



EPA

ANNOUNCEMENT

Application
Receipt Date:
May 1, 1989

Request for Applications NPIR-003-89

Innovative Biodegradation Technologies for Treatment of Hazardous Organic Wastes at Superfund Sites

I. General Background

Many hazardous waste sites have been placed on the National Priority List for clean-up or remediation under Superfund. A wide variety of contaminants can be found at these sites and over a period of time may enter subsurface aquifers and endanger the nation's water supplies.

Organics are contaminants of particular concern, because large quantities occur at the sites and many are toxic at low concentrations and refractory in the environment. These substances include chlorinated and non-chlorinated solvents (e.g., methylene chloride, carbon tetrachloride and toluene used in huge quantities in industry), preservatives and pesticides (e.g. creosote and lindane), wastes from the manufacture of explosives such as TNT and other substances including polyaromatic hydrocarbons and polychlorinated biphenyls (PCBs). A common characteristic of these substances is that their chemical properties make them very difficult to remove from hazardous sites using current methods. The naturally occurring microorganisms at these sites cannot effectively degrade these toxic compounds. New techniques are needed to accelerate biological degradation of hazardous organics.

A. Purpose of RFA

The purpose of this RFA is to solicit proposals that will result in the development of cost-effective methods for biodegradation of hazardous organic wastes at Superfund sites. Treatment in this announcement refers to the degradation of organic wastes, not immobilization. The research and development projects being solicited should result in practical end products with the potential for treating hazardous organic wastes at Superfund sites. Biological techniques that utilize genetically engineered microorganisms can be included in this solicitation but will require the proposer to provide any special clearances needed for such projects.

B. Limitations

Hazardous organic waste treatment technologies to be considered in this RFA must meet the following requirements:

1. The net result of the technology must be the biological degradation of the contaminants to reduce their toxicity and concentration in soil and subsurface water. Processes in which the net result is to transfer contaminants between media or to immobilize a contaminant within a single phase are not acceptable.
2. Providing the technology meets the definitions in statement 1 above, pretreatment efforts such as modification of pH, addition of nutrients which improve the biodegradability of the hazardous organic wastes are acceptable.
3. "Pump-and-treatment" processes where organic waste pollutants are treated or removed from contaminated water or air after being brought to the surface will not be considered.

II. Research Topics of Interest

Techniques which enhance the biodegradability of hazardous organic wastes at Superfund sites through pre-treatment processes are specifically solicited.

The topical areas of interest listed below are provided as examples only and are not meant to be all inclusive:

1. microbiological process development
2. biological treatment mechanisms
3. treatment applications: soils and sludges
4. enhancement of *in situ* bioremediation of contaminated soils and subsurface water
5. aerobic/anaerobic biomineralization of toxic organics

III. Special Instructions to the Applicants

A. *Proposals must be for research which does **not** include:*

1. large demonstration projects.
2. state-of-the-art market surveys.
3. preparation of materials and documents such as process designs or instruction manuals.

B. *Proposals must include:*

1. Clearly stated hypotheses and relevant experimental questions.
2. Definition of data and analyses needed to scientifically evaluate the hypotheses and questions.
3. No more than 30 pages (regular size type - no smaller than elite, single or double spaced, standard 8-1/2" x 11" pages), one side only, including application forms and all enclosures, covers or attachments. [Proposals exceeding 30 pages will not be reviewed.]

A letter of transmittal is not necessary. If one is furnished, it must **not** be attached to every copy of the proposal. If a letter of transmittal is attached to every copy of the proposal, it will be counted as page 1 of the proposal.

4. A budget of \$200,000 or less the per year for the project period, which should not exceed two years in duration.

IV. Mechanisms of Support

Assistance under this RFA will be through the U.S. Environmental Protection Agency's Research Grants Program, and limited to non-profit research organizations and educational institutions. Responsibility for the planning, direction, and execution of the proposed research will be solely the applicant's. Approximately 1.5 million dollars will be available from fiscal year 1989 funds and it is estimated that 10 to 15 proposals will be supported. This RFA is for a single competition with a deadline of May 1, 1989, for receipt of applications.

V. Review Procedures and Criteria

A. *Review Procedures*

Applications in response to this solicitation will be reviewed together on a nationwide basis. The review will be conducted by a scientific peer panel which will evaluate and rank each proposal according to its scientific merit as a basis for recommending Agency approval or disapproval. The panel will be composed primarily of non-EPA scientists who are acknowledged experts in the area.

B. *Review Criteria*

The applications will be evaluated using the following criteria:

- Quality of research plan (including theoretical and/or experimental design, originality, and creativity)
- Qualifications of principal investigator and staff including knowledge of subject area
- Availability and adequacy of facilities and equipment

VI. Method of Applying

Application forms, instructions, and other pertinent information are contained in the EPA Research Grant Application/Information Kit. The kit is available from:

Mr. Donald F. Carey
Research Grants Staff (RD-675)
U.S. Environmental Protection Agency
401 M Street, Southwest
Washington, DC 20460

The original and eight copies of the application must be received no later than close of business, May 1, 1989, to be considered. The application should be sent to the Grants Operation Branch (PM-216F) at the above address.

VII. Staff Contact

Questions relating to this solicitation may be directed to Mr. Donald Carey by telephone, (202) 382-7445.

United States
Environmental Protection
Agency

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