



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

EPA-SAB-EEC-COM-00-006

Dr. Morton Lippman, Interim Chair
Science Advisory Board

Dr. Hilary I. Inyang, Chair
Environmental Engineering Committee
Science Advisory Board

Dr. Calvin Chien, Chair
Waste Utilization Subcommittee
Environmental Engineering Committee
Science Advisory Board

Dear Dr. Lippman, Dr. Inyang and Dr. Chien:

Thank you for your letter of September 26, 2000 with recommendations on overcoming barriers to waste utilization. We appreciate the independent assessment which the Environmental Engineering Committee (EEC) of the Science Advisory Board has devoted to this effort. EPA agrees with you that large scale waste utilization, when conducted in a manner that is protective of human health and the environment, can offer substantial benefits and should be encouraged. In a number of cases, our office has made major strides in responding to some of the issues you raised. However, we appreciate your call for a more ambitious Agency program to encourage safe waste utilization. We will keep your recommendations in mind when charting the future direction of the RCRA program. Indeed, the Office of Solid Waste is addressing the same general themes in a draft of its *RCRA Vision White Paper*, designed to look at the future of waste management.

We will attempt to discuss the points you raised in your commentary and describe efforts which we are taking within our current legislative mandate to promote increased waste utilization.

A. Interpretation of Key Definitions that Impact upon Waste Utilization

We agree with the Committee that the federal definition of solid waste can be a barrier expanding waste utilization efforts at some facilities. However it can also encourage materials recovery. We continue to look for ways to balance the competing needs of facilitating environmentally sound recycling of hazardous secondary materials and managing the risks posed

by those materials. In 1994, we completed a two year study of metal recovery of hazardous wastes. The study concluded that although RCRA Subtitle C regulation included both incentives and disincentives to metal recovery, overall the program has been a substantial contributing factor to increasing the recovery of metals over 1980 levels.

Over the last 6 years, the Agency has amended the definition of solid waste and accompanying hazardous waste recycling requirements several times to encourage environmentally sound recovery. Some examples include:

- C Universal Waste Rule for hazardous waste batteries & mercury-bearing thermostats. This final rule eliminates most manifesting and interim storage permit requirements for those wastes and seeks to encourage development of an infrastructure for their collection. (May 11, 1995)
- C Phase IV LDR mini-rule which excludes most scrap metal and conditionally excludes shredded circuit boards sent for recycling (copper recovery, precious metal recovery) from RCRA jurisdiction. (May 12, 1997)
- C Phase IV LDR rule conditionally excludes recycled metal-bearing mineral processing secondary materials from RCRA jurisdiction. This final rule simplifies conditions for recycling and reduces regulatory barriers to recovering spent materials. (May 26, 1998)
- Petroleum refining listing rule which established exclusions for oil-bearing secondary materials recovered and returned to the petroleum refining process (August 6, 1998)
- C Variance for partially-reclaimed F006 electroplating sludge wastes destined for metal recovery. This proposed variance would allow increased smelting of electroplating sludge for copper, nickel and precious metal concentrates. (December 9, 1999)
- C Final rulemaking which extends the accumulation period from 90 to 180 days for generators of hazardous electroplating sludge waste who generate less than 60 tons per year in order to encourage more cost-effective transportation to smelters. (March 8, 2000)

We are continuing to look at new ways to encourage environmentally sound recovery of secondary materials. Some recent efforts include a proposed rule to conditionally exclude low contaminant hazardous waste-derived zinc micro-nutrient fertilizers to encourage their use as well as work on developing a regulatory proposal to encourage recovery of cathode ray tubes and mercury-containing devices.

We have also been working on initiatives designed to promote the continued beneficial use of large volume waste streams. The Agency has recently made decisions on cement kiln dust (CKD) and fossil fuel combustion (FFC) wastes. The decisions focused on whether these wastes, when disposed or used for beneficial purposes, should be managed as hazardous wastes. For CKD, the Agency decided that most beneficial uses do not need to be regulated as a hazardous waste. Similarly, EPA decided that FFC wastes do not need to be managed as hazardous wastes, in part because EPA did not want to place a stigma on beneficial uses. However, the Agency will develop non-hazardous waste regulations for the approximately 90 million tons/year of coal combustion wastes disposed in surface impoundments and landfills and also when these wastes are placed in mines. The regulatory standards developed for minefilling will define those conditions that constitute protective approaches to the beneficial use of coal combustion waste in mine reclamation.

Your analysis raised the concern that designation of a material as a hazardous waste limits its marketability and acceptance as a legitimate commodity for reuse. Recently, we recognized this concern and its particular impact on CKD and FFC residue utilization. In both cases, we are working to establish a framework that will prevent the hazardous waste stigma from being attached to these materials. While we share your concern for the “stigma” effect in many circumstances, we do note that a number of wastes, despite being designated as hazardous, have had increased recovery rates over 1980 pre-RCRA levels including electroplating sludges and electric arc furnace dust.

Your letter also mentions the Agency’s work on the Hazardous Waste Identification Rulemaking (HWIR). The SAB was instrumental in conducting a review of an earlier model designed for the purpose of estimating “exit levels”. We agree that such exit levels will offer waste generators a target to meet and provide a mechanism that will encourage waste minimization and possibly utilization. Before the exit levels are finalized, OSW must first walk through an orderly scientific and technical model development process. Based largely on the advice of the SAB, ORD and OSW have developed a new integrated environmental fate and transport model called the 3MRA Model as the tool for estimating “exit levels.” The model currently evaluates the environmental release, transport, and transformation of waste constituencies placed in any of 5 different waste management units. The model also estimates the exposure and risk to potential human or ecological receptors. This model is currently available to the public as a draft approach. The Agency expects to return to the SAB to seek their review of 3MRA.

Our work in the HWIR and elsewhere demonstrate that there are potential risks to be addressed when wastes (including “hazardous wastes”) are used as products. We are also aware of the challenges in estimating these risks. We agree that more work needs to be done in this area to achieve the goal of encouraging beneficial waste utilization.

B. Clarify Roles for Agency, States and Industry

We agree that the Agency can play an important role in providing technical support to States on beneficial use issues. Given existing time and resource constraints, we are currently undertaking a several collaborative efforts designed to promote the reuse of wastes generated in large volumes. For example, we are working in partnership with the Office of Policy, Economics and Innovation (Sector Strategies Division), the metal casting industry, States, the Department of Energy, and non-government stakeholders to evaluate the beneficial reuse potential for non-hazardous foundry sands. It has been estimated that foundries send 6-10 million tons of sand per year to landfills at an annual cost of \$100-\$250 million. The industry goal is to achieve 75% “beneficial reuse” of this byproduct.

We are also providing support to the Federal Highway Administration (FHWA) through reviewing a document which will provide a framework for undertaking an environmental assessment of reuse materials in road construction. We also participate on the Advisory Board of the Recycled Materials Resource Center, an academic research and technical information center focused on reuse of materials in highway construction.

C. Comprehensive Procurement Guidelines

Our office agrees that it is important to work diligently to designate items containing recovered materials in the Comprehensive Procurement Guideline (CPG). OSW in the last five years has designated guidelines for 49 new products made from recycled materials. The committee did not appear to be aware of our efforts in this area so I would encourage committee members to explore OSW’s CPG web site for a thorough overview of our program and accomplishments: <http://www.epa.gov/epaoswer/non-hw/procure/index.htm>. As an example, we have designated guidelines for cement and concrete containing coal fly ash and ground granulated blast furnace slag. We have also designated guidelines for flowable fill containing foundry sands. We believe these designations help create markets and greatly increase the utilization of these materials, especially in the construction industries. We will continue to evaluate products that utilize materials of this nature for future designation in the CPG.

OSW continues to serve as an EPA representative on the Workgroup to Streamline and Improve Procurement Reporting, which was established by the White House Task Force on Recycling. We agree with you that the current procurement process can hinder the purchase and reporting of recycled-content products and that the procurement of CPG-designated items will be greatly enhanced if the procurement process is made more efficient. We will continue to support the efforts of the Workgroup to simplify and streamline the procurement process.

You should be aware that direct implementation of the procurement guidelines is a joint function of the Office of Federal Procurement Policy, Office of Management and Budget and the White House Task Force on Recycling, not EPA. We have helped staff the White House Task Force on Recycling and have worked in collaboration with them in their development of

outreach and educational materials aimed at increasing federal procurement of recycled products. We intend to continue this support.

D. Collaboration with Industry to Provide Incentives and Market Infrastructure

The Agency believes that the current CPG program provides substantial federal support for materials reuse. This program can be expanded as data establishing the safety of materials reuse in a variety of settings are developed. Industry can play a key role in developing and disseminating data on wastes they produce. We are committed to using these data in designating additional products through our CPG program.

In the U.S., reuse of non-hazardous materials is economically viable on a national basis for a limited number of material/reuse combinations (e.g., asphalt reuse), and others may be locally viable depending on material supplies and disposal costs. Because of the State role in assessing non-hazardous wastes for reuse, one of EPA's roles has been, in some cases, providing States the technical support to make high quality, scientifically defensible beneficial use determinations. This is an area where EPA may be able to provide greater leadership when resources permit.

OSW, through its Extended Product Responsibility (EPR) Program, has been working with industry, States and environmental groups to help forge cooperative solutions to the way we produce, reuse and recycle products. EPR recognizes that all actors in the product chain – from suppliers, manufacturers, distributors, retailers, consumers, recyclers and the waste management community – share responsibility for reducing the life cycle environmental impacts of products. The EPR program has funded a number of projects and multi-stakeholder dialogues to foster government and public awareness of this concept and to analyze and solve specific problems (e.g., improving markets for engineered thermoplastics). The program also maintains a website. Current efforts are focused on electronics, carpets, plastics and packaging.

We appreciate your comments that elements of the Jobs Through Recycling (JTR) program were successful in developing markets for secondary materials. This program has been an effective information sharing network between economic development and recycling communities. Although the grant portion of this program is no longer being funded, three valuable resources are still in operation:

- C NetShare: a valuable archive of market development information and tips from the JTRnet list serve;
- C MarketShare: a collection of effective market development strategies used by JTR grantees; and
- C JTR Success Stories: a series of fact sheets documenting the success of JTR projects.

E. Tracking and Publicizing Long Term Performance of Waste Utilization Projects

We agree with the EEC that a more focused approach should be undertaken to track and publicize successful waste utilization initiatives. The suggestions you identified are helpful. Your suggestion to have our office encourage the National Institute of Standards and Technology (NIST) to work with the Civil Engineering Research Foundation's Innovation Center to test recycled products and help bring them to market makes sense. However, past efforts undertaken by the OSW and the White House Task Force on Recycling to seek their assistance have not been successful. Currently, we are not in a financial position to be able to fund demonstration projects in support of this area. However, we have made effective use of communicating activities to promote waste utilization through case studies, stakeholder dialogue meetings and Agency websites.

We recently worked with States to address the issue of public health concerns associated with contaminants in waste derived fertilizers. Various hazardous and non-hazardous waste offer fertilizer manufacturers a cost effective source of nutrients, micro-nutrients, and soil conditioning agents. However, as highlighted in a series of well publicized circumstances, waste and the fertilizers derived from them can contain heavy metals, dioxin and other contaminants. Substantial public concerns arise if there is a suspicion that the country's food supply is being grown in soils that have been amended with hazardous waste derived fertilizers. Several States raised concerns regarding the health impacts of fertilizers; particularly those derived from wastes. The Office of Solid Waste (OSW) and the Office of Pollution Prevention, Pesticides and Toxic Substances undertook a series of evaluations of the contaminant content and health impact of fertilizers. This information was invaluable to the States who found themselves grappling with a very concerned public and constituency groups. The information continues to be a resource to the fertilizer industry, States and the public as they explore ways to ensure that safe fertilizers are used for food production.

Also, the Agency is aware that the World Resource Institute is developing a database of material flows from industrial economies. We have contributed to its funding and are following its progress closely. We agree that it is of great potential benefit to the Agency on waste utilization

F. Implement Innovative Technology Development Programs for Large-Scale Utilization of Waste Materials

EPA agrees with the Committee that innovative technology development programs are critical to promote the large-scale utilization of waste materials. In 1994, EPA concluded in its Report to Congress on the effect of environmental regulation on hazardous waste that RCRA Subtitle C regulation may inhibit innovative metal recovery technologies. One case study in that report suggested that existing RCRA regulatory provisions designed to encourage innovative technology development such as research development and demonstration permits and

regulatory exemptions for treatability studies may not be adequate to encourage innovative metal recovery technology to occur at a faster rate.

Since that report, EPA has increased the daily mass limits for the treatability exemption from 250 kg per day to 10,000 kg per day of media contaminated with non-acute hazardous waste. Also, we have recently solicited public comment in an advanced notice of proposed rulemaking on how the land disposal restrictions (LDR) program can be used to encourage the use of innovative waste technologies. The Agency intends to use this information to help change the LDR program to support environmentally sound innovative technologies for waste utilization.

One example of where EPA has supported an innovative project is the RCRA brownfields pilot in Blue Valley, Missouri. The Blue Valley area is located on the east side of Kansas City, Missouri along the Blue River. When the U.S. Army Corps of Engineers dredged the Blue River, the spoils were used as fill material at the nearby corrective action site rather than being hauled a long distance for disposal.

In addition, OSW's *RCRA Vision White Paper* (now under development) is aimed at exploring the future landscape of waste and material management in the U.S. Among the tools and strategies suggested in the *Vision* paper is the use of economic incentives to facilitate technological development of waste management.

G. Develop Technical Guidance Manuals on Waste Utilization

The Agency has participated in the development of a FHWA-sponsored framework for environmental assessment of reuse candidate materials. While not making technical recommendations, the framework does describe a model administrative structure that may be useful to States in further developing their beneficial use programs.

We have also supported efforts by the National Association of Home Builders (NAHB) on waste utilization initiatives. With OSW funding, NAHB has developed a series of handbooks and "how-to" manuals on deconstruction techniques and techniques for utilizing construction and demolition waste material.

The Agency is also examining and supporting research and development of a broader range of waste leaching tests than have previously been used, in response to program need and concerns expressed by SAB in an earlier commentary (Feb 1998). This work may lead to standardization of leach testing approaches in non-landfill, reuse settings.

EPA agrees that the national guidance and/or regulatory framework the Committee has suggested is a promising approach to achieving the goal of encouraging waste utilization. We also feel that it is an ambitious recommendation likely to require significant coordination across different offices within EPA and possibly other agencies. That said, we support the overall goal, and will keep EEC's recommendations in mind as we chart the future direction of the RCRA program.

Conclusion

Together with the States and municipal governments, we have put in place a system that we are proud of in terms of its ability to deal with the waste being produced by our society. Although there are many opportunities today to encourage beneficial reuse of secondary materials as the EEC suggests, we see a continuing need for many of the regulations and enforcement tools to make this system work. In addition to striving to limit unsafe practices, we will continue to encourage reduction in the use of toxic constituents. We also see a need for greater focus on some of the fundamental environmental drivers, such as population and economic growth. The size of material flows continues to increase and continues to impose increasing stress on the environment, even as we try to deal with those stresses by encouraging ever more effective methods of waste recycling or reuse.

We see that effectively managing an ever growing volume of waste is in the long run not the road to sustainable development. We will need to think more fundamentally and holistically than we do now about the overall efficiency with which we use materials in our economy, and not just what we do with waste. For this reason, your letter outlining recommendations on increasing waste utilization efforts within the RCRA framework is especially timely.

Sincerely,

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Timothy Fields
Assistant Administrator