UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C 20460

October 30, 1985

OFFICE OF
THE ADMINISTRATOR

Hon. Lee M. Thomas
Administrator
U. S. Environmental Protection Agency
401 M Street, S. W.
Washington, D.C. 20460

Dear Mr. Thomas:

The Science Advisory Board's Environmental Engineering Committee is concerned that enormous expenditures are being made under Superfund without an adequate technological data base to support rehabilitation of both public and private hazardous waste disposal sites. The Committee has expressed this concern in a resolution, a copy of which is enclosed, which recommends using Superfund monies for a comprehensive research and development program.

The Executive Committee of the Board has approved this resolution, and forwards it for your consideration. We believe that it is very important to support, with Superfund funds, research in the transport and fate of contaminants, and in technologies to control releases from disposal sites and to treat contaminated soils and ground water. It is also very important to resolve administrative problems related to the use of Superfund sites as field laboratories.

We would be pleased to discuss the resolution with you, should you wish further information.

Sincerely,

Enclosure

Raymond C. Loehr
Chairman, Environmental
Engineering Committee
Science Advisory Board

Norton Nelson
Chairman, Executive Committee

cc: T. Yosie
D. Elreth
J. Skinner

Resolution
of the
Environmental Engineering Committee
Science Advisory Board
U.S.Environmental Protection Agency
October,1985

Background

The Comprehensive Environmental Response Compensation and Liability Act (CERCLA), or Superfund, was enacted on December 11, 1980.

The Superfund Act was passed to remedy the most egregious abandoned chemical waste sites in the United States, as well as to provide resources to minimize public health hazards from imminent chemical disasters, such as spills, from transportation accidents.

That Act was funded at $1.6 billion, with 10% matching funds from the states for remedial action at sites. The Congress is actively considering additional legislation that will add $7.5 billion to $10 billion dollars to the next phase of Superfund.

Since enactment of Superfund, over 20,000 sites have been identified as potential candidates for Superfund cleanups. More than 800 have been listed as "priority" sites for Federal response, with more to be listed. Department of Defense facilities (including abandoned ordnance facilities and dumps), Department of Energy installations, and other federal facilities have been added to the nation's overall requirement for cleanup. Restoration of those sites will require several additional billions of dollars. The Federal government is the actor of last resort for cleanup and is required to attempt to recover its cost from responsible parties.

The criterion for cleanup is to provide the cost-effective response which adequately protects human health and the environment. Unfortunately, that criterion, the problems of liability, the problems of cost recovery, the heterogeneity of the chemicals to be addressed, and the physical differences at various sites have all contributed to the general use of "perpetual care" solutions rather than "permanent and final" solutions to the site problems. At the same time, private industry has little incentive to solve this public problem through innovative or new technology, especially when there is no established or predictable market for their product. The problem of long-term liability further inhibits private attempts to try new ideas.

The very few tried and true, short-term methods of removing drums or chemicals to another site, using bulldozers or dump trucks to remove soil residuals, as well as containment by slurry walls and caps (with which we have very little long-term experience), are used at most of the sites that are being rehabilitated. A practice at many Superfund sites is to remove contaminants from their original site to a new site permitted under the Resource Conservation and Recovery Act (RCRA). Incineration is also used in some cases. Detoxification, fixation, neutralization techniques, and other

more permanent technological solutions require additional study and are not widely used.

There is a dire public need for long-term solutions to these very complex, multi-faceted problems. However, no well funded, comprehensive, long-term research, development and demonstration program is planned for the development and application of new technologies to Superfund type problems.

At this time, a long list of emerging technologies is not being applied, because no private entity has the resources or ability to put these ideas into practice. A list of emerging innovative technologies, as well as related monitoring, health effect, and other research ideas is included in the recent Office of Technology Assessment report entitled Superfund Strategy, dated April 1985. At most, some of these potential solutions have been developed only through research or pilot stages, and usually have only been tested on homogeneous rather than heterogeneous hazardous waste problems. Thus, a standard based on cost-effectiveness response can not at present recommend these solutions with reliability and cost-effectiveness guaranteed, as is required by the National Contingency Plan for Superfund.

In view of these facts, the Environmental Engineering Committee of the Science Advisory Board, U.S. Environmental Protection Agency, recommends the following to the Administrator of the Environmental Protection Agency and to the members of Congress considering amendments to CERCLA.

Resolution

Whereas, public need for long-term and permanent solutions to the problems of 20,000 or more abandoned chemical waste sites is great; and

Whereas, the present Superfund program, because of the statutory standard of cost-effectiveness and the potential future liability of cleanup contractors that use innovative or alternative technologies, does not encourage research and field trials (demonstration) of new technologies; and

Whereas, the heterogeneity of the chemicals and other problems at each site creates an amorphous and unknown "market" for industrial entrepreneurship to develop new technologies; and

Whereas, the present cost-effectiveness standard constrains the use of new technologies; and

Whereas, the present techniques for rehabilitation of both public and private chemical waste sites rely on assured short term solutions usually based upon brute force, tried and true "bulldozer" technology for removal of the problem;

Therefore Be It Resolved: There must be a nationally well-funded and well-coordinated comprehensive research, development and demonstration program to develop effective, long-term permanent solutions to the problems of cleanup of chemical spills and remediation of abandoned chemical waste

sites. The Research, Development and Demonstration (R. D. and D) program must include a full range of problem solving not only to develop improved technological solutions but also to determine appropriate long term monitoring to assure the protection of public health.

Be It Further Resolved: That the Administrator recommend amendments to CERCLA that authorize and encourage EPA to immediately embark on a comprehensive R. D. and D. program for Superfund sites. Such a program will save many millions of dollars in remedial costs and most importantly develop permanent solutions to these urgent health and safety hazards to so many Americans. These amendments should include changes to the cost-effectiveness standard and the potential liability of response action contractors as they relate to R. D. and D.. Such an amendment will permit EPA to lead this new cooperative initiative with industry, state and local governments, non-profit organizations and academia to identify innovative approaches and to try out new ideas!

Be it Further Resolved: This R. D. and D. program should be: a) funded at not less than 1.5% of the annual Superfund appropriations, b) include R. D. and D. that has broad potential application at more than one specific site, c) include research in the basic processes that govern the fate and transport of contaminants in the air, soil, and ground water, and d) include development and demonstration of new technologies to control the transport of contaminants and to treat contaminated soils and groundwater.

Be it Further Resolved: The proposed R. D. and D. program not only address the problems of sites that come directly under CERCLA but also the similar requirements for Federal installations.

The adoption of the recommendations in this resolution will enable the United States to proceed with the cleanup of abandoned chemical waste sites in what will be a much more cost-effective, permanent solution to this national problem!