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DRAFT

December __, 1991

BY HAND

Mr. Tony W. Baney
Chief, Chemical Regulatory Branch
Office of Toxic Substances (TS-798)
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: Additional Supplemental Comment by the Chemical
Manufacturers Association, National Electrical
Manufacturers Association, and Utility Solid Waste
Activities Group -- PCB Advance Notice of Proposed
Rulemaking (OPTS-66009), 56 Fed. Reg. 26738 (June 10,
1991)

Dear Mr. Baney:

The Polychlorinated Biphenyl Panel of the Chemical Manufacturers Association (CMA), the National Electrical Manufacturers Association (NEMA) and the Utility Solid Waste Activities Group (USWAG) continue to believe that the Environmental Protection Agency (EPA) should issue nationally applicable cleanup standards for old polychlorinated biphenyl (PCB) spills. This submission is offered as a supplement to the groups' earlier comments on the ANPRM (August 9, 1991, November 8, 1991, and November 12, 1991).

As explained more fully below, we strongly urge the Office of Toxic Substances (OTS) not to include a numerical cleanup criteria for PCB contaminated sediment as part of an old spill policy. The method currently under consideration to assess the potential environmental impacts from PCB contaminated sediment, the equilibrium partitioning method, is scientifically flawed, unsupported by field studies, fails to take into account the nature of the water body, and inevitably will be treated as a standard. As a result, the cost of such cleanups would be

substantial with no significant public health or environmental benefit.

I. There Are No Uniformly Applicable Scientifically Valid Methods At This Time For Setting Cleanup Levels For PCBs In Sediment, Therefore, EPA Should Not Set A Sediment Cleanup Standard or Criteria For Old or New Spills

There is no legally applicable action level for PCB contaminated sediment in any Federal regulations. EPA, however, is considering issuing non-enforceable advisory levels that States may use in developing enforceable sediment standards.¹ The Agency has already issued guidance recommending use of the equilibrium partitioning method at Superfund sites to assess the impact of PCB contaminated sediment.²

Conceptually, the equilibrium partitioning theory estimates the sediment concentration necessary to ensure that the concentration of a chemical in interstitial water (*i.e.*, the water present in between sediment particles in a water body) does not exceed EPA's nonenforceable chronic water quality criterion. PCB sediment concentrations derived from the equilibrium partitioning method are a function of the ability of the chemical to adsorb to soil, the amount of organic carbon in the sediment, and the environmental criteria that EPA is using as an end point (*i.e.*, the chronic water quality criterion).³

Based on this methodology, a concentration of environmental concern for PCBs in sediment with an organic carbon content of 10%, is 1.9 ppm (with a potential range of 0.4 ppm and

1. As part of its Water Program, EPA will propose five sediment criteria in the fall of 1991. See also, Science Advisory Board, EPA, Report of The Sediment Criteria Subcommittee of The Ecological Processes and Effects Committee: Evaluation of the Equilibrium Partitioning (EqP) Approach for Assessing Sediment Quality (Feb. 1990) ("SAB Report"); EPA, Technical Support Document For Water Quality-based Toxics Control (EPA/505/2-90/001, 1991).

2. Guidance on Remedial Actions For Superfund Sites With PCB Contamination at 36 (OSWER Dir. No. 9355.4-01, Aug. 1990) ("Superfund PCB Cleanup Guidance") (which recommends using the equilibrium partitioning method for screening purposes).

3. The chronic water quality criterion for PCB (0.014 ug/L) is based on the lowest levels that result in adverse health effects in mink. Superfund PCB Cleanup Guidance, supra note 2, at 35.

9.9 ppm).⁴ The concentration of concern drops to 0.2 ppm (with a potential range of 0.04 ppm to 1.0 ppm) if the organic carbon content is 1%.⁵ The lower end of this range of concentrations is below generally achievable detection limits, however, and may be below ambient levels in some geographical areas.

The CMA PCB Panel, NEMA, and USWAG strongly urge EPA not to issue regulations, standards, or guidance setting PCB sediment cleanup levels pursuant the Toxic Substance Control Act ("TSCA") or any other statute. Risks and exposure pathways vary tremendously from site-to-site and in view of the lack of scientific evidence supporting the equilibrium partitioning method, EPA should establish cleanup levels on a case-by-case basis.

B. The Equilibrium Partitioning Method Is Scientifically Flawed

The National Research Council Committee on Contaminated Marine Sediment found that there is no scientific, accepted technique for setting sediment cleanup levels.⁶ Similarly, EPA's own Science Advisory Board recommended against use of the equilibrium partitioning method to derive a uniform national standard.⁷

The scientific flaws in the equilibrium partitioning method include, inter alia: (1) reliance on a single partitioning coefficient and toxicity factor even though both partitioning factors and toxicity factors vary substantially for different PCB congeners; (2) reliance on the doubtful assumption that the water/sediment/fish ecosystem is in equilibrium; (3) failure to use toxicity data from actual sediment of interest; (4) high levels of uncertainty in predicting PCB water concentrations from PCB sediment concentrations; (5) the lack of field validation of the method; (6) the invalid assumption that the water concentration above the sediment (i.e., the water concentration

4. Superfund PCB Cleanup Guidance, supra note 2, at 36.

5. Id.

6. Committee on Contaminated Marine Sediments, National Research Council, Contaminated Marine Sediments - Assessment and Remediation at 3 (1989) ("NRC Sediment Report"); see also a list of classification methods and their advantages and disadvantages. Id. at 7-9.

7. SAB Report, supra note 1, at 1.

to which bottom feeders are exposed) is the same as the interstitial water concentration; (7) the doubtful assumption that water column organisms and benthic organisms have similar sensitivities; (8) failure to define the limitations of the methodology, particularly those related to its unreliability for sediment with low organic carbon content.⁸

Additionally, the equilibrium partitioning method does not account for the nature of the water body, as with EPA's approach to other cleanup levels. Just as soil cleanup levels take into account whether a property is subject to future residential or industrial use, sediment criteria should take into account whether the water body is: (1) essentially a drainage ditch on industrial property; (2) in a highly commercialized and/or industrialized area; (3) in an area where there are no mink, the sensitive species used as the endpoint for the PCB water quality criteria; or (4) located in a pristine environment. It would be arbitrary, ineffective, extremely costly, and inconsistent with other Superfund policies to attempt to clean up every body of water to the same level.

Each of the scientific uncertainties associated with the equilibrium partitioning method is substantial.⁹ The combined impact of these uncertainties is overwhelming. It is particularly telling that several offices within EPA,¹⁰ other

8. NRC Sediment Report, supra note 6, at 9; Rodricks, Determining Compliance With PCB Standards, 9 Risk Analysis 275 (1989); the technical comments sent to Christopher Zarba of EPA's Office of Water concerning EPA's proposal to use the equilibrium partitioning method to promulgate sediment criteria (The number of documents are too numerous to separately cite, but are incorporated by reference) ("Comments on Equilibrium Partitioning Method").

9. For example, according to EPA's Superfund PCB Cleanup Guidance, the sediment value varies by a factor of 25 based on differing experimental partition coefficients. Superfund PCB Cleanup Guidance, supra note 2, at 36.

10. E.g., Memorandum from M. Sprenger, Environmental Response Branch, EPA, to C. Zarba, Office of Water, ERA, Re: Pre-Draft Sediment Quality Criteria For Endrin - for the Protection of the Presence of Benthic Organisms (June 5, 1991) ("These discrepancies ... give rise to serious doubts as to whether or not the SQC as currently developed should be proposed." Id. at 1) in Comments on Equilibrium Partitioning Method.

federal agencies,¹¹ and other independent experts¹² have severely criticized or rejected the equilibrium partitioning method. Thus, sediment cleanup levels derived using this method are scientifically inaccurate, unduly stringent, infeasible to meet, and incorrectly applied to widely differing situations.

C. EPA Superfund Guidance Recognizes That The
Equilibrium Partitioning Method Is Not Reliable
Enough To Use For Deriving Cleanup Levels

It is significant that Superfund guidance does not recommend that values derived by the equilibrium partitioning method be used as sediment cleanup levels, i.e., levels which trigger remedial action if exceeded. Rather, the numerical values derived by this method are used as screening levels. If the concentration of PCBs is below the screening level, then no action is necessary.

11. E.g., Letter from P. Landrum, National Oceanic and Atmospheric Administration ("NOAA"), to C. Zarba, EPA (May 31, 1991) ("I remain concerned that this criteria generation is proceeding faster than the development of data to provide suitable validation of the method." Id. at 5); Letter from T. O'Connor, Manager of the National Status and Trends Program, NOAA, to C. Zarba, EPA (June 6, 1991) ("I sincerely hope, however, that EPA is not considering early adoption of the tentative SQC's. Their physical-chemical assumptions are contradictory and fragile." Id. at 5); Letter from J. Elmore, Chief, Operations, Construction and Readiness Division, Directorate of Civil Works, U.S. Army Corps of Engineers, to C. Voigt, EPA (1991) (no specific date discernible) ("The COE is not supportive of the use of numerical chemical specific sediment criteria (SQC) in the evaluation of dredged material. The COE feel that it is likely that once SQC are available they will be rigidly applied by regulatory agencies and that there would be little or no flexibility to consider all pertinent factors and disposal options when handling contaminated sediments." Id. at 1 of attachment) in Comments on Equilibrium Partitioning Method.

12. Letter from P. T. Carver and V. Bierman, Co Chairmen of the Water Pollution Control Federation's Sediment Work Group, to C. Zarba, EPA (June 7, 1991) (communicating individual comments of members) in Comments on Equilibrium Partitioning Method. Many respected associations, such as the American Petroleum Institute also filed critical comments in Comments on Equilibrium Partitioning Method.

Remedial action is not necessarily triggered, however, if the concentrations of PCBs in sediment exceed these values. Instead, EPA's Superfund guidance indicates that "chemical monitoring of indigenous benthic and water column species should be instituted to determine if prey species of wildlife or marketable benthic or water column species contain unacceptable concentrations of PCBs."¹³ Only if this environmental monitoring indicates a significant environmental impact is remedial action considered.¹⁴ Even then, Superfund guidance requires a balancing of several factors before deciding that a remedial action is appropriate.

We agree with EPA's Superfund office that the existing scientific data is not sufficient to justify using the equilibrium partitioning method to set cleanup levels. Even a nonbinding guidance, however, presents concerns. Experience with EPA's water quality criteria, EPA Superfund guidance, the PCB new spill cleanup policy, and other guidance demonstrate that the distinction between guidance and binding regulation is often ignored in implementing these programs.¹⁵

The cost of application of these criteria as a rigid cleanup goal will be astronomical and no significant public health or environmental benefits will be achieved.¹⁶ In effect, use of this method to set rigid cleanup levels would protect the most sensitive benthic organisms (with an ample margin of safety) in drainage ditches, regardless of cost.

13. Superfund PCB Cleanup Guidance, supra note 2, at 36.

14. "If chemical monitoring of biota fails to indicate . . . [impairment], the need for extensive remediation based on exceedence of . . . [sediment quality criteria] should be questioned." Id. The nature of the water body and the type of land use in the area must be taken into account in determining whether and what type of remedy is appropriate.

15. See, e.g., Committee on Ground Water Modeling Assessment, Ground Water Models: Scientific and Regulatory Applications 212-215 (1990) (criticizing the frequent misuse of models, particularly the selection of overly simplistic models for site-specific problems); McLouth Steel Prods. Corp. v. Thomas, 838 F.2d 1317, 1320 (D.C. Cir. 1988) (holding that EPA erred in treating guidance as a de facto rule).

16. The National Academy of Sciences urged that the reduction of sediment remedies be cost-beneficial. NRC Sediment Report, supra note 6, at 3.

In sum, OTS should not include a numerical cleanup criteria for PCB contaminated sediment in its PCB regulations or guidance. If a scientifically appropriate method is developed, it must be systematically validated prior to promulgation with field data from actual sites to determine if its predictions are accurate.

Sincerely,

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