

FY 2011 Top Management Challenges

CHALLENGE: Ensuring Proper Stewardship of ARRA Funds

Overview: The American Recovery and Reinvestment Act (ARRA), was enacted by Congress to create and save jobs through investments for long-term economic growth. ARRA provided \$3 billion for the National Science Foundation (NSF) in February 2009 and NSF staff worked expeditiously to obligate \$2.5 billion for 4,599 research grants within a matter of months. NSF recipients have conscientiously performed their reporting responsibilities and their ARRA reporting rate has been nearly 100 percent in each quarter. However, as of September 2010, just \$597 million of NSF's ARRA funds have been expended, the lowest spending rate (or "burn rate") among federal agencies. The low burn rate, combined with the difficulties of measuring the economic impact of basic research, has made NSF appear to some to be ill suited to its role as an ARRA funding agency.

Challenge for the Agency: The primary challenge for the agency going forward will be to monitor ARRA awards to assure that grantees carry out their reporting responsibilities and that the funds are not subject to fraud, waste or abuse. An OIG review found that \$108 million in ARRA funds were awarded to institutions that warrant more oversight. NSF will be hard pressed to provide needed oversight and monitor grantee compliance with both existing and new reporting requirements.

NSF has estimated that the ARRA awards will ultimately provide support to 40,000 additional researchers. An OIG review published in June indicated that one significant problem area for those reporting about their ARRA grants is estimating the number of jobs created or saved. For NSF to participate in future stimulus initiatives, and for those efforts to have broad public support and confidence, accurate reporting of their impact on the economy and employment is critical.

\$400 million of NSF's ARRA funds were appropriated for MREFC projects. The facilities selected for funding include the Advanced Technology Solar Telescope, the Alaska Region Research Vessel (AARV), and the Ocean Observatories Initiative. We have consistently identified the planning and management of large, complex infrastructure projects such as these as a management challenge for NSF and a significant area of risk.

Finally, the agency's allocation of \$200 million of ARRA funds in support of the Academic Research Infrastructure (ARI) Program, a program NSF has not been involved with for some time, poses

a challenge. This program presents the same types of risk to NSF as a newly established program and will require the sustained involvement and attention of program officers and administrative staff for months to come.

OIG's Assessment of the Agency's Progress: NSF has been effective thus far in monitoring recipient reporting and the spending of grantees. In particular, without the agency's efforts to enforce the termination of awards that have no expenditures after 12 months, it is possible that the spending rate might even be lower. NSF has also been responsive to OIG recommendations made in a June report to improve the reporting of jobs created and saved.

To ensure the accountability and integrity of ARRA funds, NSF has incorporated special weighting factors for ARRA awards into NSF's Risk Assessment Model. The agency has also indicated that it has taken a number of steps to strengthen the administration and management of both the MREFC projects and the ARI program. An OIG survey undertaken earlier this year to better understand NSF's oversight of the construction process of the ARRV disclosed no obvious problems.

CHALLENGE: Improving Grant Administration

Overview: NSF fulfills its mission to promote science chiefly by issuing limited-term grants. Currently NSF funds about 10,000 new awards each year for research proposals that have been evaluated by objective merit review panels.

The success of NSF's mission and the achievement of its goals are therefore largely dependent on effective grant administration. The American Recovery and Reinvestment Act increases the need for effective grant management as the Act requires NSF to manage an unprecedented influx of funds while meeting economic stimulus goals and responding to increased reporting requirements without additional funding for staffing. Further complicating the responsibility for grants administration is the requirement that grantees receiving ARRA funds closely monitor subrecipients' use and accounting of funds.

Challenge for the Agency: Ensuring effective oversight throughout the life cycle of an award continues to be an accountability challenge. Prior OIG audits of NSF's operations have indicated that NSF needs to continue to improve its grant management activities including the oversight of awardees' financial accountability, programmatic performance, and compliance with applicable federal and NSF requirements.

In FY 2010, NSF performed 20 percent fewer Award Monitoring and Business Assistance Program site visits than it had planned. NSF indicated that this decrease is due to staffing constraints. These site visits are important for NSF to assess awardees' capability, performance, and compliance with award requirements for awards rated as high-risk. It will be a challenge for NSF to increase the number of site visits in the future. If NSF's budget continues to grow, the resulting increase in award funds, along with the need to monitor ARRA awards without an increase in staff, compounds this challenge.

NSF also needs to ensure that awardees are providing sufficient oversight of sub-recipients. Recent grant audits found that two NSF awardees, a university and a non-profit, had material internal control deficiencies in subrecipient monitoring. It is imperative that awardees that pass federal funds through to subrecipients monitor them to ensure that their financial systems are adequate to manage the federal money they receive. If such monitoring is insufficient, NSF risks paying unallowable or even fraudulent costs.

OIG's Assessment of the Agency's Progress: In its progress report on the 2010 management challenges, NSF reported that it had taken several actions to improve awardees' oversight of subrecipients, including conducting outreach, site visits, and conferences to assist the prime awardees. In addition, NSF indicated that it had established teams which helped ensure effective management practices over Recovery Act funds and developed procedures to address and monitor ARRA quarterly recipient reporting requirements. Finally, a joint NSF/OIG work group developed a new external audit resolution policy to improve stewardship over federal funds.

CHALLENGE: Strengthening Contract Administration

Overview: In FY 2009, NSF obligated approximately \$480 million for contracts for the delivery of products and services, including \$361 million for cost reimbursement contracts. Of that amount, NSF made advanced payments of \$270 million to three contractors with the majority going to the current United States Antarctic Program (USAP) contractor. In such situations, pre-and post-award audits are critical to preventing improper payments.

The only significant deficiency noted in NSF's 2009 financial statements audit focused on the monitoring of cost reimbursement contracts.¹⁵ The finding cites delays by the agency in obtaining audits of NSF's largest and riskiest contracts, and states that contract oversight procedures, including evaluation of contractors' accounting systems prior to awarding cost reimbursement type contracts, are inadequate and ineffective. In addition, a September 2009 report issued by GAO concerning inadequate surveillance over cost reimbursement type contracts focused on problems at NSF as well as several other agencies.

These findings coincide with the ongoing recompetition of NSF's largest contract to provide logistical support to the USAP for 13.5 years. NSF has twice delayed its award of the contract and incurred additional expenses by extending the current one.

Challenge for the Agency: The long-term challenge for NSF is to continue to strengthen its management of contract administration. To accomplish that goal, auditors made 10 recommendations that include improvements to ensure that costs paid on contracts are reasonable and accurate, and that audits of the riskiest contracts, including the current USAP contract, are obtained as soon as possible. More immediate is the delicate challenge of bringing the recompetition

¹⁵ Such contracts provide the reimbursement of allowable costs and a profit and therefore shift some of the risk of contract performance to the government.

of the USAP contract to a successful conclusion. NSF must ensure that the process results in the selection of a contractor that can effectively support the needs of the science community while providing value to the government. The process should assure that: all offerors receive the same information and opportunities, their proposals are carefully analyzed and compared, and critical information is verified by auditors. The closeout of the existing USAP contract will also pose a challenge, as NSF must finally resolve any deferred past audit findings, as well as obtain audits of incurred costs for later contract years.

On a broader level, the administration is calling on agencies to reform their contracting organizations and practices to save money and increase efficiency. The President has set a goal of saving \$40 billion in contracting annually by FY 2011 and the President's Management Council (PMC) has asked federal agencies to reduce their use of high-risk contracts, particularly those that feature cost reimbursement provisions. The PMC is also pressing agencies to shore up the capacity and capability of the acquisition workforce, an area of NSF that needs more attention. The challenges presented by the USAP contract transition, the need to correct NSF's existing contract administration deficiencies, and meeting the heightened expectations of the administration in this area, are significant.

OIG's Assessment of Agency Progress: NSF has taken steps toward improving contract administration but has more work to do. A corrective action plan was prepared in response to the findings reported from the financial audit, and the auditors are currently evaluating the status of those actions. Meanwhile, a timely award of the new USAP contract is a priority of management, but the integrity of the process cannot be compromised. NSF has developed a plan to take the acquisition to award and has informed us that senior NSF managers are meeting regularly to assess the procurement's progress.

In preparation for closing out the current USAP contract, NSF and the Defense Contract Audit Agency (DCAA) signed an Interagency Agreement in late September for DCAA to conduct incurred cost audits of the USAP contract for 2005 through 2007. Over the past year, NSF has also completed a workload analysis of the acquisitions division and hired three additional staff as a result. It has also increased training offerings, primarily for Contract Officer's Technical Representatives. But current acquisition staffing may still not be adequate to perform necessary contract monitoring activities.

CHALLENGE: Becoming a Model Agency for Human Capital Management

Overview: World-class executive leadership and effective human capital management are vital to NSF's success as a high performing organization and to its goal of becoming a model agency for human capital management. In addition to its non-scientific and support staff, NSF's workforce includes more than 700 scientists and engineers, about half of whom are permanent government employees. To lead and maintain a world-class scientific workforce, NSF supplements its permanent, career employees with a variety of non-permanent staff. While these non-permanent personnel strengthen NSF's ties with the

research community and provide the agency with executive leadership, talent and resources that are critical to accomplishing its mission, because most of them are new to the government, they are often unaccustomed to working in a federal environment.

Challenge for the Agency: Becoming a model agency for human capital management will require sustained management attention and commitment by the NSF Director and throughout the management structure at NSF. One of the most significant and long-standing challenges NSF faces is maintaining a rotating director model that capitalizes on rotators' scientific and technical expertise, while ensuring that they have the managerial knowledge and skills to ensure effective personnel management. Since rotating executives do not receive performance ratings, they are not held accountable as career executives are. Further, rotators generally do not have prior working knowledge of the federal government culture or of federal government management processes. NSF faces an ongoing challenge to provide adequate leadership and management training for its rotating executives and to address the challenges presented to its mission by frequent turnover in leadership positions. Recent staff changes in key human capital management positions may also present challenges to NSF's efforts to address its workforce issues, as does the fact that the agency does not have a full time Chief Human Capital Officer.

OIG's Assessment of Agency's Progress: NSF has taken several steps to address its workforce challenges. For example, it established a Human Resources Policies Working Group which has produced a number of workforce recommendations including ones directed at the role of rotators. In August, NSF received the results of OPM's review of its human capital management system which raised a number of significant concerns. In its response to OPM's recent human capital management evaluation, the Acting Director stated that she is committed to holding all managers and human resource officers accountable for meeting their human capital management responsibilities.

The agency has reported that it has also initiated planning to institute a performance management process for rotators serving at NSF under the Intergovernmental Personnel Act (IPAs) that will set clear performance expectations and ensure that IPAs are evaluated on a regular basis. Further, NSF has started the rollout of its New Executive Training Program to train new managers and to orient them to federal processes. NSF has also offered management training in a number of areas, including addressing performance problems, leadership skills, and managerial responsibilities which are targeted at the executives. NSF has stated that it intends to continue developing its training program, including adding a management development seminar for all new executives.

CHALLENGE: Encouraging Ethical Conduct of Research

Overview: Reports of scientists committing research misconduct violations or otherwise engaging in questionable research practices are on the rise due partly to the temptations presented by ever increasing amounts of information available on the internet combined with the development of more powerful search tools. The situation is further exacerbated by the growing number of

research collaborations between American researchers and scientists and students from different nations: in such cases individual researchers are often unclear as to which country's set of rules applies, as there are differences between the various science communities concerning research ethics and the reporting and compliance regime to which they are subject. International organizations such as the OECD's Global Science Forum (GSF) have taken steps to bridge the differences on these issues and develop one framework that will apply in the area of research misconduct. According to studies, encouraging ethical conduct of research through expanded training offerings has the potential to make a significant difference in reducing the occurrence of questionable professional practices and research misconduct.

Challenge for the Agency: NSF's challenge is to strengthen the understanding of and adherence to recognized standards of ethical research conduct by scientists in the U.S. and the foreign partners who participate in the international collaborations it funds. It can address this challenge in part by complying with the America Competes Act, which requires NSF to ensure that each institution that applies for financial assistance describes its plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project.

Like other science funding agencies, NSF is also grappling with the question of deciding how to implement a single framework for the investigation and resolution of research misconduct allegations made against a participant in a multinational collaboration. In April 2009, the Global Science Forum issued a report, *Research Integrity: Preventing Misconduct and Dealing with Allegations*, that provides a basis for research integrity frameworks in projects involving international partners. NSF must determine how to support this effort and to implement its recommendations.

OIG's Assessment of Agency's Progress: During the past year, NSF expanded its *Proposal & Award Policies and Procedures Guide* to provide guidance addressing research integrity in international collaborations. It also included a link to the April 2009 GSF report. NSF also helped to support an *International Responsible Conduct of Research Education Workshop* held in conjunction with the 2nd World Conference on Research Integrity in July 2010. Finally, it made several awards focused on improving ethics education. As next steps, NSF has made broad promises to continue to develop material and best practices, and enhance training and outreach activities related to accountability in the international context.

CHALLENGE: Effectively Managing Large Facilities and Instruments

Overview: NSF's Major Research Equipment and Facilities Construction received \$400 million in Recovery Act funds to upgrade enhance research capabilities. Within this program, NSF funded the construction of three major facilities: the Alaska Region Research Vessel, Ocean Observatories Initiative, and the Advanced Technology Solar Telescope.

Challenge for the Agency: Management of its large facilities presents several challenges for NSF. One challenge for the agency is project oversight and management to ensure that projects are on time, on budget, and meeting performance expectations. We have previously noted NSF's challenge in assessing the performance of awardees. The influx of Recovery Act funds and the accompanying additional transparency and reporting requirements compound this challenge.

OIG's Assessment of the Agency's Progress: NSF reported that it is continuing efforts to provide effective oversight of large facilities and that it has taken several actions, including providing monthly facilities status reports to the Budget, Finance, and Award Management Office and providing feedback to directorates on annual facility performance goals and metrics. NSF also stated that it plans additional actions including reporting on visits to facility sites to provide feedback on project management/oversight issues.

An audit completed in the past six months identified a significant concern with NSF's funding of contingencies in a cooperative agreement for one of its large facilities. Specifically, the audit questioned \$88 million, including more than \$34 million in Recovery Act funding allocated for contingency costs in NSF's cooperative agreement with the Consortium for Ocean Leadership (COL). COL will manage the construction of the Ocean Observatories Initiative. Further, the audit disclosed that during the construction of the observatories, COL can draw down contingency funds as advances without NSF approval.

We also identified two emerging challenges that warrant NSF's close attention—implementation of the Open Government Directive and planning for NSF's next headquarters.

Implementing the Open Government Directive

The Open Government Directive was issued in December 2009 in response to the President's call to establish a system of transparency, public participation, and collaboration with the federal government. The directive requires agencies to: publish government information online; improve the quality of information; create and institutionalize a culture of open government; and create an enabling policy framework for open government. NSF has pledged in its Open Government Directive Plan that its key principle will be that *"unless shown otherwise, the default position shall be to make NSF data and information available in an open machine-readable format"*.

Since much of NSF's research is not easily comprehensible to those outside the science community, it has been an ongoing challenge for the agency to describe its activities and their value to the public. The Directive presents NSF with an opportunity to reflect on how it communicates the work it funds and how it can improve the quality of the wide range of information that it disseminates. In particular, to foster greater transparency and accountability, NSF should review its financial and performance reports from the perspective of the public and ensure that they answer the basic questions that an interested stakeholder might ask.

In the case of publishing research results, the agency has had to carefully navigate sensitive issues related to confidentiality and privacy. The primary challenge for NSF will be to reconcile the interests and prerogatives of the researchers and research publications with the right of the public to have access to taxpayer funded information. NSF is attempting to balance those two priorities through two new services available at Research.gov, which will provide long sought after details about research grants, including abstracts and publication citations. As agencies are expected to perform a number of recurring actions aimed at informing and engaging the public, NSF will also be challenged to ensure that it has adequate staffing to maintain its commitment to the Open Government Directive.

NSF's Open Government Directive Plan has a number of initiatives aimed at increasing the *quantity* of information available to the public, but little is written about improving the *quality* of information. We hope that as the plan evolves, NSF will give more attention to this issue. NSF has also enlisted a number of social media and other channels to increase public participation in and knowledge about its activities, which may help the agency to become more attuned to the needs of its users and the public.

Planning for the Next NSF Headquarters

NSF's leases for headquarter facilities in Arlington, Virginia expire in December 2013. In preparation for a new long-term lease, NSF developed criteria and goals through surveys and focus groups with NSF leadership and staff. In April 2010, NSF submitted a lease prospectus to the Office of Management and Budget (OMB) identifying future size and space requirements, expected number of staff, location, and rental rate information. After approval by OMB, GSA will send the prospectus to Congress. The competitive procurement for a new NSF lease could begin as early as the first quarter of FY 2011.

NSF has been in its current location since 1993 and planning for headquarters facilities that meet NSF's future needs presents a major challenge for the agency. Within the tight budget environment in which we are operating, NSF is seeking to design a space that incorporates technological advances, reflects sustainable and energy efficient design, and meets the need for flexible and collaborative meeting workspace since many panels and conference meet at NSF headquarters. The OIG plans to pay close attention to the lease procurement project because of the complexity and cost involved, as well as its implications for the next-generation NSF.

About the Cover...

Original photo by OIG auditor, Laura Koren, taken at Spruce Knob, the summit of Spruce Mountain, the highest point in West Virginia (Elevation 4,863).

**National Science Foundation
Office of Inspector General
4201 Wilson Blvd., Suite 1135
Arlington, VA 22230
703.292.7100**



**<http://www.nsf.gov/oig>
To report fraud, waste, or abuse,
call our hotline 1.800.428.2189**