

**INSTRUCTIONS FOR ELECTRONIC SUBMISSION OF AN APPLICATION TO THE
2004 STAR RFA: Understanding Ecological Thresholds In Aquatic Systems Through
Retrospective Analysis**

Science To Achieve Results (STAR) Program
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
OFFICE OF RESEARCH AND DEVELOPMENT (ORD)
NATIONAL CENTER FOR ENVIRONMENTAL RESEARCH (NCER)

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You must use the application package available at https://apply.grants.gov/forms_apps_idx.html to apply. If your organization is not currently registered with grants.gov, you need to allow at least one week to complete the registration process. Please refer to Section 3 below, “How to Apply,” for instructions.

See the Forms Download Page at <http://es.epa.gov/ncer/rfa/forms/> for formats and guidance for the following:

Key Contacts Continuation
Abstract Format
Suggested Keywords
Current and Pending Support
Budget

The following sections contain standard instructions on how to apply for a STAR grant. Proposed projects must be specifically designed to advance the state of knowledge in the research areas described in this solicitation. For detailed information on pending research

opportunities, please see the NCER web site, <http://www.epa.gov/ncer>, and select “Funding Opportunities.” Information on past grant awards may also be found on this site by selecting “Grants,” then making one of the selections under “Recipient’s Lists.”

1. The Application

The initial application is made through submission of the materials described below. ***It is essential that the application contain all information requested and be submitted in the formats described.*** Noncompliance with formatting instructions (page limits, font size, etc.) is grounds for administrative dismissal. Please note that if an application is being considered for an award (i.e., after external peer review and internal review), additional forms and other information will be requested by the EPA Project Officer. The application must contain the following:

A. Standard Form 424: The applicant must complete SF424. Instructions for completion of the SF424 are included with the form. Please note that both the Principal Investigator and an administrative contact are to be identified in Section 5 of the SF424.

Regarding Block 16 of the SF 424: Research funded under this program may be eligible under E.O. 12372, “Intergovernmental Review of Federal Programs,” if it affects public health or if an environmental impact statement is required. If applicable, an applicant should consult the office or official designated as the single point of contact in his or her State for more information on the process the State requires to be followed in applying for assistance, if the State has selected the program for review.

B. Key Contacts: The applicant must complete the Key Contacts Form. Please make certain that all contact information is accurate. An e-mail will be sent by NCER (from receipt.application@epa.gov; e-mails to this address are not accepted) to the Principal Investigator (with a copy to the Administrative Contact) to acknowledge receipt of the application and to transmit other important information. If an NCER e-mail acknowledgment has not been received within 30 days of the submission deadline, then immediately contact the project officer listed under "Contacts" in the solicitation. A continuation page for the Key Contacts Form is available at <http://es.epa.gov/ncer/rfa/forms/>.

C. Abstract: *The abstract is a very important document.* All abstracts are provided to the peer review panelists, and some of the panelists may read only the abstract. Abstracts also play a critical role in programmatic review (see “Review and Selection”). Therefore, it is critical that the abstract accurately describes the research being proposed and conveys all the essential elements of the research. Also, the abstracts of applications that receive funding will be posted on the NCER web site.

The abstract, ***limited to one page***, should include the information described below (1-8). Examples of abstracts for current grants may be found on the NCER web site.

1. **Research Category:** Enter the full name of the solicitation under which your application is submitted that corresponds to the appropriate RFA topic.

2. Title: Use the exact title of your project as it appears in the application. The title must be brief, yet represent the major thrust of the project. Because the title will be used by those not familiar with the project, strike a balance between highly technical words and phrases and more commonly understood terminology. Do not use phrases such as “research on.”
3. Investigators: List the Principal Investigator, then the names and affiliations of each co-investigator who will significantly contribute to the project. Provide a web site URL or an E-Mail contact address for additional information.
4. Institution: In the same order as the list of investigators, list the name and city/state of each participating university or other applicant institution. The institution applying for assistance must be clearly identified.
5. Project Period: Show the proposed project beginning and ending dates.
6. Project Cost: Show the total dollar request, including direct and indirect costs, to the EPA for all grant years (the entire project period).
7. Project Summary: Provide three subsections addressing: (a) the objectives of the study (including any hypotheses that will be tested), (b) the experimental approach to be used (a description of the project proposed), and (c) the expected results of the project and how it addresses the research needs identified in the solicitation, including the estimated improvement in risk assessment or risk management that will result from successful completion of the proposed work.
8. Supplemental Keywords: Supply keywords to assist database searchers in finding your research, without duplicating terms already used in the text of the abstract. A complete set of keywords is very important. A list of suggested keywords is available for your use at <http://es.epa.gov/ncer/rfa/forms/>, select “All required forms.”

D. Research Plan and Quality Assurance Statement

Research plan:

This description must not exceed fifteen (15) consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins. The description must provide the following information:

1. Objectives: List the objectives of the proposed research and the hypotheses being tested during the project, and briefly state why the intended research is important. This section should also include any background or introductory information that would help explain the objectives of the study. If this application is for continuation of research supported by an existing or former grant awarded under the STAR program, indicate the number of the grant and provide a brief report of progress and results achieved under that grant (one to two pages recommended).

2. Approach: Outline the research design, methods, and techniques that you intend to use in meeting the objectives stated above (five to ten pages recommended).
3. Expected Results or Benefits: Describe the results you expect to achieve during the project and the benefits of these results. This section should also discuss how the research results will lead to solutions to environmental problems (one to two pages recommended).
4. General Project Information: Discuss other information relevant to the potential success of the project. This should include facilities, personnel, project schedules, proposed management, interactions with other institutions, etc. Applications for multi-investigator projects must identify project management and the functions of each investigator within a team and describe plans for communication and sharing of data (one to two pages recommended).
5. Important Attachments and page limitations:

References cited are in addition to the 15-page Research Plan limit.

Letters of intention to support the Research Plan are only appropriate to assure the commitment of a resource (e.g., use of a person's time or equipment) not under the control of the proposing institution. Such letters, limited to one brief paragraph, may be included and are in addition to the 15 pages.

Letters of intention describing the substance of the support for the Research Plan (such as from a collaborator at a participating institution) must remain within the 15-page limit.

Appendices may be included but must remain within the 15-page limit.

Quality Assurance Statement (two pages in addition to the 15-page research plan):

For any project involving data collection or processing, conducting surveys, environmental measurements, modeling, or the development of environmental technology (whether hardware-based or via new techniques) for pollution control, provide a Statement on processes that will be used to assure that results of the research satisfy the intended project objectives. EPA is particularly interested in the quality controls for data generation and acquisition, and how data validation and usability will be verified. The Statement must describe a system that complies with ANSI/ASQC E4, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*, and must not exceed two consecutively numbered, 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

For each item below, either present the required information, reference the specific location of the information in the Research Plan, or provide a justification of why the item does not apply to the proposed research.

1. Identify the individual who will be responsible for the quality assurance and quality control aspects of the research. (Quality assurance (QA) is an integrated system of management activities involving planning, implementation, documentation, assessment, and improvement to ensure that a process, or item is of the type and quality needed for the project. Quality control (QC) is the system of technical activities that measures the attributes and performance of a process or item against defined standards, to verify that they meet the stated requirements.)
2. Discuss the activities to be performed or the hypothesis to be tested and criteria for determining acceptable data quality. (Note: Such criteria may be expressed in terms of precision, accuracy, representativeness, completeness, and comparability or in terms of data quality objectives or acceptance and evaluation criteria.) Also, these criteria must be applied to determine the acceptability of existing, or “secondary,” data to be used in the project. (In this context, secondary data may be defined as data previously collected for other purposes or from other sources.)
3. Describe the study design. Include sample type(s) and location requirements, all statistical analyses that were or will be used to estimate the types and numbers of physical samples required, *or* equivalent information for studies using survey and interview techniques, *or* describe how new technology will be benchmarked to improve existing processes, such as those used by industry.
4. Describe the procedures that will be used in the calibration and performance evaluation of all analytical instrumentation and all methods of analysis to be used during the project. Explain how the effectiveness of any new technology will be measured.
5. Describe the procedures for the handling and custody of samples, including sample collection, identification, preservation, transportation, and storage, or how the accuracy of test measurements will be verified.
6. Discuss the procedures for data reduction and reporting, including a description of all statistical methods to make inferences and conclusions, with identification of any statistical software to be used; discuss any computer models to be designed or utilized and describe the associated verification and validation techniques.
7. Describe the quantitative and/or qualitative procedures that will be used to evaluate the success of the project, including any plans for peer or other reviews of the study design or analytical methods prior to data collection.

ANSI/ASQC E4, Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, is available for purchase from the American Society for Quality, phone 1-800-248-1946, item T55. Only in exceptional circumstances should it be necessary to consult this document. An EPA guidance document, Guidance on Satisfying EPA Quality System Requirements for STAR Grants (EPA QA/G-1STAR) is available for potential applicants and addresses in detail how to comply with ANSI/ASQC E4 for STAR grants. This may be found on the Internet at <http://www.epa.gov/ncer> under “Guidance and FAQs.”

Congress, through OMB, has instructed each agency to implement Information Quality Guidelines designed to "provide policy and procedural guidance . . . for ensuring and maximizing the quality, objectivity, utility, and

integrity of information, including statistical information, disseminated by Federal agencies.” EPA’s implementation may be found at <http://www.epa.gov/oeiinter/qualityguidelines/index.html>. These procedures may apply to data generated by grant recipients if those data are disseminated as described in the Guidelines.

Page allowances for the following sections are in addition to those allowed for the Research Plan and Quality Assurance Statement.

E. Budget and Budget Justification

Budget:

Prepare a budget table using the guidance and format found at <http://es.epa.gov/ncer/rfa/forms/>, select “All required forms.” If a sub-agreement, such as a subcontract, is included in the application, provide a separate budget for the subcontract using the same format. Include the total amount for the sub-agreement under “Contracts” in the master budget. A project which contains a sub-agreement constituting more than 40% of the total direct cost of the grant will be subject to special review. Additional justification for use of such a subcontract must be provided, discussing the need for this agreement to accomplish the objectives of the research project.

Please note that institutional cost-sharing is not required. However, if you intend to cost-share, a brief statement concerning cost-sharing should be added to the budget justification, and estimated dollar amounts must be included in the appropriate categories in the budget table.

Budget Justification:

Describe the basis for calculating the personnel, fringe benefits, travel, equipment, supplies, contractual support, and other costs identified in the itemized budget and explain the basis for their calculation. (Special attention should be given to explaining the “travel,” “equipment,” and “other” categories.) The budget justification should not exceed two consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

Budget information should be supported at the level of detail described below.

1. Personnel: List all staff positions by title. Give annual salary, percentage of time assigned to the project, and total cost for the budget period.
2. Fringe Benefits: Identify the percentage used and the basis for its computation.
3. Travel: Specify the estimated number of trips and locations, and other costs for each type of travel. Explain the need for any travel outside the United States. Include travel funds for annual STAR program progress reviews and a final workshop to report on results.
4. Equipment: Identify computers, and each item to be purchased which has an estimated cost of \$5,000 or more per unit and a useful life of more than one year. (Items with a unit cost of less than \$5,000 are considered supplies, per regulation.)

5. Supplies: “Supplies” means all tangible property other than “equipment.” Identify categories of supplies to be procured (e.g., laboratory supplies or office supplies).
6. Contractual: Identify each proposed sub-agreement (grant or contract) and specify its purpose and estimated cost. Sub-agreements greater than \$25K should have a separate itemized budget included as part of the application.
7. Other: List each item in sufficient detail for the EPA to determine the reasonableness of its cost relative to the research to be undertaken.
8. Indirect Charges - If indirect charges are included in the budget, indicate the approved rate and base with an explanation of how indirect costs were calculated.

F. Resumes and Current and Pending Support

Resumes: Provide the resumes of all principal investigators and important co-workers. The resume for each individual must not exceed two consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

Current and Pending Support: Identify any current and pending financial resources that are intended to support research related to the proposal or which would consume the time of principal investigators. Complete the Current and Pending Support documentation (see <http://es.epa.gov/ncer/rfa/forms/>) for each investigator and other important co-workers.

2. Confidentiality

By submitting an application in response to this solicitation, the applicant grants EPA permission to make limited disclosures of the application to technical reviewers both within and outside the Agency for the express purpose of assisting the Agency with evaluating the application. Information from a pending or unsuccessful application will be kept confidential to the fullest extent allowed under law; information from a successful application may be publicly disclosed.

3. How to Apply

You must use the electronic application package from the <http://www.grants.gov> web site. In order to view the application package, you will need to download the PureEdge viewer. (hyperlink available under “Get Started Step 2”). You may then access the application package at https://apply.grants.gov/forms_apps_idx.html using either the CFDA number of 66.509 or Funding Opportunity Number 2004-STAR-K2.

The actual application submission must be made by a representative registered with <http://www.grants.gov/>. Please see <http://www.grants.gov/>, “Get Started” for further information. ***The registration process may take several weeks.*** Please check with your Sponsored Programs, or equivalent, office to see if your institution is registered and encourage them to begin the process immediately.

The complete application *must be transferred to <http://www.grants.gov/> no later than 4:00 P.M. Eastern Time* on the closing date (see solicitation for date).

4. Guidelines, Limitations, and Additional Requirements

Applications should be focused on a limited number of research objectives that can be adequately and clearly demonstrated to meet the RFA requirements. Explicitly state the main hypotheses that you will investigate, the data you will create or use, the analytical tools you will use to investigate these hypotheses or analyze these data, and the results you expect to achieve. Research methods must be clearly stated so that the reviewers can evaluate the appropriateness of your approach and the tools you intend to use. The statement: “we will evaluate the data using the usual statistical methods” is not specific enough for peer reviewers.

If you wish to submit applications for more than one STAR RFA, you must ensure that the research proposed in each is significantly different from any other that has been submitted to the EPA or from any other grant you are currently receiving from the EPA or another federal government agency.

To be considered timely, applications must be received by the Agency on or before the deadline date published in the RFA. Applications received after the published deadline or applications that deviate from the prescribed format will be returned to the sender without further consideration. Also, applications exceeding the funding limits described in the RFA will be returned without review.

After evaluation and selection for award, applicants recommended for funding will be required to submit additional certifications, a revised project abstract (where appropriate), and may be requested to provide responses to comments or suggestions offered by the peer reviewers, a revised budget, and/or to resubmit their proposal. EPA Project Officers will contact Principal Investigators to obtain these materials. Before or after an award, certain applicants will be expected to provide additional quality assurance documentation.

Applications are selected for an award subject to the availability of funding.

Collaborative applications involving more than one institution must be submitted as a single administrative package from one of the institutions involved.

5. Review and Selection Criteria

A. Review and Selection Process: All grant applications are reviewed by an appropriate technical peer review panel. This review is designed to evaluate each proposal according to its scientific merit. Applications that receive scores of excellent and very good from the peer reviewers are subjected to a programmatic review within the EPA to assure a balanced research portfolio for the Agency. Applications are then recommended for funding to the NCER Director who makes funding decisions. Applications are selected for an award based on consideration of the scientific quality of proposals and relevance to EPA program research priorities, program balance, budget and available funds. Selected applicants will be required to provide additional

information (see above) and the application will be forwarded to the grants administration office for award in accordance with the EPA's procedures.

Customarily, applicants are notified about award decisions within six months of the application deadline. A summary statement of the scientific review by the peer panel will be provided to each applicant with the award or declination letter.

B. Peer Review and Criteria: In general, each peer review group is composed of non-EPA scientists, engineers, social scientists, and/or economists who are experts in their respective disciplines and are proficient in the technical subjects they are reviewing. Reviewers are asked to assign a summary score to the application of either excellent, very good, good, fair, or poor, and use the criteria below to help them in their evaluations. These criteria are listed in descending order of importance.

1. The originality and creativity of the proposed research, the appropriateness and adequacy of the research methods proposed, and of the Quality Assurance Statement. Is the research approach practical and technically defensible, and can the project be performed within the proposed time period? Will the research contribute to scientific knowledge in the topic area? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society? Is the proposal well-prepared with supportive information that is self-explanatory or understandable?
2. The qualifications of the principal investigator(s) and other key personnel, including research training, demonstrated knowledge of pertinent literature, experience, and publication records. Will all key personnel make a significant time commitment to the project?
3. The responsiveness of the proposal to the research needs identified for the topic area. Does the proposal adequately address the objectives specified by the EPA for this topic area?
4. The availability and/or adequacy of the facilities and equipment proposed for the project. Are there any deficiencies that may interfere with the successful completion of the research?
5. Although budget information does not reflect on the application's scientific merit, the reviewers are asked to provide their view on the appropriateness and/or adequacy of the proposed budget and its implications for the potential success of the proposed research. Input on requested equipment is of particular interest.

6. Funding Mechanism

The funding mechanism for all awards issued under STAR solicitations will consist of assistance agreements from the EPA. All award decisions are subject to the availability of funds. In accordance with Public Law 95-224, the primary purpose of a grant is to accomplish a public

purpose of support or stimulation authorized by Federal statute, rather than acquisition for the direct benefit or use of the Agency. In issuing a grant agreement, the EPA anticipates that there will be no substantial EPA involvement in the design, implementation, or conduct of the research. However, the EPA will monitor research progress through annual reports provided by grantees and other contacts, including site visits, with the Principal Investigator.

7. Expectations and Responsibilities of STAR Grantees

Expectations and responsibilities of NCER grantees are summarized in this section; see www.epa.gov/ncer/guidance for full terms and conditions associated with an award, including what activities require prior approval of the EPA.

A. Meetings: Principal Investigators will be expected to budget for, and participate in, periodic All-Investigators Meetings (also known as progress reviews) approximately once per year with EPA scientists and other grantees to report on research activities and to discuss issues of mutual interest.

B. Approval of Changes after Award: Prior written approval is required from the EPA if there is to be significant change in the research that deviates markedly from work described in the application. Examples of these changes are contained in 40 C.F.R. 30.25.

C. Human Subjects: A grant recipient must agree to meet all EPA requirements for studies using human subjects prior to implementing any work with these subjects. These requirements are given in 40 C.F.R. 26, referred to as the “Common Rule.” No work involving human subjects, including recruiting, may be initiated before the EPA has received a copy of the Institutional Review Board’s (IRB) approval of the project and the EPA has also provided approval. Where human subjects are involved in the research, the recipient must provide evidence of subsequent IRB reviews, including amendments or minor changes of protocol, as part of annual reports.

D. Animal Welfare: A grant recipient must agree to comply with the Animal Welfare Act of 1966 (P.L. 89-554), as amended. All projects involving vertebrate animals must have approval from the applying organization’s Institutional Animal Care and Use Committee before issuance of an EPA grant.

E. Data Access and Information Release: The Office of Management and Budget (OMB) Circular A-110 has been revised to provide public access to research data through the Freedom of Information Act (FOIA) under some circumstances. Data that are (1) first produced in a project that is supported in whole or in part with Federal funds and (2) cited publicly and officially by a Federal agency in support of an action that has the force and effect of law (i.e., a regulation) may be accessed through FOIA. All data sets, models, and databases developed under STAR grants may become accessible to the public and therefore freely available to all researchers. If such data are requested by the public, the EPA must ask for it, and the grantee must submit it, in accordance with A-110 and EPA regulations at 40 C.F.R. 30.36.

F. Reports: A grant recipient must agree to provide annual progress reports with associated

summaries for posting on NCER's web site, and a final report with an executive summary for web posting.

G. Publications: A grant recipient must agree to provide copies of any peer reviewed journal article(s) resulting from the research during the project period. In addition, the recipient should notify the EPA Project Officer of any papers published after completion of the grant which were based on research supported by the grant. NCER intends to post references to all publications resulting from the grant on the NCER web site.

Any documents developed under the agreement for distribution to the public or inclusion in a scientific, technical, or other journal shall include the following statement:

This publication [article] was developed under a STAR Research Assistance Agreement No. _____ awarded by the U.S. Environmental Protection Agency. It has not been formally reviewed by the EPA. The views expressed in this document are solely those of [name of recipient] and the EPA does not endorse any products or commercial services mentioned in this publication.

A graphic that can be converted to a slide or used in other ways, such as on a poster, is located here. Use of this graphic in oral and poster presentations is expected.

8. Contacts

Additional general information on the STAR grants program, formats used for applications, etc., may be obtained by exploring our Web page at <http://www.epa.gov/ncer>. Specific technical questions should be directed to the EPA contact person whose name is provided in the solicitation.

9. Privacy Act and Public Burden Statements

This RFA requests information for proposal forms and in project reports. The information on proposal forms, including quality-related data, will be used in connection with the selection of qualified proposals. Project reports submitted by awardees will be used for program evaluation. The information requested may be disclosed to qualified reviewers as part of the proposal review process, and to other government agencies needing information as part of the review process or in order to coordinate programs. Submission of the information is voluntary. However, failure to provide full and complete information may reduce the possibility of receiving an award. The OMB control number for this collection (General Administrative Requirements for Assistance Programs) is 2030-0020 (expires 2005). EPA regulations, as stated in 40 C.F.R. 30.54, require the inclusion of data quality planning documents, which are covered by Quality Assurance Specification and Requirements, OMB # 2080-0033.

10. Applicable Federal Citations

This program is described in the Catalog of Federal Domestic Assistance, under Number 66.509. Awards by the EPA are made and administered under the authority of 40 C.F.R. Part 30 and 40,

and applicable statutes.

11. Organizing Your Electronic Application

Documents should be submitted in Adobe Acrobat PDF format. Please submit the required documents as described below.

A. Application for Federal Assistance (SF-424)

1. Complete the form. There are no additional attachments.

B. EPA Key Contacts Form 5700-54

1. Complete the form.
2. If additional pages are needed, see “Other Attachments Form” below.

C. Project Narrative Attachment Form

1. Compile the Research Plan followed by the Quality Assurance Statement into one document labeled “Research Plan and QA Statement” and submit it as the “Add Mandatory Project Narrative File.”
2. Prepare a document with your abstract, label it “Abstract,” and submit it as an “Add Optional Project Narrative File.”
3. Prepare one document containing all Resumes followed by Current and Pending Support labeled “Resumes and C&P Support” and submit it as an “Add Optional Project Narrative File.”

D. Budget Narrative Attachment Form

1. When possible, prepare one document for your Budget and Budget Justification, label this document “Budget and Budget Justification,” and submit it as the “Add Mandatory Budget Narrative.”
2. If you cannot compile your Budget and Budget Justification into one document, prepare one document for each.
 - a. Label your Budget document “Budget” and submit it as the “Add Mandatory Budget Narrative.”
 - b. Label the Budget Justification document “Budget Justification” and submit it as an “Add Optional Budget Narrative” document.

E. Other Attachments Form

1. If Key Contacts Continuation pages were needed for the Key Contacts Form 5700-54, compile them into one document labeled “Key Contacts Continuation” and submit the document.
2. When submitting letters of intent that are not included in the 15-page limit of the project narrative, prepare one document containing those letters, name this document “Letters of Intent,” and submit it. Refer to part 1. D. 5. “Research Plan and Quality Assurance Statement” for additional information.
3. Other appropriate documents may also be submitted here.