

RECLAMATION

Managing Water in the West

Funding Opportunity Announcement No. R15AS00019

**Desalination and Water Purification Research and Development
(DWPR)**

Fiscal Year 2015 Research and Laboratory Studies



**U.S. Department of the Interior
Bureau of Reclamation
Research and Development Office
Denver, Colorado**

December 2014

Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Synopsis

Federal Agency Name:	Department of the Interior, Bureau of Reclamation, Denver, Colorado
Funding Opportunity Title:	<i>Desalination and Water Purification Research and Development Program (DWPR)</i>
Announcement Type:	Initial announcement
Funding Opportunity Announcement (FOA) Number:	R15AS00019
Catalog of Federal Domestic Assistance (CFDA) Number:	15.506
Application Due Date: Phase 1 Phase 2	February 16, 2015 at 4:00 pm Mountain Standard Time (MST) April 27, 2015 at 4:00 pm MST
Eligible Applicants:	Individuals, institutions of higher education commercial or industrial organizations, private entities, public entities (including state and local), and Indian Tribal Governments. Foreign entities are not eligible for funding under the authorizing legislation for this program. Federal agencies are not eligible to apply.
Applicant Cost Share:	Encouraged, but none required for institutions of higher education. Other applicants must provide at least 50 percent non-Federal cost share
Federal Funding Amount:	Up to \$150,000 for each research and laboratory study
Estimated number of agreements to be awarded:	5 to 10
Total amount of funding available:	Up to \$1,400,000

Application Checklist

The following table contains a summary of the information that you are required to submit with this application.

What to Submit	Required Content and Form or Format
Cover page	Form SF 424, available at < http://apply07.grants.gov/apply/FormLinks?family=15 > Page 16
Assurances	Form SF 424B or SF 424D, as applicable, available at < http://apply07.grants.gov/apply/FormLinks?family=15 > Page 17
Title page	Page 17
Table of contents	Page 17
Technical proposal:	Pages 17-20
• Executive summary	Page 17
• Technical project description	Page 18
• Evaluation criteria	Pages 29-30
• Environmental compliance	Page 20
• Required permits and approvals	Page 20
Project budget proposal:	Pages 20–23
• Budget form	Form SF 424A or SF 424C, as applicable, at < http://apply07.grants.gov/apply/FormLinks?family=15 >
• Funding plan	Pages 23-25

Acronyms and Abbreviations

ALC	Agency Location Code
ARC	Application Review Committee
ASAP	Automated Standard Application for Payments
BGNDRF	Brackish Groundwater National Desalination Research Facility
BOD	biological oxygen demand
CFDA	Catalog of Federal Domestic Assistance
CFR	Code of Federal Regulations
COD	chemical oxygen demand
DOI	U.S. Department of the Interior
DWPR	Desalination and Water Purification Research and Development Program
DUNS	Data Universal Number System
FOA	Funding Opportunity Announcement
FY	fiscal year
GO	Grants Officer
MST	Mountain Standard Time
OMB	Office of Management and Budget
QA/QC	Quality Assurance and Quality Control
Reclamation	Bureau of Reclamation
SAM	System of Award Management

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Section I. Funding Opportunity Description

Through this Funding Opportunity Announcement (FOA), the U.S. Department of the Interior (DOI), Bureau of Reclamation (Reclamation), is accepting applications for projects to be funded by the Desalination and Water Purification Research and Development Program (DWPR). Through this program, Reclamation is forming partnerships with private industry, universities, water utilities, and others to address a broad range of desalting and water purification needs.

Reclamation is interested in research where the benefits are widespread but where private-sector entities are not able to make the full investment and assume all the risks. Reclamation is also interested in research that would have a national significance—where the issues are of large-scale concern and the benefits accrue to a large sector of the public. The authorizing legislation for this program is the Reclamation Act of 1902, June 17, 1902, Sec.1 and Sec. 2, and the Omnibus Public Land Management Act of 2009, Public Law 111-11, section 9509, Research Agreement Authority.

I.A. DWPR Overview

The goal of DWPR is to reduce the costs and environmental impacts of treating impaired and unusable waters. The program has aligned its objectives with the strategic desalination research agenda from National Research Council's *Desalination: A National Perspective*. Washington, D.C.: National Research Council of the National Academies, 2008 and *Water Reuse* Washington, D.C.: National Research Council of the National Academies, 2012. The DWPR program objectives are listed below.

- Assess environmental impacts of desalination intake and concentrate management approaches
- Develop improved intake methods at coastal facilities to minimize impingement of larger organisms and entrainment of smaller ones
- Assess the quantity and distribution of brackish water resources nationwide
- Improve pretreatment for membrane desalination
- Improve membrane system performance
- Improve existing desalination approaches to reduce primary energy use

- Develop novel approaches or processes to desalinate water in a way that reduces primary energy use
- Develop cost-effective approaches for concentrate management that minimize potential environmental impacts
- Assess the potential impacts of environmental applications of reclaimed water in sensitive ecological communities
- Quantify the nonmonetized costs and benefits of potable and nonpotable water reuse compared with other water supply sources to enhance water management decision making
- Examine the public acceptability of engineered multiple barriers compared with environmental buffers for potable reuse
- Develop a better understanding of the formation of hazardous transformation products during water treatment for reuse and ways to minimize or remove them
- Develop a better understanding of pathogen removal efficiencies and the variability of performance in various unit processes and multibarrier treatment and develop ways to optimize these processes
- Identify better indicators and surrogates that can be used to monitor process performance in reuse scenarios and develop online real-time or near real-time analytical monitoring techniques for their measurement
- Analyze the need for new reuse approaches and technology in future water management

I.B. DWPR Priorities

For fiscal year (FY) 2015, Reclamation's DWPR priorities are the following:

- Overcoming technical, economic and social barriers for direct and/or indirect potable reuse treatment
- Novel processes and/or materials to treat impaired waters
- Concentrate management solutions leading to concentrate volume minimization for inland brackish desalination

These preferences should not be interpreted to exclude other desirable concepts that address the goals and objectives described in Section I.A. "DWPR Overview" or fall within the descriptions in Section VIII. "Technical Supplemental

Information.” However, applications addressing these topics will receive additional credit during evaluations. See Section V.B. “Evaluation Criteria” for further information.

Section II. Award Information

This FOA is only for Research and Laboratory Studies as described below. Applications for pilot studies should be submitted under FOA No. R15AS00021. Applications received under this FOA for pilot studies may be evaluated under the Pilot Studies FOA based upon the initial determination of the project's merit and selection for the second phase review and evaluation.

For fiscal year (FY 2015), Reclamation anticipates awarding up to \$1,400,000 for projects funded under this FOA. The number of awards made and the aggregate amount awarded for each category will be based on the quality of the applications received and congressional funding available.

It is anticipated that awards will be made no later than September 2015, with an anticipated project start date on or around October 1, 2015.

II.A. Research and Laboratory Scale Studies Overview

Duration: 13 months or less

Description: Research studies are typically bench scale studies involving small flow rates less than 2 gallons per minute. They are used to determine the viability of a novel process, new materials, or process modifications. Research at this stage often involves a high degree of risk and uncertainty.

Funding: Reclamation cost-share of up to \$150,000 per agreement

Cost share is encouraged, but not required for institutions of higher education. Other applicants must provide at least 50 percent non-Federal cost-share.

II.B. Facility and Equipment Resources

Reclamation's state-of-the-art water treatment laboratory and pilot-scale facilities may be available for use on a cost reimbursable basis. These include the Technical Service Center in Denver, Colorado, the Water Quality Improvement Center in Yuma, Arizona, and the Brackish Groundwater National Desalination Research Facility (BGNDRF) in Alamogordo, New Mexico. Information on these facilities can be found at www.usbr.gov/research/AWT/research_facilities.html.

II.C. Reclamation Responsibilities

Technical and financial quarterly reports, a final report and a final presentation in Denver, Colorado, are the required deliverables. The subsections below describe the requirements for these deliverables.

II.C.1. Quarterly reports

Reports shall be submitted quarterly by the Project Manager and will be used by Reclamation to ensure that the goals and objectives of the project are being met. The following should be included in each quarterly report:

- For each project or activity within a task, list the start date and anticipated completion date as well as the work conducted within the reporting period.
- Describe any significant accomplishments as well as any unanticipated delays encountered during the reporting period.
- Discuss whether the activities comprising the agreement are on schedule to meet expected completion date. If not, discuss the actions being taken bring the activities back on schedule.
- State the progress of spending within each task.
- Compare spending in each task relative to the planned expenditures and provide an explanation for any discrepancies.
- Provide sufficient information to allow for tracking of project expenditures for each task.
- Provide, in pdf format, copies of presentations given at conferences and any journal publications that have resulted in this study during the reporting period.

II.C.2. Financial Reports

The applicant shall submit an SF-425 Federal Financial Report quarterly and at project completion.

II.C.3. Final Reports

Please note that final reports are public documents and will be made available on Reclamation's website. Upon award of an agreement, recipients will be provided information regarding the format to be used in completion of their final report. Publication guidelines are at: www.usbr.gov/research/AWT/DWPR/appendix16-4.pdf. Previously submitted reports are at: www.usbr.gov/research/AWT/DWPR/DWPR_Reports.html.

II.C.4. Presentation

Approximately at the time of delivery of the draft final report, the Project Manager shall make a presentation in Denver, Colorado, on the achievements of the project. This review shall inform Reclamation on the project accomplishments, the final results of each task item, and suggestions for future work.

Section III. Eligibility Information

III.A. Eligible Applicants

Any responsible source, including individuals, institutions of higher education, commercial or industrial organizations, private entities, public entities (including state and local), or Indian Tribal Governments, may submit an application which will be considered by Reclamation. Foreign entities are not eligible for funding under the authorizing legislation for this program. Federal agencies are not eligible to apply.

The applicant must conduct the project within the United States, including the District of Columbia, Guam, Puerto Rico, and the Virgin Islands.

III.B. Cost-Sharing Requirement

Cost sharing shall be provided in accordance with the requirements stated in this section. Cost contributions may be either direct or indirect, provided such costs are otherwise allowable, allocable, and reasonable in accordance with the cost principles applicable to the award. Applicants proposing to provide additional cost-share will be given greater consideration during evaluation of their proposal.

Recipients must provide at least 50 percent non-Federal cost share in these agreements through in-kind, cash, or third-party contributions, or combinations thereof. Cost share is not required for institutions of higher education, but is strongly encouraged.

III.B.1. Regulations

All cost-share contributions must meet the criteria established in the Office of Management and Budget's (OMB) administrative and cost principles circulars that apply to the applicant. These requirements are codified in 2 CFR 200.

III.B.2. In-Kind Contributions

In-kind contributions constitute the value of noncash contributions that benefit a federally assisted project. These contributions may be in the form of real property, equipment, supplies and other expendable property, as well as the value of goods and services directly benefiting and specifically identifiable to the project or program. The cost or value of in-kind contributions that have been or will be relied on to satisfy a cost-sharing or matching requirement for another Federal financial assistance agreement, a Federal procurement contract, or any other award of Federal funds may not be relied on to satisfy the cost-share requirement for this project.

Depreciation already accounted for may not be applied as a cost contribution.

Federal funding from other agencies may be used as a portion of your cost sharing only if permitted by the authorizing legislation of that funding source, and only to the extent that the total amount of Federal funding from all sources does not exceed 50 percent of the total project cost.

III.B.3. Pre-Award Costs

Project pre-award costs that have been incurred prior to the date of award but after the date of authorization and appropriation for this program may be submitted for consideration as an allowable portion of the recipient's cost share for the project. In no case will pre-award costs incurred prior to October 1, 2014 be considered for cost share purposes.

For example, pre-award costs might include design or construction plans and environmental compliance costs directly supporting the proposed project. Reclamation will review the proposed pre-award costs to determine if they are allowable in accordance with the authorizing legislation and applicable cost principles. To be considered allowable, any pre-award costs proposed for consideration under the new awards must comply with all applicable requirements under this FOA.

III.B.4. Indirect Costs

Indirect costs that will be incurred during the development or construction of a project, which will not otherwise be recovered, may be included as part of the applicant's cost share. Indirect costs are those that are both:

- 1) Incurred for a common or joint purpose benefiting more than one cost objective.
- 2) Not readily assignable to any one cost objective. For further information on indirect costs, refer to the applicable OMB cost principles codified within 2 CFR 200.

III.B.5. System of Award Management and Automated Standard Application for Payments Registration

All applicants must be registered in the System for Awards Management (SAM) prior to award under this FOA. Instructions for registering for SAM are located at www.sam.gov/portal/public/SAM. All applicants must maintain an active SAM registration with current information at all times while they have an active Federal award or an application under consideration.

All applicants must also be registered with and process all payments through the Department of Treasury Automated Standard Application for Payments (ASAP) system. All recipients with active financial assistance agreements with Reclamation must be enrolled in ASAP under Reclamation's Agency Location Code (ALC) and the Data Universal Number System (DUNS) number prior to the award of funds. If recipients have multiple DUNS numbers, they must

separately enroll within ASAP for each unique DUNS # and/or Agency. All of the information on the enrollment process for recipients, including the enrollment initiation form and the enrollment mailbox, is at: <http://www.usbr.gov/mso/aamd/asap.html>. Note that if your organization is currently enrolled in the ASAP system with an agency other than Reclamation, you must enroll specifically with Reclamation in order to be eligible for award and process payments.

III.E. Other Regulations

Applicants shall adhere to Federal, State, and local laws, regulations, and codes, as applicable, and shall obtain all required approvals and permits. Applicants shall also coordinate and obtain approvals from site owners and operators, where applicable.

Section IV. Application and Submission Information

IV.A. Address to Request Application Package

This document contains all information, forms, and electronic addresses required to obtain the information required for submission of an application.

If you are unable to access this information electronically, you may request paper copies of any of the documents referenced in this request for applications by contacting:

By mail: Bureau of Reclamation
Financial Assistance Services
Attn: Michael Dieterich
Mail Code: 84-27852
P.O. Box 25007
Denver CO 80225

E-mail: mdieterich@usbr.gov
Phone: 303-445-2484

IV.B. Date for Receipt of Applications

Application submission deadline:

Phase 1: February 16, 2015 at 4:00 pm Mountain Standard Time
(MST)
Phase 2: April 27, 2015 at 4:00 pm MST

Applications received after the deadline will not be considered unless it can be determined that the delay was caused by Federal government mishandling or by the Grants.gov application system.

IV.C. Application Delivery Instructions

Applications may be submitted electronically through, <http://www.grants.gov>, or hard copies may be submitted as follows:

Mailing Address: Bureau of Reclamation
Denver Federal Center
Attn: Michael Dieterich
Mail Code: 84-27852

P O Box 25007
Denver CO, 80225

Express mail/delivery services: Bureau of Reclamation
Denver Federal Center
Attn: Michael Dieterich
Mail Code: 84-27852
6th Avenue and Kipling Street
Building 67, Room 152
Denver CO 80225
Mailroom: (303) 445-2088

Electronic Applications:

Electronic applications must be submitted through Grants.gov at www.grants.gov. Reclamation encourages applicants to submit their applications for funding electronically through www.grants.gov/applicants/apply_for_grants.jsp. Applicant resource documents and a full set of instructions for registering with Grants.gov and completing and submitting applications online are available at: www.grants.gov/applicants/resources.jsp.

- Please note that submission of an application electronically requires prior registration through Grants.gov, which may take 7 to 21 days. Registration instructions are at www.grants.gov/applicants/get_registered.jsp.
- If you plan to submit your application through Grants.gov, you are encouraged to submit your application several days prior to the application deadline. If you are a properly registered Grants.gov applicant and encounter problems with the Grants.gov application submission process, you must contact the Grants.gov help desk to obtain a “Case Number.” This number will provide evidence of your attempt to submit an application prior to the submission deadline.

IV.D. Instructions for Submission of Application

Each applicant shall submit an application in accordance with the instructions contained in this section.

- For hardcopy submission:
 - Applicants shall submit an original and one copy of all application documents for hardcopy submissions. Each document should be clearly identified as the “ORIGINAL” or as a “COPY.”
 - Please only binder clip documents submitted.

- Hard copy applications may be submitted by mail or express methods to the addresses listed in Section IV.C, “Application Delivery Instructions,” above.
- Materials arriving separately will not be included in the application package and may result in the application being rejected or not funded. This does not apply to letters of support, funding commitment letters and official resolutions.
- Faxed and emailed copies of application documents will not be accepted.
- Do not include a cover letter or company literature/brochure with the application. All pertinent information must be included in the application package.
- For electronic submissions:
 - Please refer to www.grants.gov and Section IV.C, “Application Delivery Instructions”

IV.E. Application Preparation Instructions

The technical proposal should present information in a manner which allows it to “stand alone” without the need to reference other documents. It should describe the capability of your organization to participate in this program and should demonstrate a thorough understanding of the technology of the work topic proposed for study. The proposal shall be organized and written so that it can be easily read and meaningfully evaluated by Reclamation personnel and selected external evaluators from a variety of different functional and technical disciplines. The applicant shall include work-hour requirements for each phase. The work-hour information will be used as an aid in evaluating your understanding of the work requirement.

To allow for innovation, you are not limited to the suggested topics described in Section VIII, “Technical Supplemental Information.” However, the value to this program of any other tasks proposed must be substantiated in your proposal. You are requested to carefully evaluate the program goals and objectives described in Section I.A “DWPR Overview”, the DWPR priorities described in Section I.B “DWPR Priorities”, and the topic areas set forth in Section VIII in light of the overall project objectives.

IV.E.1. Application Format and Length

The total application package shall be no more than **50 (fifty) pages** and shall be printed single-sided. If an application exceeds 50 pages, only the first 50 pages will be evaluated. The font shall be at least 12 points in size, one font type, and

easily readable (1 inch margins, Arial, Calibri, or Times New Roman fonts). Page size shall be 8 ½” x 11,” including all charts, maps, or drawings.

The Technical Proposal section of your application shall be limited to a maximum of **30 (thirty) pages** and printed single-sided. If the Technical Proposal section of an application exceeds 30 pages, only the first 30 pages will be evaluated.

Applications will be prescreened for compliance to the page number limitations.

IV.E.2. Application Content

The application must include the following elements in order to be considered complete:

- SF-424 Core Form – Application cover page
- SF-424 B Form
- Technical proposal (limited to 30 pages)
 - Title page
 - Table of contents
 - Executive summary
 - Background and Introduction
 - Technical Approach
 - Scope of Work
 - Research Work Plan and Schedule
 - Project Management
 - Personnel Qualifications
 - Facilities and Equipment Information
 - Applicant Experience and Past Performance
 - Work Currently Sponsored by Others
 - Environmental Impact
 - Dismantling Plans
 - Other Information
- Project budget information
 - Budget Proposal
 - Budget Narrative
 - SF-424 A Form
- Funding plan and letters of commitment

SF-424 Application Cover Page

This fully completed form must be signed by a person legally authorized to commit the applicant to performance of the project. **Failure to submit a properly**

signed SF-424 may result in the elimination of the application from further consideration.

If you are not submitting your application electronically through Grants.gov, you will need to access copies of the SF-424, SF-424A, SF-424B forms at www.grants.gov/web/grants/forms/sf-424-family.html#sortby=1.

SF-424 Assurances

A SF-424B – Assurances – Non-Construction Programs, signed by a person legally authorized to commit the applicant to performance of the project shall be included. **Failure to submit a properly signed SF-424B may result in the elimination of the application from further consideration.**

IV.D.5. Technical Proposal Content

The format listed in the following sections shall be used in preparing the technical proposal.

Title Page

Provide a brief and informative title for the proposed work. Include:

- Name of organization
- Address of organization
- Contact information for the project manager including:
 - Name
 - Address
 - Telephone
 - E-mail address

Table of Contents

List all major sections of the technical proposal in a Table of Contents.

Technical Proposal: Executive Summary

Discuss clearly key elements of proposal including brief description of problem, proposed solution, what the highlights of the proposal are, and funding request. Please limit to 2 pages.

Background and Introduction

Describe the current status of the technology supporting the specific research work proposed. Address the following issues:

- What is the problem to be solved?

- What is the proposed solution?
- Provide background and cite relevant literature and past experience. Provide a comprehensive background on the problem based on experience and what is reported in literature. If appropriate, identify specific water problem(s) and location.
- What technical risks are associated with the proposed investigation? Have similar projects been conducted by you or elsewhere? How successful have they been?
- What would success look like? If the project proved successful, what would be the result at the end of the investigation, and what would be the potential for follow-on funding for further work? What does the commercialization path look like?

Technical Approach

Discuss the approach that will be used to accomplish the proposed work. This discussion shall be in sufficient detail to permit a comprehensive evaluation of the proposal. The applicant's understanding will be established not only by the proposed approach, but also by anticipating and/or identifying the various problems and assessment of the severity of each problem. The proposal shall not merely offer to conduct an effort related to the topics described in Section VIII "Technical Supplemental Information" but shall detail the actual effort proposed as specifically as possible. Repeating the work statement without elaborating on the specific tasks to be performed is unacceptable.

Scope of Work

Describe in detail the tasks to be conducted., including reporting. For each task describe what studies and tests you plan to conduct, what kind of apparatus you will need, what data you plan to collect, and what you will do with the data. Describe the kind of staff, the number of staff hours, and the schedule for completing each task.

Research Work Plan and Schedule

Provide a research work plan based on the tasks described in the Scope of Work and schedule showing individual tasks with significant milestones identified for the work to be accomplished, including time for the preparation, submission, and approval of required data and reports. Provide this in a table, Gantt chart, project network diagram, or any other visual format.

Project Management

Show the proposed organization to manage the work, its relationship to the applicant's overall corporate structure, and the function and responsibilities

of any subcontractors. Include an estimate of the extent of anticipated subcontracting together with a list of items or work to be subcontracted.

Key Personnel Qualifications

Provide the following information on personnel:

- Identification of Project Manager assigned to perform the work.
- Identification of key personnel, including consultants, to be assigned for direct work on the project and as direct technical supervision, along with the nature of each individual's involvement and estimated work hours by task.
- A statement of assurance that the proposed personnel will be available for work on this agreement.
- A list of alternative personnel to be used in the event proposed personnel are not available as planned.
- A brief resume limited to 2 pages maximum (to include education, experience, accomplishments, and other pertinent information) for all key personnel named.

Applicant Experience and Past Performance

Provide a list of projects similar in scope and magnitude to the work required under this FOA which the applicant has completed during the last 3 years. For each project, include:

- Name of the project
- Description of the work
- Name and address of the acquiring government agency or commercial customer, and the name(s) and telephone number(s) of references from the acquiring agency or customer who may be contacted for further information

Work Currently Sponsored by Others

Provide a detailed description of work currently sponsored by others that relates to the proposed work. Show clearly how the proposed work differs from that sponsored by others. Also indicate if this proposal has been or will be presented to others for funding.

Facilities and Equipment Information

Describe the facilities in which the work is to be performed. List the equipment that is available for use on this agreement and which will be required for carrying out the proposed work. List and justify any special equipment that is required and indicate the extent to which the work can be accomplished without it. Information on alternative sources considered for the equipment shall also be included.

Environmental Impact

Describe any potential environmental benefits or adverse impacts of the proposed work, and plans for disposal of wastes if any result from the study. If any permits and licenses are required for this study, describe how they will be obtained.

Dismantling Plans

Describe plans for the subsequent use or dismantling of equipment once the research or study is completed or Federal funding expires. The recipient shall be responsible for dismantling all equipment and returning the site to its original condition to the satisfaction of the site owner, unless other arrangements are made to the satisfaction of the site owner to retain the pilot plant equipment and approval has been received from the government. Equipment ownership shall be in accordance with the requirements of the applicable OMB circular.

Other Information

Include in this section any additional information which is relevant to the application.

IV.D.6. Project Budget Instructions

Submission of a budget proposal and detailed budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information.

Budget Narrative

The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. Include the value of in-kind contributions of goods and services and sources of funds provided to complete the project. The types of information to describe in the narrative include, but are not limited, to those listed below. Table 1 provides a template for the budget narrative.

- **Salaries and Wages.** Indicate the project manager and other key personnel, indicate salaries and wages, estimated hours or percent of time, and rate of compensation proposed.

- **Fringe Benefits.** Indicate rates/amounts, what costs are included in this category, and the basis of the rate computations.
- **Travel.** Include purpose of trip, destination, number of person traveling, length of stay, and all travel costs (please include one trip to Denver, Colorado, for the final report presentation).
- **Equipment.** Itemize costs of all equipment having a value of over \$5,000 and include information as to the need for the equipment. If equipment is being rented, specify the rental details including price.
- **Materials and Supplies.** Itemize supplies by major category, unit price, quantity, and purpose, such as whether the items are needed for office use, research, or construction.
- **Contractual.** Identify all work that will be accomplished by sub-recipients, consultants, or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task.
- **Environmental and Regulatory Compliance Costs.** These costs refer to costs incurred by the recipient in complying with environmental regulations with any required documentation of environmental compliance, analyses, permits, or approval.
- **Reporting.** Include a line item costs for preparing and submitting quarterly financial and progress reports, the final report, and final presentation in Denver, Colorado, in the budget proposal.
- **Other Expenses.** Any other expenses not included in the above categories shall be listed in this category, along with a description of the item and what it will be used for. No profit or fee will be allowed.

Table 1—Sample budget proposal format

Budget item description	Computation		Quantity type (hours/days)	Total cost
	\$/Unit	Quantity		
Salaries and wages				
Employee 1				\$ -
Employee 2				\$ -
Employee 3				\$ -
Fringe benefits				
Full-time employees				\$ -
Part-time employees				\$ -
Travel				
<u>TRAVEL TO DENVER</u>				\$ -
Trip 1				\$ -
Trip 2				\$ -
Equipment				
Item A				\$ -
Item B				\$ -
Item C				\$ -
Supplies/materials				
Item A				\$ -
Item B				\$ -
Contractual/construction				
Contractor A				\$ -
Contractor B				\$ -
Environmental and Regulatory Compliance Costs				
Item A				\$ -
Item B				\$ -
Reporting				\$ -
Quarterly Reports				\$ -
Final Report				\$ -
Final Presentation				\$ -
Other				\$ -
Total direct costs				\$ -
Indirect costs - ____%				
Total project costs				\$ -

This is only a sample budget proposal format. You may use this format or submit the information in a different format which provides a detailed break-down of costs and need justification for budgets presented in the SF-424A.

Contracts should be broken out into specific line items. You may attach a separate, detailed budget for each contract to adequately address all contractor budget items.

Budget Proposal

The project budget shall include detailed information on the categories listed below and must clearly identify all project costs. Unit costs shall be provided for all budget items including the cost of work to be provided by contractors.

Indirect Costs

Show the proposed rate, cost base, and proposed amount for allowable indirect costs based on the applicable OMB circular cost principles (see Section III.B.1 “Cost-Share Regulations”). It is not acceptable to simply incorporate indirect rates within other direct cost line items.

If the recipient has separate rates for recovery of labor overhead and general and administrative costs, each rate shall be shown. The applicant should propose rates for evaluation purposes, which will be used as fixed or ceiling rates in any resulting award. Include a copy of any federally approved indirect cost rate agreement. If a federally approved indirect rate agreement is not available, provide supporting documentation for the rate.

If you do not have a federally approved indirect cost rate agreement, or if unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.

Total Costs

Indicate total amount of project costs, including the Federal and non-Federal cost-share amounts.

Funding Plan and Letters of Commitment Instructions

Funding Plan

The applicant’s proposal shall include a funding plan that describes how the non- Reclamation share of the project costs will be obtained. Reclamation will use this information in making a determination of financial capability. In accordance with Section III.B. “Cost Sharing,” applicants that are not institutions of higher education must be willing to fund at least 50 percent of the project costs and provide documentation showing the sources of non-Federal funding that total at least 50 percent of the project costs. Table 2 provides a template to use for funding sources.

Table 2—Funding sources

Funding sources	Percent of total project cost	Total cost by source
Recipient funding	%	\$ -
Reclamation funding	%	\$ -
Other Federal funding	%	\$ -
Totals	%	\$ -

Please include the following chart (table 3) to summarize your non-Federal and other Federal funding sources. Denote in-kind contributions with an asterisk (*). Please ensure that the total Federal funding (Reclamation and

all other Federal sources) is consistent with cost share guidelines described in Section III.B. “Cost Sharing.”

Table 3. Summary of non-Federal and Federal funding sources.

Funding Sources	Funding Amount
Non-Federal Entities	
1.	
2.	
3.	
<i>Non-Federal Subtotal:</i>	
Other Federal Entities	
1.	
2.	
3.	
<i>Other Federal Subtotal:</i>	
<i>Requested Reclamation Funding:</i>	
<i>Total Project Funding:</i>	

- 1) Describe any in-kind costs incurred before the anticipated project start date that the applicant seeks to include as project costs. Cost incurred prior to the pre-award cost date identified in Section 3.2.3 will not be eligible under this program, either for direct reimbursement or as cost-share. The description of these costs shall include:
 - (a) What project expenses have been incurred
 - (b) How they benefitted the project
 - (c) The amount of the expense
 - (d) The date of cost incurrence
- 2) Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment.
- 3) Describe any funding requested or received from other Federal partners. Note: Other sources of Federal funding may not be counted towards your cost share unless otherwise allowed by statute.
- 4) Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

Letters of Commitment

Project funding provided by sources other than the applicant shall be supported with letters of commitment from these additional sources. This is a mandatory requirement. Letters of commitment shall identify:

- 1) The source and amount of funding commitment
- 2) The date the funds will be available to the applicant
- 3) Any time constraints on the availability of funds
- 4) Any other contingencies associated with the funding commitment

Commitment letters should be included with your project application. If a final funding commitment has not been received by the date of application, commitment letters are to be submitted by no later than May 29, 2015.

Section V. Application Review Information

V.A. Section Review and Selection Process

The government reserves the right to reject any and all applications which do not meet the requirements of this FOA and which are determined to be outside the scope of the DPWR program. Awards will be made to the responsible applicants submitting applications which conform to the FOA and are most advantageous to the government, considering the factors and any significant subfactors listed above. The evaluation process will be comprised of three levels of review as described in the rest of this section.

The first level screening is to ensure eligibility. The second level review (technical review) will be implemented in two phases, as shown in Figure 1. All proposals will be evaluated in the first phase. A group of proposals will be selected in phase 1 to move forward to phase 2, based on the Application Review Committee's (ARC) recommendations. All applicants will be notified of their proposal status at the end of phase 1 and will either move onto phase 2 or will be notified that they have not been selected for phase 2.

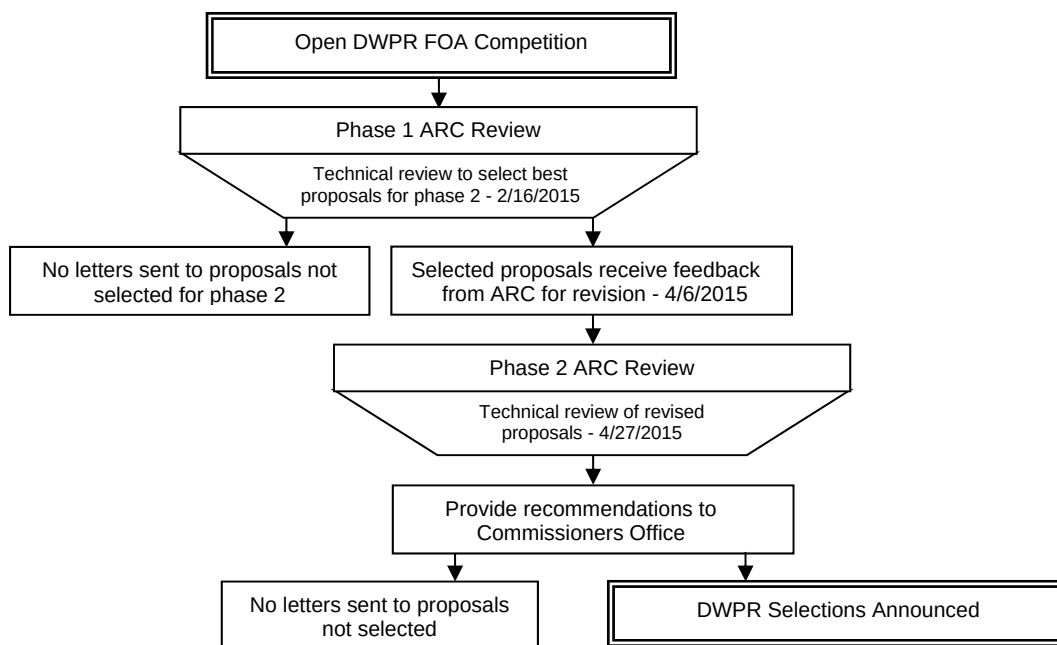


Figure 1. Two phase review process for the second-level evaluation.

V.A.1. First-Level Screening

All applications will be screened to ensure that:

- The application meets the requirements of the FOA, including submission of technical and budget proposals, a funding plan, and related forms that are prepared in accordance with the instructions stated in Section 4 of this document.
- The proposed research and laboratory study is within the scope of the DWPR program and the scope of the eligible activities identified in this FOA. The application must contain a properly executed SF-424 Application for Financial Assistance and a form SF-424B, Assurances – Non-Construction Programs.
- When applicable, at least 50 percent of the cost of the project is being cost shared by the applicant.
- The application includes appropriate commitment letters, prepared in accordance with IV.E.2 “Application Content” subsection “Letters of Commitment” of this document that indicate that the applicant is capable of providing the amount of funding or in-kind contributions specified in the funding plan. Final cost share funding commitments are to be submitted to Reclamation by May 29, 2015.
- The applicant meets the eligibility requirements stated in Section III “Eligibility Information.”
- Research and laboratory studies should be accomplished within 13 months.

An application must pass all first level screening criteria in order for it to be forwarded for further consideration at the second level evaluation phase.

V.A.2. Second-Level Evaluation (Technical Review)

The technical review will be conducted in two phases. In phase 1, all applications will be scored against the evaluation criteria in Section 5.2 by an Application Review Committee (ARC) comprised of experts in relevant disciplines. The ARC will make recommendations for a select group of applications to proceed to phase 2. All other applications will receive a notification that their proposal has not made it to phase 2 based on the ARC’s review.

The ARC will provide comments and feedback to the selected group of applications that will be moving forward to phase 2. These applicants will have a

chance to review the comments and address them in a revised application. The revised application will be submitted to Reclamation by the applicant for further review and the ARC will score all selected applications against the evaluation criteria in Section V.B. “Evaluation Criteria” and make a final recommendation to the management team. Submission to phase 1 is required for phase 2 consideration.

It is highly recommended for applications that have been selected for phase 2 to review the ARC’s comments, revise and resubmit the proposal. If Reclamation does not receive a revised application, the original submitted application for phase 1 will be used to score against all other submitted phase 2 revised applications.

The deadline for phase 1 application submission is February 16, 2015. The ARC will review and make their recommendations and provide feedback to the selected applications by April 6, 2015. The phase 2 down-selected applicant will have the opportunity to revise and resubmit their application by April 27, 2015.

V.A.3. Third-Level Evaluation (Managerial Review)

Management will conduct a final review to prioritize projects based on availability of funds and to consider the research goals, objectives and priorities listed in Sections I.A. “DWPR Overview” and I.B. “DWPR Priorities.”

V.B. Evaluation Criteria

The relative importance to be placed on the evaluation criteria is shown below. Applications will be evaluated by the ARC in accordance with these criteria and the corresponding weights assigned to each criterion as displayed in table 4.

Technical Factors

- 1) Impact of the proposed work on the current technology and on its related economics if a completely successful outcome were achieved. Examples include energy and cost reduction, impact on water supply and/or ease use/operation of the technology.
- 2) Novelty of approach to the work and probability of a successful outcome of work.
- 3) Demonstrated familiarity with the current technology in the field of work and understanding of the potential difficulties in carrying out the work.
- 4) Relationship to DWPR priorities shown in Section 1.2.
- 5) Availability of equipment, instruments, and test facilities required for the work.

Managerial Factors

- 1) The qualifications, capabilities, and experience of the proposed project manager and other key personnel who are critical to achievement of the proposed objectives
- 2) Adequacy, completeness, and realism of the research schedule, task phasing, and milestones
- 3) Proposed procedures for Quality Assurance and Quality Control (QA/QC) protocols to be used throughout the project including statistical data analysis, peer review, instrument calibration, etc.

Additional Cost-Share

- 1) Applicants proposing to provide greater cost share shall be given additional consideration.

Table 4. Evaluation Criteria and Corresponding Weight

Criteria		Max Points
Technical	Impact of the proposed work	25
	Novelty of approach to the work	25
	Demonstrated familiarity with the current technology	15
	Relationship to DWPR priorities	5
	Availability of equipment, instruments, and test facilities required for the work	5
Managerial	Qualifications, capabilities, and experience	5
	Adequacy, completeness, and realism of the schedule	5
	QA/QC	5
Cost	Cost Share	10
Total Possible Points		100

V.C. Pre-Award Clearances and Approvals

After completion of the third level evaluation, Reclamation will complete a business evaluation and determination of responsibility. During these evaluations, the Reclamation Grants Officer (GO) will also consider several factors which are important, but are not quantified, such as:

- Pre-award clearances, determinations, reviews, and approvals
- Allowability, allocability, and reasonableness of proposed costs
- Financial strength and stability of the organization
- Past performance, including satisfactory compliance with all terms and conditions of previous awards, such as compliance with reporting requirements, proper procurement of supplies and services, and compliance with audit requirements
- Adequacy of personnel practices; procurement procedures; and accounting policies and procedures, in accordance with the applicable OMB circulars referenced in Section III.B.1 “Cost-Share Regulations”

If the results of all pre-award reviews and clearances are satisfactory, an award of funding will be made once the agreement is finalized.

Section VI. Award Administration Information

VI.A. Award Notices

Successful applicants will receive, by electronic or regular mail, a notice of award.

VI.B. Award Document

If your application is awarded a financial assistance agreement as a result of this FOA, the proposed project and other relevant information from the application will be referenced in the agreement. The agreement document must be signed by a Reclamation GO before it becomes effective.

VI.C. Reporting Requirements and Distribution

If your organization is awarded an agreement as a result of this request for applications, you will be required to submit the following types of reports during the term of the agreement. Detailed information on the type, frequency, and distribution of these reports will be included in the final, executed financial assistance award.

VI.C.1. Financial Reports

- SF-425, Quarterly and Final Federal Financial Report

VI.C.2. Program Performance Reports

- **Quarterly Technical Progress Reports**
- **Draft-Final and Final Reports.** Please note that final reports are public documents and will be made available on Reclamation's website. Upon award of an agreement, recipients will be provided information regarding the format to be used in completion of their final report. Previously submitted reports are available for review at www.usbr.gov/pmts/water/publications/reports.html.
- **Presentation of Final Report.** Approximately at the time of delivery of the draft final report, the Project Manager shall make a presentation in Denver on the progress of the project. This review shall inform Reclamation on the project accomplishments and the final results of each task item.

Significant Developments Reports

- When applicable

VI.D. Reclamation Responsibilities

Substantial involvement between Reclamation and the recipient is anticipated during the performance of this project. Substantial involvement by Reclamation will include:

- Collaboration and participation with the recipient in the technical details of the project, especially when a need arises to deviate from the original scope of work or to further define and execute program objectives and priorities.
- Oversight of the project and close oversight of the recipient's activities to ensure that the program objectives are being achieved, which may include review, input, and approval at key interim stages of the project.

Section VII. Federal Award Agency Contacts

There will be no pre-application conference. Organizations or individuals interested in submitting applications in response to this FOA may ***direct questions to Reclamation in writing***. Questions may be submitted to the attention of Michael Dieterich, as follows:

By mail:

Bureau of Reclamation
Financial Assistance Operations Section
Attn: Michael Dieterich
Mail Code: 84-27852
P.O. Box 25007
Denver, CO 80225

Overnight delivery:

Bureau of Reclamation
Attn: Michael Dieterich
Mail Code: 84-27852
Denver Federal Center, Bldg. 67 Rm. 152
6th Avenue and Kipling Street
Denver, CO 80225

By email:

mdieterich@usbr.gov

Section VIII. Technical Supplementary Information

The DWPR program has adopted the strategic desalination research agenda from National Research Council's *Desalination: A National Perspective*. Washington, D.C.: National Research Council of the National Academies, 2008 and *Water Reuse* Washington, D.C.: National Research Council of the National Academies, 2012. Each research area is followed by a list of possible projects falling under that area.

- Assess environmental impacts of desalination intake and concentrate management approaches
 - Conduct field studies to assess environmental impacts of seawater intakes
 - Conduct field studies to assess environmental impacts of brackish groundwater development
 - Develop protocols and conduct field studies to assess the impacts of concentrate management approaches in inland and coastal settings
 - Develop cost-effective approaches for concentrate management that minimize potential environmental impacts
 - Develop laboratory protocols for long-term toxicity testing of whole effluent to assess long-term impacts of concentrate on aquatic life
 - Assess the environmental fate and bioaccumulation potential of desalination-related contaminants
- Develop improved intake methods at coastal facilities to minimize impingement of larger organisms and entrainment of smaller ones
- Assess the quantity and distribution of brackish water resources nationwide
- Analyze the human health impacts of boron to expedite water-quality guidance for desalination process design
- Improve pretreatment for membrane desalination
 - Develop more robust, cost-effective pretreatment processes
 - Reduce chemical requirements for pretreatment
 - Improve membrane system performance

- o Develop high-permeability, fouling-resistant, high-rejection, oxidant-resistant membranes
- o Optimize membrane system design
- o Develop lower cost, corrosion-resistant materials of construction
- o Develop ion-selective processes for brackish water
- o Develop hybrid desalination processes to increase recovery
- o Reduce chemical usage in cleaning processes
- o Conduct studies optimizing cost and/or design for different operating conditions
- o Investigate methods for increasing the economic efficiency of desalination processes, including hybrid systems or dual-purpose co-facilities with other processes involving the use of water
- o Develop aspects of a small community desalination system where the community may be isolated and economically disadvantaged and where technical support may not be readily available
- o Develop detailed economic surveys
- o Develop new cost models and/or evaluation of existing models
- o Improve membrane processes, including reverse osmosis or electrodialysis or in thermally driven desalting processes including multi-state flash, multiple effect, or vapor compression distillation
- o Conduct studies on presence and influence of biofilms on membranes or heat transfer surfaces
- o Conduct studies on adhesion of foulants, scalants or other materials to membrane or heat transfer surfaces
- o Conduct studies on cleaning, including frequency and effectiveness of cleaning and impacts of disposal of solutions containing cleaning agents
- o Investigate methods to reduce corrosion in desalting processes
- o Conduct studies on influence of minor constituents in groundwater on membrane or heat transfer properties

- Develop techniques for membrane storage or preservation and for biological control during plant operation
 - Investigate methods for stabilization of desalted water, particularly when it is to be mixed into existing water supply systems
- Improve existing desalination approaches to reduce primary energy use
 - Develop improved energy recovery technologies and techniques for desalination
 - Research configurations and applications for desalination to utilize waste heat
 - Understand the impact of energy pricing on desalination technology over time
 - Investigate approaches for integrating renewable energy with desalination
 - Evaluate and develop methods to improve the heat economy of thermally driven desalting processes
 - Develop improved energy recovery technologies applicable to desalination, particularly for installations where the cost of energy may be relatively high
 - Develop and/or evaluate innovative or alternative desalination processes
- Develop novel approaches or processes to desalinate water in a way that reduces primary energy use
 - Quantify CO₂ footprint and environmental lifecycle assessment of desalination processes and associated environmental impact
 - Conduct triple bottom line assessments to capture environmental and social benefits of desalination
 - Investigate approaches for integrating desalination with renewable energy sources including photovoltaic, wind power, solar thermal, and geothermal
 - Research and develop applications using waste (low quality) heat. Consideration must be given to methods of collecting the waste heat effectively

- Resesarch methods to improve hydrodynamics, mass transfer, and/or heat transfer in water purification processes
 - Develop integrated or hybrid membrane systems, particularly to increase water recovery
- Develop cost-effective approaches for concentrate management that minimize potential environmental impacts
 - Salinity modeling and toxicity analysis of concentrate discharges to the environment
 - Recovery and use of salts or other materials contained in the reject stream of desalting plants
 - Removal of supersaturated salts to permit further desalting of concentrate and reduce the volume of concentrate requiring disposal
- Assess the potential impacts of environmental applications of reclaimed water in sensitive ecological communities.
- Quantify the nonmonetized costs and benefits of potable and nonpotable water reuse compared with other water supply sources to enhance water management decision making.
- Examine the public acceptability of engineered multiple barriers compared with environmental buffers for potable reuse.
- Develop a better understanding of:
 - The formation of hazardous transformation products during water treatment for reuse and ways to minimize or remove them
 - Removal of organic contaminants, toxic substances, heavy metals, radioactive elements, etc.
- Develop a better understanding of pathogen removal efficiencies and the variability of performance in various unit processes and multibarrier treatment and develop ways to optimize these processes.
- Identify better indicators and surrogates that can be used to monitor process performance in reuse scenarios and develop online real-time or near real-time analytical monitoring techniques for their measurement.

- Analyze the need for new reuse approaches and technology in future water management.
 - Improve the quality and suitability of treated water for reuse
 - Develop new wastewater treatment processes or improvements in existing treatment systems
 - Resolve small persistent operational problems in existing water treatment plants
 - Lower biological oxygen demand (BOD) and chemical oxygen demand (COD) in wastewater
 - Research membrane treatment of municipal wastewater for direct reuse or groundwater recharge
 - Improve membrane polymers specifically for waste treatment applications
 - Treat irrigation drainage waters to remove pesticides, herbicides, nitrates, etc.
 - Recover and use irrigation return flows
 - Research treatment and beneficial use of produced water and other industrial water supplies

Section IX. Financial Assistance Information

IX. A. Use and Disclosure of Proposal Information - Department of the Interior (APR 1984)

- a) Definitions. For the purposes of this provision and the Freedom of Information Act (5 U.S.C. 552), the following terms shall have the meaning set forth below:
- 1) 'Trade Secret' means an unpatented, secret, commercially valuable plan, appliance, formula, or process, which is used for making, Preparing, compounding, treating or processing articles or materials, which are trade commodities.
 - 2) 'Confidential commercial or financial information' means any business information (other than trade secrets) which is exempt from the mandatory disclosure requirement of the Freedom of Information Act, 5 U.S.C. 552. Exemptions from mandatory disclosure which may be applicable to business information contained in proposals include exemption (4), which covers 'commercial and financial information obtained from a person and privileged or confidential,' and exemption (9). which covers 'geological and geophysical information, including maps, concerning wells.'
- b) If the applicant, or its subcontractor(s) believes that the proposal contains trade secrets or confidential commercial or financial information exempt from disclosure under the Freedom of Information Act, (5 U.S.C. 552), the cover page of each copy of the proposal shall be marked with the following legend:
- "The information specifically identified on pages of this proposal constitute trade secrets or confidential commercial and financial information which the applicant believes to be exempt from disclosure under the Freedom of Information Act. The applicant requests that this information not be disclosed to the public, except as may be required by law. The applicant also request that this information not be used in whole or part by the Government for any purpose other than to evaluate the proposal, except that if a contract is awarded to the offer as a result of or in connection with the submission of the proposal, the Government shall have the right to use the information to the extent provided in the contract."*
- c) The applicant shall also specifically identify trade secret information and confidential commercial and financial information on the pages of the proposal on which it appears and shall mark each such page with the following legend:

"This page contains trade secrets or confidential commercial and financial information which the applicant believes to be exempt from disclosure under the Freedom of Information Act and which is subject to the legend contained on the cover page of this proposal."

- d) Information in a proposal identified by an applicant as trade secret information or confidential commercial and financial information shall be used by the Government only for the purpose of evaluating the proposal, except that: (i) If a contract is awarded to the applicant as a result of or in connection with submission of the proposal, the Government shall have the right to use the information as provided in the contract, and (ii) if the same information is obtained from another source without restriction it may be used without restriction.
- e) If a request under the Freedom of Information Act seeks access to information in a proposal identified as trade secret information or confidential commercial and financial information, full consideration will be, given to the applicant's view that the information constitutes trade secrets or confidential commercial or financial information. The applicant will also be promptly notified of the request and given an opportunity to provide additional evidence and argument in support of its position, unless administratively unfeasible to do so. If it is determined that information claimed by the applicant to be trade secret information or confidential commercial or financial information is not exempt from disclosure under the Freedom of Information Act, the applicant will be notified of this determination prior to disclosure of the information.
- f) The government assumes no liability for the disclosure or use of information contained in a proposal if not marked in accordance with paragraphs (b) and (c) of this provision. If a request under the Freedom of Information Act is made for information in a proposal not marked in accordance with paragraphs (b) and (c) of this provision, the applicant concerned shall be promptly notified of the request and given an opportunity to provide its position to the government. However, failure of an applicant to mark information contained in a proposal as trade secret information or confidential commercial or financial information will be treated by the government as evidence that the information is not exempt from disclosure under the Freedom of Information Act, absent a showing that the failure to mark was due to unusual or extenuating circumstances, such as a showing that the applicant had intended to mark, but that markings were omitted from the applicant's proposal due to clerical error.

IX.B. Patents, Copyrights, Rights to Data

IX.B.1. Patent Rights

a) Definitions

- 1) “Invention” means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. 2321 et seq.).
- 2) “Subject invention” means any invention of the recipient conceived or first actually reduced to practice in the performance of work under this agreement, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of agreement performance.
- 3) “Practical Application” means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or government regulations, available to the public on reasonable terms.
- 4) “Made” when used in relation to any invention means the conception or first actual reduction to practice of such invention.
- 5) “Small Business Firm” means a small business concern as defined at section 2 of Pub. L. 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this provision, the size standards for small business concerns involved in government procurement and subcontracting at 13 CFR 121.3-8 and 13 CFR 121.3-12, respectively, will be used.
- 6) “Nonprofit Organization” means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c) and exempt from taxation under section 501(a) of the Internal Revenue Code (25 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

- #### **b) Allocation of Principal Rights.** The Recipient may retain the entire right, title, and interest throughout the world to each subject invention subject to this

provision and 35 U.S.C. 203. With respect to any subject invention in which the Recipient retains title, the Federal government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

c) Invention Disclosure, Election of Title and Filing of Patent Application by Recipient

- 1) The Recipient will disclose each subject invention to the Bureau of Reclamation within two months after the inventor discloses it in writing to Recipient personnel responsible for patent matters. The disclosure to the Bureau of Reclamation shall be in the form of a written report and shall identify the agreement under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to the Bureau of Reclamation, the Recipient will promptly notify the Bureau of Reclamation of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the Recipient.
- 2) The Recipient will elect in writing whether or not to retain title to any such invention by notifying the Bureau of Reclamation within two years of disclosure to the Bureau of Reclamation. However, in any case where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by the Bureau of Reclamation to date that is no more than 60 days prior to the end of the statutory period.
- 3) The Recipient will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The Recipient will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.

- 4) Requests for extension of the time for disclosure, election, and filing under subparagraphs 1), 2), and 3) may, at the discretion of the Bureau of Reclamation, be granted.
- d) Conditions When the Government May Obtain Title. The Recipient will convey to the Bureau of Reclamation, upon written request, title to any subject invention:
- 1) If the Recipient fails to disclose or elect title to the subject invention within the times specified in (c), above, or elects not to retain title; provided that the Bureau of Reclamation may only request title within 60 days after learning of the failure of the Recipient to disclose or elect within the specified times.
 - 2) In those countries in which the Recipient fails to file patent applications within the times specified in (c) above; provided, however, that if the Recipient has filed a patent application in a country after the times specified in (c) above, but prior to its receipt of the written request of the Bureau of Reclamation, the Recipient shall continue to retain title in that country.
 - 3) In any country in which the Recipient decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in reexamination or opposition proceeding on, a patent on a subject invention.
- e) Minimum Rights to Recipient and Protection of the Recipient Right to File
- 1) The Recipient will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the Recipient fails to disclose the invention within the times specified in (c), above. The Recipient's license extends to its domestic subsidiary and affiliates, if any, within the corporate structure of which the Recipient is a party and includes the right to grant sublicenses of the same scope to the extent the Recipient was legally obligated to do so at the time the agreement was awarded. The license is transferable only with the approval of the Bureau of Reclamation except when transferred to the successor of that party of the Recipient's business to which the invention pertains.
 - 2) The Recipient's domestic license may be revoked or modified by the Bureau of Reclamation to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR part 404 and Bureau of Reclamation licensing regulations (if any). This license will not be revoked in that field of use or the geographical areas in which the Recipient has achieved practical application and

continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the Bureau of Reclamation to the extent the Recipient, its licensees, or the domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

- 3) Before revocation or modification of the license, the Bureau of Reclamation will furnish the Recipient a written notice of its intention to revoke or modify the license, and the Recipient will be allowed thirty days (or such other time as may be authorized by the Bureau of Reclamation for good cause shown by the Recipient) after the notice to show cause why the license should not be revoked or modified. The Recipient has the right to appeal, in accordance with applicable regulations in 37 CFR part 404 and Bureau of Reclamation regulations (if any) concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of the license.

f) Recipient Action to Protect the Government's Interest

- 1) The Recipient agrees to execute or to have executed and promptly deliver to the Bureau of Reclamation all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the Recipient elects to retain title, and (ii) convey title to the Bureau of Reclamation when requested under paragraph (d) above and to enable the government to obtain patent protection throughout the world in that subject invention.
- 2) The Recipient agrees to require, by written agreement, its employees, other than clerical and non-technical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the Recipient each subject invention made under agreement in order that the Recipient can comply with the disclosure provisions of paragraph (c), above, and to execute all papers necessary to file patent applications on subject inventions and to establish the government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by (c)(1), above. The Recipient shall instruct such employees through employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.
- 3) The Recipient will notify the Bureau of Reclamation of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty days before the expiration of the response period required by the relevant patent office.

- 4) The Recipient agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement, "This invention was made with government support under (identify the agreement) awarded by (identify the Federal agency). The government has certain rights in the invention."
- g) Subcontracts
The Recipient will include this provision, suitably modified to identify the parties, in all sub-agreements or subcontracts, regardless of tier, for experimental, developmental or research work. The sub-recipient or subcontractor will retain all rights provided for the Recipient in this provision, and the Recipient will not, as part of the consideration for awarding the sub-agreement or subcontract, obtain rights in the sub-recipient's or subcontractor's subject inventions.
- h) Reporting on Utilization of Subject Inventions
The Recipient agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Recipient or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Recipient, and such other data and information as the Bureau of Reclamation may reasonably specify. The Recipient also agrees to provide additional reports as may be requested by the Bureau of Reclamation in connection with any march-in proceeding undertaken by the Bureau of Reclamation in accordance with paragraph (j) of this provision. As required by 35 U.S.C. 202(c)(5), the Bureau of Reclamation agrees it will not disclose such information to persons outside the government without permission of the Recipient.
- i) Preference for United States Industry
Notwithstanding any other part of this provision, the Recipient agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject inventions in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Bureau of Reclamation upon a showing by the Recipient or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.
- j) March-in Rights

The Recipient agrees that with respect to any subject invention in which it has acquired title, the Bureau of Reclamation has the right in accordance with the procedures in 37 CFR 401.6 and any supplemental regulations of the Bureau of Reclamation to require the Recipient, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the Recipient, assignee, or exclusive licensee refuses such a request the Bureau of Reclamation has the right to grant such a license itself if the Bureau of Reclamation determines that:

- 1) Such action is necessary because the Recipient or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;
 - 2) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the Recipient, assignee or their licensees;
 - 3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the Recipient, assignee or licensees; or
 - 4) Such action is necessary because the agreement required by paragraph (i) of this provision has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.
- k) Special Provisions for Agreements with Nonprofit Organizations
If the Recipient is a nonprofit organization, it agrees that:
- 1) Rights to a subject invention in the United States may not be assigned without the approval of the Bureau of Reclamation, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the Recipient;
 - 2) The Recipient will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when the Bureau of Reclamation deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. 202(e) and 37 CFR 401.10;
 - 3) The balance of any royalties or income earned by the Recipient with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education; and

- 4) It will make efforts that are reasonable under the circumstances to attract licensees of subject invention that are small business firms and that it will give a preference to a small business firm when licensing a subject invention if the Recipient determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided, that the Recipient is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the Recipient. However, the Recipient agrees that the Bureau of Reclamation may review the Recipient's licensing program and decisions regarding small business applicants, and the Recipient will negotiate changes to its licensing policies, procedures, or practices with the Bureau of Reclamation when this review discloses that the Recipient could take reasonable steps to implement more effectively the requirements of this paragraph (k)(4).
- l) Communication
Communications regarding matters relating to this provision shall be directed to the Deputy Associate Solicitor, Branch of Procurements and Patents, Office of the Solicitor, U.S. Department of the Interior, Washington, DC 20240.

IX.B.2. Copyrights (Reclamation 08/03)

For recipients subject to the administrative standards set forth in OMB Circular A-110, the following copyright provision, as implemented by 43 CFR 12.936(a), shall apply:

“The recipient may copyright any work that is subject to copyright and was developed, or for which ownership was purchased, under an award. The Federal awarding agency(ies) reserves a royalty-free, nonexclusive and irrevocable right to reproduce, publish, or otherwise use the work for Federal purposes, and to authorize others to do so.”

For recipients subject to the administrative standards set forth in OMB Circular A-102 and the Grants Management Common Rule, the following copyright provision, as implemented by 43 CFR 12.74, shall apply:

“The Federal awarding agency reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal Government purposes:

- a) The copyright in any work developed under a grant, subgrant, or contract under a grant or subgrant; and
- b) Any rights of copyright to which a grantee, subgrantee or a contractor purchases ownership with grant support.”

IX.B.3. Rights to Data (Reclamation 08/03)

For recipients subject to the administrative standards set forth in OMB Circular A-110, the following provision, as implemented by 43 CFR 12.936(c), shall apply:

“The Federal Government has the right to:

- 1) Obtain, reproduce, publish or otherwise use the data first produced under an award; and
- 2) Authorize others to receive, reproduce, publish, or otherwise use such data for Federal purposes.