continued previous assurance from both EPA and the Georgia EPD that the primary focus of TMDLs is to gain better control of nonpoint sources.
- It appears that the TMDLs, primarily the DO, did not provide credit for implementation (i.e., reduced instream rates to reflect higher degrees of treatment).

As the TMDL process has developed over the years, GIEC continues to be concerned about the 303(d) listing and delisting processes. The referenced TMDLs did not identify the data that resulted in the water segments to be on the 303(d) list and, as a consequence, the deviation from the standard was not known. As we have recognized, many of the listed water segments were included on the list due to few, if any, exceedances of the water quality standards. As such, it is of some concern to GIEC that there appears to be an inability to remove (delist) a water segment from the 303(d) list in spite of additional data supporting such action. Of the 20 referenced TMDL's, 6 were developed even though data indicated that the water segment was not impaired. The Georgia EPD recently performed two TMDLs for creek segments that were listed because prior modeling efforts identified the segments as potentially water-quality limited.

A tenet of the GIEC membership is that regulatory decisions should have a sound scientific basis with a cost/benefit component. Though GIEC understands the TMDLs are being developed to comply with the schedule developed as a result of the Sierra Club lawsuit, it is unsettling to know that, as a result of the schedule, the TMDLs must be developed even though no additional data have been collected to verify impairment or to support the TMDL models. We recognize that EPA understands the need for data, and that when data are not collected to support regulatory decisions, the results of any study could be misleading and the dollars spent on remedies can be misguided. For instance, the fecal coliform TMDLs referenced Georgia's standard for waters affected by human sources as the target concentration. Additional data or analyses could potentially support using the higher non-human source standard. This higher standard could result in the water segment being classified as not impaired or would thus result in an increase in the TMDL for the water segment.

A brief survey of the dischargers affected by the referenced TMDLs revealed they were unaware that a TMDL, which could potentially result in a modification to their discharge limits, was being developed. Participation of stakeholders could potentially result in the availability of additional data and would allow EPA to obtain feedback on the financial impact to the facility if a reduction is deemed necessary. GIEC believes that it is the responsibility of government agencies to inform the regulated community when studies/actions are being considered that could affect them.

GIEC understands and appreciates the need to establish water quality standards to protect human health and the environment. We further understand the Georgia EPD has the latitude to tailor the federal standards to protect specific water segments in the State by altering use classifications and potentially revising the standards. Several of the TMDLs were developed on water segments where the water quality could be naturally below the existing water quality standards. As a result, there are no practical implementation scenarios that would result in compliance with existing water quality standards and the water segment would perpetually be on the 303(d) list. GIEC believes that the appropriateness of the standard and the use classification should be addressed when evaluating 303(d) listings and TMDLs.

For the most part, the TMDLs that require a reduction in loading to comply with standards seem to impact only point sources. While the proposed TMDLs would require point sources to comply with much tighter limits, the nonpoint sources seem to be left "as is", without reduction. This apparent policy is in marked contrast to our understanding from both EPA and the Georgia EPD that the primary focus of TMDLs is to gain better control of nonpoint sources. The method used to implement the TMDLs is also inequitable and will improperly penalize point source dischargers. This apparent implementation policy will cause unjust and significant expenditures of limited financial and personnel resources.

### **TMDL SPECIFICS**

GIEC reviewed the TMDL documentation provided by EPA Region 4. A general comment for all the TMDLs is the data and setting (time, antecedent conditions, etc.) that caused the water segment to be included on the 303(d) list were not presented nor discussed in any of the documentation. In addition, the contributing watershed's land uses were not presented nor discussed regarding the load allocation (LA) component (e.g., is the watershed's land use agricultural, forested, urban, or other?). As a result, the following comments are

general in nature and are only provided for those TMDLs where a specific issue could be identified.

***Dissolved Oxygen for Ogeechee River, Butler Creek and Ebenezer Creek***

The DO TMDLs were developed using computer models to simulate the water segment kinetics. Since limited data were available, EPA used steady state models to determine the TMDL even though the DO standard (5.0 daily average, never less than 4.0 mg/l) is time variable and data indicate that instream DO is time variable. A more robust time varying model would simulate the diurnal temperature and loading effects. It appears that no data were collected to assist EPA in calibrating the kinetics of the system. Rather, the coefficients and sometimes background loading rates were based on literature values or possibly data collected on similar streams. The resulting TMDLs, with the exception of Butler Creek, were expressed in terms of the allowable biochemical oxygen demand (BOD) load, even though there are other sinks of DO in a natural system. For instance, sediment oxygen demand (SOD), a recognized DO sink when modeling instream DO kinetics, was simulated but it appears the resulting daily SOD deficit load was not included in the LA portion of the TMDL. This also appears to be the case for the DO deficit and nitrogen loads for the background (upstream and tributary) waters.

It does not appear the critical conditions model for Butler Creek took into account the character of the waste after implementing the TMDL (advanced wastewater treatment) nor did it take into account the character of the "background" waters during critical conditions (7-day/10-year (7Q10) low flows). Typically, advanced wastewater system discharges have less solids and lower constituent concentrations. A characteristic of the lower concentration wastewater is slower DO consumption rates (deoxygenation) and a corresponding higher f-ratio (CBOD<sub>u</sub> to BOD<sub>5</sub>). In addition, it is recognized that the instream deoxygenation rates downstream from wastewater treatment facilities reflect the level of treatment. That is, streams with highly treated wastewater have lower deoxygenation rates (say 0.05 to 0.1 per day) than those with less treatment (greater than 0.1 per day). Consequently, if the solids load is reduced, the deposition and resulting SOD downstream from the discharge will be reduced. The 7Q10 low flows generally occur following sustained dry periods and, as such, would be expected to primarily be the result of groundwater discharge into the river/creek channels. These waters typically have low BOD, solids and DO concentrations as they are discharged into the water segment and then are altered (BOD lowered and DO increased) as a result of the instream kinetics. The lower deoxygenation rates, the lower SOD and the lower 7Q10 loading will generally result in more available capacity.

The proposed implementation plan for DO TMDLs is to increase the treatment efficiency of the municipal wastewater treatment plant, thereby reducing the BOD and ammonia loading. It was not clear if the TMDL represented a 5-day or an ultimate BOD load. The implementation plan did not evaluate controls for nonpoint source contributions. Can the upstream and tributary loadings (DO, CBOD<sub>u</sub> and NBOD<sub>u</sub>) be reduced or can the downstream creek channels be enhanced to increase the assimilative capacity?

***Cyanide, Lead, Mercury, Zinc and Toxicity for Savannah River, Taylors Creek, Whites Creek, Buck Creek, Crawford Creek, Eastanollee Creek and Phinzy Ditch***

These TMDLs were conducted using mass balance techniques with the compliance point being the chronic water quality concentration for the particular constituent during 7Q10 low flow conditions. The zinc, lead and copper chronic concentrations are based on the hardness (as CaCO<sub>3</sub>) of the receiving waters. The higher the hardness, the higher the chronic concentrations and resulting TMDL. Though the chronic concentrations were calculated using a hardness concentration, it is unclear if the hardness used to calculate the chronic concentrations is representative of the receiving waters during low flow conditions. Other than the uncertainty associated with the hardness, the TMDLs for Eastanollee and Taylors Creeks could not be reproduced. It appears that the Taylors Creek TMDL for lead was calculated using a chronic instream concentration of 1.02 ug/l instead of 1.2 ug/l. The Coats American, Inc. discharge flow rate was not provided in the documentation for the Eastanollee Creek zinc TMDL. Back calculations indicate that the 1.48 mgd discharge would result in the 0.46 kg/day zinc TMDL.

***Fecal Coliform for Stekoa Creek, Butler Creek, Eastanollee Creek, Little River and Reed Creek***

Compliance with the fecal coliform standard is complex and potentially not attainable. As EPA is aware, fecal coliform are naturally occurring organisms that are the result of both human and non-human activities. In addition, data and the Butler Creek TMDL indicate that the fecal counts are typically elevated following stormwater runoff events (high flows). The fecal coliform standard varies, depending on the time of year, use classification and the source of the bacteria. For drinking water, recreation and fishing use classifications, the fecal standards are evaluated using the geometric mean of at least 4 samples collected over a 30-day period at intervals of not less than 24 hours. If the fecal coliform levels are from non-human sources and exceed 200/100 ml occasionally, then the standard could increase to as many as 500/100 ml for the critical May-through-October period. As is evidenced by the standards and our knowledge of fecal sources, compliance can be greatly influenced by sample timing and the stream conditions prior to sample collection (i.e., dry or wet).

Except for the Butler Creek TMDL, the fecal TMDLs were calculated using mass balance techniques during 7Q10 low flow conditions and background fecal levels (20 to 200 per 100 ml). GIEC does not believe that the mass balance technique addresses the complexity of the sampling and potential elevated background loading associated with fecal coliform. With regard to the referenced TMDLs, we could not confirm the Stekoa and Eastanollee Creek TMDLs because flows and concentrations for the City of Clayton and City of Toccoa, respectively, were not provided. As stated in the Little River TMDL, there are no point source discharges affecting the river segment implying that the source of impairment is non-human. Therefore, the more appropriate standard appears to be 500/100 ml and the LA should be correspondingly increased.

The Butler Creek TMDL was based on the results of watershed and stream computer models. The model results presented in the TMDL documentation reflect the increased fecal levels resulting from stormwater runoff and the lower (less than 200/100 ml) levels during non-storm conditions. It appears that EPA interpreted the results by calculating a geometric mean of all the fecal levels during a 30-day period. This interpretation indicates that the water segment does not comply with the fecal standards. To illustrate the complexity of the fecal standard, these same results could be interpreted as demonstrating compliance with the standard. If the necessary four samples were collected during non-

runoff periods, the geometric mean would reflect the background fecal levels (i.e., in compliance). GIEC does not imply that this water segment is not impaired, but only intends to illustrate: 1) the complexity of the fecal standard; 2) the resulting uncertainty in classifying a water segment as "impaired" and; 3) the challenge in calculating a TMDL for fecal coliform.

## RECOMMENDATIONS

As a result of our review, GIEC concludes that:

- EPA Region 4 should withdraw these proposed TMDLs until scientifically justified TMDLs can be developed.
- The data used to justify listing a stream segment on the 303(d) list should be provided in the documentation available to the public for comment both when a stream is listed and when a TMDL is proposed.
- As recognized by EPA Region 4, six of the stream segments for which a TMDL is proposed and are not impaired should be removed (delisted) from the 303(d) list based on the recent site-specific data.

Although GIEC recognizes the time constraints in developing these TMDLs, we hope GIEC and EPA Region 4 representatives can meet in the near future so that we may better understand the TMDL process and develop a mechanism to allow for the sharing of information before EPA Region 4 develops TMDLs that impact identifiable stakeholders.

Sincerely,

Georgia Industry Environmental Coalition

Michael E. Wilder  
Water Resources Workgroup Chair

James R. Baker  
Chair

cc: A. Hallum, GA EPD  
GIEC Membership