



Contaminated Sediments News



Status of Proposed RCRA Hazardous Waste Identification Rule for Contaminated Media (Including Contaminated Sediments)

An EPA workgroup recently completed work on the Agency's Hazardous Waste Identification Rule for contaminated media (HWIR-Media). Now the rule will be reviewed by senior EPA management, the EPA Administrator, and the Office of Management and Budget before proposal in the *Federal Register*. This rule will provide an exemption from regulation under Subtitle C of the Resource Conservation and Recovery Act (RCRA) for contaminated media that are managed under the oversight of EPA or an authorized state. In addition, the rule excludes dredged material permitted for discharge under the Clean Water Act and the Marine Protection, Research, and Sanctuaries Act from RCRA Subtitle C requirements (including testing requirements).

A summary of the rule reads "as part of the President's regulatory reform initiative the United States Environmental Protection Agency (EPA) is proposing new regulations governing contaminated media, including

contaminated soil, ground water, surface water, and sediment, that are managed during government-overseen remedial actions. Currently these contaminated media are often subject to regulation as hazardous waste under RCRA. Today's proposal specifies that EPA and authorized states would have the authority to exempt certain lower risk contaminated media from regulation as hazardous wastes, and establishes modified land disposal restrictions (LDR) treatment requirements for higher risk contaminated media which remain subject to the hazardous waste regulations (RCRA Subtitle C). EPA also proposes to streamline the permitting process for remedial actions involving management of hazardous wastes (or contaminated media), and to simplify the state-authorization procedures associated with these regulations."

The proposal addresses only the management of wastes (or contaminated media) that are generated during

Contaminated Sediment Activities Timeline

October 11-13, 1995. Managing Contaminated Sediments. University of Wisconsin, Madison. Contact Pat Eagen at 1-800-462-0876.

November 5-9, 1995. Second SETAC World Congress, Vancouver, B.C., Canada. The theme of this meeting is Global Environmental Protection: Science, Politics, and Common Sense. Abstracts are due by May 1, 1995. For more information, call Peter Chapman, program chair, at (604) 986-4331 or Rod Parrish, executive director, at (904) 469-1500. For information regarding exhibits, call Karsten Liber at (715) 394-8158.

November 29 - December 1, 1995. National Sediment Bioaccumulation Conference. Crystal City, Virginia. (see announcement on page 7). For more information, contact Leanne Stahl, U.S. EPA Headquarters, at (202)260-7055.

December 7-8, 1995. Sampling and Analyzing for VOC in Environmental Media. University of Wisconsin, Madison. Contact Pat Eagen at 1-800-462-0876.

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CS News is produced by EPA OST to exchange information on contaminated sediments and to increase communication among interested parties. To obtain copies of this report or to contribute information, contact Jane Marshall Farris, EPA OST, mail code 4305, at (202) 260-8897.

To be added to the mailing list or to make changes to your address, please fax your request to Melissa Bowen, Tetra Tech, at (703) 385-6007.

cleanup actions. It does not address issues associated with what wastes or media should be cleaned up, what the clean-up levels should be, or how remedies are selected. Media include soil, sediment, surface water, and ground water.

To determine whether media are higher or lower relative risk, EPA has established "Bright Line" contaminant concentration levels for soil and ground water. Bright line numbers have not yet been determined for those contaminated sediments, which will continue to be regulated under RCRA. Media that are contaminated below bright line levels are eligible for more flexible site-specific management standards to be set by the overseeing



Today's proposal specifies that EPA and authorized states would have the authority to exempt certain lower risk contaminated media from regulation as hazardous wastes.



agency. One of the primary objectives of the proposed rule is to remove lower-risk contaminated media from Subtitle C jurisdiction so that more appropriate, site-specific management requirements can be specified by the overseeing agency for those media.

The proposed HWIR-Media rule does not propose bright line contaminant concentrations for determining whether sediments contain hazardous or contaminated material at RCRA sites. The rule preamble will state that bright line concentrations have not yet been proposed for sediments. The rule will request comments on whether bright line concentrations for sediments are needed, and if needed, request comments about appropriate bright line concentrations.

The rule would also establish that dredged material disposed in accor-

dance with a permit issued under Section 404 of the Clean Water Act or under Section 103 of the Marine Protection, Research, and Sanctuaries Act would not be subject to Subtitle C of RCRA. At present, dredged material could be subject to both RCRA regulations and dredged material disposal regulations, complicating efficient assessment and management of potential environmental impacts.

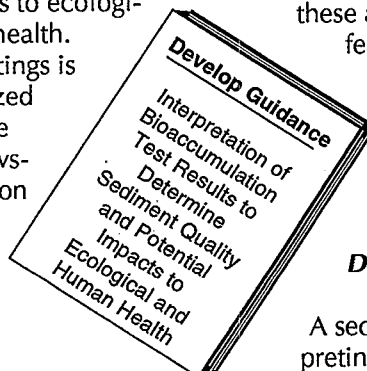
For more information on this proposed rule, contact Jane Marshall Farris, EPA-OST, at (202) 260-8897.

Recent Federal Bioaccumulation Conferences

Recently, a series of meetings and conferences have been organized and sponsored by EPA and the Corps of Engineers to tackle the question of how to integrate bioaccumulation assessment results from sediment testing into regulatory decision making.

Workshops were held in Wakefield, Massachusetts, and Denver, Colorado, during August 1994 and 1995, respectively.

Planning for the third event, the National Sediment Bioaccumulation Conference, is currently under way. It will be held in Crystal City, Virginia, November 29 - December 1, 1995. Results from these meetings will contribute to the ultimate goal of developing guidance on interpretation of bioaccumulation test results to determine sediment quality and potential impacts to ecological and human health. Each of the meetings is briefly summarized below and future issues of the newsletter will focus on the results of these meetings.



Wakefield, Massachusetts Workshop

A 2-day workshop entitled Interpretation of Sediment Bioaccumulation Test Data for the Ocean Dumping Program was held in Wakefield, Massachusetts, in August 1994. It was sponsored by EPA Region 1; the Corps of Engineers, New England District; and the New England Division of Metcalf & Eddy. The purpose of the workshop was to provide direction for developing regulatory interpretive guidance in evaluating sediment bioaccumulation test data for the EPA/Corps dredging program. Experts on sediment contamination from around the country participated in the workshop.

Background EPA and the Corps nationally have required the use of the 28-day laboratory bioaccumulation test to determine the bioavailability of sediment contaminants in the food chain. The test is used with the companion sediment toxicity tests to provide project-specific data for the evaluation of dredged sediment proposed for open water or ocean disposal. The bioaccumulation tests involve a comparison of tissue contaminant concentrations in deposit-feeding invertebrate species that are exposed in the laboratory to the dredged sediments with (1) FDA action levels and (2) laboratory-derived reference values using sediments from the general vicinity of the disposal site, but outside its influence.

Workshop Objectives The objectives of the Wakefield workshop were (1) to identify approaches to interpret the test data and (2) to provide direction to regulators on which of these approaches are the most useful/feasible for establishing interpretive guidelines. For more information, contact Dave Tomey, U.S. EPA Region 1, JFK Federal Building, Boston, MA 00203 (617) 565-4425.

Denver, Colorado Workshop

A second workshop, entitled Interpreting the Consequences of

Regional Activities

Bioaccumulation Related to Dredged Material Assessment and Management, was held in Denver, Colorado, August 29-31, 1995. The workshop was organized by the Corps of Engineers. The purposes of the workshop were to continue the dialogue with national experts on interpreting bioaccumulation test results and to recommend specific research and development needs.

Background Bioaccumulation for dredged material disposal is the process that describes the movement of contaminants from the sediment or water into the biota. Bioaccumulation establishes a compliance standard for the Marine Protection, Research, and Sanctuaries Act (MPRSA) and the Clean Water Act (CWA). Continued maintenance of navigation projects depends on the scientist's ability to interpret bioaccumulation results and relate them to decision making.

Workshop Focus and Goals This workshop focused on interpreting the significance of specific levels of bioaccumulation from dredged material disposal. The results of the workshop will contribute to developing policy and guidance for use by dredging project managers and technical specialists who manage dredged material. Discussion at the workshop focused on (1) a framework for interpreting the consequences of bioaccumulation, (2) numeric and narrative guidance for interpreting specific levels of bioaccumulation, and (3) recommendations for specific research and development needs.

Upcoming National Sediment Bioaccumulation Conference

The upcoming EPA National Sediment Bioaccumulation Conference (November 29 - December 1, 1995, Crystal City, Virginia) will focus on assessment of bioaccumulative sediment contaminants, integration of the assessment results into regulatory decision making, and pollution prevention, as well as dredged material management. For more information on the conference, refer to the conference announcement on page 7 of this newsletter.

Region 2

NY/NJ Harbor Estuary Program Monitoring Workshop Held

On August 22-23, 1995, The Hudson River Foundation, in conjunction with the NY/NJ Harbor Estuary Program (HEP), sponsored a workshop to develop a monitoring plan for the NY/NJ Harbor Estuary and New York Bight. The workshop was held at Rutgers University's Institute of Marine and Coastal Sciences. One hundred participants, meeting over a 2-day period, broke into work groups to develop specific indicators for monitoring as well as testable hypotheses, scopes of work, cost estimates, and data management needs. The workgroup topics included Toxics/Dredged Material, Nutrients, Habitat, Pathogens/Floatables, and Data and Information Management. A proceedings document will be prepared, and the results from the workshop will form the basis of the monitoring plan. For more information on the HEP, contact Dennis Suszkowski, Hudson River Foundation, at (212) 924-8290.



Ecology's proposed construct for human health criteria relies on a tiered approach, with "Tier I" representing an initial evaluation to determine whether sediment chemical concentrations pose a significant human health risk. Additional, site-specific analysis would then be available ("Tier II") to verify the results of the Tier I analysis. The Department of Health is currently completing a report describing the technical considerations for Tier II analysis.

The final Tier I Report marks the completion of a major step in the development of health-based sediment criteria for Puget Sound. Ecology will complete additional technical development work in the next few months and will then be ready to move into the rule development phase. Once adopted into the Sediment Management Standards, Chapter 173-204 WAC, human health criteria will be used to make cleanup and source control decisions in conjunction with the existing ecological criteria.

Initial efforts focused on the use of a bioenergetics-based equilibrium-partitioning model (Thomann, et al., 1992). Due to a lack of appropriate input parameters and the availability of empirical data, an empirically based approach, relying on information from both the published and gray literature, was developed and recommended. This approach is described in the final DOH report.

An outside contractor has been conducting additional technical development work, including verification of the biota-sediment accumulation factors recommended by DOH. Ecology expects this work to be completed this fall. As the technical development work moves forward, Ecology is developing a strategy for

Region 10

Health-Based Sediment Criteria for Puget Sound

Since 1989, the Washington State Departments of Ecology and Health have been working together to develop sediment criteria to protect human health. This summer, the Department of Health's final report, which describes its recommended approach for the development of criteria, was completed. This paves the way for Ecology to move ahead in the rule development process.

implementing the human health criteria for cleanup and source control efforts. This strategy is likely to include an assessment of fish tissue chemical concentrations to confirm the potential threat to human health.

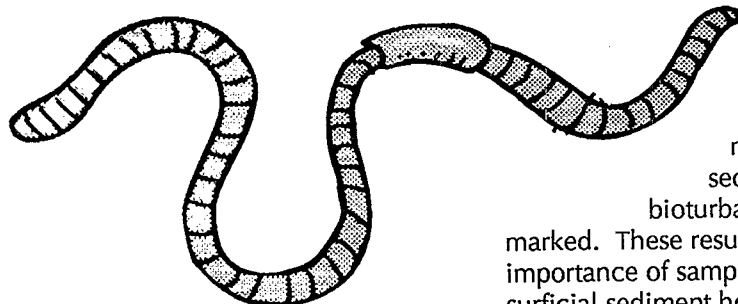
Ecology expects to propose health-based criteria values later this year, with final adoption slated for mid-1996. As always, the rule development process will include ample opportunity for public input. In addition, Ecology will write a cost/benefit analysis for the proposed rule as required by recent legislation.

For further information on this or other Ecology human health sediment criteria reports or on the rule development process, contact Laura Weiss at (360) 407-7446 (fax: 407-6904). You can also send E-mail to lwei461@ecy.wa.gov. For additional information on Region 10's sediment program, contact John Malek, Sediment Management Program at (206) 553-1286, E-mail: malek.john@epamai.epa.gov.

References:

Washington State Department of Health. 1995. Tier I Report: Development of Sediment Quality Criteria for the Protection of Human Health. June.

Thomann, R., J. Connolly, and T. Parkerton. An Equilibrium Model of Organic Chemical Accumulation in Aquatic Food Webs with Sediment Interaction. *Environ. Toxicol. Chem.* 11:615-629.



ORD-Narragansett

Geochemistry of Polychlorinated Biphenyls in Marine Sediment Colloids

For the past year, researchers at the U.S. EPA Atlantic Ecology Division laboratory have been studying the role of marine sediment colloids in the geochemistry of polychlorinated biphenyls (PCBs). This work demonstrates that more than 60 percent of the highly chlorinated PCBs present in sediment interstitial waters are associated with colloids while the remaining PCBs are truly dissolved. Other researchers have shown that anthropogenic contaminants bound to colloids are often less bioavailable than those truly dissolved. Evaluated together, these data suggest that highly chlorinated PCBs present in interstitial waters might not be readily bioavailable to marine organisms. For more information, contact Rob Burgess at (401) 782-3106.

ORD-Duluth

Effects of Bioturbation on the Oxidation of Metal-Sulfide Complexes

ORD-Duluth has finished a series of experiments using *Lumbiculus variegatus* to determine the effects of bioturbation on the oxidation of metal-sulfide complexes. The metals used were cadmium and zinc. ORD researchers found a density-dependent

oxidation of AVS, with concurrent increases in bioavailability of metal in surficial sediments where bioturbation is most marked. These results indicate the importance of sampling appropriate surficial sediment horizons for determination of metal bioavailability.

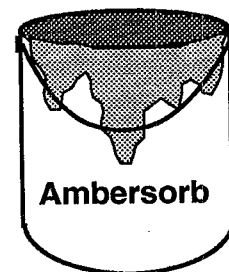
ORD Activities

Toxicity Test to Validate AVS Partitioning on Zinc-Spiked Sediment

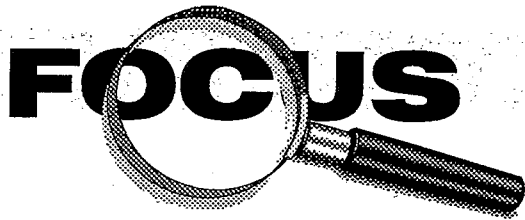
ORD-Duluth has developed a freshwater chronic life-cycle test using *Chironomus tentans*. The 56-day test was used to evaluate the validity of AVS partitioning to predict the toxicity of zinc-spiked sediment. When sufficient AVS was available to bind with the zinc, no toxicity was observed even at dry-weight metal concentrations in excess of 100 mg/kg. When there was more zinc present than AVS, survival, growth, and fecundity were affected. This is the first demonstration of the utility of the AVS:metal partitioning model using a chronic freshwater sediment test.

Solid-Phase Resin Used to Bind Nonionic Organics in Sediment

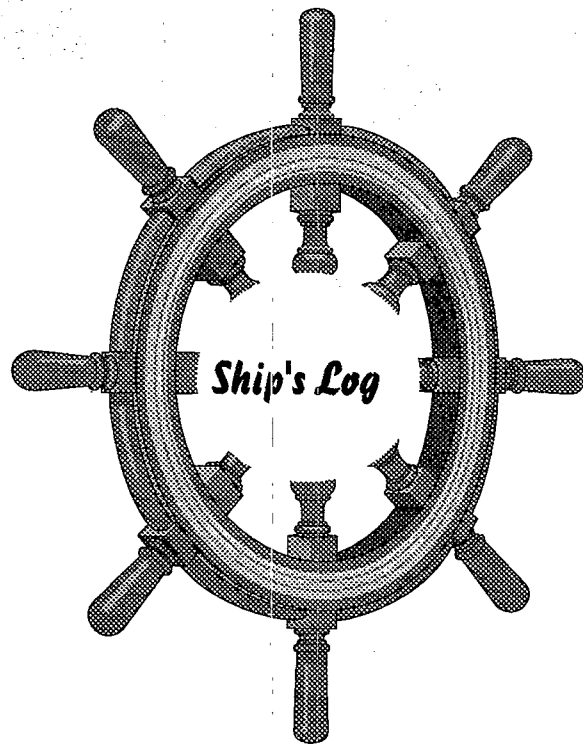
ORD-Duluth is investigating the utility of a solid-phase resin, Ambersorb, that when added to a sediment, binds nonionic organics, thereby reducing the pore water concentrations and bioavailability. This resin might be appropriate for use as a remediation tool. Experiments consist of laboratory exposures, using spiked and field-collected sediments, in which the toxicity and bioaccumulation of compounds in samples with and without the resin are evaluated. Field studies are also being conducted to determine the colonization rate of benthic organisms in contaminated sediments with and without the resin.



For more information, contact Gary Ankley, ORD-Duluth, at (218) 720-5603.



NOAA's Sediment Toxicity Survey of Biscayne Bay, Florida



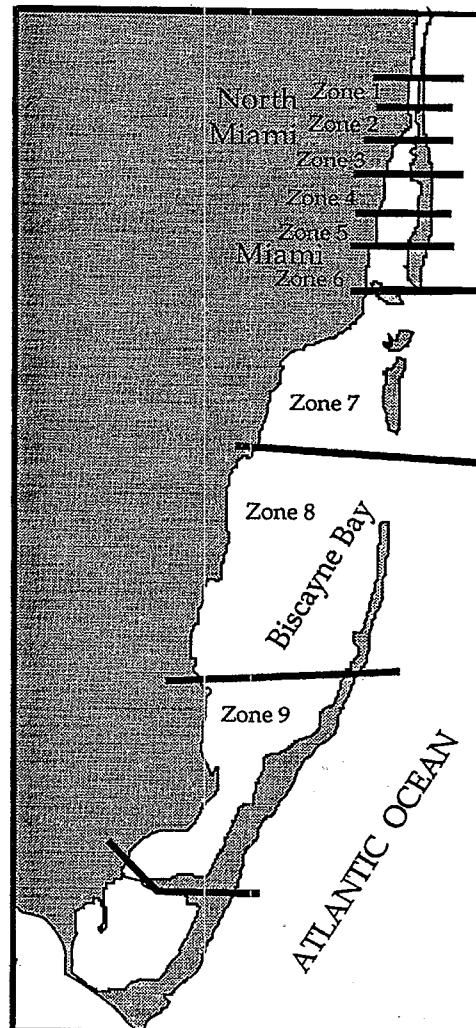
As a part of its National Status and Trends Program, NOAA is conducting a series of regional surveys of sediment toxicity in selected bays and estuaries. The objectives of these surveys are: (1) to determine the spatial patterns and extent of toxicity; (2) to estimate the severity of toxicity; and (3) to determine the relationships between toxicity and chemical contamination. Funding for these surveys was provided by the National Status and Trends Program and the Coastal Ocean Program of NOAA.

In April and May of 1995, 105 surficial sediment samples were collected throughout portions of Biscayne Bay and selected adjoining canals. Samples were collected in the extreme northern reaches of the system (zone 2), in the central Port of Miami area (zone 6), in the lower Miami River, in the southern end of the bay (zone 8), and in several canals that intersect with the southern bay. Sampling stations were chosen randomly within specified sampling strata. Toxicity was determined with tests of amphipod survival, microbial bioluminescence, sea urchin fertilization and embryo development, and a battery of chronic assays of reproduc-

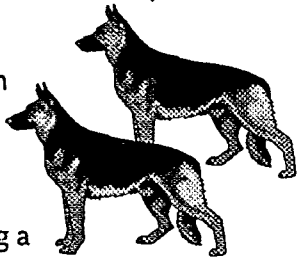
tive success among meiobenthic copepods. Chemical analyses are under way.

Most of the samples were collected with a modified van Veen benthic grab. However, in the southern bay the grab would not penetrate the compacted sandy/shell hash/sea grass substrate and samples were collected by hand with small corers. We had to get wet and snorkel for the samples.

Sampling in the lower Miami River canal was an adventure as many of the samples had a distinct creosote/petroleum odor and produced a visible sheen in the sampler. We missed by a few minutes being involved in a large fire aboard a freighter that exploded in the narrow canal.



Local residents and their inevitable dogs expressed a curiosity about our activities in their backyards (which include the canal). The steering on our vessel failed during a thunderstorm at a critical location in the Port of Miami in heavy traffic. We lost the grab sampler among what likely is the only pile of rocks in the Port of Miami basin and had to retrieve it with divers.



With the effort in 1995, we have collected approximately one-half of the samples. In 1996 approximately 100 additional samples will be collected to complete the survey. The same battery of tests and chemical analyses will be performed on those samples. The data, then, will be merged from the two years and reported in a NOAA technical report (expected in late 1997).

For more information contact Ed Long, NOAA, at (206) 526-6338.

Editor's note: If anyone can top Ed on a seagoing misadventure, please submit your entry for the next issue.



Call for Study Participants

A Round-Robin Evaluation of the U.S. EPA Sediment Toxicity Test Methods

Qualified laboratories are invited to participate in a round-robin evaluation of interlaboratory variation of the new U.S. Environmental Protection Agency methods for determining published freshwater acute and draft chronic toxicity of sediments. The study will be conducted during 1996, beginning in January or February and concluding by September. Two to four test sediments will be evaluated using *Hyaella azteca* and *Chironomus tentans*. Acute toxicity assays are conducted for 10 days and chronic toxicity assays are conducted for up to 42 days. Participation is on a voluntary basis without monetary compensation. Laboratories are not required to participate in all evaluations of the acute and chronic methods. Results of the study will be published in the peer-reviewed literature and participants can be listed as co-authors.

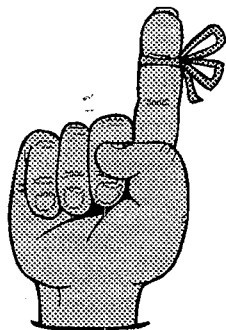
In order to participate in the study, the laboratory must demonstrate that they have the following qualifications:

1. Have an aquatic toxicity testing program with a quality assurance/quality control program;
2. Have conducted some type of toxicity testing with the study species; and
3. Have an on-going laboratory culture of the test species.

Potential participants should send a letter of interest to G. Allen Burton, Institute for Environmental Quality, Wright State University, Dayton, OH 45435; fax (513) 873-4997. Further study information will be supplied this Fall.

Creature Feature answer: The heteronereis of a marine worm of the genus *Nereis*.

Announcements



Reminder for the Upcoming National Sediment Bioaccumulation Conference

The response has been overwhelming to the upcoming National Sediment Bioaccumulation Conference to be held in Crystal City, Virginia on November 29 - December 1, 1995. If you have not yet sent in your registration form or have not made your hotel reservations, please do so promptly.

Dr. Robert Huggett, Assistant Administrator for EPA's Office of Research and Development, will lead off the conference with a presentation on the status of the science and future research directions for contaminated sediments. The conference will feature nationally recognized experts for presentations and panel discussions on topics related to bioaccumulative sediment contaminants. Specific topics include:

- field and laboratory methods for measuring bioaccumulation,
- interpretation and applications of bioaccumulation assessment results,
- modeling bioavailability of sediment contaminants,
- bioaccumulation modeling applications,
- applying bioaccumulation assessment results to human health and ecologically-based risk assessments, and
- integrating bioaccumulation assessment results into EPA's decision-making process.

To receive a detailed agenda and registration form, please call Charlie MacPherson or Melissa Bowen, Tetra Tech, at (703) 385-6000.

Creature Feature:

Nerry, Nerry, quite contrary, how do your parapodia grow?
Answer on p. 6.



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