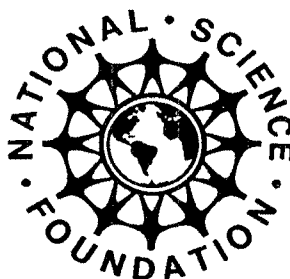




# DOE/EPA/NSF/ONR JOINT PROGRAM ON BIOREMEDIATION

## *Interagency Announcement of Opportunity*

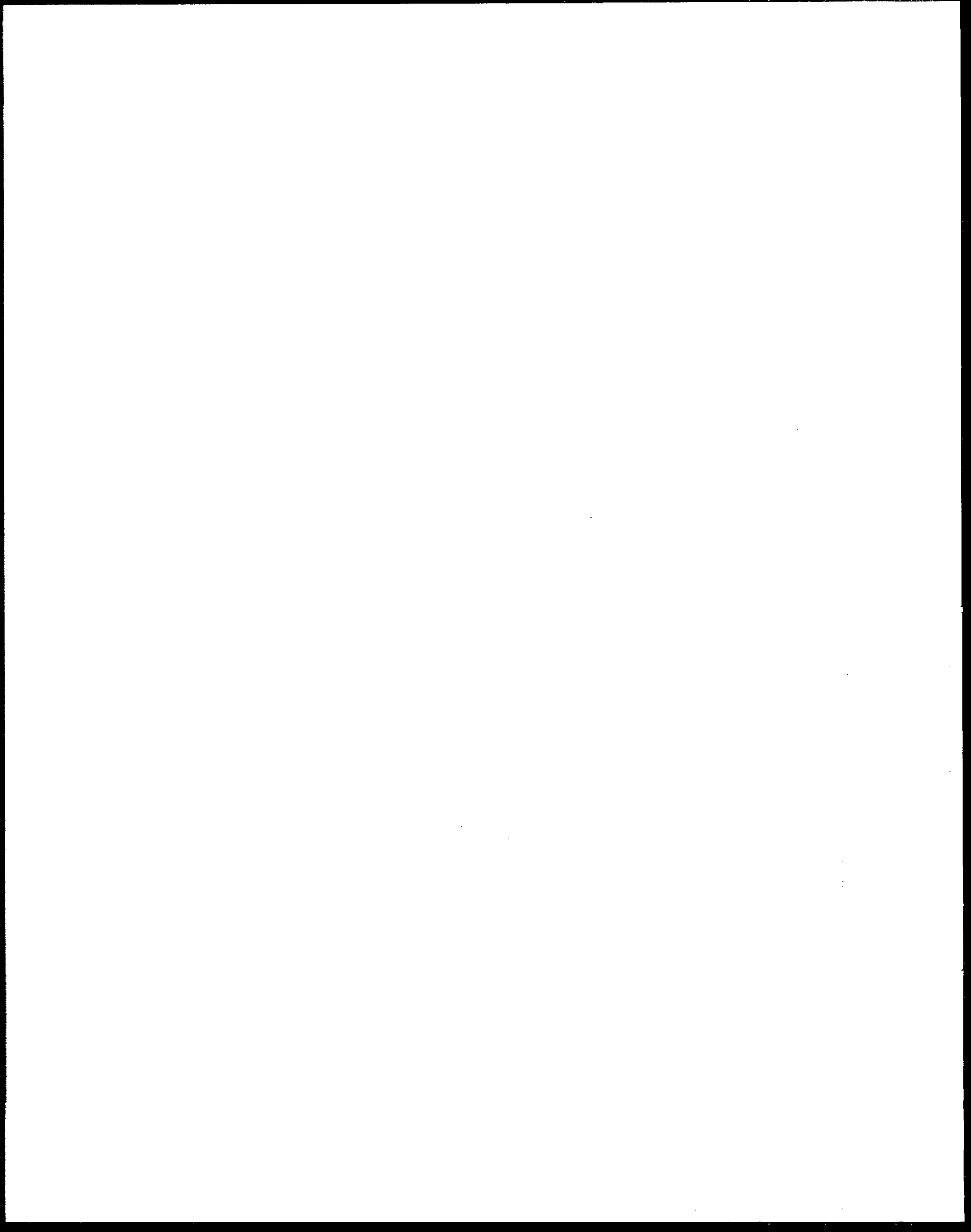


Environmental Protection Agency  
Department of Energy  
National Science Foundation  
Office of Naval Research

Jointly Announce  
the Availability of

1996 Grants for Research

APPLICATION SUBMISSION CLOSING DATE: MAY 1, 1996



# DOE/EPA/NSF/ONR JOINT PROGRAM ON BIOREMEDIATION

## Introduction

In the past the goal for cleanup of toxic and hazardous waste sites has been the complete removal of the hazardous chemicals, and regulation has been based on that goal. For bioremediation this meant complete mineralization of wastes to carbon dioxide, water, and inorganic materials. It has become clear, however, that this goal is frequently unrealistic and unnecessary. There are alternative endpoints that can protect ecosystems and human health. Since one of the principal factors controlling biodegradation processes is bioavailability, research which examines the bioavailability of contaminants in waste matrices, the potential for toxic effects of various intermediate metabolites during biodegradation of wastes, and interactions between waste chemicals and organisms in their environment is urgently needed. The overall goal of such research should be to better understand the various factors that will impact the risk to ecosystem and human health of waste chemicals and their degradation products during the process of bioremediation so that the regulatory climate can be fine-tuned to take into consideration the possibility of alternatives to complete mineralization. Such research ultimately could lead to the identification, development, and field testing of bioremediation technologies.

## Program Description

Research proposals are solicited that aim to further our understanding of the chemical, physical, and biological processes influencing the bioavailability and release of chemicals in soil under natural conditions, as well as the role of a chemical which when released from the soil and assimilated by a living organism, results in an adverse effect. The objective of the research should be to understand the commonality of processes and/or environmental effects involved in contaminant release, movement, and assimilation in order to determine broadly applicable techniques for measuring the potential impacts of contaminants in complex matrices.

The emphasis in proposed research projects should be on the behavior of mixtures of chemicals. Interdisciplinary research is particularly encouraged. While studies on chemicals that may affect ecosystem and human health are desired, toxicological studies are not eligible. Similarly, studies involving pure cultures in the laboratory or bioreactors will not be reviewed. Laboratory studies must demonstrate applicability to field studies. A number of well-instrumented, characterized, and documented sites are available for field research. Some examples and contact individuals are:

- Various Department of Energy sites  
Contact: D. Jay Grimes, 301-903-4183  
darrell.grimes@oer.doe.gov
- The U.S. Navy's Port Hueneme, CA, site  
Contact: Ernest Lory, 805-982-1299  
elory@nfesc.navy.mil



- McClelland Air Force Base, California  
Contact: Kevin Wong, 916-643-0830, ext. 159  
wong.kb@smal.mcclellan.af.mil
- San Diego Bay  
Contact: Sandra Harrell, 619-553-5330  
meso@nosc.mil
- Wurtsmith Air Force Base, Michigan  
Contact: Michael Barcelona, 313-763-9666  
mikebar@engin.umich.edu
- Dover Air Force Base, Delaware  
Contact: Charles Mikula, 302-677-6845  
FAX: 302-677-6837

A more detailed statement of interagency interests and priorities in bioremediation research can be found in the Environmental Biotechnology chapter of the recent National Science and Technology Council (NSTC) report, *Biotechnology for the 21st Century: New Horizons* [<http://www.nalusda.gov/bic/bio21>]. Applicants specifically interested in research at Department of Energy sites should peruse the Natural and Accelerated Research (NABIR) Program Plan (DOE/ER-0659T, access NABIR through <http://www.er.doe.gov/production/oher/NABIR/cover.html>). The program elements, Biogeochemical Dynamics and Community Dynamics and Microbial Ecology are those most closely aligned with this EPA/NSF/DOE/ONR Joint Program on Bioremediation.

## Who May Submit

Academic and not-for-profit institutions located in the U.S., and state or local governments are eligible to apply. Profit-making firms are eligible only under certain laws, and then under restrictive conditions, including the absence of any profit from the project. Federal agencies and federal employees are not eligible to participate in this program. Potential applicants who are uncertain of their eligibility should contact EPA's Grants Operations Branch at (202) 260-9266. All potential applicants are encouraged to contact one of the agency representatives, identified below, before submitting a formal proposal.

## Awards

Proposals may request funding for projects with a duration not to exceed three years and a total budget not to exceed \$500,000. The EPA is the lead agency in this effort and although proposals submitted in response to this Interagency Announcement will be sent to EPA, the participating agencies will jointly manage the review and administration of the program. Final

selection of awardees by the agencies will be determined by the review panel's recommendations and programmatic considerations. Each award will be supported by a single agency. Overall estimated amount of funding is \$5 M, depending on the availability of funds and the programmatic relevancy of recommended projects to the participating agencies. Each agency supporting an award will act as the sole administrative unit for that award. Principal Investigators may be requested to modify their budgets and work plans to comply with special requirements of the particular agency supporting their award.

## **The Application**

The EPA Application Kit for Assistance, which contains detailed instructions on how to prepare your application, should be used. The application kit is available at most institutional offices of sponsored research or may be obtained from EPA at:

U.S. Environmental Protection Agency  
National Center for Environmental Research and Quality Assurance (8703)  
401 M Street SW  
Washington DC 20460  
Phone: (202) 260-3837  
Fax: (202) 260-2039

Each application must contain the following:

- A. Application for Federal Assistance (Standard Forms 424 and 424A). These forms must have original signature.
- B. A detailed, itemized budget for each year of the proposed project.
- C. A budget justification describing the basis for calculating the personnel, fringe benefits, travel, equipment, supplies, contractual support, and other costs identified in the itemized budget.
- D. An abstract containing the following information: The project title, the names and affiliations of all investigators, and a summary of the objectives, expected results, and approach described in the proposal. The abstract must not exceed one (1) 8.5 x 11 inch page of single-spaced standard 12 point type with 1 inch margins.
- E. A Description of the Project. This description must not exceed fifteen (15) pages; All pages must be consecutively numbered, 8.5 x 11 inch, single-spaced standard 12 point type with 1 inch margins. The description must provide the following information (1-5):
  1. Objectives: List objectives of the proposed research and/or the hypotheses being tested during the project.

2. **Expected Results or Benefits:** Describe the results you expect to achieve during the project and the benefits of success.
  3. **Approach:** Outline the methods, approaches, and techniques that you intend to employ in meeting the objective stated above.
  4. **General Project Information:** Discuss other information relevant to the potential success of the project. This might include facilities, project schedules, proposed management, interactions with other institutions, etc.
  5. **Quality Assurance:** A brief narrative statement (not to exceed two consecutively numbered, 8.5 x 11 inch pages of single-spaced standard 12 point type with 1 inch margins) describing the quality assurance procedures proposed for the project (see section of this RFA on quality assurance).
- F. Any important attachments; appendices, references, or other information may be included but must not exceed five (5) pages. If site-specific agreements have been negotiated between the applicant and the owner of a waste site, include this as an attachment.
- G. The resumes of the principal investigator, and co-workers. Resumes must not exceed two consecutively-numbered, 8.5 x 11 inch pages of single spaced standard 12 point type with 1 inch margins.
- H. Standard Form (SF) 5700-48 Procurement System Certification (provided in Application Kit).
- I. Standard Form (SF) 5700-49 Debarment and Suspension Certification (provided in Application Kit).
- J. A list of key contacts (provided in Application Kit) including authorizing representative, payee, administrative contact, and project manager.
- K. Disclosure of Lobbying Activities (provided in Application Kit).
- L. Copy of State Clearing House Approval Notification (see Application Kit to determine if applicable).
- M. The applicant must include a blank self-addressed, stamped post card with the application.

## **Quality Assurance**

Data sets resulting from environmental research often are used by government officials when establishing standards or when making other policy decisions. Explicit indicators of data quality are essential for determining whether a particular data set is appropriate for use in a specific context. To that end, grant-funded projects should address quality assurance. The application must include a quality assurance narrative statement, not to exceed two pages, which for each item listed below, either presents the required information or provides justification as to why the item does not apply to the proposed research.

- The intended use of the data and the associated acceptance criteria for data quality (i.e., precision, accuracy, completeness, and comparability).
- Project requirements for precision, accuracy, completeness, and comparability, and how these will be determined.
- Procedures for selection of samples or sampling sites, and collection or preparation of samples.
- Procedures for sample handling, identification, preservation, transportation, and storage.
- Description of measurement methods or test procedures, with a statement of performance characteristics if methods are non-standard.
- Standard quality assurance/quality control procedures (e.g., American Society for Testing Materials, American Public Health Association, etc.) to be followed. Non-standard procedures must be documented.
- Data reduction and reporting procedures, including description of statistical analyses to be used.

## **Proprietary Information**

By submitting an application in response to this solicitation, the applicant grants EPA permission to share the application with technical reviewers both within and outside of the Agency. Applications containing proprietary or other types of confidential information will be immediately returned to the applicant without review.

## **Evaluation of Proposals**

All grant applications are initially reviewed to determine their legal and administrative acceptability and responsiveness to this solicitation. Acceptable applications are then reviewed

by a technical peer review group. This review is designed to evaluate and rank each proposal according to its scientific merit. The review group is composed primarily of non-government scientists and engineers who are experts in their respective disciplines. All reviewers are proficient in the technical areas that they are reviewing. The reviewers use the following criteria in their reviews:

- quality of the research plan (including theoretical and/or experimental design, originality, and creativity);
- qualifications of the principal investigator and staff, including knowledge of relevant subject areas;
- potential contribution of the research to advancing scientific knowledge in the environmental area;
- potential to enhance training and information transfer in the topic areas;
- availability and adequacy of facilities and equipment;
- budget justification — justification for equipment will receive special attention; and
- responsiveness to solicitation objectives.

Funding decisions are the sole responsibility of the participating federal agencies. Proposals may be recommended for funding by any of the participating agencies, at the agencies' option, not the proposer's. Grants are awarded on the basis of technical merit, relevancy to the research priorities outlined, program balance, and budget.

## **How to Apply**

To be considered, the original and ten (10) copies of the fully developed research grant application and five (5) additional copies of the abstract (fifteen in all), must be received (post-marked if sent by U.S. Mail) by the National Center for Environmental Research and Quality Assurance no later than 4:00 P.M. EST on the closing date: May 1, 1996.

The application and abstracts must be prepared in accordance with instructions in the Application Kit for Federal Assistance and this RFA. Informal, incomplete, or unsigned proposals will not be considered. Completed applications should be sent via regular or express mail to:

U.S. Environmental Protection Agency  
Office of Research and Development  
National Center for Environmental Research and Quality Assurance (8703)  
Sorting Code: 96-NCERQA-10  
Room M2426  
401 M Street SW  
Washington DC 20460



Applications sent via express mail should have the following telephone number listed on the express mail label: (202) 260-3837

## Sorting Code

In order to facilitate proper assignment and review of applications, applications must be identified by printing the Sorting Code **96-NCERQA-10** in block 10 of the SF-424.

## Contacts

Additional general information may be obtained by contacting:

U.S. Environmental Protection Agency  
National Center for Environmental Research and Quality Assurance (8703)  
401 M Street SW  
Washington DC 20460  
Phone: (202) 260-3837  
Fax: (202) 260-2039

Applicants with technical questions may contact the appropriate individual identified below.

Dr. Robert E. Menzer:  
menzer.robert@epamail.epa.gov  
fax (202) 260-0929, voice (202) 260-5779

Dr. Joann Roskoski:  
jroskosk@nsf.gov  
fax (703) 306-0367, voice (703) 306-1480 Ext. 6421

Dr. D. Jay Grimes:  
darrell.grimes@oer.doe.gov  
fax (301) 903-8519, voice (301) 903-4183

Dr. Anna Palmisano:  
palmisan@onrhq.onr.navy.mil  
fax (703) 696-1212, voice (703) 696-4986

