Reclamation Manual
Directives and Standards

Subject:	Science and Technology Program Research, Development, and Demonstration Projects
Purpose:	This Directive and Standard (D&S) establishes the Bureau of Reclamation's requirements for selecting, implementing, and completing research, development, and demonstration projects under the Science and Technology (S&T) Program. This D&S ensures the integrity and transparency of S&T Program requirements. The benefit of this D&S is to ensure selection of effective and efficient research projects that support Reclamation's mission.
Authority:	The Reclamation Act of 1902 (Pub. L. 57-161, as amended); Federal Technology Transfer Act of 1986 (Pub. L. 99-502; 15 USC 3710A); Omnibus Public Land Management Act of 2009 (Pub. L. 111-11); and America COMPETES Reauthorization Act of 2010 (Pub. L. 111-358)
Approving Official:	Science Advisor
Contact:	Research and Development (R&D) Office (86-69100)

1. **Introduction.** The Reclamation Act of 1902 authorizes Reclamation to conduct research related to the development of water resources in support of Reclamation's mission in all parts of the United States, not just the 17 western states. The S&T Program funds research projects that have benefits beyond a single specific project. Research conducted at a specific project site must have the results communicated and shared broadly so the results could be transferable and applicable to other Reclamation projects or programs.

2. **Applicability.** This D&S applies to all Reclamation employees selecting, implementing, and/or completing research, development, and demonstration projects funded through the S&T Program.

3. **Project Selection.**

    A. **Priority Setting.**

        (1) **Research Areas, Categories, and Needs.** Every 4 years, research areas will be established based on Reclamation-wide input. Each year, research categories and needs within each research area will be established based on Reclamation-wide input and communicated in the call for proposals. The Science Advisor will provide guidance and oversight related to prioritization of research needs.

        (2) **Regional Director Needs.** Each year, the Science Advisor will ask regional directors for their highest impact research needs prior to the call for proposals announcement so they can be incorporated into the call for proposals guidance. Regional coordinators will assist with this activity.

(3) **Roadmapping.** The S&T Program Administrator or S&T Program research coordinators will establish research roadmaps, as needed, for research areas, categories and needs. The S&T Program Administrator will identify completed roadmaps in the call for proposals.

(4) **Administration Priorities.** The S&T Program will address administration priorities communication through appropriations or other manners as they arise.

B. **Proposals.**

(1) **Announcement.** The call for proposals will be announced by the S&T Program Administrator, R&D, internally through a Distribution E Email memorandum. No external notification will be given due to researcher eligibility requirements.

(2) **Eligibility.** The lead researcher for all projects must be a Reclamation employee. Funding requests must be described in the call for proposals and may include funding to be provided to external entities.

(3) **Proposals and Project Types.** The S&T Program provides funding to a variety of proposal and project types through the call for proposal process including:

(a) **Solicited and Brokered.**

(b) **Applied Research, Development, Demonstration, and Facilitated Adoption.**

(i) Demonstration projects must include funds to determine the effectiveness of the project such as data collection and analysis.

(ii) Typically, funds will not be made available to fund construction of a demonstration project.

(c) **Scoping and Conducting.**

(i) Scoping proposals and projects shall not involve requisition for procurement or financial assistance to fund an external entity to perform the work.

(ii) Requisition for procurement and financial assistance must only be used for conducting projects.

(4) **Project Length.** A conducting project cannot exceed 3 years; however, extensions will be considered by the S&T Program Administrator and approved by the R&D Program Manager if it appears there were delays outside of the lead

researcher's control. If a research project needs to continue, a new research proposal is submitted by the lead researcher in year 3 as part of the call for proposals. Scoping projects cannot exceed 1 year.

(5) **Intellectual Property.** Proposals must identify whether intellectual property that needs to be protected is a part of the proposal or may be part of the project research (see Reclamation Manual D&S, *Technology Transfer Agreements* (RES 01-01)).

C. **Proposal Submission.**

(1) **Consultations.** Lead researchers must coordinate their proposal submissions with the appropriate contacts that include the S&T Program research coordinators, S&T Program regional coordinators for work conducted in those regions, and servicing acquisitions office. The servicing acquisitions office will advise on the appropriate business instrument to assist with the research implementation. Regional directors will designate two regional coordinators per region. Proposals must be coordinated with the appropriate regional/area/field office if the work is being conducted in their area or using information/data from their area.

(2) **Submissions.** Prior to the submission of the proposals, signatures by the lead researcher, their supervisor, and the servicing acquisitions office, if there is external funding as part of the proposal, must be obtained on the submission form. Submission dates are included in the call for proposals guidance.

D. **Proposal Review.**

(1) **Continuing Projects.** Continuing projects will be funded for the subsequent proposal year if they are within scope, schedule, and budget. Lead researchers will request subsequent proposal year funding as part of request initiated by the S&T Program Administrator. Changes in scope, schedule, and budget must be requested by the lead researcher and will be considered by the S&T Program Administrator, S&T Program research coordinators, and S&T Program regional coordinators.

(2) **Scoring Criteria.** Scoring criteria will be established by the S&T Program Administrator and included in the call for proposals so lead researchers know how proposals will be scored. The S&T Program Administrator will ensure scoring criteria is aligned with the various sections of the proposal form, such as partnerships.

(a) **Partnerships.** Lead researches must ensure partner contributions are described in the proposal or noted if there are none. Partner contributions are an important indicator of potential project success and project impact.

Proposals must differentiate between cash and in-kind, internal, external Federal, and external non-Federal contributions, as well as between those that are firm and those that are not-firm contributions. S&T Program research coordinators will support partnership development.

(b) **Coordination with Other Reclamation Directorates and Regions.** Proposals by lead researchers that include coordination with other directorates and regions must include those as internal partner contributions on the proposal and distinguish between cash and in-kind.

(3) **Independent Technical Review.** Proposals will be provided by the S&T Program Administrator to independent technical reviewers, identified by S&T Program research coordinators, to review the technical content of the proposal. This step of the review is in support of the program review panel. The S&T Program relies on volunteers to conduct these reviews and does not guarantee that every proposal will receive a technical review by an independent reviewer. If the proposal does not get reviewed by any independent technical reviewers, this does not change the eligibility of the proposal. These reviewers can be from Reclamation or from outside sources. Reviewers will be selected by S&T Program research coordinators based on their knowledge and expertise in the research area. Reviewers will follow appropriate scientific integrity requirements.

(4) **Program Review Panel.** The S&T Program Administrator, in coordination with the R&D Program Manager and S&T Program research coordinators, will establish a program review panel consisting of Reclamation subject matter experts to review all proposals. Participants in the panel will include research and regional coordinators in addition to experts from other offices. The program review panel will review proposals based on the scoring criteria. The program panel review will result in a recommendation of proposals to be funded to the S&T Program Administrator. Funding recommendations are based on the amount of available funds and proposal scores.

(5) **Red-flag Review.** Proposals recommended for funding will be provided by the Science Advisor to the Reclamation Leadership Team for review to avoid duplication or conflict with existing research projects and to avoid funding proposals or continuing projects that conflict with the mission of Reclamation or the Department of the Interior.

E. **Proposal Award Selection.**

(1) **Commissioner's Office Briefing.** The Science Advisor will request concurrence from the Commissioner's Office on new awards based on recommendations prepared by the S&T Program Administrator and R&D Program Manager.

(2) **Internal and External Announcement.** New awards will be internally announced by the S&T Program Administrator and include public outreach on awards in coordination with Public Affairs. Lead researchers will receive award notification emails that include proposal technical review and disposition comments. Lead researchers for proposals not selected for funding may request a debriefing with the S&T Program Administrator to discuss and review proposal comments.

F. **Proposal Development and Approvals Outside the Call for Proposals.**

(1) **Additional Appropriations.** If appropriations are received outside the call for proposals a spend plan will be prepared by the S&T Program Administrator, S&T Program research coordinators, and R&D Program Manager for Science Advisor approval and, as necessary, subsequent Commissioner's Office concurrence.

(2) **Carryover and Recoveries.** The S&T Program will allocate funding carryover and recoveries throughout the fiscal year to either additional budget for an upcoming Call for Proposals or to fund new projects or project modifications outside the Call for Proposals cycle. S&T Program research coordinators are responsible for tracking requests and brokering projects to support this activity. All S&T Program research coordinators will have the opportunity to review proposed new projects or project modifications. The Science Advisor will provide or delegate approval of these activities.

4. **Project Implementation.**

A. **Funds Release.** The S&T Program Administrator will notify lead researchers of their ability to begin executing funds after the awards announcement.

B. **Requisitions.** To ensure proposed external funding actions can be accomplished within the fiscal year, requisition packages must be prepared by the lead researcher and submitted to their respective servicing acquisitions office, which will support the implementation of these actions, within 90 days of funds release.

C. **Quarterly Progress Reporting.** The S&T Program Administrator will require lead researchers submit progress reports each quarter of the fiscal year for all projects and for all years of a project to the S&T Program Administrator. S&T Program research coordinators will provide additional tracking actions to ensure projects are on scope, schedule, and budget. In addition to the project status, lead researchers will be asked whether there is any intellectual property that needs to be protected. Each quarterly progress report will provide the following additional information:

(1) **Quarter 1.** Status of requisition packages submission and processing.

(2) **Quarter 2.** Funds execution.

(3) **Quarter 3.** Change order requests for projects with budget changes resulting in the return of funds.

(4) **Quarter 4.** Change order requests for projects with budget changes resulting in the return of funds.

D. **Change Management.**

(1) The S&T Program maintains flexibility with lead researchers related to the implementation of research plans to ensure changes can be accommodated to achieve the best possible research outcomes. Changes can be related to scope, budget, the project lead, and/or schedule.

(2) Lead researchers must submit a change order form to the S&T Program Administrator with the details of their change request. Change orders must be signed by a lead researcher's supervisor. The S&T Program Administrator will review the change request with the S&T Program research coordinator that most closely aligns with the project that is subject to the change request. The S&T Program Administrator will communicate with the lead researcher whether the change request is approved.

5. **Project Closeout.**

A. **Final Reports.** Lead researchers for all funded projects are required to submit a final report to the S&T Program Administrator.

(1) **Template.** A final report template is provided by the S&T Program Administrator and must be utilized for completion of final reports.

(2) **Peer Review.** All final reports must be reviewed by at least one qualified expert that is an independent peer and documented in the final report using the peer review documentation page. Reports meeting the requirements of Reclamation Manual Policy, *Peer Review of Scientific Information and Assessments* (CMP P14) will adhere to the Policy and may require additional peer review. The Science Advisor will provide guidance and oversight for this activity.

(3) **S&T Program Review.** Lead researchers are responsible for making any edits requested by S&T Program research coordinators or S&T Program Administrator to ensure research results are presented clearly and follow closeout requirements.

(4) **Sensitive Information.** Lead researchers must ensure that final reports containing sensitive information follow applicable requirements for review, labeling, and dissemination.

B. **Bulletins.** Lead researchers must submit a draft bulletin to the S&T Program Administrator for conducting projects describing the potential project impact and potential for implementation within or outside of Reclamation.

C. **Research Data.** S&T Program researchers must maintain all research data associated with the research project and store it so that it is accessible by other Reclamation employees in accordance with records retention requirements. Researchers must also publish their data in compliance with the Open Government Data Act.

D. **Outreach and Dissemination.** Results from all research projects, including those with external acquisitions agreements, will be posted by the S&T Program website lead on project pages maintained on the S&T website, except for final reports that include intellectual property information or sensitive information. Publishing in a journal must not preclude the sharing of those research results. Results from each fiscal year's concluding projects will be documented in an annual accomplishments report developed collaboratively by the S&T Program Administrator, Prize Competitions Program Administrator, Technology Transfer Specialist, and Desalination and Water Purification Research Program Administrator. Print and web media will be developed by the R&D Programs Information Specialist to provide ongoing status updates on research areas and categories. Outreach efforts will be coordinated by the S&T Program Administrator with Public Affairs as necessary.

E. **Cancelled Projects.** For projects that are cancelled, the lead researcher must provide rationale for the cancellation to the S&T Program Administrator. In addition, any work products completed prior to the cancellation must be provided by the lead researcher to the S&T Program Administrator. The S&T Program Administrator in consultation with the R&D Program Manager and S&T Program research coordinators may cancel a project if it is not achieving the objectives of the research proposal.

6. **Definitions.**

A. **Applied Proposal and Project.** A systematic study to gain knowledge or understanding necessary to determine the means by which a recognized and specific need may be met. This may also be considered studying a problem to find a solution. Generally, a specific use has been identified for the results. If the applied proposal is funded, then it becomes an applied project.

B. **Brokered Proposal and Project.** Those proposals submitted by a researcher at the request of and in coordination with the R&D Office. If the brokered proposal is funded, then it becomes a brokered project.

C. **Call for Proposals.** Annual announcement by the S&T Program that requests proposals from Reclamation staff for the upcoming fiscal year, identifies annual research priorities, establishes submission requirements, and provides guidance on required information for completing a proposal.

D. **Conducting Proposal and Project.** Single to multi-year research efforts that can include, but are not limited to, desktop studies, laboratory research, field studies, and on-the-ground assessments to provide science and research to support Reclamation's mission areas. If a conducting proposal is funded, then it becomes a conducting project.

E. **Continuing Project.** Projects that take more than one fiscal year to complete, and receive funding beyond their first year.

F. **Demonstration Proposal and Project.** Introduction and testing of an existing technology, new technology, best practice, or method. If a demonstration proposal is funded, then it becomes a demonstration project.

G. **Development Proposal and Project.** Systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods including design, development, and improvement of prototypes and new processes to meet specific requirements. If a development proposal is funded, then it becomes a development project.

H. **Essential Research Services.** Services funded by the S&T Program, outside of the call for proposals, such as training, technical assistance, coordination, research roadmapping, and tool maintenance.

I. **Facilitated Adoption Proposal and Project.** A supported and analyzed introduction of an existing technology, best practice, or method to determine performance and potential for more widespread implementation. If a facilitated adoption proposal is funded, then it becomes a facilitated adoption project.

J. **Lead Researcher.** The Reclamation employee responsible for submitting the proposal and implementing the project if funded.

K. **Program Review Panel.** A group of Reclamation subject matter experts convened by the S&T Program Administrator to review proposals, provide comments, and offer funding recommendations to the S&T Program Administrator.

L. **Project.** A funded proposal.

M. **Proposal.** A request for funding that is led by a Reclamation employee and may include an implementation team comprised of Reclamation employees and external experts.

N. **Red-flag Review.** A review conducted by Reclamation offices following the results of the program review panel to identify reasons why a proposed project would not be feasible or otherwise advisable, including environmental or cultural resources

compliance issues, permitting issues, legal issues, past performance, and to address any specific concerns or questions raised by the program review panel.

O. **Regional Director Needs.** Research needs identified by the regional directors or other regional staff, such as area managers, resource managers, and regional coordinators, to help solve regional challenges with broad Reclamation impact.

P. **Research Area.** A broad mission-oriented topic reflective of Administration and budget priorities, with a significant opportunity to innovate and increase mission effectiveness.

Q. **Research Category.** A more specific topic within a research area related to Reclamation systems and technologies essential to mission-related activities.

R. **Research Roadmaps.** Documents developed to prioritize research needs within a research area, category, or need.

S. **Scoping Proposal and Project.** Single year research efforts that generally further define and refine research questions and strategies for potential future conducting projects. Generally accomplished through efforts such as literature reviews and building the proper team. If a scoping proposal is funded, then it becomes a scoping project.

T. **Scoring Criteria.** Proposals will be reviewed based on scoring criteria established as part of the call for proposals.

U. **Solicited Proposal and Project.** Proposals initiated and submitted by a researcher in response to the S&T Program call for proposals. While not initiated by the R&D Office, coordination with the appropriate contacts within the S&T Program or supporting offices, including S&T Program research coordinators and S&T Program regional coordinators, is encouraged. If a solicited proposal is funded, then it becomes a solicited project.

7. **Review Period.** The originating office will review this release every 4 years.

RECLAMATION
Managing Water in the West

RECLAMATION MANUAL TRANSMITTAL SHEET

Effective Date: _____   Release No. _____

Ensure all employees needing this information are provided a copy of this release.

Reclamation Manual Release Number and Subject

Summary of Changes

NOTE: This Reclamation Manual release applies to all Reclamation employees. When an exclusive bargaining unit exists, changes to this release may be subject to the provisions of collective bargaining agreements.

Filing instructions

Remove Sheets   Insert Sheets

All Reclamation Manual releases are available at http://www.usbr.gov/recman/

Filed by: _____   Date: _____