

2. The ARS Peer Review Process for Research Project Plans: The Big Picture

Key Characteristics of the New Peer Review Process

Projects are developed and reviewed for quality and programmatic relevance within the context of National Program Action Plans.

All intramural research projects are designed to address the research needs and objectives identified in a National Program Action Plan. Lead scientists and project teams are required to develop a research project plan describing the objectives, approaches, and research environment of the project. The project plans are reviewed for technical quality and programmatic relevance to a specific National Program by a panel of scientific peers.

Standards for project quality must be satisfied prior to project implementation.

Area Directors and the National Program Staff must review all results of project reviews. Area Directors and the National Program Staff will then determine the nature and extent of revisions required for each project before its approval and implementation. Panel or ad hoc peer review recommendations will not result in a redirection of Agency funds from or to an ARS research activity. However, allocated discretionary funding for a specific research project plan may be suspended until the research project plan has been determined by Area Directors and/or the Deputy Administrator of the National Program Staff to meet quality requirements.

Office of Scientific Quality Review (OSQR) centrally coordinates all peer reviews.

One office, the OSQR, is responsible for coordinating the Peer Review Process to ensure that ARS consistently and effectively implements policies made by the ARS Administrative Council and Administrator.

Panels of scientific experts are convened.

ARS convenes one or more panels of expert reviewers to discuss their individual evaluations and recommendations for project plans within a National Program. Panels are selected and facilitated by a panel chair designated for projects within a National Program. In accordance with government travel regulations and procedures, OSQR reimburses the travel and lodging expenses for all panel reviewers and panel chairs. Non-federal panel chairs are paid the current hourly salary equivalent to a GS-15-01 federal salary and non-federal panel reviewers are paid a stipend.

Peer review criteria are stringent.

ARS re-examined the criteria used to assess the quality and scientific merit of research plans and strengthened those criteria while promoting creative thinking and expression of fresh approaches to research. The new review criteria used by peer reviewers include programmatic relevance to National Program objectives and more relevant guidelines for assessing adequacy of approach and probability of success in accomplishing research objectives. (See Exhibit 3: Sample Peer Review Form.)

ARS now uses peer review results more efficiently throughout the Agency to improve project plans.

The results of each peer review of project plans are recorded as a matter of Agency record in the Office of Scientific Quality Review (OSQR), and the panel recommendations are distributed to the appropriate lead scientist, Research Leader, Area Director, and National Program Leader. The lead scientist responds to the review recommendations and suggestions for improvement, updates the project plan as appropriate, and provides a response and final project plan to the Area Director and National Program Leader for approval. The OSQR then provides the panel chair and reviewers with the researcher's response and notification of actions taken in response to the review. In cases of major revision, re-review (preferably by the original primary and secondary reviewers) is required. If a project plan is considered "not feasible," the Area Director and National Program Leader will determine and document the action to be taken.

The Peer Review Process is measurable and consistent.

ARS developed standards for panel peer review procedures and action classes by which to measure the quality of research project plans. All panel peer reviews employ the same process and review criteria, and review results are assessed and addressed in a consistent manner. All intramural research projects must be reviewed and are subject to meeting quality requirements prior to implementation.

Project plan format and requirements have been updated

ARS re-examined and modified the requirements and format for research project plans (formerly referred to as project statements). The new project plan guidelines more clearly address the peer review criteria and organize information in a manner that facilitates review.

Organizational Objectives of Peer Review

The intent of ARS in seeking peer review of its research project plans is to obtain constructive, independent, and expert feedback and advice on ways to improve the scientific and technical merit and quality of each project plan. ARS must also demonstrate compliance with the legislative mandate of PL 105-185, which requires panel peer review of research projects at least once every five years.

ARS uses peer review of research project plans to ensure scientific relevance to established mission and program objectives and technical merit in terms of scientific method. Prospective peer review affords ARS scientists the opportunity to make improvements to the project design and technical approach prior to implementing the research project. Peer review helps to ensure that ARS conducts the highest quality research in support of Agency mission and program objectives.

ARS views scientific peer review as an integral part of the Agency's overall scientific program. Sound and credible scientific peer review by expert and independent scientists serves to improve the quality of research ideas, creative thinking, and alternative approaches that may not have been considered by Agency scientists and staff.

The objectives and criteria for reviewing projects funded in an intramural research environment differ from those of extramural research proposal reviews in that the research agenda is established and prescribed to the scientist according to legislative direction and mission charges. Congress sets the ARS research agenda, upon which ARS designs research initiatives based on input from customers and stakeholders. The National Program Staff establishes specific charges for research activities, outlining the nature of the research to be performed and the operating and other resources available for the project and staff. Peer reviews of funded research project plans will not be used as a formal means of obtaining advice or guidance on mission or programmatic direction, Agency management and policy matters, or the societal or economic benefits of the research. ARS research activities are appropriated by Congress and often mandate specific amounts of funding for specific or directed research at designated locations within the United States or abroad. As a result, ARS is often limited in its capacity to supplement or redistribute funding and resource levels among Congressional districts, laboratories, agricultural commodities, and research initiatives.

Credibility, Reliability, and Effectiveness of the Peer Review Process

ARS considers the credibility, reliability, and effectiveness of its Peer Review Process to be critically important and has put several measures in place to ensure the integrity and quality of the Peer Review Process.

Objectivity and independence of peer reviewers is vital to the credibility of the Peer Review Process. Public Law 105-185 established that the majority of panel reviewers be external to ARS. ARS has added factors for determining whether a potential reviewer, internal or external, possesses a real or potential conflict of interest and therefore would be prohibited from serving as a panel or ad hoc reviewer for a specific research project plan. (See section on "Conflict of Interest Guidelines.") ARS interprets objectivity to also mean that the reviewer is reasonably free from institutional or personal bias regarding the research program or the research project(s) being reviewed. Independence from the research activity being reviewed means that the reviewer must not be directly involved in

the work being planned or performed or involved with any members of the subject research team in another capacity.

Another measure ARS has taken to ensure the credibility of the Peer Review Process has been to place responsibility for panel member selection primarily on external and independent panel chairs. ARS scientists, managers, and National Program Staff may recommend panelists, but the panel chair is under no obligation to use the recommendations. ARS reserves the right to allow the SQR Officer to approve panel membership for the purpose of eliminating a conflict of interest or in fulfilling the Agency's obligation to create panels with a diverse membership (Departmental Regulation 1041-2, Diversity in Task Force and Committee Assignments.)

Panel results should be reliable in that a comparable panel of objective experts would be likely to produce the same or a very similar recommendation for a particular project plan. ARS requires the consistent application of policy and procedure in conducting all panel peer review sessions to reduce operational variability. All ARS peer review panels should operate according to prescribed policies and rules for conducting peer reviews. The effectiveness of the Peer Review Process ultimately depends on the prudent manner in which ARS heeds and incorporates reviewer suggestions into research plans.

Criteria to Ensure Quality of Peer Reviews

Credible and effective peer review of ARS research project plans ultimately rests on having the appropriate scientific peers thoroughly review research plans in an objective and constructive manner according to the criteria established for assessing scientific quality and merit. (See Exhibit 3: Sample Peer Review Form.)

Several factors are required for high quality peer reviews:

- Clear and explicit peer review objectives
- Appropriate panel membership in terms of the right number and mix of scientific disciplines and backgrounds necessary to adequately and thoroughly assess the research project plans. (Expertise not represented on the panel can be obtained by ad hoc review of certain project plans.)
- The independence and objectivity of the peer reviewers and the absence of real or potential conflicts of interest
- Appropriate criteria for assessing technical and scientific quality and relevance to programmatic objectives
- Adequate time for reviewer preparation prior to the panel meeting
- Adherence to procedures regarding reviewer anonymity and the confidentiality of research project plan information

Expected Benefits of Peer Review

As the ARS Peer Review Process serves primarily to obtain expert, independent review of the scientific and technical quality of Agency research project plans, the primary customer of the Peer Review Process is the lead scientist and research team that developed the project plan.

The primary benefit of the Peer Review Process is the enhanced scientific and technical quality of our research and the validation of its merit. ARS scientists have the benefit of objective and expert review in developing the research approaches and designing experiments.

The new Peer Review Process places an increased emphasis and importance on up-front and thoughtful planning and design of research projects. Even if intermediate research results require the scientific team to reformulate their research project design and approach, the benefits of early thoughtful consideration to the objectives and methods of the research serves to improve the quality of the work performed.

The following can be considered secondary benefits of the Peer Review Process that serve to enhance the overall planning, coordination, and communication skills of the ARS scientific workforce:

- An increased awareness of the relationships and multi-disciplinary linkages among research activities within a National Program
- Increased communications and collaboration among National Program Teams and the research scientists planning and performing the research
- An increased emphasis on clearly communicated objectives and approaches in research project plans
- An increased knowledge and appreciation of ARS research activities and capabilities by non-ARS scientists.

Federal Laws that Impact the Review Process

The Administrative Procedures Act

Public comment solicited from the general public through the *Federal Register* or other means is often required prior to making significant decisions or actions that lead to significant decisions according to provisions of the Administrative Procedures Act. Public comment is open to all issues, whereas peer review is limited to the consideration of technical issues. Thus, peer review recommendations are written by a small group of independent subject-matter experts and are not open to public involvement.

The Freedom of Information Act (FOIA)

External groups may obtain general, non-sensitive peer review data via a request made in compliance with the ARS Freedom of Information Act procedures (ARS 158.1 FOIA & Privacy Act Procedures; February 23, 1998). These procedures outline the limitations on the release of certain types of information, such as the names and addresses of peer reviewers and the right for the OSQR to delegate access to individual research project plans to the Area Directors.

The Federal Advisory Committee Act (FACA)

FACA defines the operating requirements for formal and established federal advisory committees. Since the Peer Review Process does not require chartered peer review committees and only one reviewer determines the final recommendations, none of the provisions of FACA apply.

Title 44-Public Printing and Documents

Title 44 covers all recordkeeping and documentation rules for Federal agencies. Sec. 3101. “Records management by agency heads; general duties” directs all agencies to develop procedures to properly document agency decisions. The OSQR records the results of all peer reviews as a matter of Agency record. Individual peer review forms remain confidential in OSQR and are not distributed to other offices in ARS. No peer review-related documents are distributed externally; however, annual reports about the overall success of the Peer Review Process and participating peer reviewers are available upon request.

**Comments
for Section 2
ARS Peer Review Process**