DOW CHEMICAL U.S.A.

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Dr. C. Hugh Thompson, Chairman
Hazardous and Toxic Substance
Regulation Task Force
Office of Water Program Operations
Environmental Protection Agency
Washington, D. C. 20460

Dear Dr. Thompson:

In response to the invitation published in FEDERAL REGISTER, 38, 35388 (1973), the views of scientists of Dow Chemical U.S.A. on the Proposed Toxic Pollutant Effluent Standards are presented below. Although Dow Chemical U.S.A. does not discharge significant quantities of the pollutants listed, we are nevertheless concerned that the criteria used in developing environmental standards be scientifically sound. To this end we wish to offer constructive comments on the proposed effluent limitations.

1. Federal and Local Roles.

In setting effluent limitations on toxic pollutants, PL 92-500, Sec. 307 calls for the Administrator to "take into account the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organism in any waters, the importance of the affected organisms...."

The toxicity of a pollutant (including toxicity to aquatic organisms, residue accumulation, and toxicity to mammals) can be estimated to a reasonable degree of accuracy from laboratory measurements. Based on these data, water quality standards should be developed at the national level to protect affected organisms. This is properly the role of the EPA, and such standards should serve as the basis for setting effluent limitations.

In order to determine "the usual or potential presence of the affected organism...(and) the importance of the affected organism," it is necessary to take into account the special circumstances of each water course.

Some organisms are indigenous and important in certain waters but not in others. In many cases the persistence and degradability of toxic pollutants are also best judged in the context of local situations.

In our view, effluent limitations on toxic pollutants should be set for industrial discharges by regional and state enforcement agencies and specified in individual NPDES permits. By following this approach it is possible to take into account the presence and importance of organisms, dilution rates, dispersion zones, receiving water flow rates, downstream water uses, and a variety of other local conditions. This is the intent of the law, and we believe this approach is the one EPA should follow in implementing it.

The alternate approach followed by EPA in developing proposed effluent limitations on toxic pollutants is based on setting allowable discharge levels to fulfill the requirements of PL 92-500 for the most restrictive situation, and applying them uniformly across the nation. Unnecessarily stringent controls result in many instances, and we feel this is not the intent of the law nor is it in the best interest of the nation.

We, therefore, urge EPA to adopt the approach of setting minimum water quality standards for toxic pollutants at the national level, and to provide guidelines allowing local enforcement groups to set effluent limitations for each industrial discharge to meet the receiving water quality standards.

2. Effluent Limitations Based on Total Weight Discharged.

The proposed regulations place a restriction on the concentration of a toxic pollutant that may be discharged, and an additional, more stringent limitation on the total weight discharged per day.

The additional limitation, based on total weight of pollutant discharged, is scientifically valid only in cases where a downstream buildup of the pollutant may occur. This is possible when the solubility of the pollutant is less than the concentration limitation, where the pollutant is strongly reversibly adsorbed on sediments, or where discharge is into a reservoir in which water is removed principally by evaporation. Where no downstream buildup of the pollutant will occur

the additional more restrictive limitation on total weight of pollutant discharged serve no purpose in environmental protection. We feel, therefore, that this restriction should be applied only where the local hydrodynamic conditions make it necessary.

The Administrator is instructed in PL 92-500, Sec. 307, to take into account "the toxicity of the pollutant, its persistence (and) degradability." The persistence of the pollutant in the aquatic environment is particularly important in evaluating the possibility of a downstream buildup of the material, and, therefore, in setting limitations based on total weight discharged. The principal mechanisms for removal of pollutants from water include chemical reaction with water and oxygen, biological degradation, vaporization, and irreversible binding to sediments. Removal by these mechanisms is usually estimated on the basis of laboratory studies and confirmed by environmental monitoring. The results can often be interpreted only on the basis of a specific set of circumstances, and again become meaningful only in the context of a discharge at a specified location.

We urge the EPA to set forth guidelines at the national level on the need for the added restriction on total weight of a toxic pollutant discharged, and allow local enforcement agencies the flexibility of applying these guidelines to individual NPDES permits.

3. Proposed Limitations on PCB in Water Effluents.

Effluent limitations should not be placed on a class of chemicals whose individual members have a widely differing combination of physical, chemical and biological properties. An alternate approach to effluent limitations for individual PCB's is given by D. R. Branson in the attachment.

A critical factor in setting effluent standards for individual groups of PCB isomers, i.e., mono, di, etc. is the availability of analytical methodology for enforcement purposes. The attached discussion "Polychlorinated Biphenyl (PCB) Analysis" by J. R. Hall points out that such methodology is available for individual groups to at least as great a degree of accuracy and sensitivity as that available for the whole class of PCB's. Thus, the individual compound approach appears feasible from the point of view of enforcement.

4. Effluent Limitations on Benzidine.

Data is not available to justify limitations on benzidine in water effluents. Data needed include:

A. Persistence of benzidine in water.

B. Residue levels of benzidine in human food derived from aquatic organisms.

C. Concentration of benzidine in drinking water which produces a toxic response in mammals.

D. Toxicity of benzidine to aquatic organisms.

A research program should be initiated to obtain the data described above. Limitations, if promulgated, should be labeled temporary and re-evaluated in the light of the results of the research program.

These recommendations are being offered in an effort to be helpful in deriving effluent limitations for toxic pollutants based on valid criteria. We hope they will be carefully considered prior to promulgation of final standards.

Very truly yours,

Robert J. Moolenaar

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Office of Public Issues

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