United States Environmental Protection Agency

Extramural Research
Funding Opportunities

U.S. Environmental Protection Agency
Office of Research and Development
National Center for Environmental Research

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Research Grant Announcements
NCER Listserv
Archives

Grantee Research Project Results

Extramural Research Search

National Priorities: Life Cycle Costs of Water Infrastructure Alternatives

This is the initial announcement of this funding opportunity.

Funding Opportunity Number: EPA-G2015-ORD-D1

Catalog of Federal Domestic Assistance (CFDA) Number: 66.511

Solicitation Opening Date: May 18, 2015
Solicitation Closing Date: ~~July 2, 2015, 11:59:59 pm Eastern Time~~
Solicitation Closing Date Extended to: July 6, 2015, 11:59:59 pm Eastern Time

Technical Contact: Pasky Pascual (pascual.pasky@epa.gov); phone: 703-347-8056
Eligibility Contact: Ron Josephson (josephson.ron@epa.gov); phone: 703-308-0442
Electronic Submissions: Debra M. Jones (jones.debram@epa.gov); phone: 703-347-8081

Table of Contents:

SUMMARY OF PROGRAM REQUIREMENTS
- Synopsis of Program
- Award Information
- Eligibility Information
- Application Materials
- Agency Contacts

I. FUNDING OPPORTUNITY DESCRIPTION
- A. Introduction
- B. Background
- C. Authority and Regulations
- D. Specific Areas of Interest/Expected Outputs and Outcomes
- E. References

F. Special Requirements
II. AWARD INFORMATION
III. ELIGIBILITY INFORMATION
A. Eligible Applicants
B. Cost Sharing
C. Other
IV. APPLICATION AND SUBMISSION INFORMATION
A Grants.gov Submittal Requirements and Limited Exception Procedures
B. Internet Address to Request Application Package
C. Content and Form of Application Submission
D. Submission Dates and Times
E. Funding Restrictions
F. Submission Instructions and Other Submission Requirements
V. APPLICATION REVIEW INFORMATION
A. Peer Review
B. Programmatic Review
C. Human Subjects Research Statement (HSRS) Review
D. Funding Decisions
VI. AWARD ADMINISTRATION INFORMATION
A. Award Notices
B. Disputes
C. Administrative and National Policy Requirements
VII. AGENCY CONTACTS
Access Forms (Forms and Standard Instructions Download Page)
View research awarded under previous solicitations (Funding Opportunities: Archive Page)

SUMMARY OF PROGRAM REQUIREMENTS

Synopsis of Program:
The U.S. Environmental Protection Agency (EPA), is seeking applications that propose research focused on developing tools and models that compare the life-cycle costs of green, grey, and hybrid forms of water infrastructure. One of the high-priority research areas identified by the EPA's Office of Research and Development (ORD) is developing tools to protect the quantity and quality of water. Under the 1987 amendments to the Clean Water Act (CWA), the EPA established a program to address storm water discharges including the National Pollutant Discharge Elimination System (NPDES) program which regulates point sources such as pipes and sewers that discharge directly into surface waters. Under the CWA, communities need to address stormwater management requirements as they consider their aging water infrastructure systems, rate payer expectations, and other considerations important to the community. Green infrastructure is an emerging technology with much potential to help many communities.

Research is needed to assist communities throughout the United States in evaluating investments in green infrastructure that can improve stormwater management in multiple ways, including reducing the volume of stormwater entering the sewer system to decrease the costs of grey infrastructure updates, and by managing stormwater runoff as a resource, not a waste, to enhance scarce water supplies. The EPA currently supports a number of research grants from previous solicitations on performance

and effectiveness of green infrastructure. Information regarding current and prior research can be found on ORD's National Center for Environmental Research (NCER) web site.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. Research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. Research meeting the regulatory definition of observational research found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). All applications must include a Human Subjects Research Statement (HSRS, as described in Section IV.C.5.c of this solicitation), and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.C and V.D of this solicitation. Additional information can be found in Section I.A of the full announcement.

Guidance and training for investigators conducting EPA-funded research involving human subjects may be obtained here:
Basic Information about Human Subjects Research
Title 40 → Chapter I → Subchapter A → Part 26

Award Information:
Anticipated Type of Award: Grant or cooperative agreement.
Estimated Number of Awards: Approximately two awards
Anticipated Funding Amount: Approximately $3.9 million total in federal funds for all awards.

Potential Funding per Award: Up to a total of $1.95 million in federal funds, including direct and indirect costs, with a maximum duration of three years. **Each applicant must contribute a minimum 25 percent match that may include in-kind contributions (see Section III.B. for more detail).** Thus, if the maximum is awarded, then the award will be $1.95 million EPA funds + a minimum of $487,500 in non-federal matching funds from the applicant. Proposals with budgets exceeding the EPA (federal) funding limit of $1.95 million will not be considered. In order to be eligible for funding consideration, applicants must demonstrate in their application how they will meet the required minimum 25% match in accordance with 2 CFR §200.306.

Eligibility Information:
Nonprofit organizations and nonprofit colleges and universities located in the United States are eligible. Foreign entities, individuals, States, including the District of Columbia and State and local government departments, territories, possessions, and Tribal nations of the U.S., are not eligible to apply under this RFA. Profit-making firms are not eligible to receive assistance agreements from EPA under this program. See full announcement for more details.

Application Materials:
To apply under this solicitation, use the application package available at Grants.gov (for further submission information see Section IV.F. "Submission Instructions and other Submission Requirements"). The necessary forms for submitting an application will be found on the National Center for Environmental Research (NCER) web site, Forms and Standard Instructions Download Page.

If your organization is not currently registered with Grants.gov, you need to allow approximately one month to complete the registration process. Please note that the registration process also requires that your organization have a unique entity identifier and a current registration with the System for Award Management (SAM) and the process of obtaining both could take a month or more. Applicants must ensure that all registration requirements are met in order to apply for this opportunity through

Grants.gov and should ensure that all such requirements have been met well in advance of the submission deadline. This registration, and electronic submission of your application, must be performed by an authorized representative of your organization.

If you do not have the technical capability to utilize the Grants.gov application submission process for this solicitation, see Section IV.A below for additional guidance and instructions.

Agency Contacts:
Technical Contact: Pasky Pascual (pascual.pasky@epa.gov); phone: 703-347-8056
Eligibility Contact: Ron Josephson (josephson.ron@epa.gov); phone: 703-308-0442
Electronic Submissions: Debra M. Jones (jones.debram@epa.gov); phone: 703-347-8081

I. FUNDING OPPORTUNITY DESCRIPTION

A. Introduction

One of the high-priority research areas identified by the EPA Office of Research and Development (ORD) is stormwater runoff. Under the 1987 amendments to the Clean Water Act (CWA), the EPA established a program to address storm water discharges including the National Pollutant Discharge Elimination System (NPDES) program which regulates point sources such as pipes and sewers that discharge directly into surface waters. Under the CWA, communities need to address stormwater management requirements as they consider their aging water infrastructure systems, rate payer expectations, and other considerations important to the community. Green infrastructure is an emerging technology with much potential to help many communities. Research is needed to assist communities throughout the United States in evaluating whether to invest in green infrastructure that can improve stormwater management in multiple ways, including reducing the volume of stormwater entering the sewer system to decrease the costs of grey infrastructure updates, and by managing stormwater runoff as a resource, not a waste, to enhance scarce water supplies. The EPA currently supports a number of research grants from previous solicitations on performance and effectiveness of green infrastructure. Information regarding current and prior research can be found on ORD's National Center for Environmental Research (NCER) web site.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. Research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. Research meeting the regulatory definition of observational research found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). All applications must include a Human Subjects Research Statement (HSRS, as described in Section IV.C.5.c of this solicitation), and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.C and V.D of this solicitation.

Please note that surveys, interviews, and focus groups with individuals may constitute human subjects research.

The additional level of review is conducted by the EPA Human Subjects Research Review Official (HSRRO). In making a determination about conditional and later final approval, the HSRRO will apply both EPA Regulation 40 CFR 26 and EPA Policy Order 1000.17 Change A1, where human exposure research is interpreted as any intervention that manipulates subjects' environment (i.e., modifies subjects' exposure).

For more specific information including guidance and training, see:
Basic Information about Human Subjects Research

Title 40 → Chapter I → Subchapter A → Part 26

B. Background

In the National Research Council's (NRC's) 2009 report, *Urban Stormwater Management in the United States*, the NRC described water as being the most fundamental, limited resource. As an indication of the national scope of the importance of both water quality and availability, the U.S. Government Accountability Office, at the behest of Congress, published a report in 2014 stating that 42 of 50 state water managers anticipated problems with water quality and availability in the next 10-20 years. Looking at the nation's future needs, the National Academy of Engineering proposed an approach to water engineering, collectively known as green infrastructure, which could improve water quality, in addition to achieving "multiple goals, such as better storm drainage and cleaner water, while also enhancing the appearance of the landscape, improving the habitat for wildlife, and offering recreational spaces for people." Green infrastructure treats stormwater runoff through the use of engineered systems that mimic natural systems. Examples include permeable pavement, green roofs, and constructed wetlands.

Currently, communities struggle with how best to address stormwater management requirements given their aging water infrastructure systems, rate payer expectations, and regulatory requirements. Updates to U.S. aging wastewater and stormwater conveyance infrastructure (grey infrastructure) are often needed to meet requirements for both combined and separate storm sewer systems. Many communities are finding that increased use of green infrastructure – in addition to grey infrastructure – can effectively improve stormwater management and may decrease the need for costly grey infrastructure updates. For this reason, some communities are considering a hybrid approach using both green and grey infrastructure to reduce the overall costs to meeting stormwater management requirements, while offering additional co-benefits, such as replenishment of groundwater supplies and flood control, increased access to parks and open space, and improvements that attract private investment to revitalize neighborhoods. Communities need tools to assess green and grey infrastructure investment options in order to determine the most cost-effective approach across the life cycle of the investments.

Assessing the costs of different approaches for upgrading stormwater infrastructure and comparing costs across the approaches is an emerging challenge; therefore, tools that allow users to estimate Life Cycle Costs (LCC) are critically needed. Economic differences among green, grey, and combined green/grey water infrastructure must be considered at each stage of planning and design, construction, operation and maintenance, and replacement. Consideration should be given to additional benefits from use of green infrastructure, including financial benefits resulting from the replenishment of groundwater supplies. Robust methods must be developed for comparing/contrasting green and grey infrastructure options, and regional variations and changes over time in costs must be considered. In order to provide communities with effective LCC tools for green versus grey infrastructure decision making, a significant amount of research is needed to improve these tools and encourage their national applicability.

The specific Strategic Goal and Objective from the EPA's Strategic Plan that relate to this solicitation are:

Goal 2: Protecting America's Waters, Objective 2.2: Protect and Restore Watersheds and Aquatic Ecosystems

More information can be found in EPA's FY 2014-2018 Strategic Plan

C. Authority and Regulations

The authority for this RFA and resulting awards is contained in the Consolidated and Further Continuing Appropriations Act, 2015, P.L. 113-325 and the Clean Water Act, Section 104, 33 U.S.C. 1254.

For research with an international aspect, the above statutes are supplemented, as appropriate, by the National Environmental Policy Act, Section 102(2)(F).

Note that a project's focus is to consist of activities within the statutory terms of EPA's financial assistance authorities; specifically, the statute(s) listed above. Generally, a project must address the causes, effects, extent, prevention, reduction, and elimination of air pollution, water pollution, solid/hazardous waste pollution, toxic substances control, or pesticide control depending on which statute(s) is listed above. These activities should relate to the gathering or transferring of information or advancing the state of knowledge. Proposals should emphasize this "learning" concept, as opposed to "fixing" an environmental problem via a well-established method. Proposals relating to other topics which are sometimes included within the term "environment" such as recreation, conservation, restoration, protection of wildlife habitats, etc., must describe the relationship of these topics to the statutorily required purpose of pollution prevention and/or control. Note: Applications dealing with hydraulic fracking will not be funded by EPA through this program.

Applicable regulations include: 2 CFR Part 200, 2 CFR Part 1500, and 40 CFR Part 40 (Research and Demonstration Grants).

D. Specific Areas of Interest/Expected Outputs and Outcomes

Note to applicant: The term "output" means an environmental activity, effort, and/or associated work products related to an environmental goal or objective, that will be produced or provided over a period of time or by a specified date. The term "outcome" means the result, effect or consequence that will occur from carrying out an environmental program or activity that is related to an environmental or programmatic goal or objective.

EPA is interested in proposals that incorporate ***all*** of the following research needs and are national in scope:

- Development of methods, approaches and models to estimate the life-cycle cost of grey versus green or hybrid green/grey water infrastructure. These methods, approaches and models must have national applicability and focus on infrastructures across multiple scales—from individual practices, business-level practices, to the community sewer-shed scale. They should also include methods of cost data collection. Cost estimates should include capital investments (e.g., planning, design, installation), operation and maintenance (including energy expenses and compliance with environmental regulations), replacement and expansion to accommodate changes in the population and extreme weather events.
- These methods, approaches and models should be transferable to different regions of the United States, be able to account for regional variations in costs, and be applicable to extreme weather events. They should allow individual communities to insert place-specific data on capital costs; labor cost; soil conditions; historical, current and forecasted weather conditions; and other local factors that contribute to variations in life cycle costs.
- These methods, approaches and models should help users to estimate the life-cycle costs of infrastructure projects in a simple and understandable manner. Furthermore, methods, approaches, and models should be scientifically robust and transparently convey uncertainties in the analyses. Models should be non-proprietary, open-source and based on open-access data. Principal investigators should describe how they intend to develop their life-cycle cost models in a manner that can be shared with the general public in a programming language that is generally accessible, including spreadsheet-based models as well as Python or C++. Moreover, they should describe how they intend to share data in an open, machine-readable format such as XML. They should also describe how they intend to document the metadata so that any secondary user will understand the data sources, consistent with the best practices articulated by EPA's data quality guidelines.

Proposals which do not address all of the research needs above may not be rated as highly under the evaluation process described in Section V.

EPA encourages the use of modeling approaches that offer communities the opportunity to contribute information and data collected by public citizens. EPA also encourages modeling approaches for water-related green infrastructure implementation that capitalize on other infrastructure modifications communities may already have under way.

Expected outcomes of the awards under this RFA include an improved understanding of the life-cycle costs of grey versus green or hybrid green/grey water infrastructure.

The research should help state, local and other decision makers understand the consequences of installing or extending these infrastructure alternatives. The expected outputs include guidance documents, decision support tools, models, demonstration and case studies, reports, presentations, and peer-reviewed journal publications.

To the extent practicable, research proposals must embody innovation and sustainability. Innovation for the purposes of this RFA is defined as the process of making changes; a new method, custom or device. Innovative research can take the form of wholly new applications or applications that build on existing knowledge and approaches for new uses. Research proposals must include a discussion on how the proposed research is innovative (see Section IV.C.5.a). The concept of sustainability is based on language in the U.S. National Environmental Policy Act of 1969 (NEPA). This definition is reiterated in Executive Order 13514, Federal Leadership in Environment, Energy, and Economic Performance, stating that the goal of sustainability is to, "create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations." Research proposals must include a discussion on how the proposed research will seek sustainable solutions that protect the environment and strengthen our communities (see Section IV.C.5.a). ORD will draw from all of the above-mentioned innovation and sustainability definitions in the review/evaluation process of recommending research proposals (see Section V.A).

E. References

Committee on Reducing Stormwater Discharge Contributions to Water Pollution. *Urban Stormwater Management in the United States.* National Academy Press, 2009.

U.S. Environmental Protection Agency. EPA's Green Infrastructure Website

F. Special Requirements

Agency policy and ethical considerations prevent EPA technical staff and managers from providing applicants with information that may create an unfair competitive advantage. Consequently, EPA employees will not review, comment, advise, and/or provide technical assistance to applicants preparing applications in response to EPA RFAs. EPA employees cannot endorse any particular application.

Multiple Investigator applications may be submitted as: (1) a single Lead Principal Investigator (PI) application with Co-PI(s) or (2) a Multiple PI application (with a single Contact PI). If you choose to submit a Multiple PI application, you must follow the specific instructions provided in Sections IV. and V. of this RFA. For further information, please see the EPA Implementation Plan for Policy on Multiple Principal Investigators.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. There are many scientific and ethical considerations that must be addressed in such studies by the study sponsor and research team, including, but not limited to, those related to recruitment, retention, participant compensation, third-party issues, researcher-participant interactions, researcher-community interactions, communications, interventions, and education. All such research must comply with the requirements of 40 CFR Part 26, and any human observational exposure studies must also adhere to the principles set forth in the Scientific and Ethical Approaches for Observational Exposure Studies (SEAOES) (EPA/600/R-08/062) (PDF) (133 pp, 1.21 MB) document. SEAOES, which was published by researchers in EPA and which discusses the principles for the ethical conduct of human research studies, serves as a resource for applicants interested in applying under this solicitation. References to "SEAOES Principles" in this solicitation refers, in general, to the issues of interest in conducting human subjects research studies that maintain the highest scientific and ethical standards and safety during the conduct of these studies. All applications must include a Human Subjects Research Statement (HSRS; described in Section IV.C.5.c of this solicitation) and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.C and V.D of this solicitation.

Groups of two or more eligible applicants may choose to form a consortium and submit a single application for this assistance agreement. The application must identify which organization will be the recipient of the assistance agreement and which organizations(s) will be subawardees of the recipient.

The application should include a plan (see "Data Plan" in section IV.C.5.d) to make available to the NCER project officer all data generated (first produced under the award) from observations, analyses, or model development used under an agreement awarded from this RFA. The data must be available in a format and with documentation such that they may be used by others in the scientific community.

These awards may involve the collection of "Geospatial Information," which includes information that identifies the geographic location and characteristics of natural or constructed features or boundaries on the Earth or applications, tools, and hardware associated with the generation, maintenance, or distribution of such information. This information may be derived from, among other things, a Geographic Positioning System (GPS), remote sensing, mapping, charting, and surveying technologies, or statistical data.

II. AWARD INFORMATION

It is anticipated that a total of approximately $3.9 million will be awarded under this announcement, depending on the availability of funds, quality of applications received, and other applicable considerations. The EPA anticipates funding approximately two awards under this RFA. Requests for amounts in excess of a total of $1.95 million in federal funds, including direct and indirect costs, will not be considered. In addition, a minimum 25% non-federal match (which may include in-kind contributions (see Section III.B. for more details)) equal to a minimum of $487,500 (assuming the applicant requests $1.95 million in EPA funds) must be included. Applications which do not demonstrate how the minimum 25% non-federal match will be met will not be considered. The total project period requested in an application submitted for this RFA may not exceed three years.

The EPA reserves the right to reject all applications and make no awards, or make fewer awards than anticipated, under this RFA. The EPA reserves the right to make additional awards under this announcement, consistent with Agency policy, if additional funding becomes available after the original selections are made. Any additional selections for awards will be made no later than six months after the original selection decisions.

In appropriate circumstances, EPA reserves the right to partially fund proposals/applications by funding discrete portions or phases of proposed projects. If EPA decides to partially fund a proposal/application, it will do so in a manner that does not prejudice any applicants or affect the basis upon which the proposal/application, or portion thereof, was evaluated and selected for award, and therefore maintains the integrity of the competition and selection process.

EPA may award both grants and cooperative agreements under this announcement.

Under a *grant,* EPA scientists and engineers are not permitted to be substantially involved in the execution of the research. However, EPA encourages interaction between its own laboratory scientists and grant Principal Investigators after the award of an EPA grant for the sole purpose of exchanging information in research areas of common interest that may add value to their respective research activities. This interaction must be incidental to achieving the goals of the research under a grant. Interaction that is "incidental" does not involve resource commitments.

Where appropriate, based on consideration of the nature of the proposed project relative to the EPA's intramural research program and available resources, the EPA may award *cooperative agreements* under this announcement. When addressing a research question/problem of common interest, collaborations between EPA scientists and the institution's principal investigators are permitted under a cooperative agreement. These collaborations may include data and information exchange, providing technical input to experimental design and theoretical development, coordinating extramural research with in-house activities, the refinement of valuation endpoints, and joint authorship of journal articles on these activities. **Proposals may not identify EPA cooperators or interactions; specific interactions between EPA's investigators and those of the prospective recipient for cooperative agreements will be negotiated at the time of award.**

III. ELIGIBILITY INFORMATION

A. Eligible Applicants

This solicitation is available to nonprofit organizations and nonprofit colleges and universities
located in the U.S. Foreign entities, individuals, States, including the District of Columbia and State and local government departments, territories, possessions, and Tribal nations of the U.S., are not eligible to apply under this RFA. Profit-making firms are not eligible to receive assistance agreements from the EPA under this program.

Eligible nonprofit organizations and nonprofit colleges and universities include any organizations that:

1. Are operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest;
2. Are not organized primarily for profit; and
3. Use its net proceeds to maintain, improve, and/or expand its operations.

However, nonprofit organizations described in Section 501(c) (4) of the Internal Revenue Code that lobby are not eligible to apply.

National laboratories funded by Federal Agencies (Federally-Funded Research and Development Centers, "FFRDCs") may not apply. FFRDC employees may cooperate or collaborate with eligible applicants within the limits imposed by applicable legislation and regulations. They may participate in planning, conducting, and analyzing the research directed by the applicant, but may not direct projects on behalf of the applicant organization. The institution, organization, or governance receiving the award may provide funds through its assistance agreement from the EPA to an FFRDC for research personnel, supplies, equipment, and other expenses directly related to the research. However, salaries for permanent FFRDC employees may not be provided through this mechanism.

Federal Agencies may not apply. Federal employees are not eligible to serve in a principal leadership role on an assistance agreement, and may not receive salaries or augment their Agency's appropriations in other ways through awards made under this program.

The applicant institution may enter into an agreement with a Federal Agency to purchase or utilize unique supplies or services unavailable in the private sector to the extent authorized by law. Examples are purchase of satellite data, chemical reference standards, analyses, or use of instrumentation or other facilities not available elsewhere. A written justification for federal involvement must be included in the application. In addition, an appropriate form of assurance that documents the commitment, such as a letter of intent from the Federal Agency involved, should be included.

Potential applicants who are uncertain of their eligibility should contact Ron Josephson (josephson.ron@epa.gov) in NCER, phone: 703-308-0442.

B. Cost-Sharing

Each applicant must contribute a minimum 25% non-federal match which may include in-kind contributions. In order to be eligible for funding consideration, applicants must demonstrate in their application how they will meet the required minimum 25% match in accordance with 2 CFR §200.306.

The cost share/match may be provided in cash or can come from in-kind contributions, such as the use of volunteers and/or donated time, equipment, etc., subject to the regulations governing matching fund requirements at 2 CFR §200.306. Cost share/matching funds are considered grant funds and are included in the total award amount.

All contributions, including cash and third party in-kind, shall be accepted as cost sharing or matching when such contributions meet all of the following criteria: (1) Are verifiable from the non-Federal entity's records; (2) Are not included as contributions for any other Federal award; (3) Are necessary and reasonable for proper and efficient

accomplishment of project or program objectives; (4) Are allowable under Subpart E—Cost Principles of 2 CFR Part 200; (5) Are not paid by the Federal Government under another Federal award, except where the Federal statute authorizing a program specifically provides that Federal funds made available for such program can be applied to matching or cost sharing requirements of other Federal programs; (6) Are provided for in the approved budget when required by the Federal awarding agency; and (7) Conform to other provisions of 2 CFR Part 200, as applicable.

Any restrictions on the use of grant funds (examples of funding restrictions are described in Section IV.E of this announcement) also apply to the use of cost share/matching funds.

C. Other

Applications must substantially comply with the application submission instructions and requirements set forth in Section IV of this announcement or they will be rejected. In addition, where a page limitation is expressed in Section IV with respect to parts of the application, pages in excess of the page limit will not be reviewed. In addition, applications must be submitted through Grants.gov as stated in Section IV of this announcement (except in the limited circumstances where another mode of submission is specifically allowed for as explained in Section IV) on or before the application submission deadline published in Section IV of this announcement. Applicants are responsible for following the submission instructions in Section IV of this announcement (see Section IV.F. "Submission Instructions and Other Submission Requirements" for further information) to ensure that their application is timely submitted. Applications submitted after the submission deadline will be considered late and deemed ineligible without further consideration unless the applicant can clearly demonstrate that it was late due to EPA mishandling or because of technical problems associated with Grants.gov or relevant SAM.gov system issues. An applicant's failure to timely submit their application through Grants.gov because they did not timely or properly register in SAM.gov or Grants.gov will not be considered an acceptable reason to consider a late submission. Applicants should confirm receipt of their application with the Electronic Submissions Contact shown in this solicitation as soon as possible after the submission deadline—failure to do so may result in your application not being reviewed.

Also, applications exceeding the funding limits or project period term described herein will be rejected without review. Further, applications that fail to demonstrate a public purpose of support or stimulation (e.g., by proposing research which primarily benefits a Federal program or provides a service for a Federal agency) will not be funded.

Applications deemed ineligible for funding consideration will be notified within fifteen calendar days of the ineligibility determination.

IV. APPLICATION AND SUBMISSION INFORMATION

Additional provisions that apply to this solicitation and/or awards made under this solicitation, including but not limited to those related to confidential business information, contracts and subawards under grants, and proposal assistance and communications, can be found at EPA Solicitation Clauses

These, and the other provisions that can be found at the website link, are important, and applicants must review them when preparing applications for this solicitation. If you are unable to access these provisions electronically at the website above, please communicate with the EPA contact listed in this solicitation to obtain the provisions.

Formal instructions for submission through Grants.gov are in Section F.

A. Grants.gov Submittal Requirements and Limited Exception Procedures

Applicants, except as noted below, must apply electronically through Grants.gov under this funding opportunity based on the Grants.gov instructions in this announcement. If an applicant does not have the technical capability to apply electronically through Grants.gov because of limited or no internet access which prevents them from being

able to upload the required application materials to Grants.gov, the applicant must contact OGDWaivers@epa.gov or the address listed below in writing (e.g., by hard copy, email) *at least 15 calendar days prior to the submission deadline under this announcement* to request approval to submit their application materials through an alternate method.

Mailing Address:
OGD Waivers
c/o Barbara Perkins
USEPA Headquarters
William Jefferson Clinton Building
1200 Pennsylvania Ave., N. W.
Mail Code: 3903R
Washington, DC 20460

Courier Address:
OGD Waivers
c/o Barbara Perkins
Ronald Reagan Building
1300 Pennsylvania Ave., N.W.
Rm # 51267
Washington, DC 20004

In the request, the applicant must include the following information:
Funding Opportunity Number (FON)
Organization Name and DUNS
Organization's Contact Information (email address and phone number)
Explanation of how they lack the technical capability to apply electronically through Grants.gov because of: 1) limited internet access or 2) no internet access which prevents them from being able to upload the required application materials through Grants.gov.

EPA will only consider alternate submission exception requests based on the two reasons stated above and will timely respond to the request -- all other requests will be denied. If an alternate submission method is approved, the applicant will receive documentation of this approval and further instructions on how to apply under this announcement. Applicants will be required to submit the documentation of approval with any initial application submitted under the alternative method. In addition, any submittal through an alternative method must comply with all applicable requirements and deadlines in the announcement including the submission deadline and requirements regarding proposal content and page limits (although the documentation of approval of an alternate submission method will not count against any page limits).

If an exception is granted, it is valid for submissions to EPA for the remainder of the entire calendar year in which the exception was approved and can be used to justify alternative submission methods for application submissions made through December 31 of the calendar year in which the exception was approved (e.g., if the exception was approved on March 1, 2015, it is valid for any competitive or non-competitive application submission to EPA through December 31, 2015). Applicants need only request an exception once in a calendar year and all exceptions will expire on December 31 of that calendar year. Applicants must request a new exception from required electronic submission through Grants.gov for submissions for any succeeding calendar year. For example, if there is a competitive opportunity issued on December 1, 2015

with a submission deadline of January 15, 2016, the applicant would need a new exception to submit through alternative methods beginning January 1, 2016.

Please note that the process described in this section is only for requesting alternate submission methods. All other inquiries about this announcement must be directed to the Agency Contact listed in Section VII of the announcement. Queries or requests submitted to the email address identified above for any reason other than to request an alternate submission method will not be acknowledged or answered.

B. Internet Address to Request Application Package

Use the application package available at Grants.gov (see Section F. "Submission Instructions and Other Submission Requirements"). Note: With the exception of the current and pending support form (available at Forms and Standard Instructions Download Page), all necessary forms are included in the electronic application package.

An email will be sent by NCER to the Lead/Contact PI and the Administrative Contact (see below) to acknowledge receipt of the application and transmit other important information. The email will be sent from receipt.application@epa.gov; emails to this address will not be accepted. *If you do not receive an email acknowledgement within 10 calendar days of the submission closing date, immediately inform the Electronic Submissions Contact shown in this solicitation. Failure to do so may result in your application not being reviewed.* See Section F. "Submission Instructions and Other Submission Requirements" for additional information regarding the application receipt acknowledgment.

C. Content and Form of Application Submission

The application is made by submitting the materials described below. **Applications must contain all the information requested and be submitted in the formats described.**

1. **Standard Form 424**

   The applicant must complete Standard Form 424. Instructions for completion of the SF424 are included with the form. (However, note that EPA requires that the entire requested dollar amount appear on the SF424, not simply the proposed first year expenses.) N**ote that a minimum 25% non-federal cost share/match must be included.**The form must contain the signature of an authorized representative of the applying organization.

   Applicants are required to provide a unique entity identifier when applying for federal grants or cooperative agreements. Organizations may receive a unique entity identifier, at no cost, by calling the dedicated toll-free request line at 1-866-705-5711, or visiting the website at: **Dun and Bradstreet**.

   Executive Order 12372, "Intergovernmental Review of Federal Programs," does not apply to the Office of Research and Development's research and training programs unless EPA has determined that the activities that will be carried out under the applicants' proposal (a) require an Environmental Impact Statement (EIS), or (b) do not require an EIS but will be newly initiated at a particular site and require unusual measures to limit the possibility of adverse exposure or hazard to the general public, or (c) have a unique geographic focus and are directly relevant to the governmental responsibilities of a State or local government within that geographic area.

   If EPA determines that Executive Order 12372 applies to an applicant's proposal, the applicant must follow the procedures in 40 CFR Part 29. The applicant must notify their state's single point of contact (SPOC). To determine whether their state participates in this process, and how to comply, applicants should consult Intergovernmental Review (SPOC List). If an applicant is in a State that does not have a SPOC, or the State has not selected research and development grants for intergovernmental review, the applicant must notify directly affected State, area wide, regional and local entities of its proposal.

EPA will notify the successful applicant(s) if Executive Order 12372 applies to its proposal prior to award.

2. **Key Contacts**

The applicant must complete the "Key Contacts" form found in the Grants.gov application package. An "Additional Key Contacts" form is also available at Forms and Standard Instructions Download Page. The Key Contacts form should also be completed for major sub-agreements (i.e., primary investigators). Do not include information for consultants or other contractors. Please make certain that all contact information is accurate.

For Multiple PI applications: The Additional Key Contacts form ***must*** be completed (see Section I.F. for further information). *Note: The Contact PI must be affiliated with the institution submitting the application. EPA will direct all communications related to scientific, technical, and budgetary aspects of the project to the Contact PI; however, any information regarding an application will be shared with any PI upon request.* The Contact PI is to be listed on the Key Contact Form as the Project Manager/Principal Investigator (the term Project Manager is used on the Grants.gov form, the term Principal Investigator is used on the form located on NCER's web site). For additional PIs, complete the Major Co-Investigator fields and identify PI status next to the name (e.g., "Name: John Smith, Principal Investigator").

3. **Table of Contents**

Provide a list of the major subdivisions of the application indicating the page number on which each section begins.

4. **Abstract** (1 page)

The abstract is a very important document in the review process. 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 should include the information described below (a-h). Examples of abstracts for current grants may be found on the NCER web site.

a. Funding Opportunity Title and Number for this proposal.
b. Project 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, use more commonly understood terminology. Do not use general phrases such as "research on."
c. Investigators: For applications with multiple investigators, state whether this is a single Lead PI (with co-PIs) or Multiple PI application (see Section I.F.). For Lead PI applications, list the Lead PI, then the name(s) of each co-PI who will significantly contribute to the project. For Multiple PI applications, list the Contact PI, then the name(s) of each additional PI. Provide a web site URL or an email contact address for additional information.
d. Institution(s): In the same order as the list of investigators, list the name, city and state of each participating university or other applicant institution. The institution applying for assistance must be clearly identified.
e. Project Period and Location: Show the proposed project beginning and ending dates and the performance site(s)/geographical location(s) where the work will be conducted.
f. Project Cost: Show the total funding requested from the EPA (include direct and indirect costs for all years) as well as the non-federal cost share. Demonstrate how you will meet the required match requirement.

g. Project Summary: Provide three subsections addressing: (1) the objectives of the study (including any hypotheses that will be tested), (2) the experimental approach to be used (a description of the proposed project), and (3) the expected results (outputs/outcomes) 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.
h. Supplemental Keywords: Without duplicating terms already used in the text of the abstract, list keywords to assist database searchers in finding your research. A list of suggested keywords may be found at: Forms and Standard Instructions Download Page.

5. **Research Plan, Quality Assurance Statement, Human Subjects Research Statement, Data Plan, and References**

a. Research Plan (15 pages)

Applications should focus on a limited number of research objectives that adequately and clearly demonstrate that they 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 reviewers can evaluate the appropriateness of your approach and the tools you intend to use. A statement such as: "we will evaluate the data using the usual statistical methods" is not specific enough for peer reviewers.

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. While these guidelines establish the minimum type size requirements, applicants are advised that readability is of paramount importance and should take precedence in selection of an appropriate font for use in the proposal.

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 and how it fulfills the requirements of the solicitation. This section should also include any background or introductory information that would help explain the objectives of the study. If this application is to expand upon research supported by an existing or former assistance agreement awarded under an EPA program, indicate the number of the agreement and provide a brief report of progress and results achieved under it.
2. Approach/Activities: Outline the research design, methods, and techniques that you intend to use in meeting the objectives stated above.
3. Innovation: Describe how your project shifts current research or engineering paradigms by using innovative theoretical concepts, approaches or methodologies, instrumentation or interventions applicable to one or more fields of research.
4. Sustainability: Describe how your project embodies the principles of sustainability and seeks sustainable solutions that protect the environment and strengthen our communities. The sustainability primer (PDF (2 pp, 195 K) provides examples of research activities that promote and incorporate sustainability principles.
5. Expected Results, Benefits, Outputs, and Outcomes: Describe the expected outputs and outcomes resulting from the project. This section should also discuss how the research results will lead to solutions to environmental problems and improve the public's ability to protect the environment and human health. A clear, concise description will help NCER and peer reviewers understand the merits of the research.
6. Project Management: Discuss other information relevant to the potential success of the project. This should include facilities, personnel expertise/experience, project schedules with associated milestones and target dates, proposed management, interactions with other institutions, etc. Describe the approach, procedures, and controls for ensuring that awarded grant funds will be expended in a timely and efficient manner and detail how project objectives will be successfully achieved within the grant period. Describe how progress toward achieving the expected results (outputs and

outcomes) of the research will be tracked and measured. Applications for multi-investigator projects must identify project management and the functions of each investigator in each team and describe plans to communicate and share data.

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

b. Quality Assurance Statement (3 pages)

For projects involving environmental data collection or processing, conducting surveys, modeling, method development, or the development of environmental technology (whether hardware-based or via new techniques), provide a Quality Assurance Statement (QAS) regarding the plans for processes that will be used to ensure that the products of the research satisfy the intended project objectives. Follow the guidelines provided below to ensure that the QAS describes a system that complies with ANSI/ASQC E4, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs*. Do not exceed three consecutively numbered, 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

NOTE: If selected for award, applicants will be expected to provide additional quality assurance documentation.

Address each applicable section below by including the required information, referencing the specific location of the information in the Research Plan, or explaining why the section does not apply to the proposed research. (Not all will apply.)

1. Identify the individual who will be responsible for the quality assurance (QA) and quality control (QC) aspects of the research along with a brief description of this person's functions, experience, and authority within the research organization. Describe the organization's general approach for conducting quality research. *(QA is a system of management activities to ensure that a process or item is of the type and quality needed for the project. QC is a system of activities that measures the attributes and performance of a process or item against the standards defined in the project documentation to verify that they meet those stated requirements.)*

2. Discuss project objectives, including quality objectives, any hypotheses to be tested, and the quantitative and/or qualitative procedures that will be used to evaluate the success of the project. Include any plans for peer or other reviews of the study design or analytical methods.

3. Address each of the following project elements as applicable:

   a. Collection of new/primary data:
   *(**Note:** In this case the word "sample" is intended to mean any finite part of a statistical population whose properties are studied to gain information about the whole. If certain attributes listed below do not apply to the type of samples to be used in your research, simply explain why those attributes are not applicable.)*

      i. Discuss the plan for sample collection and analysis. As applicable, include sample type(s), frequency, locations, sample sizes, sampling procedures, and the criteria for determining acceptable data quality (e.g., precision, accuracy, representativeness, completeness, comparability, or data quality objectives).
      ii. Describe the procedures for the handling and custody of samples including sample collection, identification, preservation, transportation, and storage, and how the accuracy of test measurements will be verified.
      iii. Describe or reference each analytical method to be used, any QA or QC checks or procedures with the associated acceptance criteria, and any

procedures that will be used in the calibration and performance evaluation of the analytical instrumentation.

iv. Discuss the procedures for overall data reduction, analysis, and reporting. Include a description of all statistical methods to make inferences and conclusions, acceptable error rates and/or power, and any statistical software to be used.

b. Use of existing/secondary data (i.e., data previously collected for other purposes or from other sources):

i. Identify the types of secondary data needed to satisfy the project objectives. Specify requirements relating to the type of data, the age of data, geographical representation, temporal representation, and technological representation, as applicable.
ii. Specify the source(s) of the secondary data and discuss the rationale for selection.
iii. Establish a plan to identify the sources of the secondary data in all deliverables/products.
iv. Specify quality requirements and discuss the appropriateness for their intended use. Accuracy, precision, representativeness, completeness, and comparability need to be addressed, if applicable.
v. Describe the procedures for determining the quality of the secondary data.
vi. Describe the plan for data management/integrity.

c. Method development:
*(**Note:** The data collected for use in method development or evaluation should be described in the QAS as per the guidance in section 3A and/or 3B above.)*

Describe the scope and application of the method, any tests (and measurements) to be conducted to support the method development, the type of instrumentation that will be used and any required instrument conditions (e.g., calibration frequency), planned QC checks and associated criteria (e.g., spikes, replicates, blanks), and tests to verify the method's performance.

d. Development or refinement of models:
*(**Note:** The data collected for use in the development or refinement of models should be described in the QAS as per the guidance in section 3A and/or 3B above.)*

i. Discuss the scope and purpose of the model, key assumptions to be made during development/refinement, requirements for code development, and how the model will be documented.
ii. Discuss verification techniques to ensure the source code implements the model correctly.
iii. Discuss validation techniques to determine that the model (assumptions and algorithms) captures the essential phenomena with adequate fidelity.
iv. Discuss plans for long-term maintenance of the model and associated data.

e. Development or operation of environmental technology:
*(**Note:** The data collected for use in the development or evaluation of the technology should be described in the QAS as per the guidance in section 3A and/or 3B above.)*

i. Describe the overall purpose and anticipated impact of the technology.
ii. Describe the technical and quality specifications of each technology component or process that is to be designed, fabricated, constructed, and/or

operated.

iii. Discuss the procedure to be used for documenting and controlling design changes.

iv. Discuss the procedure to be used for documenting the acceptability of processes and components, and discuss how the technology will be benchmarked and its effectiveness determined.

v. Discuss the documentation requirements for operating instructions/guides for maintenance and use of the system(s) and/or process(s).

f. Conducting surveys:
*(**Note:** The data to be collected in the survey and any supporting data should be described in the QAS as per the guidance in section 3A and/or 3B above.)*

Discuss the justification for the size of the proposed sample for both the overall project and all subsamples for specific treatments or tests. Identify and explain the rational for the proposed statistical techniques (e.g., evaluation of statistical power).

4. Discuss data management activities (e.g., record-keeping procedures, data-handling procedures, and the approach used for data storage and retrieval on electronic media). Include any required computer hardware and software and address any specific performance requirements for the hardware/software configuration used.

c. EPA Human Subjects Research Statement (HSRS) (4 pages)

Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. While retaining the same notation, subparts B, C, and D are substantively different in 40 CFR 26 than in the more commonly cited 45 CFR 46. Particularly noteworthy is that research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. EPA Policy Order 1000.17 Change A1 further clarifies this definition to include any intervention that manipulates their environment (i.e. modifies subjects' exposure). Research meeting the regulatory definition of observational research (any research that is not intentional exposure research) found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). These subparts also differ markedly from the language in 45 CFR 46. For more information, please see: Project Review by the Human Subjects Research Review Official (HSRRO).

Procedures for the review and oversight of human research subject to 40 CFR Part 26 are also provided in EPA Order 1000.17 Change A1 (PDF) (41 pp, 301 K). These include review of projects for EPA-supported human research by the EPA Human Subjects Research Review Official (HSRRO). EPA Order 1000.17 Change A1 requires preliminary approval by the HSRRO of all proposed EPA-supported human research before the agreement can be entered into. Additional requirements must be met and final approval received from the HSRRO before the research can begin. When reviewing human observational exposure studies, EPA Order 1000.17 Change A1 requires the HSRRO to apply the principles described in the SEAOES (PDF) (133 pp, 1.21 MB) document and grant approval only to studies that adhere to those principles.

All applications submitted under this solicitation must include a HSRS as described below. Please use the definitions below to determine whether the proposed research involves human subjects, and then prepare a HSRS as explained below in the "HSRS Requirements" section.

Definitions (from 40 CFR Part 26 Subparts A, B, and C) to determine the involvement of human subjects in proposed research:

- "Human subject" means a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information.
- "Intervention" includes both physical procedures by which data are gathered and manipulations of the subject or the subject's environment that are performed for research purposes.
- "Interaction" includes communication or interpersonal contact between investigator and subject.
- "Private information" includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record).
- "Individually identifiable" means the identity of the subject is or may readily be ascertained by the investigator or associated with the information.
- "Research involving the intentional exposure of a human subject" means a study of a substance in which the exposure to the substance experienced by a human subject participating in the study would not have occurred but for the human subject's participation in the study. In addition, EPA Policy 1000.17 Change A1 requires the HSRRO to conceptualize intentional exposure research quite broadly:
  1. Research that includes the gathering of physiological measurements (e.g. monitoring a subject's cardio respiratory performance) or the collection of body fluids, tissue or expired air from subjects; or (2) Research that requires subjects to perform specific tasks other than their normal activities or manipulates their environment (e.g., modifies their exposure); or (3) Research that gathers or records private information (as defined in 40 CFR 26.102 (f)(2)) in a manner that associates such information with an identifiable subject.
- "Observational research" means any human research that does not meet the definition of research involving intentional exposure of a human subject. Please note that surveys, interviews, and focus groups with individuals may constitute human subjects research. Additional information is available at: Basic Information about Human Subjects Research

Human Subjects Research Statement (HSRS) Requirements

If the proposed research **does not** involve human subjects as defined above, provide the following statement in your application package as your HSRS: "The proposed research does not involve human subjects." Applicants should provide a clear justification about how the proposed research does not meet the definition (for example, all samples come from deceased individuals OR samples are purchased from a commercial source and provided without identifiers, etc.).

If the proposed research **does** involve human subjects, then include in your application package a HSRS that addresses each applicable section listed below, referencing the specific location of the information in the Research Plan, providing the information in the HSRS, or explaining why the section does not apply to the proposed research. (Not all will apply.) Please use the definitions provided above to ensure consistency in the interpretation of terminology. Do not exceed **four** consecutively numbered, 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

NOTE: Before EPA approves any research involving human subjects, the requirements of the regulations at 40 CFR Part 26 must be met. Also, before EPA approves human observational exposure research, EPA will examine it to ensure consistency with the SEAOES Principles. The federal Office for Human Research Protections requires that federally funded human subjects research only be conducted at facilities covered by a Federalwide Assurance (FWA). An FWA is a document that designates the Institutional Review Board that will review and oversee the research, specifies the ethical principles under which the research will be conducted, and names the individuals who will be responsible for the proper conduct of the research. The factors below are not intended to be exhaustive of all those needed for the HSRRO to provide the final approval necessary for research to be conducted, but provide a basis upon which the HSRRO may grant the conditional approval necessary for the funding process to begin.

Items 1 – 9 must be completed for all studies involving human subjects. For studies involving intentional exposures (i.e. increases, decreases, or

otherwise modifies subjects' exposure), also complete Items 10 -14.

1. Human Subjects involvement, characteristics, and design: Describe the proposed involvement of human subjects in the work being proposed.
2. Benefits of research/value to society: Discuss the potential benefits of the research to the research participants and others, including the value of the knowledge to be gained by the research.
3. Potential risks to subjects: Describe the potential risks to human subjects (e.g., physical, psychological, financial, legal, or other) and assess their likelihood and seriousness to the human subjects.
4. Protection against risks: Describe planned procedures for protecting against or minimizing potential risks and assess their likely effectiveness.
5. Protection of privacy and confidentiality: Describe how data, specimens, and/or records will be collected, managed, and protected, including at collaborating sites, if any, as well as at the primary site.
6. Protection of vulnerable groups: Explain the rationale for inclusion of vulnerable populations and describe the additional protections in place, if any, for protecting vulnerable populations in the research.
7. Risk/benefit relationship: Justify how the risks are reasonable in relation to expected benefits.
8. Informed Consent Process: Describe planned procedures for the process of obtaining and maintaining informed consent. Include a description of the circumstances under which consent will be sought and obtained, who will seek it, the nature of the information to be provided to prospective subjects, and the method of documenting consent.
9. Relationship between researcher and community: If the research will take place in a community setting, describe the procedures in place for defining the community, obtaining its involvement in the research, and establishing and maintaining trust.

Items 10-14: Projects involving the intentional exposure (i.e. increases, decreases, or otherwise modifies subjects' exposure) of human subjects require additional justification. Note that intentional exposure of children, pregnant women or nursing women is prohibited, according to 40 CFR Part 26, subpart B. Please refer to the definition of "intentional exposure" described earlier in this section.

Please also note that projects involving intentional exposure of human subjects should only be considered if they have the potential of providing a clear health or environmental benefit or if acquisition of such information is not obtainable by any other means. In no case should the exposure cause lasting harm to study participants.

Provide the following for intentional exposure studies:

10. Justification for exposure: Please provide the scientific background and rationale for the study design, subject selection, and value of the study to public health. Include any information about previous animal studies and (if available) human observational studies that justify the need for exposure research.
11. Participant Selection and Informed Consent: Describe how subjects will be recruited for the study and how both participant selection and the informed consent process described earlier conform to best practices in exposure research.
12. Compensation for Research Participation: Describe the amount of compensation being offered to participants, as well as the distribution plan, and justify these practices with respect to best practices in exposure research.
13. Compensation for Research-Related Injury: Discuss how you plan to ensure that participants receive needed medical care for injuries incurred in the study, without cost to the participants.
14. Appropriate Review and Oversight: Describe the constitution of the IRB that will review this research and defend its ability to consider whether the study(ies) has the potential of providing a clear health or environmental benefit to the community. In addition, describe the procedures for reporting adverse events or unanticipated problems to the IRB, as well as how these events will be analyzed with respect to risk to subjects.

The EPA HSRRO must also consider the following items to determine if the necessary conditions for scientifically and ethically acceptable intentional human dosing studies have been satisfied in order to approve intentional exposure research:

- prior animal studies and, if available, human observational studies;
- a demonstrated need for the knowledge to be obtained from intentional human dosing studies;
- justification and documentation of a research design and statistical analysis that are appropriate to address an important scientific question, including adequate power to detect appropriate effects;
- an acceptable balance of risks and benefits, and minimization of risks to participants;
- equitable selection of participants;
- free and informed consent of participants; and
- review by an appropriately constituted IRB.

d. Data Plan (2 pages)

Provide a plan to make all data resulting from an agreement under this RFA available in a format and with documentation/metadata such that they may be used by others in the scientific community. This includes data first produced under the award, i.e., from observations, analyses, or model development collected or used under the agreement. Applicants who plan to develop or enhance databases containing proprietary or restricted information must provide, within the two pages, a strategy to make the data widely available, while protecting privacy or property rights.

e. References: References cited are in addition to other page limits (e.g. research plan, quality assurance statement).

6. **Budget and Budget Justification**

a. Budget

Prepare a master budget table using "SF-424A Budget Information for Non-Construction Programs" (aka SF-424A), available in the Grants.gov electronic application package and also at Forms and Standard Instructions Download Page. Provide the federal funds being requested and non-federal cost share being contributed in "Section A-Budget Summary" under the "New or Revised Budget" heading. In "Section B-Budget Categories," provide the object class budget category (a.- k.) amounts for each budget year under the "Grant Program, Function or Activity" heading. Each column reflects a separate budget year. For example, Column (1) reflects budget year 1. The total budget will be automatically tabulated in column (5).

Please note that a minimum 25% non-federal cost-share is required. Cost shared amounts must be listed in the SF-424A and described in the budget justification.

If a subaward is included in the application, provide a separate SF-424A and budget justification for the subaward. Include the total amount for the subaward under "Other" in the master SF-424A.

Applicants may not use subagreements to transfer or delegate their responsibility for successful completion of their EPA assistance agreement. Please refer to EPA Solicitation Clauses if your organization intends to identify specific contractors, including consultants, and subawardees in your proposal.

b. Budget Justification *[2 pages in addition to the Section IV.C.5. page limitations, not including additions under No. (7) below to support subawards]*

Describe the basis for calculating the personnel, fringe benefits, travel, equipment, supplies, contractual support, and other costs identified in the SF-424A. 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, total cost for the budget period, and project role. Compensation paid for employees engaged in grant activities must be consistent with payments for similar work within the applicant organization. Note that for salaries to be allowable as a direct charge to the award, a justification of how that person will be directly involved in the project must be provided. General administrative duties such as answering telephones, filing, typing, or accounting duties are not considered acceptable.

   Below is a sample computation for Personnel:

Position/Title	Annual Salary	% of Time Assigned to Project	Cost
Project Manager	$70,000	50%	$ 35,000
Env. Specialist	$60,000	100%	$ 60,000
Env. Health Tech	$45,000	100%	$ 45,000
Total Personnel			**$140,000**

   Note this budget category is limited to persons employed by the applicant organization ONLY. Those employed elsewhere are classified as subawardees, contractors or consultants. Contractors and consultants should be listed under the “Contractual” budget heading while subawards made to eligible subrecipients are listed under the “Other” budget heading.

2. Fringe Benefits: Identify the percentage used and the basis for its computation. Fringe benefits are for the personnel listed in budget category (1) above and only for the percentage of time devoted to the project. Fringe benefits include but are not limited to the cost of leave, employee insurance, pensions and unemployment benefit plans. The applicant should not combine the fringe benefit costs with direct salaries and wages in the personnel category.

3. Travel: Specify the estimated number of trips, purpose of each trip, number of travelers per trip, destinations, and other costs for each type of travel. Explain the need for any travel, paying particular attention to travel outside the United States. Include travel funds for annual program progress reviews (estimate for two days in Washington, D.C.) and a final workshop to report on results.

   Below is a sample computation for Travel:

Purpose of Travel	Location	Item	Computation	Cost
EPA STAR Progress Review	DC	Lodging	4 people x $100 per night x 2 nights	$800
		Airfare	4 people x $500 round trip	$2,000
		Per Diem	4 people x $50 per day	$400

			x 2 days	
Total Travel				**$3,200**

4. Equipment: Identify all tangible, non-expendable personal property to be purchased that has an estimated cost of $5,000 or more per unit and a useful life of more than one year. Details such as the type of equipment, cost, and a brief narrative on the intended use of the equipment for project objectives are required. Each item of equipment must be identified with the corresponding cost. General-purpose equipment (office equipment, etc.) must be justified as to how it will be used on the project. (Property items with a unit cost of less than $5,000 are considered supplies.)

5. Supplies: "Supplies" means tangible property other than "equipment." Identify supplies to be used under the project. This may include: software, office supplies, and laboratory supplies such as reagents, chemicals and glassware. Specifically identify computers to be purchased or upgraded.

6. Contractual: Specify the amount you anticipate expending for services/analyses or consultants and specify the purpose of the contracts and estimated cost. **Any procurement of services from individual consultants or commercial firms (including space for workshops) must comply with the competitive procurement requirements of 2 CFR Part 200.317-200.326. Please see EPA Solicitation Clauses for more details.**

   Examples of Contractual costs include:

   i. Consultants – Consultants are individuals with specialized skills who are paid at a daily or hourly rate. EPA's participation in the salary rate (excluding overhead) paid to individual consultants retained by recipients or by a recipient's contractors or subcontractors is limited to the maximum daily rate for a Level IV of the Executive Schedule (formerly GS-18), to be adjusted annually.
   ii. Equipment Rental – When there is a need to rent equipment for use on the project, provide information on the type of equipment to be rented, the purpose or use on the project, the length of time needed and the rental rate. Renting or leasing of equipment will require a lease vs. purchase cost analysis prior to approval.
   iii. Facility Rental – When it is necessary to rent office or other facilities spaces for project implementation, and the space(s) are located off-site from the organization's main facility in space not owned by the applicant organization, the cost of the rent may be charged against the award as a contractual expense if the space is used specifically for the project. The budget justifications should provide details on the monthly rental charge and if the rent is pro-rated to the project.
   iv. Service or Maintenance Contracts – Costs should be in direct correlation to the use of the equipment for the project (i.e., if a particular machine is used 50% of the time for the project, the project should only be charged 50% of the service/maintenance costs). Provide details of the type of equipment and the amount of the service contract to be paid from EPA funds.
   v. Speaker/Trainer Fees – Information on speakers should include the fee and a description of the services they are providing.

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. "Other" items may include publication costs, long distance telephone charges, and photocopying costs. Note that subawards, such as those with other universities for members of the research team, are included in this category. Subawards must have a separate 424A and budget justification, not to exceed one additional page each. **Subawards may not be used to acquire services from consultants or commercial firms. Please see EPA Solicitation Clauses for more details.**

8. Indirect Costs: Indirect costs are those incurred by the applicant for a common or joint purpose that benefit more than one cost objective or project, and are

not readily assignable to specific cost objectives or projects as a direct cost. In order for indirect costs to be allowable, the applicant must have a negotiated indirect cost rate (e.g., fixed, predetermined, final or provisional), or must have submitted a proposal to their cognizant agency. If indirect costs are included in the budget, identify the cognizant agency and the approved indirect rate. If your organization does not have a cognizant agency, please note that in the budget justification and provide a brief explanation for how you calculated your indirect cost rate.

7. **Resumes**

Provide resumes for each investigator and important co-worker. You may include resumes from staff of subawardees such as universities. Do not include resumes of consultants or other contractors. The resume is not limited to traditional materials, but should provide materials to clearly and appropriately demonstrate that the investigator has the knowledge needed to perform their component of the proposed research. 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.

Alternative to a standard resume, you may use a profile such as an NIH BioSketch that can be generated in SciENcv (see Federal-Wide Researcher Profile Project for information on SciENcv; also see My NCBI Curriculum Vitae Web Application: SciENcv). These materials should generally conform to the requirements for a resume (e.g., content and page number).

8. **Current and Pending Support**

Complete a current and pending support form (provided at Forms and Standard Instructions Download Page) for each investigator and important co-worker. Do not include current and pending support for consultants or other contractors. Include all current and pending research regardless of source.

Note to all prospective applicants requiring multiple Current and Pending Support Form pages: Due to a limitation in Adobe Acrobat's forms functionality, additional pages cannot be directly inserted into the original PDF form and preserve the form data on the subsequent pages. Multiple page form submissions can be created in Acrobat 8 and later using the "PDF Package" option in the "Create PDF from Multiple Files" function. If you have an earlier version of Adobe Standard or Professional, applicants will need to convert each PDF page of the form to an EPS (Encapsulated Post Script) file before creating the PDF for submission. The following steps will allow applicants with earlier versions of Adobe Standard or Professional to create a PDF package:

1. Populate the first page of the PDF, and save it as a EPS (Encapsulated Post Script) file.
2. Reopen the form, and populate it with the data for page 2. Save this page as a different EPS file. Repeat for as many pages as necessary.
3. Use Acrobat Distiller to convert the EPS files back to PDF.
4. Open Acrobat Professional, and combine the individual pages into a combined PDF file.

9. **Guidelines, Limitations, and Additional Requirements**

a. Letters of Intent/Letters of Support

Letters of intent to provide resources for the proposed research or to document intended interactions are limited to one brief paragraph committing the availability of a resource (e.g., use of a person's time or equipment) or intended interaction (e.g., sharing of data, as-needed consultation) that is described in the Research Plan. Letters of intent are to be included as an addition to the budget justification documents. EPA employees are not permitted to provide

letters of intent for any application.

Letters of support do not commit a resource vital to the success of the proposal. A letter of support is written by businesses, organizations, or community members stating their support of the applicant's proposed project. EPA employees are not permitted to provide letters of support for any application.

Note: Letters of intent or support must be part of the application; letters submitted separately will not be accepted. Any letter of intent or support that exceeds one brief paragraph (excluding letterhead and salutations), is considered part of the Research Plan and is included in the 15-page Research Plan limit. Any transactions between the successful applicant and parties providing letters of intent or support financed with EPA grant funds are subject to the contract and subaward requirements described here EPA Solicitation Clauses.

b. Funding Opportunity Number(s) (FON)

At various places in the application, applicants are asked to identify the FON.

The Funding Opportunity Number for this RFA is:
NATIONAL PRIORITIES: LIFE CYCLE COSTS OF WATER INFRASTRUCTURE ALTERNATIVES, EPA-G2015-ORD-D1

c. Confidentiality

By submitting an application in response to this solicitation, the applicant grants the 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 to the extent permitted by law.

D. Submission Dates and Times
Applications **must be transferred to Grants.gov no later than 11:59:59 pm Eastern Time** on the solicitation closing date. Applications transferred after the closing date and time will be returned to the sender without further consideration. EPA will not accept any changes to applications after the closing date.

It should be noted that this schedule may be changed without prior notification because of factors not anticipated at the time of announcement. In the case of a change in the solicitation closing date, a new date will be posted on the NCER web site (Funding Opportunities) and a modification posted on Grants.gov.

Solicitation Closing Date: ~~July 2, 2015, 11:59:59 pm Eastern Time~~ Extended to: July 6, 2015, 11:59:59 pm Eastern Time (applications ***must*** be submitted to Grants.gov by this time, see Section IV.F “Submission Instructions and Other Submission Requirements” for further information).

NOTE: Customarily, applicants are notified about evaluation decisions within six months of the solicitation closing date. Awards are generally made 9-12 months after the solicitation closing date.

E. Funding Restrictions
The funding mechanism for all awards issued under ORD solicitations will consist of assistance agreements from the EPA. All award decisions are subject to the availability of funds. In accordance with the Federal Grant and Cooperative Agreement Act, 31 U.S.C. 6301 et seq., the primary purpose of an assistance agreement 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, 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(s).

EPA award recipients may incur allowable project costs 90 calendar days before the Federal awarding agency makes the Federal award. Expenses more than 90 calendar days pre-award require prior approval of EPA. All costs incurred before EPA makes the award are at the recipient's risk. EPA is under no obligation to reimburse such costs if for any reason the recipient does not receive a Federal award or if the Federal award is less than anticipated and inadequate to cover such costs.

If you wish to submit applications for more than one EPA funding opportunity you must ensure that the research proposed in each application is significantly different from any other that has been submitted to the EPA or from any other financial assistance you are currently receiving from the EPA or other federal government agency.

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

Each proposed project must be able to be completed within the project period and with the initial award of funds. Applicants should request the entire amount of money needed to complete the project. Recipients should not anticipate additional funding beyond the initial award of funds for a specific project.

F. Submission Instructions and Other Submission Requirements
Please read this entire section before attempting an electronic submission through Grants.gov.

If you do not have the technical capability to utilize the Grants.gov application submission process for this solicitation, see Section IV.A above for additional guidance and instructions.

Note: Grants.gov submission instructions are updated on an as-needed basis. Please provide your Authorized Organizational Representative (AOR) with a copy of the following instructions to avoid submission delays that may occur from the use of outdated instructions.

1. Preparing for Submission. The electronic submission of your application must be made by an official representative of your institution who is registered with Grants.gov and is authorized to sign applications for Federal assistance. For more information on the registration requirements that must be completed in order to submit an application through Grants.gov, go to Grants.gov and click on “Register” at the top right corner of the page. If your organization is not currently registered with Grants.gov, please encourage your office to designate an Authorized Organization Representative (AOR) and ask that individual to begin the registration process as soon as possible. Please note that the registration process also requires that your organization have a unique entity identifier and a current registration with the System for Award Management (SAM) and the process of obtaining both could take a month or more. Applicants must ensure that all registration requirements are met in order to apply for this opportunity through Grants.gov and should ensure that all such requirements have been met well in advance of the submission deadline. Registration on Grants.gov, SAM.gov, and unique entity identifier assignment is FREE.

   To begin the application process under this grant announcement, go to Grants.gov and click on “Applicants” on the top of the page and then “Apply for Grants” from the drop-down menu and then follow the instructions accordingly. Please note: To apply through Grants.gov, you must use Adobe Reader software and download the compatible Adobe Reader version. For more information about Adobe Reader, to verify compatibility, or to download the free software, please visit Grants.gov Support

   You may also be able to access the application package for this announcement by searching for the opportunity on Grants.gov. Go to Grants.gov and then click on

"Search Grants" at the top of the page and enter the Funding Opportunity Number, EPA-G2015-ORD-D1, or the CFDA number that applies to the announcement (CFDA 66.511), in the appropriate field and click the Search button. Alternatively, you may be able to access the application package by clicking on the Application Package button at the top right of the synopsis page for the announcement on Grants.gov. To find the synopsis page, go to .Grants.gov and click "Browse Agencies" in the middle of the page and then go to "Environmental Protection Agency" to find the EPA funding opportunities.

2. Acknowledgement of Receipt. The complete application must be transferred to Grants.gov no later than 11:59:59 pm Eastern Time on the solicitation closing date (see "Submission Dates and Times"). Applications submitted through Grants.gov will be time and date stamped electronically. Grants.gov provides an on-screen notification of successful initial transfer as well as an email notification of successful transfer from Grants.gov to EPA. While it is advisable to retain copies of these Grants.gov acknowledgements to document submission, *the only official documentation that the application has been received by NCER is the email acknowledgement sent by NCER to the Lead/Contact PI and the Administrative Contact.* This email will be sent from receipt.application@epa.gov; emails to this address will not be accepted. ***If an email acknowledgment from*** receipt.application@epa.gov ***has not been received within 10 calendar days of the solicitation closing date, immediately inform the Electronic Submissions Contact shown in this solicitation. Failure to do so may result in your application not being reviewed.***

3. Application Package Preparation. Your organization's AOR must submit your complete application package electronically to EPA through Grants.gov (Grants.gov) no later than ~~July 2, 2015, 11:59:59 pm Eastern Time~~ July 6, 2015, 11:59:59 pm Eastern Time. Please allow for enough time to successfully submit your application and allow for unexpected errors that may require you to resubmit.

   Please submit all of the application materials described below using the Grants.gov application package that you downloaded using the instructions above. For additional instructions on completing and submitting the electronic application package, click on the "Show Instructions" tab that is accessible within the application package itself.

   The application package consists of the following mandatory documents.

   a. Application for Federal Assistance (SF 424): Complete the form except for the "competition ID" field.
   b. EPA Key Contacts Form 5700-54: Complete the form. If additional pages are needed, see (d) below.
   c. SF-424A Budget Information for Non-Construction Programs: Provide the federal funds being requested and non-federal cost share being contributed in "Section A-Budget Summary" under the "New or Revised Budget" heading. In "Section B-Budget Categories," provide the object class budget category (a.- k.) amounts for each budget year under the "Grant Program, Function or Activity" heading. Each column reflects a separate budget year. **Please note that a minimum 25% non-federal cost-share is required.** Cost shared amounts must be listed in the SF-424A and described in the budget justification.
   d. Project Narrative Attachment Form (click on "Add Mandatory Project Narrative"): Attach a single electronic PDF file labeled "Application" that contains the items described in Section IV.C.3. through IV.C.9.a [Table of Contents, Abstract, Research Plan, Quality Assurance Statement, Human Subjects Research Statement, Data Plan, References, Budget Justification, Resumes, Current and Pending Support, and Letters of Intent/Support] of this solicitation. *In order to maintain format integrity, this file must be submitted in Adobe Acrobat PDF.* Please review the PDF file for conversion errors prior to including it in the electronic application package; requests to rectify conversion errors will not be accepted if made after the solicitation closing date and time. If Key Contacts Continuation pages (see Forms and Standard Instructions Download Page) are needed, place them before the Table of Contents (Section IV.C.3.).

   Once the application package has been completed, the "Submit" button should be enabled. If the "Submit" button is not active, please call Grants.gov for assistance at 1-800-518-4726. Applicants who are outside the U.S. at the time of submittal and are not able to access the toll-free number may reach a Grants.gov representative by calling 606-545-5035. Investigators should save the completed application package with two different file names before providing it to the AOR to avoid having to re-create the package should submission problems be experienced or a revised application needs to be submitted. Note: Revised applications

must be submitted before the solicitation closing date and time.

4. Submitting the application. The application package must be transferred to Grants.gov by an AOR. The AOR should close all other software before attempting to submit the application package. Click the "submit" button of the application package. Your Internet browser will launch and a sign-in page will appear. ***Note: Minor problems are not uncommon with transfers to Grants.gov. It is essential to allow sufficient time to ensure that your application is submitted to Grants.gov BEFORE 11:59:59 pm Eastern Time on the solicitation closing date.*** The Grants.gov support desk operates 24 hours a day, seven days a week, except Federal Holidays.

   A successful transfer will end with an on-screen acknowledgement. For documentation purposes, print or screen capture this acknowledgement. If a submission problem occurs, reboot the computer – turning the power off may be necessary – and re-attempt the submission.

   Note: Grants.gov issues a "case number" upon a request for assistance.

5. Transmission Difficulties. If transmission difficulties that result in a late transmission, no transmission, or rejection of the transmitted application are experienced, and following the above instructions do not resolve the problem so that the application is submitted to Grants.Gov by the deadline date and time, follow the guidance below. The Agency will make a decision concerning each late submission on a case-by-case basis as to whether it should be forwarded for peer review. All emails, as described below, are to be sent to Debra M. Jones (jones.debram@epa.gov) with the FON in the subject line.

   Please note that if the application you are submitting is greater than 70 MB in size, please call or send an email message to the Electronic Submissions Contact listed for this RFA. The Agency may experience technical difficulty downloading files of this size from Grants.gov. Therefore, it is important that the Agency verify that the file can be downloaded. The Agency will provide alternate submission instructions if the file cannot be downloaded.

   a. If you are experiencing problems resulting in an inability to upload the application to Grants.gov, it is essential to call Grants.gov for assistance at 1-800-518-4726 before the application deadline. Applicants who are outside the U.S. at the time of submittal and are not able to access the toll-free number may reach a Grants.gov representative by calling 606-545-5035. Be *sure* to obtain a case number from Grants.gov.
   b. Unsuccessful transfer of the application package: If a successful transfer of the application cannot be accomplished even with assistance from Grants.gov due to electronic submission issues, send an email message by 11:59:59 pm Eastern Time on the solicitation closing date. The email message must document the problem and include the Grants.gov case number as well as the entire application in PDF format as an attachment.
   c. Grants.gov rejection of the application package: If a notification is received from Grants.gov stating that the application has been rejected for reasons other than late submittal, promptly send an email to Debra M. Jones (jones.debram@epa.gov) with the FON in the subject line within one business day of the closing date of this solicitation. The email should include any materials provided by Grants.gov and attach the entire application in PDF format.

V. APPLICATION REVIEW INFORMATION

A. Peer Review

All eligible grant applications are reviewed by appropriate external technical peer reviewers based on the criteria and process described below. This review is designed to evaluate each application according to its scientific merit. The individual external peer reviewers include non-EPA scientists, engineers, social scientists, and/or economists who are accomplished in their respective disciplines and proficient in the technical subjects they are reviewing.

Prior to the external technical peer review panel meeting, all reviewers will receive electronic copies of all applications, as well as a full set of abstracts for the applications.

Each application will be assigned to a minimum of three primary peer reviewers, one of whom will be assigned the role of Rapporteur. Each reviewer will be assigned up to approximately 10 applications on which to serve as a primary reviewer. During the review period leading up to the panel meeting, primary reviewers will read the full set of abstracts and entire application package for each application they are assigned. They will also prepare a written individual evaluation for each assigned application that addresses the peer review criteria described below and rate the application with a score of excellent, very good, good, fair, or poor.

At the beginning of the panel meeting, each primary reviewer will report their ratings for the applications they reviewed. Those applications receiving at least two ratings of *Very Good* or one rating of *Excellent* from among the primary reviewers will then be further discussed by the panel in terms of the peer review criteria below. In addition, if there is one *Very Good* rating among the primary reviewers of an application, the primary reviewer, whose initial rating is the *Very Good*, may request discussion of the application by the peer review panel. All other applications will be declined for further consideration.

After the discussion of an application by the panel, the primary reviewers may revise their initial ratings and if they do so, this will also be documented. The final ratings of the primary reviewers will then be translated by EPA into the final peer review score (excellent, very good, good, fair, or poor) for the application. This is reflected in a peer review results document developed by the Rapporteur which combines the individual initial and final evaluations of the primary reviewers and captures any substantive comments from the panel discussion. This score will be used to determine which applications undergo the internal programmatic review discussed below. A peer review results document is also developed for applications that are not discussed. However, this document is a consolidation of the individual primary reviewer initial evaluations, with an average of the scores assigned by the primary reviewers.

Peer reviewers consider an application's merit based on the criteria below. Criteria 1-6 are listed in descending order of importance:

1. Research Proposal (criteria "1a" through "1h" are equal):
   a. The originality and creativity of the proposed research, the appropriateness and adequacy of the proposed research methods, and the Quality Assurance Statement.
   b. Practical and technically defensible approach that can be performed within the proposed time period.
   c. Research contributes to scientific knowledge in the topic area.
   d. The proposed research challenges and seeks to shift current research or engineering paradigms by using innovative theoretical concepts, approaches or methodologies, instrumentation or interventions applicable to one or more fields of research.
   e. Projected benefits of the proposed activity to society, such as improving the environment or human health.
   f. The proposed research embodies the principles of sustainability and seeks sustainable solutions that protect the environment and strengthen our communities. The sustainability primer (PDF (2 pp, 195 K) provides examples of research activities that promote and incorporate sustainability principles.
   g. The results are disseminated broadly to enhance scientific and technological understanding.
   h. Theproposal is well prepared with supportive information that is self-explanatory or understandable.
2. Responsiveness: The responsiveness of the proposal to the research needs identified in Section I.D. including whether the research is national in scope. Proposals are most responsive to this RFA if they address all of the research needs identified in Section I.D and those that do so may be rated more highly than those that do not.
3. Investigators: The qualifications of the Principal Investigator(s) and other key personnel, including research training, demonstrated knowledge of pertinent literature, experience, and publication records. All key personnel must make a significant time commitment to the project.
4. Project management: The approach for ensuring successful achievement of project objectives is adequate and in accordance with the proposal's project schedule and milestones. The proposal adequately describes tracking and measuring of progress toward achieving expected results (outputs and outcomes). The approach, procedures, and controls for ensuring timely and efficient expenditure of awarded grant funds are well defined and acceptable.
5. Facilities and equipment: The availability and/or adequacy of the facilities and equipment proposed for the project. Note any deficiencies that may interfere with

the successful completion of the research.

6. Budget: 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.

B. Programmatic Review

Applications receiving final peer review scores of excellent or very good will then undergo an internal programmatic review, as described below, conducted by experts from the EPA, including individuals from the Office of Research and Development (ORD) and program and regional offices involved with the science or engineering proposed. All other applications are automatically declined.

Those applicants who received final scores of excellent or very good as a result of the peer review process will be asked to provide additional information for the programmatic review pertaining to the proposed Lead PI's (in the case of Multiple-PI applications, the Contact PI's) "Past Performance and Reporting History." The applicant must provide the EPA Project Officer with information on the proposed Lead/Contact PI's past performance and reporting history under prior Federal agency assistance agreements (assistance agreements include grants and cooperative agreements but not contracts) in terms of: (i) the level of success in managing and completing each agreement, and (ii) history of meeting the reporting requirements under each agreement.

This information is required only for the proposed Lead/Contact PI's performance under Federal assistance agreements initiated within the last three years that were similar in size and scope to the proposed project.

The specific information required for each agreement is shown below, and must be provided within one week of EPA's request. A maximum of three pages will be permitted for the response; excess pages will not be reviewed. **Note: If no prior past performance information and/or reporting history exists, you will be asked to so state.**

1. Name of Granting Agency.
2. Grant/Cooperative agreement number.
3. Grant/Cooperative agreement title.
4. Brief description of the grant/cooperative agreement.
5. A description of how the agreement is similar in size and scope to the proposed project and whether or not it was successfully managed and completed; if not successfully managed and completed, provide an explanation.
6. Information relating to the proposed Lead/Contact PI's past performance in reporting on progress towards achieving the expected results (outputs/outcomes) under the agreement. Include the history of submitting timely progress/final technical reports, describe how progress towards achieving the expected results was reported/documented, and if such progress was not being made, provide an explanation of whether, and how, this was reported.
7. Total (all years) grant/cooperative agreement dollar value.
8. Project period.
9. Technical contact (project officer), telephone number, and Email address (if available).

The purpose of the programmatic review is to ensure an integrated research portfolio for the Agency and help determine which applications to recommend for award. In conducting the programmatic review, the EPA will consider information provided by the applicant and may consider information from other sources, including prior and current grantors and agency files.

The internal programmatic review panel will assess (relevance is more important than the Lead/Contact PI's past performance):

1. The relevance of the proposed science to EPA research priorities.
2. The proposed Lead/Contact PI's past performance under Federal agency assistance agreements (assistance agreements include grants and cooperative agreements but not contracts) initiated within the last three years that were similar in size and scope to the proposed project in two areas: First, in successfully managing and completing these prior Federal assistance projects, including whether there is a satisfactory explanation for any lack of success. Second, in reporting progress toward achieving results (outputs/outcomes) under these agreements, including the proposed Lead/Contact PI's history of submitting timely progress/final technical reports that adequately describe the progress toward achieving the expected results under the agreements. Any explanation of why progress toward achieving the results was not made will also be considered. Applicants whose proposed Lead PI/Contact PI has no relevant past performance and/or reporting history, or for whom this information is not available, will be evaluated neither favorably nor unfavorably on these elements.

C. Human Subjects Research Statement (HSRS) Review

Applications being considered for funding after the Programmatic Review that involve human subjects research studies will have their HSRS reviewed by EPA's HSRRO prior to award. The HSRRO will review the information provided in the HSRS and the Research Plan to determine if the ethical treatment of human subjects is described in a manner appropriate for conditional approval to be granted.

D. Funding Decisions

Final funding decisions are made by the NCER Director based on the results of the peer review and the internal programmatic review and, where applicable, the EPA HSRRO's assessment of the applicant's human subjects research (see Section IV.C.5.c). In addition, in making the final funding decisions, the NCER Director may also consider program balance and available funds. Applicants selected for funding will be required to provide additional information listed below under "Award Notices." The application will then be forwarded to EPA's Grants and Interagency Agreement Management Division for award in accordance with the EPA's procedures.

VI. AWARD ADMINISTRATION INFORMATION

A. Award Notices

Customarily, applicants are notified about evaluation decisions within six months of the solicitation closing date. A Peer Review Results document summarizing the scientific review will be provided to each applicant with an award or declination letter.

Applicants to be recommended for funding will be required to submit additional certifications and an electronic version of the revised project abstract. They may also be asked to provide responses to comments or suggestions offered by the peer reviewers and/or submit a revised budget. EPA Project Officers will contact the Lead PI/Contact PI to obtain these materials. Before or after an award, applicants may be required to provide additional quality assurance documentation.

The official notification of an award will be made by the Agency's Grants and Interagency Agreement Management Division. Applicants are cautioned that only a grants officer is authorized to bind the Government to the expenditure of funds; preliminary selection by the NCER Director in the Office of Research and Development does not guarantee an award will be made. For example, statutory authorization, funding, or other issues discovered during the award process may affect the ability of EPA to make an award to an applicant. The award notice, signed by an EPA grants officer, is the authorizing document and will be provided through electronic or postal mail.

B. Disputes

Disputes related to this assistance agreement competition will be resolved in accordance with the dispute resolution procedures set forth in 70 FR 3629, 3630 (January 26, 2005) which can be found at **Dispute Resolution Procedures**. Questions regarding disputes may be referred to the Eligibility Contact identified below.

C. Administrative and National Policy Requirements

Additional provisions that apply to this solicitation and/or awards made under this solicitation, including but not limited to those related to unique entity identifier, SAM, copyrights, disputes, and administrative capability, can be found at EPA Solicitation Clauses

These, and the other provisions that can be found at the website link, are important, and applicants must review them when preparing applications for this solicitation. If you are unable to access these provisions electronically at the website above, please communicate with the EPA contact listed in this solicitation to obtain the provisions.

Expectations and responsibilities of NCER grantees *and* cooperative agreement holders are summarized in this section, although the terms grant and grantee are used. See Guidance & Frequent Questions for the full terms and conditions associated with an award, including which activities require prior approval from the EPA.

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

2. **Approval of Changes after Award:** Prior written approval of changes may be required from EPA. Examples of these changes are contained in 2 CFR 200.308. Note: prior written approval is also required from the EPA Award Official for incurring costs more than 90 calendar days prior to award.

3. **Human Subjects:** A grant applicant 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 CFR Part 26. Studies involving intentional exposure of human subjects who are children or pregnant or nursing women are prohibited by Subpart B of 40 CFR Part 26. For observational studies involving children or pregnant women and fetuses please refer to Subparts C & D of 40 CFR Part 26. U.S. Department of Health and Human Services regulations at 45 CFR Part 46.101(e) have long required "... compliance with pertinent Federal laws or regulations which provide additional protection for human subjects." EPA's regulation 40 CFR Part 26 is such a pertinent Federal regulation. Therefore, the applicant's Institutional Review Board (IRB) approval must state that the applicant's study meets the EPA's regulations at 40 CFR Part 26. No work involving human subjects, including recruiting, may be initiated before the EPA has received a copy of the applicant'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.

   Guidance and training for investigators conducting EPA-funded research involving human subjects may be obtained here:
   Basic Information about Human Subjects Research
   Title 40 → Chapter I → Subchapter A → Part 26

4. **Data Access and Information Release:** After award, all data first produced under the award must be made available to the NCER Project Officer without restriction and be accompanied by comprehensive metadata documentation adequate for specialists and non-specialists alike to be able to understand how and where the data were obtained and to evaluate the quality of the data. If requested, the data products and their metadata must be provided to the NCER Project Officer in a standard exchange format no later than the due date of the grant's final report or the publication of the data product's associated results, whichever comes first.

   Congress, through OMB, has instructed each federal 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." The EPA's implementation may be found at EPA Information Quality Guidelines (EPA IQG). These procedures may apply to data generated by grant recipients if those data are disseminated as described in the Guidelines.

5. **Reporting:**

   A grant recipient must agree to provide annual progress reports, with associated summaries, and a final report with an executive summary. The summaries will be posted on NCER's website.

   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 NCER Project Officer of any papers published after completion of the grant that were based on research supported by the grant. NCER posts references to all publications resulting from a grant on the NCER web site.

6. **Acknowledgement of EPA Support:** EPA's full or partial support must be acknowledged in journal articles, oral or poster presentations, news releases, interviews with reporters and other communications. Any documents developed under this agreement that are intended 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 Assistance Agreement No._____ awarded by the U.S. Environmental Protection Agency to [*name of recipient*]. It has not been formally reviewed by EPA. The views expressed in this document are solely those of [*name of recipient or names of authors*] and do not necessarily reflect those of the Agency. EPA does not endorse any products or commercial services mentioned in this publication.

VII. AGENCY CONTACTS

Further information, if needed, may be obtained from the EPA contacts indicated below. Information regarding this RFA obtained from sources other than these Agency Contacts may not be accurate. Email inquiries are preferred.

Technical Contact: Pasky Pascual (pascual.pasky@epa.gov); phone: 703-347-8056
Eligibility Contact: Ron Josephson (josephson.ron@epa.gov); phone: 703-308-0442
Electronic Submissions: Debra M. Jones (jones.debram@epa.gov); phone: 703-347-8081

Last updated on 6/29/2015